

**DETERMINANTS OF DEMAND FOR FAMILY  
PLANNING SERVICES IN CITY SLUMS IN KENYA**

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Degree of Doctor of Philosophy in Economics of Kenyatta  
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## DECLARATION

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

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## **DEDICATION**

I would like to dedicate this thesis to my cherished wife Tina and my children Angel and Prince.

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## ACRONYMS/ABBREVIATIONS

AERC	African Economic Research Consortium
AIDS	Acquired Immuno-Deficiency Syndrome
APHRC	African Population and Health Research Centre
ARTs	Anti-Retrovirals
ARVT	Anti-Retroviral Therapy
CBD	Community Based Distributors
CBOs	Community-Based Organizations
COCPs	Combined Oral Contraceptive Pills
CORPs	Community-Owned Resource Persons
CPR	Contraceptive Prevalence Rate
DHS	Demographic Health Surveys
DRH	Division of Reproductive Health
ECs	Emergency Contraceptives
FBO	Faith-Based Organisation
FHI	Family Health International
FIF	Facility Improvement Funds
FP	Family Planning
FHOK	Family Health Options of Kenya
FPAK	Family Planning Association of Kenya
FWAs	Family Welfare Assistants

FWC	Family Welfare Centres
GDP	Gross Domestic Product
GIS	Geographic Information System
HIV	Human Immunodeficiency Virus
HPI	Health Policy Initiative
ICPD	International Conference on Population and Development
ICRW	International Center for Research on Women
IEC	Information Education and Communication
IUCD	Intra Uterine Contraceptive Device
IMR	Infant Mortality Rate
KDH	Kenya Demographic and Health Survey
KHPF	Kenya Health Policy Framework
KMs	Kilometres
KNBS	Kenya National Bureau of Statistics
LAPMs	Long-Acting and Permanent Methods
LPM	Linear Probability Model
MSI	Marie Stopes International
MCH	Maternal Child Health
ME	Marginal Effects
MDGs	Millennium Development Goals
MLE	Maximum Likelihood Estimation
MOH	Ministry of Health

NASCOP	National AIDS and STD Control Programme
NCAPD	National Coordinating Agency for Population and Development
NCPD	National Council for Population and Development
NGO	Non-Governmental Organisation
NFP	Natural Family Planning
NFPC	National Family Planning Council
NFPP	National Family Planning Programme
NFWC	National Family Welfare Centre
NHSSP	National Health Sector Strategic Plan
NPPSD	National Population Policy for Sustainable Development
PC	Population Council
OLS	Ordinary Least Square
POPs	Progestin Only Pills
PSI	Population Services International
RH	Reproductive Health
RoK	Republic of Kenya
SDPs	Supply Delivery Points
SES	Socio-Economic Status
STIs	Sexually Transmitted Infections
TB	Tuberculosis
TFR	Total Fertility Rate
UNCRC	United Nations Convention on Rights of Children

UNFPA United Nations Population Fund  
USAID United States Agency for International Development  
USIU United States International University  
VCT Voluntary Counselling and Testing  
WHO World Health Organisation  
WFS World Fertility Survey  
WSSD World Summit on Sustainable Development

## OPERATIONAL DEFINITION OF TERMS

*A Household:* members of a single family and their relatives, who have a common place of residence at the time of data collection

*Contraceptive Methods:* Include clinical and supply methods, and non-supply (traditional) methods used for the purposes of family planning.

*Contraceptive Prevalence Rate (CPR):* is the proportion of women of reproductive age (15-49 years) who are using (or whose partners are using) contraceptive methods at a given point in time

*Demand:* the amount of family planning services that a woman will want to purchase at a given price and at a specified time.

*Emergency Contraception:* methods that women can use to prevent pregnancy within the first few days of unprotected sexual intercourse.

*Family Planning Services:* Include services that enable individuals to determine freely the number and spacing of their children and to select the means by which this may be achieved.

*Family Planning:* The ability of individuals and couples to anticipate and attain their desired number of children through selected means, including spacing and timing of their births.

*Infant Mortality Rate (IMR):* Number of deaths in infants (children under age one) in a given year per 1,000 live births in that same year.

*Modern Family Planning Methods:* Include female and male sterilization, intrauterine devices (IUDs), implants, male condom, female condom, and lactational amenorrhoea method or LAM, skin patches and vaginal rings, among others.

*National Policies:* the strategies/policies that the government has put in place to facilitate access to family planning services.

*Slums:* densely populated areas of a city characterized by substandard housing, unsanitary conditions and social disorganization, and lack of tenure security.

*Total Fertility Rate (TFR):* Is the average number of children that would be born to a woman during her reproductive years.

*Traditional Family Planning Methods:* Constitute family planning methods that rely more on observation of menstruation cycles, natural safe days of a woman, periodic abstinence (rhythm method) and withdrawal, among others.

*Unmet Family Planning Need:* The percentage of women of reproductive age who are not using any method of family planning but who would like to postpone the next pregnancy (unmet need for spacing) or do not want any more children (unmet need for limiting).

*Utility:* The satisfaction accruing from the consumption of family planning services.

## **ABSTRACT**

The Kenya government, in collaboration with other stakeholders involved in the provision of family planning services, have put in place various strategies and policies to increase uptake of family planning services. These are aimed at increasing contraceptive prevalence rate (CPR), reduction in both total fertility rate (TFR) and unmet need for family planning services. Despite the various strategies and policies, total fertility rate still remains high at 4.6 percent, while CPR and unmet need for family planning are estimated at 46 percent and 24 percent, respectively. The purpose of the study was therefore to analyze the determinants of demand for family planning services in city slums in Kenya. To realize this objective, a survey design was adopted. The target population constituted women in city slums in Kenya, who were identified through multistage random sampling. Primary data were collected from the women using a structured interview schedule. A fact sheet was used to summarize the data collected before it was cleaned, coded and edited for completeness and accuracy. A binomial logit model was developed and estimated using two-step regression procedures. The study revealed low usage of family planning services, among women in the city slums attributed to various factors. These include in order of significance, partner's approval, religious background of the woman, the woman's knowledge about family planning services and friendliness of the staff administering the services. Other factors included quality of the services, proximity to the facility, while the woman's income level was the least significant factor. The study recommends that to increase the use of family planning services among women in slums, promotion of family planning education and activities at the household level should be carried out, the activities of community based distributors should be revived and enhanced. Formation of lobby groups to enhance cultural change, awareness creation and counselling, integrating family planning services with HIV/AIDS have also been recommended.

## **CHAPTER ONE**

### **INTRODUCTION**

#### **1.1 Background**

Many developing economies are characterized by rapid population growth that is partly attributed to high fertility rate, high birth rates accompanied by steady declines in death rates, low contraceptive prevalence rate and high but declining mortality rate (Oyedokun, 2007). In Sub-Saharan Africa (SSA), the rate of population growth is one of the highest in the world, (2.8 percent) compared to the rest of the world (USAID/HPI, 2007). Equally, the number of people in need of health and education, among other public goods is large and increasing which in turn requires large amounts of financial and human resources as well as infrastructure. This is likely to be an impediment towards the realization of the reduction of child mortality, improvement of maternal health, achievement of universal primary education, environmental sustainability and combating HIV/AIDS, malaria and other diseases as part of the Millennium Development Goals (MDGs) (Health Policy Initiative, 2007).

To address this, many countries in the Sub Saharan Africa (SSA) have focused their attention on birth control measures, especially the use of family planning services. According to World Health Organization (1984), family planning is used

as a synonym for the use of birth control. It is usually applied by a female-male couple who wish to limit the number of children they have and/or to control the timing of pregnancy. On the one hand, family planning services include educational, comprehensive medical or social activities, which enable individuals to determine freely the number and spacing of their children and to select the means by which this may be achieved (Republic of Kenya, 2007).

There have been tremendous advances in the development of safer and more effective contraceptives and in the provision of affordable and accessible family planning services worldwide. Yet, millions of individuals and couples around the world are unable to plan their families as they wish. It is estimated that over 120 million couples do not use contraceptives despite their desire to space or limit their childbearing (HPI, 2007). Further, the reduction of global poverty has become an overreaching priority for the international community as contained within the MDGs (USAID/HPI, 2007). While there are many interventions that can help reduce poverty and improve the lives of the poor, increasing access to contraceptives serves people's basic right to reproductive health as a cost-effective approach with far-reaching dividends (Policy Project, 2003).

Satisfying the family planning needs of the poor - who often live in rural areas and in marginalized urban areas (who mostly live in slums) and tend to have less access to health services, higher birth rates, and higher unmet need-promotes

equity, helps address the multidimensional nature of poverty, and recognizes the long-term societal changes needed to sustain economic growth at the household and national levels (USAID/HPI, 2007). In addition, lowering total fertility rate through voluntary means such as increasing knowledge about family planning and access to contraceptive supplies, in the long run, stimulates economic growth at the societal level and has substantive benefits for individuals and families (HPI, 2007).

In Kenya, the family planning programmes have, over the years, received support from the Government of Kenya, mainly due to its endeavour to reduce high rate of population growth. According to Sessional Paper No.4 of 1984 (Republic of Kenya, 1984), the concern of the Government of Kenya about high population growth can be traced to 1962 when the census showed that Kenya's population was growing at 3.3 percent per annum. The government recognized the importance of family planning soon after independence, and formally accepted population planning and family planning as part of the National Planning Strategies (Republic of Kenya, 1965). In the document, the government committed itself in putting in place immediate steps towards family planning education. The policy document spells out the importance of managing population levels through the use of family planning services.

The government sought to achieve this through the use of available local and national government facilities and personnel (Republic of Kenya, 1965). Further, the government established various programs with the intent of promoting family planning among households. This was a sector wide initiative that was to involve various government ministries including Ministries of Health, Economic Planning, Finance, Education, Information and Broadcasting, and Labour and Social Services including Community Development. The formulation of the National Family Planning Council (NFPC) was aimed at enhancing co-operation and collaboration among various stakeholders involved in implementing family planning programmes. With the recognition of the need to reduce the population growth rate, the Government launched the National Family Planning Programme (NFPP) in 1967, based on the recommendations from a study by Population Council Advisory Mission.

The family planning programme was then integrated with maternal child health (MCH), with the Ministry of Health (MOH) taking the responsibility for the implementation of the programme. However, due to lack of an effective infrastructure and lack of trained personnel in family planning, the MOH relied greatly on private organizations and NGOs to carry out the family planning services (Republic of Kenya, 1984; 1996a).

The 1969 census made the Government to renew its commitment to reduction of population growth as the census revealed that fertility was still high. This culminated in the drawing up of a five-year family planning programme for the period 1975-1979, whose objectives were: establishment of National Family Welfare Centre (NFWC); establishment of 400 MCH/FP daily-service clinics and 17 mobile teams; provision of in-service courses for nurses in family planning; and intensification of information and education activities through 817 trained family health field educators (Republic of Kenya, 1984).

The Sessional Paper No. 4 of 1984 noted that the five-year family planning programme had resulted in significant progress in information and education activities, but the family planning component had limited success in reducing population growth rate as the growth increased to about 3.8 percent in 1979. As reiterated in Republic of Kenya (1996), the limited success of the family planning component was due to lack of manpower, ineffective information, education and communication strategy, more emphasis on child care, lack of promotion of family planning by health staff, and lack of coordination of family planning activities. In order to address these weaknesses, the Government established the National Council for Population and Development (NCPD) in 1982.

The Council was mandated to formulate population policies and strategies, and to coordinate population oriented activities aimed at reducing Kenya's population

growth rate. The bulk of the terms of reference of the NCPD revolved around family planning activities. For instance, the NCPD responsibilities included determining priorities in family planning and population development activities, advising the Government of the scope and direction of all family planning activities, promoting public understanding and acceptance of family planning and a small family size, among others (Republic of Kenya, 1984, 1996a).

In the Kenya Health Policy Framework (KHPF) of 1994, the Government identified population development as a priority strategy for achieving balanced socio economic development. In the report, reproductive health components were identified as one of key strategies. Specifically, the Government prioritised reduction in fertility rate as well as increase in the proportion of health facilities providing integrated reproductive health services including family planning (FP) services as key priority in population development. In 1996, the Government launched Sessional Paper No. 1 of 1996 on *National Population Policy for Sustainable Development*, building on the guidelines of the Sessional Paper No.4 of 1984. The paper widened the scope of population policy by integrating the Programme of Action of the International Conference on Population and Development of 1994. The paper also recognized population challenges as unmet need for family planning, increasing the quality of family planning services, and high level of adolescent fertility among other challenges.

The paper, however, indicated that there are constraints in the effort to address these challenges. They included insufficient funding, inconsistent commitment to family planning by some opinion leaders, and limited involvement of males in family planning among others (Republic of Kenya, 1996a). In the paper, the Government committed itself to increase availability, acceptability and affordability of quality family planning services. In provision of family planning services, the Ministry of Health takes the responsibility for the coordination and implementation of family planning programmes (Republic of Kenya, 1996a).

To ensure quality provision of these services, the government developed guidelines and standards for family planning service providers in 1991. The guidelines were not only developed to assist family planning providers in educating clients, but also to determine and provide the best method for clients' needs and to instruct the clients in the use of method and follow-up (Republic of Kenya, 1991). The guidelines were however reviewed in 1997 and consequently incorporated in the Reproductive Health/Family Planning Policy Guidelines and Standards for Service Providers (Republic of Kenya, 2007). In the document, provision of quality and sustainable family planning services was identified as the main goal that would help to reduce the unmet needs for family planning.

In response to the Programme of Action of the 1994 United Nations International Conference on Population and Development (ICPD) and the Sessional Paper No. 1

of 1996, the MOH launched the National Reproductive Health Strategy for the period 1997-2010 in 1996. The strategy addressed issues such as promotion of the concept of reproductive health, family planning unmet needs, safe motherhood, adolescent and youth health, management of STDs, HIV/AIDS among others (Republic of Kenya, 1996a). According the National Reproductive Health Strategy, the goal of family planning provision was to make available quality and sustainable family planning services to all who need them, in order to reduce the unmet needs for family planning. The objectives were to increase access to family planning services from 60 percent of health care facilities to 90 percent by the year 2010 and enhance quality of care; and to effect a well-researched and coordinated system of information, education and communication (IEC).

These objectives were to be realized through conducting need assessments; mobilizing resources from government, NGOs and the private sector in order to facilitate extension of services to under-served and hard-to-reach communities and individuals; ensuring uninterrupted supply of both contraceptives and expendable supplies; developing and sustaining client-oriented services through training of service providers in different aspects of service provision; conducting research to inform development of messages for target audience; and consolidating the management information systems in one system (Republic of Kenya, 1996a).

The National Reproductive Health Strategy was operationalised through the Implementation Plan for National Reproductive Health Strategy for the period 1999-2003 and National Health Sector Strategic Plan I for the period 1999-2004. The main objective of family planning component of the reproductive health, in the two plan documents, was increased utilization of family planning services in the country. Specifically, the MOH expected to increase access to family planning services from the current 60 percent of healthcare facilities (in 1999) to 75 percent by the year 2004 (Republic of Kenya, 1998, 1999b).

According to the plans, increased utilization was envisaged to be achieved through social mobilization, expanding family planning services to the under-served and hard to reach areas, increasing participation of other stakeholders (NGOs and the private sector) in expanding supply delivery points (SDPs), mobilizing available resources for expansion of SDPs, development and dissemination of appropriate IEC materials and messages, development of a reliable system to ensure regular availability of contraceptive supplies, procurement and distribution equipment and supplies. The other activities included, conducting training and updating skills of service providers, ensuring regular maintenance of family planning equipment and instruments, strengthening the capacity for family planning services by NGOs, religious organizations and private sector, and recruiting and train more community-based distributors among others (Republic of Kenya, 1998, 1999b).

As part of its commitment in addressing population growth, the Government in the National Health Sector Strategic Plan II (NHSSP-II) of 2005-2010 specified the Kenya Essential Health Package (KEPH). In the package, a wide range of population growth issues was addressed. These range from maternal health infections, nutritional deficiencies, family planning and child spacing. The Government further reiterated its commitment in containing population growth in the Vision 2030 through various interventions including provision of family planning services (Republic of Kenya, 2007b).

## **1.2 Trends in Fertility Rate and Contraceptive use in Kenya**

The policy developed by the Government since 1968 as contained in the *Sessional Paper No. 10 on African Socialism and its Application to Planning in Kenya* remained dormant until the findings from the World Fertility Survey (WFS) in 1977 showed that Kenya had one of the highest fertility rates in the world of 8 children per woman (WFS, 1977). This statistic served to focus both policy and public attention on fertility issues and to reinvigorate the population policy, with the result that substantial national and international support was dedicated to developing and strengthening a vigorous national family planning programme. The impact of this was remarkable, as the total fertility rate declined from 8.1 children per woman in 1977 to 6.7, 4.7 and 4.6 in 1989, 1998 and 2008 respectively (Republic of Kenya, 2009).

Indeed, the decline in total fertility rate (TFR) between 1977 and 1998, from 8.1 to 4.7 births per woman was one of the most rapid declines ever documented in the world. This consistent decline in fertility led to projections that TFR would decline gradually to about 3.5 by 2008. This decline was attributed to increased contraceptive use among women aged between 15 and 49 years (Republic of Kenya, 2003). On the other hand, the contraceptive prevalence rate increased rapidly from 9.7 percent in 1984 to 39 percent in 2003. The sustained increase in the use of family planning services was a major factor in fertility transition, providing women and couples with the means to help them plan pregnancies (Backer, 2003; USAID/HPI, 2007; Republic of Kenya, 2007b).

### **1.3 Policy and Programmatic Responses Towards Family Planning in Kenya**

As one of the first countries in Africa to develop a Population Policy and establish a Family Planning Programme as the main policy lever to reduce the population growth rate, Kenya has been well placed to initiate a fertility transition through government-led actions (Koome *et al.*, 2005; Ian *et al.*, 2009). In the 1980s and 1990s, Kenya achieved a rapid fertility decline, because of the official commitment of the government, substantial funding and technical support from a range of bilateral and multilateral development partners. Indeed, when the results of the 1993 Demographic Health Survey (DHS) were released, Kenya's success in

achieving a phenomenal decline in fertility was lauded globally, and many national and international observers felt that social norms in favour of small families and increased use of contraception were now well established and irreversible (Ian *et al.*, 2009).

Over the decade starting from the mid-1990s, the national family planning programme was substantially reduced following the withdrawal of funding from donors, and a reduction of government funding. As a result, the large-scale community-based distribution (CBD) programmes that allowed low-cost contraceptive information and services to reach rural and peri-urban communities declined drastically. At the same time, the nationwide information education and communication (IEC) campaigns advocating for small families and the use of contraception collapsed. Both of these components had been introduced as demand creation strategies for family planning services. The drastic reduction in investment in these strategies at this time reflected the false perception that the demand for family planning was sufficiently well established in the general population, and that the programme's focus should consequently have shifted to addressing the resulting unmet need (Crinchton, 2008).

Several other factors also influenced funding of the family planning programmes. Some of these relate to policy and programmatic decisions concerning the family planning effort in the 1990s. The International Conference on Population and

Development (ICPD) in 1994 affirmed the importance of providing family planning within a rights-based framework and as part of a comprehensive set of services to meet individual reproductive health needs that would also address broader development concerns (Westoff and Cross, 2006). While this undoubtedly broadened the range and quality of reproductive health services provided in Kenya, the energies and resources expended on re-aligning policies, programmes and services almost certainly diluted the attention being paid to basic family planning services.

Long-standing donor investment in family planning in Kenya had been seen to produce a major fertility decline, and many donors either re-directed their investments into a broader range of maternal child health (MCH) related services. Others included emerging priorities such as HIV/AIDS, or in basket funding to the government to support a range of social investments (Ian *et al.*, 2009). According to Crinchton (2008), in the 1990s, the Kenyan economy was also characterized by declining growth in the Gross Domestic Product (GDP) and increases in the population living below the poverty line. At the same time, political tensions increased significantly following the introduction of a multiparty political system in the 1992 elections. Further, the donor community reduced funding for Kenya's programmes including family planning services, due to Kenya's poor macroeconomic policies. These factors attracted the attention of politicians as well as other influential leaders and indeed the general population. In the end, the

family planning “success story” soon became yesterday’s news, and attention to population issues in general and fertility decline in particular gradually waned.

The political turbulence of the 1990s also facilitated a rise in public advocacy against family planning from conservative religious leaders and “pro-life” groups. As a result, many politicians became more cautious in making any public statements about reproductive health generally and family planning in particular. There was evidence of a decline in international and national support for the family planning programme since the mid to the late 1990s, which mirrors the decrease in overall official assistance to Kenya. This was estimated to have dropped from a high of above \$1billion in the late 1980s to under \$400 million by 2000 (Crichton, 2008). The timing of this decrease also parallels the stall in fertility decline, although the magnitude of the effect of this decrease in development assistance is yet to be fully evaluated.

An increase followed by a decrease in institutional commitment to family planning programmes appears also to have affected the stall, with the timing of these changes in commitment and corresponding programmes effort. This closely mirrored the decline and then stagnation in the fertility rate (Ian *et al.*, 2009). On the realization that HIV and AIDS were reaching pandemic proportions, the government of Kenya diverted national and international attention and resources into fighting the epidemic. Not only did this reduce the funding allocated for

family planning services, but it also reduced the levels of national and international technical expertise available, and importantly, took well-trained health personnel and support systems away from reproductive health to work in the newly created HIV/AIDS programmes.

The 1998 DHS showed a four-percentage point increase in contraceptive prevalence rate from 26 percent to 39 percent between 1993 to 2003, while total fertility rate declined substantially over the same period from 5.4 to 4.7 (Republic of Kenya, 2003). These findings reinforced the impression that the fertility transition in Kenya was well and truly established, and that the strategies that were being implemented and levels of funding available for both creating and supplying demand were appropriate for the country at this stage of fertility transition.

Consequently, the results of the 2003 DHS came as a shock to national and international observers and a flurry of activities ensued to try to “reposition” both family planning and population as key issues worthy of attention and investment. The government, for example replaced the NCPD with a National Coordinating Agency for Population and Development (NCAPD), and the Millennium Development Goals provided a platform for the role of population growth in sustainable development to be revisited and addressed. Many development partners have sought ways to increase their investments in support of family planning services, but their gradual disengagement over the previous decade has

meant that it has been difficult to make convincing arguments to increase allocations for family planning in the face of other development challenges such as transportation, infrastructure, HIV/AIDS and education.

Notwithstanding this, studies by Sharma *et al.* (2005a) and Sharma *et al.* (2005b) have however shown that, paradoxically, it is the wealthier groups who benefit from government healthcare spending, not the poor. Moreover, the poor may not be aware of policies designed to help increase access to reproductive healthcare services in general and family planning services in particular, such as user fee exemption schemes for the poor, or they may be subject to informal fees charged by providers.

#### **1.4 Trends in the Provision and use of Family Planning Services**

Family planning services were first made available in Kenya in the 1950s by private doctors, albeit modestly, and by the Family Planning Association of Kenya (FPAK) (now called Family Health Options of Kenya (FHOK) from 1962. The Ministry of Health started providing a range of family planning services in 1967 through the network of MCH/FP Clinics. Community-based distribution programmes were introduced in 1982 but had collapsed by the late 1990s. Marie Stopes International (MSI) started offering services in 1985 through static clinics and diverse outreach strategies (Republic of Kenya, 1984). Long-acting and

permanent methods (LAPMs) were strengthened in the late 1980s to mid-1990s, while social marketing of condoms and pills began in the 1990s. This clearly demonstrates an increased diversity of sources of family planning services, and the decreasing role of the public sector.

In 1993, 68 percent of women obtained their contraceptives from public health facilities, while in 2003 only 58 percent obtained from the same facilities. The remaining, according to 2003 DHS, obtained their contraceptives from private clinics, and were supported by FHOK and MSI. Within the public health facilities, hospitals became much less important sources of contraceptive information and services. Also, the availability of clinical family planning services has declined concomitantly, as skilled clinical providers have either left the field or focused their practice on more lucrative clinical services (Crichton, 2008).

A sustained increase in the use of family planning until 1998 was a major factor in the fertility transition, providing women and couples with the means to help them plan pregnancies. From 1998 to 2003, contraceptive use among married women did not increase, remaining at 39 percent. This plateauing was also found for contraceptive prevalence among all women at 30 percent (Westoff and Blanc, 2006). While on the one hand family planning use stalled between 1998 and 2003, for married women with primary education, use, on the other hand, decreased from

23 percent to 16 percent for those with no education but increased from 52 percent to 62 percent for those with at least secondary education (KDHS, 2003).

Rapid urbanization in Kenya has led to an increasing focus of attention on family planning trends among urban dwellers. On a positive note, contraceptive use among married urban women (48 percent) was estimated to be higher than among rural women (37 percent) (USAID/HPI, 2007; Republic of Kenya, 2008). However, this aggregate figure masks tremendous variations within urban dwellers, with use of any method ranging from 60 percent among the highly educated to 14 percent among those with no education. A similar distribution in prevalence was found across wealth quintiles ranging from 48 to 13 percent (Republic of Kenya, 2008). Those with no education and the lowest level of wealth are likely to live primarily in the urban slums, highlighting the urgent need for family planning programmes that can reach this highly disadvantaged population.

The KDHS of 2008 reported that access to family planning varies with the level of income, education levels and wealth. The report notes that low level of income had contributed to low use of family planning services. It is estimated that about 60 percent of women with at least secondary education use a contraceptive method, compared to 40 percent and 14 percent of women with primary education and no education, respectively (Republic of Kenya, 2008). In terms of the level of income,

only 43 percent of low- income earners were using contraceptives as compared to 53 percent for high-income earners. Further, it was revealed in the KDHS of 2008 that slightly less than half of currently married women (46 percent) were using contraception.

In the report, it was reported that modern methods of contraception were the most commonly used at 39 percent compared to traditional methods at 6 percent). Of the modern methods, injectables were the most widely used, while periodic abstinence was the most popular traditional method. Further, contraceptive prevalence rate was at the peak among married women aged between 30 and 34 years and lowest among those aged between 15 and 19 years. In terms of residence, the report revealed that fifty three percent of urban women were using contraceptives, compared with forty three percent of their rural counterparts (Republic of Kenya, 2008).

The report further notes that contraceptive prevalence increased with increase in level of education. Specifically, sixty percent of married women with at least some secondary education use a contraceptive method, compared to just 40 percent of women with primary incomplete education and only 14 percent of those who never attended school. The above statistics could be a representative of the women in slums who are not only expected to have low levels of education or no education at all but also with similar characteristics of rural residents.

## **1.5 Importance of Family Planning**

An analysis of the contribution of family planning to the MDGs by Moreland and Talbird (2006) showed that satisfying unmet family planning needs in Kenya could avert 14,040 maternal deaths and 434,306 child deaths by the MDG target date of 2015 (Republic of Kenya, 2007b). In USAID/HPI (2007), it was noted that the cost savings in providing services to meet MDGs outweigh the additional costs of family planning by a factor of almost 4 to 1. Specifically, the social sector cost savings and family planning costs in Kenya for 2005-2015 are estimated at \$271 millions, with maternal health taking \$75 million, while water and sanitation, immunization and education each taking \$36 million, \$37 million and \$115 million, respectively. This compares with the total cost of family planning estimated at \$71million, which implies that total savings will be \$200 million (Moreland and Talbird, 2006; USAID/HPI, 2007).

Promotion of family planning in countries with high birth rates has the potential of reducing poverty and hunger, while at the same time averting 32 percent of all maternal deaths and nearly 10 percent of child mortality. This would contribute substantially to women's empowerment, achievement of universal primary schooling and long-term environmental sustainability (Cleland *et al.*, 2006). If access to family planning services was increased, the unmet need for family planning could be met, thereby slowing population growth rate and reducing the

costs of meeting MDGs in terms of universal primary education, which is influenced by the number of children in need of education (Moreland and Talbird, 2006).

The cumulative cost savings to the education sector from satisfying unmet need is estimated at \$114.7 million by 2015 (UNFPA, 2005; Moreland and Talbird, 2006). Given that the effects of family planning are not immediate, long-term benefits would even be larger if the timeline were extended past 2015 (Moreland, 2006). This, according to Moreland (2006), will also facilitate realization of MDGs and Vision 2030 objectives in terms of immunization, clean water provision and sanitation, maternal health and malaria targets.

Hawkins *et al.* (1995) observed that family planning services offer various economic benefits to the household, country and the world at large. First, family planning permits individuals to influence the timing and the number of births, which is likely to save lives of children. Secondly, by reducing unwanted pregnancies, family planning service can reduce injury, illness and death associated with child birth, abortions and sexually transmitted infections (STIs) including HIV/AIDS. Further, family planning contributes to reduction in population growth, poverty reduction and preservation of the environment as well as demand for public goods and services (Shane, 1997; Cincotta and Engelman, 1997).

Other substantial economic benefits could include demographic bonus or dividends. Demographic bonus exists when there is a shrinking share of the population consisting of dependent children at the same time as a greater share consisting of working-age adults. According to David *et al.* (2002), when this occurs, it boosts productivity and allows added savings or investment. This "bonus" is not inevitable. However, it depends on other policy variables, including economic opportunity, education and commitment to public health (David *et al.*, 2002). According to David *et al.* (2002), family planning helps to reduce the number of high-risk pregnancies that result in high levels of maternal and child illness and death. Wawire (2006) noted that high population growth is associated with high illiteracy rates and low education level that make it difficult to implement government programmes, given their budgetary implications.

According to World Bank (2003), the use of family planning services is an important issue for a developing country like Kenya. The World Bank (2003) noted that this was due to the benefits gained in terms of development through reductions in fertility levels. Furthermore, the uptake of family planning widened choices available to people, particularly women, by allowing individuals and society more opportunities for social and economic development. Singh *et al.* (2004) revealed that a high fertility rate (which in many cases is attributed to low contraceptive prevalence rate) impedes economic growth.

Singh *et al.* (2004) observed that countries with high “population pressure” or with rapidly growing populations may not be able to meet the large education, labour, health, and infrastructure-related demands of the population. Leisinger *et al.* (2002) noted that population growth affects the environment and raises concerns about food security, safe drinking water and availability of arable land. Eastwood and Lipton (2001) observed that reducing fertility can help alleviate poverty and stimulate economic growth. They noted that reducing the birth rate by 5 births per 1,000 during the 1980s would have reduced the average national incidence of poverty from 18.9 percent in the mid-1980s to 12.6 percent in the mid-1990s.

Merrick (2002) forecasted that declining birth rates can result in an improved dependency ratio, with an increasing number of productive adults relative to the number of young and elderly dependents. This, Merrick (2002) contended, would be realized only if countries responded with appropriate family planning policies and the resources that would have been required to meet the needs of a larger number of dependents. According to USAID/HPI (2007), family planning can slow population growth and reduce demographic pressure, which can in turn help countries to lift themselves out of poverty. Reduced population sizes mean a decreased burden on national expenditures for education, health and other social services, as well as less strain on the environment and natural resources. This further contributes directly to reduced infant and maternal mortality and morbidity.

Trends in the effectiveness of the family planning programme in reducing unwanted fertility can also be seen in terms of unmet needs. Between 1993 and 1998, total unmet need decreased substantially from 36 to 24 percent, with similar decreases for both spacing and limiting (Republic of Kenya, 2003). Between 1998 and 2003, however, total unmet need actually increased by one percentage point, and this levelling off was fairly uniform across all sub-populations. The only exceptions over this time period were Coast Province with a five-percentage point decrease in unmet needs, and Nyanza Province with a nine-percentage point increase. This highlights the diversity with which the family planning programme was evolving across the country (Republic of Kenya, 2003).

Overall, total demand for family planning (that is all women with a met or unmet need) was about 66 percent of all women within the reproductive age. However, the proportion of women with satisfied demand was much higher among unmarried women (83 percent) than married women (63 percent). Indeed, only three percent of unmarried women, compared with 25 percent of married women, had an unmet need for family planning, indicating the need to prioritize increased attention to reaching married women (USAID/HPI, 2007; Republic of Kenya, 2008; and Ian *et al.*, 2009).

According to Ian *et al.* (2009), unmet need is also higher among women younger than 35 years living in rural areas, and with the lowest wealth quintiles. Moreover,

although demand for family planning was only 10 percent in North Eastern Province, satisfied demand was incredibly low at 1.6 percent, indicating that the province was to be considered a priority for addressing both wanted and unwanted fertility. Conversely, total demand for family planning was 80 percent in Central Province, and 86 percent of this demand was satisfied, with unmet need at only 11 percent. As may be expected, given the density of service outlets, urban areas (17 percent) had much lower levels of unmet need than rural areas (27 percent), and levels of satisfied demand were much higher (74 percent against 60 percent).

Interestingly, the highest levels of unmet need in urban areas (25 percent) were from among those who had completed primary education and were in the second and middle wealth quintiles, higher than the poorest and those with no education estimated at between 15 and 20 percent. This probably reflects the higher demand for family planning among these groups. This suggests that family planning activities in urban areas needed to be differentiated between those targeting the poorest and least educated for whom demand creation is still required, and those targeting the emerging middle class whose access to the services seems to be a bigger priority.

In the UNFPA State of the World Population Report of 2004, it was reported that poorer women have children at younger ages, while wealth-based health inequities are greater for safe motherhood, adolescent fertility and contraceptive use. The

report observed that poor women have more children throughout their lives than wealthier women, while poor countries have a heightened risk of maternal, infant, and child death and illness. Lastly, poor women in all the countries face higher risks than others and the use of family planning, particularly of modern methods, is higher in richer segments than poor segments of society (UNFPA, 2004). These differences are influenced by several factors, including obstacles in accessing services by the poor, which include costs for services and transportation, less accessible service locations, and limited information about service options.

It is estimated that half of the 2.2 million Kenyans living with HIV are in slums (USAID/HPI, 2007). Due to the high poverty levels, young girls in the slums are exposed to commercial sex, while women have limited access to health services, which in the end may affect access to family planning services. This may lead to high incidences of child mortality, poor maternal health, non-sustainability of the environment as well as an inability to combat HIV/AIDS, malaria and other diseases. Thus, the ability to achieve universal primary education is affected, which further contributes towards high levels of school dropouts, unemployment levels and prostitution. Given the low levels of education and income among women in slums, together with insufficient knowledge of family planning services, demand of family planning services amongst women in slums is expected to be lower than the national average estimated at 46 percent by 2010.

## **1.7 The Statement of the Problem**

The Kenyan government has put in place various strategies and policies to facilitate the use of family planning services as a step towards reducing TFR and unmet need for family planning as well as increasing CPR (Republic of Kenya, 2003b; Republic of Kenya, 2007b; Republic of Kenya, 2008; and Ian *et al.*, 2009). Despite these policy measures, total fertility rate still remains high at 4.6 percent, while CPR for all methods is at 46 percent. On the other hand, the unmet needs for family planning services average at 24 percent (Republic of Kenya, 2007a; Republic of Kenya, 2009; Ian *et al.*, 2009).

The high TFR together with low CPR, unmet needs for family planning services, low death rate (estimated at 14.02 deaths per 1,000 women), high birth rate (estimated at 39.73 births per 1,000 population) and low infant mortality (estimated at 59.26 per 1000 live births) (Republic of Kenya, 2009) could be contributing towards high population growth. Standards of living tend to worsen when the rate of population growth exceeds the rate of economic growth (Feyisetan and Bamiwuye, 1998). At the household level, the high TFR may be contributing towards depletion of productive resources in the society, rising cost of living, ill health, poor nutrition and limited educational opportunities, ultimately trapping women in a poverty cycle. In the case of slums where poverty levels are high, the situation is likely to be worse.

Although 2008 KDHS demonstrated that education, marital status, woman's income, and other demographic and socio-economic factors affect utilization of family planning services, the significance of these factors as well as facility and policy factors such as proximity to the facility, friendliness of staff at facility and user fees have not been determined for the urban poor women living in the slums. Furthermore, although studies such as Cleland *et al.* (2006), USAID/HPI (2007) and Ian *et al.* (2009), showed that low utilization of family planning services has both micro and macroeconomic effects, what is not clear is whether these effects also apply to low utilization of family planning services by the urban poor, the majority of who live in the city slums. The purpose of the study was to analyse the determinants of demand for family planning services in city slums in Kenya.

### **1.9 Research Questions**

- i) What are the demographic and socioeconomic factors that affect demand for family planning services in city slums in Kenya?
- ii) What are the facility factors that influence demand for family planning services in city slums?
- iii) What are the economic effects of the use of family planning services in Kenya's city slums?

- iv) What policy implications may be suggested based on the findings of the study?

### **1.10 The Objectives of the Study**

The purpose of the study was to analyze the determinants of demand for family planning services in Kenya's city slums. The specific objectives were:

- i) To determine the demographic and socioeconomic factors that affect demand for family planning services in city slums in Kenya.
- ii) To assess examine the facility factors that influence demand for family planning services in city slums.
- iii) To examine the economic effects of the demand for family planning services in Kenya.
- iv) To draw policy implications based on the findings of the study.

### **1.11 Significance of the Study**

The study contributes towards the existing family planning literature in Kenya. The results contribute towards the designing of family planning programmes that could encourage the use of family planning services. Further, the study provides empirical literature on Kenya's family planning services in the city slums upon which policy decisions could be made on demand for family planning services.

The study identifies determinants of demand for family planning services in city slums, which if understood, documented and captured, would make it possible to avert the population growth in the country.

Additionally, the study stimulates further research in the area of family planning. Specifically, the study is beneficial to the government as well as the NGOs/Donors that have programmes that address family planning concerns. Further, this is critical to family planning providers in modelling their programmes to suit the needs of the underprivileged in the society. Also, women as well as teenage girls will benefit from the findings of the study since the study provides information on how access to family planning may be enhanced. Lastly, scholars will obtain empirical literature regarding family planning services in Kenya in general and Kenya's slums in particular.

Furthermore, the study provides comprehensive evidence on the factors affecting utilization of family planning services among the poor in city slums in Kenya. To this end, it provides an informed basis for policy action and dialogue regarding family planning services at the household level in addition to filling the gap about what is currently known regarding family planning services. The study is likely to generate debate on the type of family planning services to be encouraged in order to reduce the stalled total fertility rates in Kenya while at the same time, increase

contraceptive prevalence use rate and enhance unmet need for family planning services.

### **1.12 Scope of the Study**

Family planning services affect not only women but also the society at large. However, the study was restrictive in scope covering slums in Kenya's major cities of Nairobi, Mombasa and Kisumu. The cities were selected because they are the largest towns in Kenya with large populations expected to be living in the slums. Other reasons for selecting slums were the expected high fertility rates in the slums, high poverty levels, low levels of education which when combined are expected to affect access to family planning services negatively. Similarly, fertility rates are expected to be at their highest in slums, given their socio-economic characteristics. If this is not checked, a population explosion could erupt in the slums thereby contributing to an already over-strained socio-economic infrastructure.

### **1.13 Organization of the Study**

The first chapter provides a background of the problem followed by the statement of the problem. Thereafter, research objectives and questions are provided, followed by significance of the study in that order. Chapter two provides literature

review organized in terms of demand for health services in general and family planning services in particular globally followed by determinants of family planning services in Kenya. Research design, methodology, and model that was estimated as well as the data type and the data collection instrument are explained in chapter three. Chapter four provides the study findings in terms of descriptive and logic regression results based on the study objectives. The last chapter provides the summary as well as conclusions and recommendations.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

In this chapter, empirical literature relating to demand for health services in general and to family planning services in particular is reviewed. The chapter begins by reviewing both general empirical literature and specific empirical literature on the determinants of family planning services in Kenya followed by an overview of literature.

#### **2.2 General Empirical Literature**

In an attempt to assess the association between contraceptive availability and use, Rodriguez (1978) analyzed data from the World Fertility Survey (WFS) of Colombia, Costa Rica, Korea, Malaysia, and Nepal. Rodriguez (1978) investigated the respondents' perceptions of the availability of family planning advice and supplies, their perceived travel time, means of transport and distance to the nearest or preferred outlet, and their reported use of family planning services. The study found that the perceived availability and accessibility of services increased contraceptive use. In the current study, accessibility to family planning services in terms of distance to the nearest health facility, which has implications on travel

time and transportation costs was considered. However, unlike Rodriguez (1978) study that included availability of the family planning services in the analysis, the current study excluded this variable as it was perceived to be more of a supply side and not a demand side variable. In addition, the current study incorporated other demographic and socio-economic variables which were omitted in the study by Rodriguez (1978).

Tsui *et al.* (1981a) and Tsui *et al.* (1981b) using data from World Fertility Survey elaborated on Rodriguez (1978) study by examining the effects of both objective and perceived availability in Korea, Mexico and Bangladesh. Of the three countries studied, the association between community contraceptive availability and use was weakest in Bangladesh, and was particularly weak when restricted to rural areas. Like in the case of Rodriguez (1978), this variable was omitted in the current study. Additionally, apart from the fact that all these studies were conducted outside Kenya, there has been time lapse since they were conducted. Therefore, they may not inform the policy process accordingly.

Using a logit model, Ahmed (1987) assessed the determinants of contraceptive use in rural Bangladesh. The study analyzed two aspects of contraceptive use, namely current use and intention to use using data from the Bangladesh World Fertility Survey. Various variables were considered in the study, among them demand for children, supply of children, distance to family planning clinic and socio-economic

variables, including the husband's and wife's education. The study revealed that the wife's education was significant for current use, whereas the husband's education was significant for intention to use. Further, the study showed that demand for children and distance from the family planning clinic affected the current use of contraceptives negatively while the wife's employment status affects use of contraceptives positively. Although Ahmed (1987) captured many of the variables that were equally considered in the current study, the study failed to capture policy related variables such as promotion and price which are however very critical in making a demand decision.

Lewis (1986) examined whether contraceptive prices affected their demand by reviewing past studies. In the study, two objectives were specified to guide the process. These included whether contraceptives had to be free to attract and keep users, especially those in low-income groups, and whether price made a difference in terms of the number of users, income of users and continuation rates. The study revealed that a couple's decision to contracept was affected by a range of socioeconomic factors that impinged on the perceived costs and benefits of children. It was noted in the study that when a decision had been made to limit or space children, information about and costs of contraception became important considerations for parents in making a final decision.

Further, Lewis (1986) established that contraceptive demand was relatively inelastic and that in some instances where prices were very low, the demand curve for contraceptives was backward-bending. In Sri Lanka, Colombia and Thailand, Lewis (1986) found that prices had no effect on demand. However, in Jamaica, the study found that demand rose with price increases. In conclusion, it was contended that contraceptive prices could be too high for low-income households, and price reductions had a positive impact on utilization.

As reported in Lewis (1986), the impact of price on demand for contraceptives did not come out clearly. For instance, while in Sri Lanka, Thailand and Columbia price had no effect on demand, in Jamaica demand rose with increase in prices. This was an inconsistency based on economic theory, since it was expected that with the increase in price, the quantity demanded would dwindle. This variable was included in the current study so as to examine its effect on demand for family planning services in Kenya's city slums.

Using data from the Indonesian Contraceptive Survey, Mohamad *et al.* (1988) sought to examine the husband's approval of contraceptive use in the Metropolitan cities of Indonesia. The study revealed that the husband's approval of contraceptive use was the most important determinant of contraceptive use, followed by the number of children and the wife's education. In the study, Mohamad *et al.* (1988) observed that even though there was overall success of

family planning programme in Indonesia, cultural and religious values created an important barrier for family planning practices. It was reiterated that most Indonesians were Muslim and held traditional cultural values that supported the dominant role of the husband in decisions regarding family life.

Evidence from the study suggested that the husband's approval played an important role in the decision to practice contraception. The study by Mohamad *et al.* (1988) demonstrated that the number of children, the woman's education and her partner's involvement were key factors that influenced the use of family planning services in Metropolitan cities of Indonesia. These variables were considered in the current study to find out their effect on the use of family planning services in Kenya's city slums.

Gertler and Molyneaux (1994) used a standard model of supply and demand of births to show how economic development and family planning programmes were able to reduce Indonesian fertility. They adopted a reduced-form model of fertility model by formalizing the fixed-effects reduced-form model. In the study, it was observed that individual fertility models had limited rather than continuous dependent variables, and that fixed effects did not exist for many common models with limited dependent variables. Gertler and Molyneaux (1994) noted that the dependent variables were continuous and the fixed effects were well defined. In the model, the dependent variable was fertility, while the independent variables

were individual and household characteristics, programme inputs and community characteristics, and an unobserved community-specific effect that represented preferences and natural fecundity.

In the estimation, Gertler and Molyneaux (1994) used a multi-linear model to explain the various variables that affect fertility. However, in the model, policy variables like promotion and activities of health workers were omitted, and yet they could have partly explained fertility issues. Although the model was primarily concerned with fertility, issues of contraceptives were omitted altogether given their role in affecting fertility levels.

Kamal (1994) explored the role of government family planning workers and health facilities in determining the use of contraceptive in Bangladesh. In the study, data from the 1989 Bangladesh Fertility Survey on rural women was analyzed. The study showed that the rapid increase in Bangladesh's contraceptive prevalence rate was in part attributed to the introduction of grassroots-level family planning workers known as Family Welfare Assistants (FWAs). In addition, the study revealed that the presence of an FWA increased by 66 percent the probability of a couple accepting sterilization. It is worth-noting that with grass root level family planning workers, the distance from the health facility to enable access to the services was reduced. This had some positive implication on transportation costs

and waiting time. In the current study, this variable was considered through its effect on distance to facility the by the person seeking family planning services.

Using two data sets from the Peru Demographic Health Survey and Situation Analysis, Mensch *et al.* (1994) investigated the impact of the quality of family planning services on the ability of women from Peru to achieve their reproductive intentions. They found that the quality of care had an impact in reducing unwanted and unplanned births. However, other studies found that the effect of service quality variables had no strong effect on contraceptive use in Nigeria (see for example Feyisetan and Ainsworth, 1996). These studies demonstrated a paradox and inconsistency in the significance of the variable, which the current study has attempted to validate using a logistical regression model.

Bertrand *et al.* (1995) proposed a theoretical framework for evaluating the family planning programmes as an adaptation for demand and supply of family planning services. The framework proposed that a range of factors, namely individual factors, societal factors, external development assistance, as well as political and administrative systems in a country, were important in determining demand and supply of family planning services. Bertrand *et al.* (1995) observed that these factors indirectly affected contraceptive practice through demand for family planning services, and consequently, fertility and other health outcomes.

According to Bertrand *et al.* (1995), the demand side of the framework included individual and societal factors, which were assumed to generate the demand for family planning services. At an individual level, factors such as parity, age, personal beliefs, the level of education and socioeconomic status, were considered to be associated with the likelihood of using modern contraception. Societal or community factors such as fertility preference and attitudes towards family planning methods were included, since they were considered to affect the demand and the uptake of modern contraception. Further, Bertrand *et al.* (1995) considered national policies and the development programmes as critical determinants of fertility preferences and the demand for family planning services.

On the supply side, Bertrand *et al.* (1995) noted that contraceptive practices were influenced by policy and administrative factors such as political commitment, resource allocation and regulations. Others included organizational and operational factors, which also included infrastructure, public-private partnerships, delivery systems, management, training, supervision, information, education and communication (IEC), access and quality of services. In Bertrand *et al.* (1995), the choice of family planning methods was influenced by supply factors such as the availability of methods and the provider's bias, although choice could also be influenced by individual characteristics.

According to Bertrand *et al.* (1995), women at different stages of the reproductive life preferred different methods. Specifically, women at the start of their childbearing years preferred to use less permanent methods, while older women with several surviving children could want long-term or permanent methods such as sterilization. Most of these factors were included in the current study to examine their significance in the use of contraceptives among the urban poor. This is because the study by Bertrand *et al.* (1995) was conducted in a developed country which may not have had similar characteristics as the developing world, more so in the city slums.

Jayaraman (1995) used a multivariate logit model to determine the demographic and socioeconomic determinants of contraceptive use among urban women in the Melanesian countries. In the model, the dependent variable was expressed as a function of several variables. In the model, Jayaraman (1995) demonstrated that there were many demographic and socioeconomic variables such as level of education, income and marital status that affected contraceptive use in the Melanesian countries. Additionally, the model captured many of the variables that were included in the current study. Despite this, Jayaraman (1995) did not consider some important constraints such as quality and friendliness of staff as variables that might partly explain the demand for contraceptives. These variables are included in this study.

In Bangladesh, Mamun and Mazharul (1995) explored the use of contraceptives among married adolescents using published data from the Bangladesh Fertility Survey. Data was analyzed using the bivariate and multivariate logistic regression analyses. The results indicated that, although adolescents had almost universal knowledge about contraceptive methods, only 15 percent were by then using a method of contraception. The corresponding figures for the adults and for the nation as a whole were 34.4 percent and 31.4 percent, respectively. Among the individual methods that were being used by the adolescents, pills appeared to be the most popular method, followed by the safe period.

The study revealed that although adolescents had knowledge about contraceptives, usage was very low. Similarly, the study showed that various contraceptive methods were being used by the adolescents. One of the major weaknesses of the study was the methods used and that it mainly concentrated on supply factors. Given the inferences made in the study, it was necessary that demand factors regarding family planning services be considered to examine their effect on the use of family planning services. In the current study, an attempt was made to consider the demand side variables relative to the supply side variables, by subjecting them to an empirical estimation in order to determine their significance on the use of family planning services amongst women in the city slums in Kenya.

In Morocco, Varea *et al.* (1996) studied the determinants of modern contraceptive use among married women aged between 30 and 44 years. In the study, the logit model was adopted on the data set from the demographic health survey. The study revealed that the probability of contraceptive use increased with female age at marriage and decreased with the woman's age. This variable was considered in the current study using primary data to examine whether it could have significant effects on the use of family planning services in Kenya's city slums. In spite of the findings of the study, no attempt was made to develop an econometric model as the basis for the analysis in order to determine the significant effect of marital status on the use of family planning services. The current study undertook an empirical estimation to validate the significance of the variable in explaining the use of contraceptives.

In Ghana, Phillips *et al.* (1996) explored the determinants of contraceptive innovation using data collected from both women and men of reproductive age. The study established that spousal communication, encouragement and support for family planning were the most important factors determining use of family planning services in the traditional African society.

In employing data from the 1989 Bangladesh Fertility Survey, Abdullah (1997) developed a model for examining the hierarchical effects of contraceptive use and its determinants in urban and rural Bangladesh. In the survey, women of

reproductive age were interviewed in urban and rural situations. The study revealed that contraceptive use had no significant variation between regions. However, a statistically significant variation was found to exist between the blocks (census tracts) of Bangladesh. Further, the poorest women with fewer amenities were found to be using modern methods the least. This was reflected in the higher opportunity costs of childbearing for wealthier women and higher product, consultation and transportation costs in obtaining contraceptives for poorer women. The current study considered all these variables, among other variables, to determine their significance in affecting the use of family planning services.

Mahidul *et al.* (1998) examined the socio-demographic and programmatic determinants of contraceptive use and non-use among the married teenage women and newly-wed couples in Bangladesh. Data on married women of reproductive age in the rural areas were collected from surveys conducted in areas of Bangladesh. Cross-tabulations and logistic regression were used to assess the association between the contraceptive use and the demographic, socioeconomic, and programmatic variables.

Specifically, the study focussed on contraceptive use behaviour of the newlyweds (couples married for less than three years) and married teenage women aged less than 20 years. Empirical evidence showed that teenagers and newlywed women, who had not yet given birth to any children, were using contraceptives the least.

This, according to the study, was because most of them wanted to have children immediately after marriage. It was further found that once the teenage women and newlyweds had a child, contraceptive use prevalence rose to a level comparable to that of women in their twenties.

In the study, Mahidul *et al.* (1998) demonstrated that the number of children already born affected use of family planning, with those who had few children or did not have children most likely to use family planning services in comparison to those with many children. Given the time lapse since the Mahidul *et al.* (1998) study was conducted, it was important to examine whether this variable could still significantly account for use of family planning services by focusing on women of reproductive age and not necessarily newlywed women using primary data from city slums in Kenya.

In a study by McNamara (1999), a travel cost model of hospital choice was adopted. It was assumed that the travel effect was a weak complement to hospital services delivered at a particular location. Therefore, patients would visit facilities further away from their residential location, thus leaving the nearest options in order to derive the desired satisfaction. McNamara (1999) observed that the value of the facility's services delivered could be established by observing the decision of residents of a location to travel to alternative medical facilities. In the study by McNamara (1999), only a few variables were captured in determining hospital

choice. In the current study, other than considering user-fees, both individual and provider characteristics were incorporated so that their effects on the demand for contraceptives, among the urban poor in the city slums, could be examined.

In Gambia, Margaret *et al.* (2000) sought to determine whether or not a community-based intervention designed to mobilize latent demand for contraceptives would increase use of modern contraceptives in rural Gambia, even in the absence of improved availability of family planning services. In the study, data collection methods consisted of baseline and follow-up surveys administered to a random sample of women aged between 15 and 49 years. In the analysis, a logistic regression model was used to assess the effect of the interventions on contraceptive uptake by nonusers while controlling for respondents' background characteristics such as age, educational attainment, respondent's residence and ethnicity.

Like in the current study, the dependent variable was current use of a modern contraceptive at the time of the survey. The study revealed that the demand-mobilization intervention procedures and methods, such as provision of family planning counselling, had a statistically significant positive effect on the nonusers' adoption of modern contraceptives. On the other hand, continuous implementation of interventions, such as availability of community health nurse and provision of logistic support designed to improve access to services, offered no additional

benefit. In the study, Margaret *et al.* (2000) observed that the principal barriers to increased contraceptive use in rural Gambia were psychosocial matters, which could be overcome through village-based interventions designed to provide socially appropriate counselling to potential contraceptive users.

Using step wise regression, Ismet (2000) examined the determinants of contraceptive use and methods choice in Turkey. In the study, Ismet (2000) incorporated various variables classified as individual, cultural, fertility and contextual data from the 1993 Turkish Demographic and Health Survey. The study revealed that there existed a positive association between the educational level of both spouses and the use of contraceptive methods in Turkey. Further, the study showed that, to a great extent, contraceptive use and choice of modern methods depended on the sex of the couple's living children. It is clear, from the study like other studies reviewed, that education level of the couples and the number of living children affected the use of family planning services in Turkey. Given the differences in the socio-economic background between Kenya and Turkey, it was necessary to examine the significance of these variables in affecting the use of family planning services among the urban poor in Kenya.

While studying the compliance and use behaviour of injectable as well as oral contraceptive use in South Africa, Beksinska *et al.* (2001) established that disapproval of contraception was a reason for non-use. In the study, Beksinska *et*

*al.* (2001) argued that partners' views as well as personal views and the views of others on religious or cultural grounds, were important in determining use of family planning services. Like in the case of Mohamad *et al.* (1988), it is clear that a woman's partner had a significant influence on the use of family planning services. This variable was considered in the current study using primary data collected from women in the reproductive age in the city slums, to examine its effect on the use of family planning services using a logistic regression model.

David *et al.* (2002) studied the demand for health care services in rural Tanzania. The study used multinomial logit model with five options, namely: no care (or self-care), care at a public hospital, care at a public clinic, and care at a private clinic. For each option, there was a function that described the utility that a person derived from choosing it. In the model, various explanatory variables were considered. These included net income after paying for health care services, individual or household characteristics such as age, marital status and education level. Others included quality of the services, duration of illness and a set of choice-specific variables.

In the process of analysis, there were no data on the quality of the services. Therefore, the variable was dropped from the analysis. Perceived quality of a service is very important, since it helps the consumer to make an informed decision. However, David *et al.* (2002) omitted this variable in the final analysis. It

would have added more value to the study, if the variable was used to examine its affects on the demand for family planning services.

Smit *et al.* (2002), in a baseline survey of African women aged 15 - 49 years in a rural area of Natal/KwaZulu of South Africa, assessed the extent to which condoms were used, reasons for contraceptive method choice, and unmet contraceptive need. The empirical results revealed that injectable contraceptives were used the most since they were considered to be convenient, safe, effective and/or could be used secretly. The study established that the decision to use this method was due to the recommendation of a health worker at the clinic. Other reasons cited for the use of injectable was that it was convenient and an effective method that could be used secretly without the knowledge of the sex partner. The low use of condoms, according to Smit *et al.* (2002) was attributed to their failure to meet perceived expectations like the injectables. It was established in the study that the need by women for secrecy precluded the use of the condom, which required the cooperation of the partner.

In an investigation of access to reproductive health services, Nathan *et al.* (2004) used the Geographic Information System (GIS) to integrate health facility data from the Malawi health facilities inventory and global positioning data from the 2000 Malawi demographic and health survey. In the study, an effort to detect a plausible causal pathway was made by using distance to health services as a proxy

variable for access to services. A multivariate logistic regression analysis was used by controlling for background variables traditionally associated with use of modern contraceptives.

The study revealed that access did not account for use of modern contraceptives in Malawi. Although the study used a logistic model to make the inferences, it is not clear what constituted access. In the current study, various components of access were considered to examine their effect on the use of family planning services. Some of these included distance to health facility, providing family planning services and price of the services.

In India, International Center for Research on Women (ICRW) in 2004 designed and implemented a large-scale household based study of 2,400 women in the state of Madhya Pradesh in 1999 and 2002. The ICRW explored the various reasons behind women's unwanted pregnancies and how such pregnancies were resolved. The study's primary goal was to provide documentation on women's health issues, particularly their ability to make decisions about family size, to prevent unwanted pregnancies, and to control the timing and circumstances of childbearing. The study found that most married women with children wanted to delay the birth of their next child. Yet, more than 90 percent did not use contraception to delay their next pregnancy.

This was attributed to lack of contraceptive use primarily due to lack of services, many women who were not physically and emotionally ready for another child sought to resolve the pregnancy on their own often at a great risk to their health. Data indicate that only women in a small number of highly urbanized centers had access to a range of contraceptive options. In poor, rural areas, supplies of temporary contraceptives at primary health centers and local clinics were frequently inadequate or absent. In most areas, contraceptive use was assumed to mean female sterilization. Significant challenges remained in the attempts to make temporary methods readily available and accessible. Other factors identified in the study that impeded women's use of contraceptives were lack of information, social and cultural norms, especially social pressures for early marriage and early childbearing, and lack of decision making power in the household.

In an attempt to determine the use of family planning in Lesotho, Maletela *et al.* (2004) conceptualized demand for contraceptives using a two-step process. First, the decision to use a contraceptive was considered before considering the choice of a contraceptive method. For the first step, the dependent variable was current use of contraception. In this case, a multilevel logistic regression was used to identify individual and community level determinants. In the second step, multinomial logistic regression was used on a data set of current users with the reference category for the dependent variable being injectables.

In the study, various factors were found by Maletela *et al.* (2004) to have significant effects on the use of contraceptives. Among these were the infrastructure of facilities, time taken to reach the facility, opening hours to cater for working women, government policy regarding uniform pricing of contraceptives and costs in terms of travelling costs. Unlike in Maletela *et al.* (2004) where two step regression analyses were adopted, in the current study, only one step regression was considered. This was because in the current study, only the decision to use was considered, unlike Maletela *et al.* (2004) where the choice method was also considered.

In 2004, Clements and Nyovani sought to examine the poorest and other vulnerable sub-groups being served least by family planning providers in three countries in sub-Saharan Africa, namely, Ghana, Tanzania and Zimbabwe. Using data from demographic health surveys, the study revealed that there were significant differences between modern contraceptive use by women of different reproductive ages. In Ghana, for instance, the study revealed lower use of modern methods of contraception for those aged over 39 years. In particular, women aged 45 - 49 years had lower average use of contraceptives compared to those aged 30 - 39 years. On the other hand, modern contraceptive use was very similar in Ghana for those aged 15 - 39 years. The opposite was, however, found to be the case in Tanzania.

In Tanzania, Clements and Nyovani (2004) established that the use of modern methods of contraceptives was lowest for women aged 15 - 19 as compared to those aged 30-39 years. In Zimbabwe, the use of modern contraceptives was lowest for those aged 45-49 years, as compared to women aged 30 - 39 years. Clements and Nyovani (2004) further found that women who were newly married were much less likely to use contraception than those in polygamous or monogamous unions. In terms of residential areas, Clements and Nyovani (2004) established that residential areas had an effect on the use of contraceptives. In Ghana, for instance, they found that those living in the Volta, Eastern and the Upper East regions of the country were more significantly using a modern method than those in the Western region, where the use of modern contraceptive was the least. In Tanzania, Clements and Nyovani (2004) found that women living in the Lake zone used modern contraceptives the least compared to those living in the Coastal, Northern Highlands and Southern regional zones.

While categorizing residential areas in terms of rural and urban, Clements and Nyovani (2004) concluded that women living in urban areas were more likely to use family planning services than those in rural areas due to exposure to various sources of information. The study further found that a woman's educational level was important in the use of modern contraceptive in the three countries. It was observed in the study that women with at least primary education were more likely to use modern methods than those with no education. Lastly, Clements and

Nyovani (2004) further revealed that if the partner had received any form of education, the woman was more likely to use modern contraceptive methods in Tanzania and Zimbabwe. Clements and Nyovani (2004) concurs with Nazar-Beutelspacher *et al.* (1999), who established that although availability of family planning services regulated the direct effect of schooling on contraceptive practice, lack of education remained an important predictor of non-use of contraceptives among women in Mexico.

Regarding religion, Clement and Nyovani (2004) study revealed that religion was associated with the use of modern methods. In particular, they noted that those from traditional religions used modern contraception the least, especially in Ghana and Tanzania. The study revealed that Christians in Zimbabwe were significantly using modern contraceptive methods than those from other religions. Although from the foregoing discussion religion was found to affect contraceptive use, it was not clear how the inference was arrived at. Religion was considered in the current study as a variable. The aim was to examine how different religious background affected the use of family planning services among households in Kenya's city slums.

In the study by Clements and Nyovani (2004), various factors including religion, educational level, age and residential areas had significant effects on the use of family planning services. In the current study, these variables were considered

among other demographic, socio-economic and facility factors to examine their effect on the use of family planning services. Unlike Clements and Nyovani (2004), who based their analysis on secondary data, the current study used primary data collected from the urban poor in the Kenya's city slums. Similarly, as a departure from Clements and Nyovani (2004), a theoretical model was developed in the current study as a basis for the logistic model that was estimated.

Using a proximate determinants' framework, Mustapha and Ismaila (2006) attempted to explain male knowledge attitudes and family planning practices in Northern Nigeria. This was adopted to not only explain how proximate determinants influenced fertility, but also to consider factors that influence them. Mustapha and Ismaila (2006) adopted a conceptual framework, where socio-economic status variables and behavioural variables were considered, to examine their effect on the use of contraceptives. According to Mustapha and Ismaila (2006), family and socio-economic characteristics were posited to influence contraceptive use through their effect on attitudes.

In the study, Mustapha and Ismaila (2006) found the attitude of people toward contraception to influence adoption of family planning methods. Thus, they observed that the attitude of an individual was influenced by a number of factors such as education, age, income and the influence of other people around the

individual. In the current study, these variables were considered using a logistic regression model to examine their effects on the use of family planning services.

In Uganda, Odwee *et al.* (2006) sought to examine the determinants of health care demand using a log-linear utility maximization function. In the function, it was observed that health care demand depended on own price, prices of alternative services, household income, education level, time costs associated with using the services, and demographic characteristics of patients such as sex and age. Odwee *et al.* (2006) assumed that in the event of an illness, a patient would seek help from a health care system characterized by many providers. Furthermore, the patient was assumed to choose the health care alternative that yielded maximum expected utility. Given the role of prices and a further assumption that consumer preferences over the entire range of consumption goods were well defined, the empirical health care demand was shown to be consistent with the assumption that ill individuals maximized an indirect conditional utility function.

The indirect utility function was specified as a function of observable socioeconomic attributes of an individual such as age, education, employment status, household size, sex and the annual income of household. Others were medical and physical attributes faced by an individual in a facility such as the availability of drugs and medical equipment and sanitary conditions of the facility. Others included price of health care received by an individual from the health

facility (this also included distance to the facility, transport cost and waiting time at the facility) and the prices of non health care goods consumed by the individual. In the model, Odwee *et al.* (2006) demonstrated that maximum utility that an individual could achieve was conditional on seeking treatment for an illness while controlling for income, health care prices, the prices of other goods, personal attributes, and facility specific characteristics.

It was further assumed that all elements of the indirect conditional utility function were directly observable and were the variables of interest to policy-makers. In the model, Odwee *et al.* (2006) had indicated that various factors that affected the demand for health care included individual characteristics as well as facility attributes. Furthermore, Odwee *et al.* (2006) conducted the study only in one region of Uganda.

In Tanzania, Vera *et al.* (2006) analyzed factors affecting the acceptability of vasectomy in the Kigoma Region using both the service statistic and qualitative data collection. In the study, client record data was collected from five facilities in the three districts of the Kigoma region, to quantify levels of vasectomy use from 1998 through to 2003. Empirical evidence showed inconsistent levels of vasectomy service provision in the region, as well as lack of infrastructure and supplies within some of the facilities. Further, the study established that vasectomy instruments were not uniformly available at the facilities, nor were electricity and

piped water. However, the majority of the facilities surveyed had providers trained in infection control practices and family planning and couples counselling. Unlike the Vera *et al.* (2006) study that was conducted within health facilities, the current study collected data at the household level.

In Burkina Faso, Guiella *et al.* (2007) examined factors influencing the use of condoms using 2004 data collected from a nationally-representative survey of adolescents. This was analysed using the logistic regression model. The logistic regression results showed that the odds of using condoms increased with years of schooling of both women and their spouses. Guiella *et al.* (2007) demonstrated that the education levels of women as well as those of their partners were important variables in explaining the use of family planning services. This variable was incorporated in the study by applying a choice model. Although the Guiella *et al.* (2007) study applied regression analysis, it was not clear how the analysis was done. Additionally, the socio-economic as well as cultural issues in Kenya and Burkina Faso are different. Therefore, the studies may not necessarily give similar results.

Stephenson *et al.* (2007) examined the role of community facilitators in explaining geographic variations in modern contraceptive use in six African countries. In the study, data from demographic health surveys from the six countries was used. The study revealed significant associations between community facilitators and the use

of modern contraceptive methods. It was further found that community facilitators facilitated the creation of awareness among potential users on the importance of family planning services and their availability. This variable was incorporated in the study in terms of the knowledge by the women in the slums in order to examine its effect on the use of family planning services. Additionally, although Stephenson *et al.* (2007) considered the availability of community facilitators, the current study was specific by considering the friendliness of the facilitators/health workers.

In the Osun State of Nigeria, Oyedokun (2007) examined the determinants of contraceptive usage among women of reproductive age. Given the dichotomous nature of the responses on the use of modern contraceptives, a binary logistic regression model was used. Data was collected from 408 women of between 15 and 49 years. The study revealed that although knowledge of contraceptive methods was high among these women, only 30 percent ever used any method. The study further showed that knowledge of a method and number of children ever born did not significantly impact on the use of modern contraceptive methods in the Osun State. One of the weaknesses of this study was that it considered only socioeconomic and demographic factors, while provider variables that could also inform the policy process were omitted. Additionally, the study revealed that knowledge of a method did not significantly impact on the use of the modern method. This was a paradox, given that other studies (see for example Stephenson

*et al.* (2007) had revealed the opposite. The current study incorporated this variable to unravel the paradox.

Tsui *et al.* (2009) explored the patterns and trends in adolescent contraceptive use and discontinuation in developing countries using demographic and health survey data from more than 40 countries. The objective was to examine the rates of contraceptive adoption, discontinuation and switching trends among married and unmarried women aged between 15 and 19 years, and sexually active proportions of 15 to 19 year-old women who were currently married or unmarried, but sexually active compared to older women who were perceived to be sexually inactive. The study revealed that in many countries, the proportion of adolescent women using contraceptives increased substantially over the last two decades. On the other hand, the contraceptive prevalence rate among adolescents increased faster than among older women. This study further supports the idea that the age of a woman affects the use of contraceptives. Thus, the age was considered in the study to examine its significance on the use of family planning services amongst households in slums.

Abiodun and Balogun (2009) conducted a survey to evaluate the pattern of sexual behaviour and contraceptive use among female students attending tertiary institutions in Nigeria. In the study, self-administered and semi-structured questionnaires were used. The study revealed that all the respondents were aware

of contraceptives. However, only a quarter of the respondents had ever used any contraceptive method. The most common sources of information about contraception among the respondents were friends/relatives, while the fear of side effects of modern contraceptives was the most common reason for non-use. Even though the study demonstrated that the quality of contraceptives affected their use amongst female students attending tertiary institutions, it is not clear how data collected using semi-structured questionnaire would enable one to make such inference. The current study considered this variable to determine its importance in the use of family planning services in the slums.

### **2.3 Specific Empirical Literature to Kenya**

Using a demand model, Mwabu (1984) sought to provide an explanation for empirical observations about patients in their endeavour to seek health services from various health providers. In the study, Mwabu (1984) adopted the standard economic theory of consumer behaviour by making various assumptions that facilitated the derivation of the demand model. In the model, choice of a health facility was the dependent variable, while independent variables included time and monetary costs of treatment, proximity, the facility specific attributes, the socio-characteristics of the patients, patients' experience in treatment, patterns of income distribution and seasonality.

In order to estimate the effects of the variables, Mwabu (1984) collected data through a household survey in rural Kenya. The study revealed that households' choice of health facilities was highly sensitive to changes in time costs and money prices. Further, it was established that an increase in household's income shifted demand from low quality to high quality choices, but rather slowly. This model was considered in the current study with some modifications. These modifications were considered necessary due to various factors. First, in the study by Mwabu (1984), the dependent variable was choice of health facility, while in the current study the dependent variable was use of family planning services. Second, the study targeted patients (both men and women) seeking health services, while in the current study, women within the reproductive age were targeted randomly at the household level and not necessarily those seeking medical services. Furthermore, Mwabu (1984) focused on general health services in rural Kenya, while the current study focused specifically on family planning services in Kenya's city slums.

Using the 1977-1978 Kenya Fertility Survey and the 1989 Kenya Demographic and Health Survey, Njogu (1991) examined the trends and determinants of contraceptive use in Kenya in 1989 at both the aggregate and the subgroup level. In addition, the study sought to determine what factors determined the overall change in contraceptive use in Kenya. To realize the objectives, the study employed several social, economic, and demographic variables that were related to contraceptive use. Specifically, the covariates included categorical variables for

age, type of current residence, region or province of residence, type of current marital union, and a mother's educational level. The study also included the mother's future intentions regarding fertility and whether the mother had experienced the death of a child.

A logit model was used to evaluate the effect of a select group of variables on the probability of using modern contraceptive methods. The choice of the logit model was based on the fact that the dependent variable was dichotomous. The study revealed that a woman's education level, her intention to have more children and the availability of family planning clinics significantly affected the aggregate change in contraceptive use by the women in all the regions. The study further revealed that a substantial increase in contraceptive use occurred in Kenya over the decade, and that the increase was shared by all groups in the country, while the amount of change differed greatly.

Unlike Njogu (1991) study that explored twofold objectives, namely factors affecting use of contraceptives and overall change in contraceptive use the current study is specific in that it examined the factors affecting the demand for contraceptives in the city slums. Additionally, just like in the case of Magadi *et al.* (2001), Njogu (1991) study relied on secondary data, which had however been overtaken by events. This was because since the study was done, several demographic health surveys have been released. In this regard, the study is

inadequate in informing the policy process accordingly. Further, although this study employs two nationally representative data sets and disaggregates change in contraceptive use by social and economic groups, there has been time lapse since the study was conducted, while at the same time the study relied entirely on secondary data. The current study used primary data and targeted only women living in city slums.

Based on the 1989 Demographic Health Survey, Kyalo (1996) explored the determinants of contraceptive non-use in Kenya. The study revealed that education was very influential in determining contraceptive non-use. In support of Kyalo (1996), Alan (1998) found that a partner's educational level was a significant socio-economic predictor of modern contraceptive use. Allan (1998) asserted that women whose partners had received no education and primary education were using family planning services the least. The two studies independently confirmed that education had an effect on the uptake of family planning services. In the current study, primary data collected at the household level from women of reproductive age was used to examine whether the level of education of the woman and /or that of the partner had any significant effect on the uptake of family planning services.

Muia *et al.* (2000) studied the knowledge and attitudes towards emergency contraceptives. In the study, Esther used two groups of potential users, namely

family planning clients and university students in Nairobi. Data was collected by interviewing the clustered samples of clients at ten family planning clinics in Nairobi, while four focus group discussions were conducted with students at two universities in Kenya. The study showed that despite relatively low levels of awareness and widespread misinformation, when the method was explained, both clients and students expressed considerable interest, but also expressed some health and other concerns as impediments towards the use of the contraceptives

Omondi-Odhiambo (1999) in a study of the activities of the Community Based Distributors (CBD) of family planning services in Siaya District, Kenya, showed that the fear of side effects or sterility led to the objection of use of family planning services. In the study, it was noted that this could easily be overcome by good communications and information, particularly through the CBD programme. As observed by Omondi-Odhiambo (1999), quality of family planning services affected the use. This variable was incorporated in the current study.

Using data from the Demographic Health Survey of 1998, APHRC (2001) examined the contraceptive use dynamics in Kenya. The study revealed that the partner's disapproval of family planning was associated with a reduced probability of use and consequently higher probability of non-use with or without an unmet need for family planning. This finding supports Mohamad *et al.* (1988) and Phillips *et al.* (1996), who separately found that a partner's approval was important

in the use of family planning services. Given the consistency of the findings of various studies, a partner's approval was considered in this study.

APHRC (2001) further showed that the community factors had an important effect on family planning practice. According to APHRC (2001) a contextual community factor based on the proportion of women in the community who had heard family planning messages over the radio, suggested that media exposure played an important role in family planning practice. In this study, however, it was not clear how this conclusion was arrived at and yet it is very important in the use of family planning services. The current study incorporated this variable using primary data to examine its significance on the use of family planning services in the city slums.

In a study of trends and determinants of contraceptive method choice in Kenya, Magadi *et al.* (2001) used data from the 1989, 1993 and 1998 Kenya Demographic and Health Surveys, to examine trends and determinants of contraceptive method choice in Kenya. Using two-level multinomial regression models, the study revealed that, over time, the use of modern contraceptive methods, especially long-term methods, was higher in urban than in rural areas, whereas the pattern was reversed for traditional methods. On the other hand, the use of barrier methods among unmarried women was steadily rising, but the levels remained disappointingly low, particularly in view of the HIV/AIDS epidemic in Kenya.

In the study, it was further found that there were higher levels of use of injectables among rural women, especially among those whose partners disapproved the use of family planning services. Similarly, the study revealed that uneducated women and those less exposed to family planning media messages were using the contraceptives the least compared to those who had better access to services and greater exposure to family planning information. The study by Magadi *et al.* (2001) demonstrated that a partner's approval and residential area plays a role in determining contraceptive use. These variables were considered in the study to examine their significance on the uptake of family planning services in the city slums. Unlike Magadi *et al.* (2001) who used a two level multinomial regression, only one level was done in the current study. This is because in the current study, the objective was to determine the factors that affect the use of family planning services and not choice of a particular service like was in the case of Magadi *et al.* (2001).

Using both primary and secondary data from selected health facilities, Korir and Mwabu (2004) revealed that the user fee policy had been translated to mean exemption in the provision of services commodities. The study revealed that user fees had led to a decline in the utilization of the services. This study, like Brown and Muga (2000), demonstrated that the user fee affected demand for family planning services amongst clients. In spite of the conclusion, no statistical tests such as correlation analysis, goodness of fit and normality were conducted before

the analysis. In addition, this was an exit survey that made inferences on data collected from clients seeking family planning services at facility level. The present study has, however, collected data from households to make the necessary inferences.

Korir *et al.* (2004) assessed formal and informal fees paid by maternal health services by health facilities in Kenya. In the study, both primary and secondary data were collected and analysed using both descriptive and regression analyses. They contended that unless the government was able to allocate additional funds for the provision of these services, the population in need of these services would stay without the services, despite the availability of free family planning commodities that are largely financed by donors. This, according to Korir *et al.* (2004), was attributed to the fact that there were certain inputs that health personnel at health facilities needed in order to provide the services to the clients.

It was noted in the study that with possible exemption of condoms, other family planning methods required use of some inputs to extend them. Further, it was found that the user fees had a negative and significant effect on utilization of family planning services but with a small elasticity. This study would have provided more useful information to inform policy process on family planning services in Kenya, if it would have considered facility factors such as friendliness of staff alongside policy variables such as user fees.

As demonstrated by Korir *et al.* (2004), it is clear that user fees on family planning services had impacted negatively on the use of family planning services. This supports the economic theory that postulates a negative relationship between demand of a product and its own price. Thus, the current study incorporated this variable to examine the significance of this variable on its effect on demand for family planning services using a logistic regression model.

Obonyo and Muga (2005) analyzed the impact of user fee for family planning services on randomly selected community based distributor (CBD) groups in Kenya. The study revealed that most CBD groups started charging user fees ranging between Ksh.5 and Ksh. 10 for cycle of contraceptive pills, and between 50 cents and Ksh.3 for a condom. It was, however, concluded that introducing user fees by CBDs had contributed towards a decline in the CBDs' activity, especially the number of return visits by clients. In the study, it was concluded that user fees affected return visits, implying that price did affect activities of CBDs. This notwithstanding, it was however not indicated how this variable affected start-up. There could be a possibility that though return visits were affected, new visits on the other hand were created.

Aqwanda in 2005 examined the contraceptive use dynamics in Kenya using the 2003 Kenya Demographic Health Survey data. In the analysis, both simple bivariate and the multinomial logit model were used to assess factors affecting

choice of family planning method. In the study, Agwanda (2005) showed that the main factors affecting the use of the pill were age, number of living children, marital status, region and place of residence as well as fertility desires. Unlike Agwanda who was interested in the choice of a particular method using secondary data, the current study considered the use of family planning services using primary data collected at the household level.

While analysing the demand for reproductive health services in Kenya, Ajakaiye and Mwabu (2007) used a modified version of Rosenzweig and Schultz (1982) model. Health was embedded in a utility maximizing behaviour of an agent, for example, a mother, a father, or any other household member. The model was also summarized in the Mwabu (2007a) study and its applications highlighted in Strauss and Thomas (2007). In the Rosenzweig-Schultz model, the utility function was a function of various explanatory variables. Some of these included health service, which in this case was a commodity that yielded utility to an individual but had no direct effect on the reproductive health status of a person, for example, clothing of men, women and children. Other variables were a health-related good or behaviour that yielded utility to an individual, and also affected reproductive health, for example, smoking, alcohol consumption or preventive activities. Lastly, the model also included the reproductive health status of an individual.

In the study, Ajakaiye and Mwabu (2007) demonstrated that the utility that a household derived depended on a basket of goods and services that a household consumed. However, Ajakaiye and Mwabu were concerned with reproductive health, while the current study focused on family planning, which is a component of reproductive health. Similarly, the Ajakaiye and Mwabu study focused on the functional demand for reproductive health inputs, which compares to the current study where a choice model for family planning services was adopted.

The Ian *et al.* (2009) study had three models that were proposed for explaining the observed fertility stall in Kenya. The first was the reproductive behaviour model, which focused on changes in fertility preferences or behaviour. In the model, it was contended that countries with a stall in fertility were likely to have experienced a stall or reduced pace of change in the use of effective contraception and/or in desired family size. There could also be shifts in marriage patterns and timing of initiating child-bearing and these changes could vary across different sub-groups. The second model examined changes in institutional factors defined primarily by shifts in local or national policy or service delivery environments. Specifically, decreases in the level of support for the family planning programme at the local and national levels, and/or through reduced international donor support, could drive a stall in fertility decline through increasing unmet need for family planning, increasing negative attitudes toward family planning, including myths and concerns about side effects.

The third model focused on changes in socio-economic and demographic characteristics. Ian *et al.* (2009) noted that fertility had been known to vary significantly by a number of socio-economic and demographic characteristics of a sub-population, including age structure of the population. Shifts in these variables could lead to temporal changes in fertility levels and overall trends in fertility. Further, Ian *et al.* (2009) observed that the shifts in programme efforts could affect different sub-groups differently. Charging service fees for contraceptive services in an effort to enhance their sustainability, for example, often created barriers for youth or the lowest economic quartile of women seeking services. It was contended that each of these factors contributed independently or jointly to observed changes in fertility levels in subgroups or total population.

Ian *et al.* (2009) demonstrated that three models, namely reproductive behaviour model, institutional factors, and socio-economic and demographic characteristics, accounted for stall in fertility rate and hence population growth. Additionally, each of these factors contributed independently or jointly towards changes in fertility levels in sub-groups or a total population. Despite this, the model had estimation weaknesses. First, no estimation was done to back the sentiments. Similarly, Ian *et al.* (2009) only hypothesized the model and no empirical estimation was done to determine the significant variables. Furthermore, in the analysis, only the 1993, 1998 and 2003 data were used in making the inferences.

## 2.4 Overview of Literature

From the foregoing literature, various studies have been conducted with regard to the demand for health services in general and contraceptives in particular. In general, there are some aspects of the existing literature that deserve scrutiny. Most of these studies have used econometric tools that are inadequate in accounting for the complexity of relationships between family planning services due to the insufficiency of economic theory in the determination of the right specification. For instance, majority of the variables did not have a direct theoretical relationship, hence estimation could not have been plausible as it was done in the studies. Specifically, other than studies by Mwabu (1984), Mwabu *et al.* (2003), David *et al.* (2002), Odwee *et al.* (2006) and Ajakaiye and Mwabu (2007), none of the other studies developed a theoretical model that provided the solid ground for adopting models that were estimated.

Even though these studies developed a theoretical model, all of them were concerned with the demand for health care and not family planning services. Similarly, none of the studies targeted respondents directly in the slums. This compares to the current study where respondents from the slums were targeted. As revealed in the literature review, most of the studies on family planning services such as the Lewis *et al.* (1986), Mohamad *et al.* (1988), Abdullah (1997), Mahidul

*et al.* (1998) and Kamal (1994) were not only done outside Africa but also relied on secondary data from demographic health surveys.

At country level, although there exists a few studies (Njogu, 1991; Kyalo, 1996; and Aqwanda, 2005) regarding contraceptive use, most of them relied on secondary data from the demographic health surveys. On the other hand, other country based studies such as Korir and Mwabu (2004), Obonyo and Muga (2005), Korir *et al.* (2004) considered policy issues, especially user fees. The current study, however, went beyond by incorporating policy as well as demographic and socio-economic variable studies in order to examine how these variables influence the demand for family planning services in city slums.

In terms of variables considered, many of the studies were limited and relied heavily on descriptive statistics in the analysis. For instance, although the study by Clements and Nyovani (2004) considered a wide variety of variables such as education level of both the woman and her partner, religion, the partner's approval, marital status and age, no econometric model nor tests were incorporated. This makes the study inadequate especially in the world of academic rigour. Like the case of Clements and Nyovani (2004), Bertrand *et al.* (2005) considered many factors, some of which were incorporated in the current study. However, the study captured both the supply side as well as the demand side to

evaluate family planning services. The current study, however, only considered the demand side variables to avoid the economic problem of double causality.

On the basis of the literature reviewed, various variables were found to affect demand for family planning services. This study considered some of these variables on a restrictive basis to examine how they affect demand for the services amongst the urban poor in the city slums. It is worth noting that none of the studies reviewed targeted respondents in the city slums.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

In this chapter, methodology that was adopted to facilitate the realization of the study objectives is explained. The methodology includes the design for data collection as well as a theoretical model that assisted in identifying the data to be collected, and an empirical model that shows how the relationships specified in the theoretical model was estimated. These are followed by the target population, sampling design and sample size. Thereafter, data type and data collection methods, data analysis and the research procedures used are explained in that order.

#### **3.2 Research Design**

The study adopted a survey design in order to obtain the necessary data. According to Mugenda and Mugenda (2003), a survey design is an attempt to collect data from an identified group of persons, with the objective of determining the current status given the specified variables, in this case, the current status demand for family planning services with respect to specified variables. This design was

adopted since it facilitated the collection of original data necessary to realize the research objectives. The design was also appropriate in collecting useful data that could be quantified and reported as a representation of the real situation or characteristic in the study population.

### 3.3 Theoretical Framework

In the derivation of the model, the study borrowed partially from Mwabu (1984) and Maletela *et al.* (2003) with modifications supported by the theory of consumer. An attempt was made to provide a theoretical explanation for certain empirical observations about a woman in her behaviour to seek the product, in this case, family planning services. It was assumed that a woman faced information asymmetry and a variety of family planning services. In the study, the utility of a representative consumer who in this case was a woman was expressed as:

$$U_{ij} = U_{ij}(X_{ij}, S_{ij}) \dots \dots \dots 3.1$$

where:

$U_{ij}$  = the utility consumer  $i$  is expected to derive, if the consumer chooses to utilize certain family planning service  $j$ . It might also be viewed as the net benefit of choosing family planning service  $j$ ;  $X_{ij}$  is a vector of observable attributes of family provider/facility  $j$  as observed by consumer  $i$  while  $S_{ij}$  are characteristics of consumer  $i$  who intend to consume family planning services  $j$ .

Letting  $Z_{ij}$  represent a vector of combination of  $X_{ij}$  and  $S_{ij}$ , equation 3.1 can be expressed as:

$$U_{ij} = f(Z_{ij}\beta) + e^{uij} \dots\dots\dots 3.2$$

where:

$\beta$  = A vector of coefficients to be estimated. These are utility weights that a consumer attaches personal characteristics and those of health facility providing family planning services. The random error term is represented by  $e^{uij}$ . The assumptions being made with regard to the error term is that it follows a normal distribution. This allows for the interdependence of the error terms of utilities thus permitting one to view a decision maker (in this case a woman) as making a comparison of the available alternatives before choosing the suitable family planning services.

Equation (3.2) forms the basis for probability choice model in the analysis of discrete choice behaviour. For woman  $i$ ,  $U_{ij}$  are the utilities associated with each of the available family planning service,  $j = 1, 2, \dots, m$ . The amount of family planning services consumed is an argument of a consumer's utility function derived from equation 3.1. To avoid problems of measuring the amount of family planning services consumed, an indirect utility function of the following form is used.

$$V_{ij} = V(P_{ij}, Y_i, S_i, F_i, P_o) \dots\dots\dots 3.3$$

where:

$V_{ij}$  = Indirect utility that consumer  $i$  derives from consuming family planning services  $j$ , where  $j = 1, 2, \dots, m$

$\mathbf{P}$  = A vector of prices that consumer  $i$  faces for the family planning services  $j$

$Y_i$  = Income of the consumer  $i$

$\mathbf{S}_{ij}$  = Personal characteristics of consumer  $i$  like age, education, religion, and marital status, among others for family planning services  $j$ ;

$\mathbf{F}_{ij}$  = facility/provider characteristics such as friendliness of staff at facility, perceived quality of the services and accessibility of the facility, among others that provide family planning services  $j$ .

$P_o$  = Government policies relating to family planning services such as promotion of family planning, user fees, among others.

Given the choice model, it is necessary to invoke Roy's Identity as derived in Varian (2002) in order to obtain the amount of family planning services demanded. According to Varian (2002), Roy's Identity entails translating indirect utility function to obtain a Marshallian demand function. This is derived by dividing the negative of the partial derivative of the indirect utility function with respect to price of the product with the partial derivative of the same function with

respect income of the consumer. Using these procedures, the following equation is obtained from equation (3.3).

$$X_i = f(Z, Y, \dots, e^{ui}) \dots \dots \dots 3.4$$

The above equation was combined with the Bertrand *et al.* (1995) model and the literature reviewed to obtain more variables for the study. Bertrand *et al.* (1995) proposed a range of factors (including individual factors, societal factors, external development assistance as well as political and administrative systems in a country that indirectly affected contraceptive practice through demand for family planning services).

The demand side of the Bertrand *et al.* (1995) framework included individual and societal factors, which generate the demand for family planning services. At an individual level, factors such as age, personal beliefs, the level of education and socioeconomic status were associated with the likelihood of using modern contraception (Bertrand *et al.*, 1995). Bertrand *et al.* (1995) noted that societal or community factors such as fertility preference, attitudes towards family planning methods affect the demand and uptake of modern contraception. Similarly, it was observed that national policies and development programmes could influence fertility preferences and the demand for family planning services.

On the supply side, Bertrand *et al.* (1995) observed that contraceptive practice could not only be influenced by policy and administrative factors such as political commitment, resource allocation and regulations, but also organizational factors such as infrastructure, public-private partnerships and delivery systems. Others included operational factors and service outputs including management, training, supervision, access and quality of services. In the current study, only the demand side variables were considered unlike the case of Bertrand *et al.* (1995).

Given the above, a binomial logit model was estimated. Binomial model that was estimated was borrowed from both Jayaraman (1995) and Oyedokun (2007), who used a multivariate logit model to determine the demographic and socioeconomic determinants of contraceptive use among urban women in the Melanesian countries and Nigeria, respectively. In the model, the dependent variable was expressed as a dichotomous function of several variables that included both qualitative and quantitative. The dependent variable in this case is use of family planning services took on the value of one if using family planning services and zero (0) if otherwise. Although three options exist for estimating the model, namely linear probability model (LPM), probit and logit, logit model was adopted as the most appropriate. The model was of the form:

$$P_i = \frac{e^{x\beta + E}}{1 + e^{x\beta + E}} \dots\dots\dots 3.5$$

where  $P_i$  is the probability of using family planning services.  $\beta$  are regression coefficients to be estimated;  $X$  is a vector of explanatory variables that affect utilization of family planning services by the woman and  $E$  is the random term. Equation (3.5) could also be expressed as:

$$\left\{ \frac{P}{1-P} \right\} = e^{X\beta + E} \dots\dots\dots 3.6$$

Equation 3.6 is the log-odds ratio. However, since data used in the study constitutes individual level data, there was need to convert the log-odds ratio into a logit function. Equation 3.6 was converted into logistic equation by obtaining natural logs on both sides to obtain equation (3.7,) which was estimated using Maximum Likelihood Estimation (MLE).

$$\ln \left\{ \frac{P}{1-P} \right\} = X\beta + E \dots\dots\dots 3.7$$

### 3.4 Model Specification

The specified model was developed from the theoretical framework with variables identified from the reviewed literature. Modification of equations 3.1 to 3.7 yielded the functional equation of the form:

$$\ln\left\{\frac{P}{1-P}\right\} = \beta_0 + \beta_1 HHcrt + \beta_2 Pfcrt + \beta_3 Govp + \dots E) \dots \dots \dots 3.8$$

where  $P$  is the probability of using family planning services. Explanatory variables are: characteristics of the woman ( $HHcrt$ ); characteristics of the family planning services' provider ( $Pfcrt$ ); and government policies ( $Govp$ ). These variables were chosen to reflect the factors that might be associated with family planning use in Kenya's city slums. The characteristics of the family planning services' providers and government policies were selected as indirect explanatory variables.

The individual consumer characteristics included age ( $ag$ ), number of living children ( $nlc$ ), level of education ( $led$ ), desire for children ( $dmc$ ), marital status ( $mrts$ ), partner's education ( $pted$ ), approval by partner ( $pap$ ), religious background of the woman ( $rlg$ ) and average income of the woman ( $avinc$ ). The characteristics of the family planning service facility included quality of family planning services ( $qfps$ ), proximity to the facility ( $pxif$ ) and friendly staff at facility ( $fsp$ ). Government policies were restricted to promotion of family planning services ( $prfs$ ) and user fees/price ( $pri$ ). The restriction was necessary in order to limit the analysis on the knowledge of the woman regarding family planning services. Thus equation (3.8) was re-written as:

$$\ln\left\{\frac{P}{1-P}\right\} = f(ag, nlc, pted, mrts, led, dmc, pap, rlg, avinc, qfps, pxif, fsp, prfs, E). 3.9$$

where E is the error term that takes care of other factors that may influence the likelihood of a woman using family planning services that are not included a priori.

### **3.5 Definition and Measurement of Variables**

*Age of a woman (ag)*: the age of the woman at the time of survey measured in years.

*Desire for Children (dmc)*: the couple's consideration for more children at the time of the survey. It took on the value of one (1) if there was desire and zero (0) if otherwise.

*Education Level (led)*: the highest education level acquired by the woman.

*Friendly Staff at Facility (fsp)*: the perceived nature of friendliness of the staff at facility by the household. This was a dummy that took on the value of one (1) if friendly, and zero (0) if otherwise.

*Income of respondent (avinc)*: the average amount of money a woman earned in a month at the time of survey measured in Kenya shillings.

*Knowledge of Family Planning Services (knfp)*: This was a dummy variable that took on the value of one (1) if the woman had knowledge on family planning services and zero (0) if otherwise.

*Marital Status (mrts)*: the marital status of the woman. This was a dummy variable which took on the value of one (1) if married and zero (0) if otherwise.

*Number of Living Children (noc)*: the number of living children that a woman had given birth to at the time of the survey.

*Partner's Approval (pap)*: the consent of the partner for the woman to use family planning services. This was a dummy that took on a value of one (1) if yes and zero (0) if otherwise.

*Partner's Education level (pted)*: the highest education level attained by the partner's at the time of the survey.

*Proximity of the family planning facility (pxif)*: the travel distance to the nearest family planning services provider measured in terms of kilometres from the household's residence to the provider.

*Quality of Family Planning Services (qfps)*: woman's perception of the quality of the family planning services. This was a dummy that took on the value of one (1) if quality was perceived to be good and zero (0) if otherwise.

*Religion of woman (rlg)*: the religious background of the woman. It took on value of one if Catholic and zero (0) if otherwise.

*Use of family planning services (USfp)*: This is the use of any family planning service by the respondent at the time of the survey. This was a dummy that took a value of one (1) if family planning services were used and zero (0) if otherwise.

*User Fees or Price (pfps)*: the amount of money in Kenya shillings spent on family planning services per visit.

As earlier stated, use of family planning services constituted the dependent variable while the rest were independent variables. To determine which independent variables to use, correlation matrix was necessary to examine the level of multicollinearity between the explanatory variables as explained in Wooldridge (2000). Also, heteroskedasticity tests as explained in Bollerslev and Wooldridge (1992) was done to ensure that the estimated results are unbiased.

### **3.6 The Profile of Study Area**

The study was conducted in the city slums of Nairobi, Kisumu and Mombasa. These slums are characterized by high poverty levels, low levels of education, large household sizes that affect access to basic health services including family planning services. According to USAID/HPI (2007), women from the lowest socio-economic status (SES) groups, including slums, are the least likely to use modern contraceptive methods. In 2003, for instance, only 12 percent of women from the very low SES groups used modern family planning methods, while 45 percent of women from the high SES groups did the same (Republic of Kenya, 2003). USAID/HPI (2007) noted that SES affects the access to and use of family planning services.

In terms of unmet need for family planning services, women in slums have the highest levels of unmet need for family planning, estimated at 33 percent

compared to only 17 percent in high SES groups. It is estimated that half of the 2.2 million Kenyans living with HIV live in slums (USAID/HPI, 2007). Similarly, young girls are also married off by their parents/guardians at a tender age in order to secure a perceived financial support. By the time they reach 40 years of age a majority of them will have given birth to more than six children. Additionally, access to health services in slums is another issue of concern given the poverty levels. Thus, the ability to access family planning services is equally affected, leading to incidences of high child mortality, poor maternal health, non sustainability of the environment and inability to combat HIV/AIDS, malaria and other diseases.

In the final analysis, the ability to achieve universal primary education as envisaged in Vision 2030 is affected. In the process, this contributes towards high levels of school dropouts, high unemployment levels as well as prostitution. As indicated elsewhere in the literature review, given the low levels of education among women in slums together with high levels of school dropout rates and insufficient knowledge of family planning services, the utilization of family planning is expected to be low compared to the national level estimated at 46 percent (Republic of Kenya, 2008).

Households in slums earn their livelihoods through different forms of economic activities, which include employment as waiters, bar men, bar maids, drivers,

watchmen, shop assistants, casual labourers (in factories and construction sites), artisans, small business owners, and other income generating activities such as herbalists, entertainers, carriers of goods and any other assignment with money attached (Karirah-Gitau,1999). This, according to Karirah-Gitau, impacts heavily on their ability to access basic needs including education and health (which includes family planning services).

Ngau (1995) noted that most of the residents in slums have no immovable property, and only own basic furniture, utensils and clothing which demonstrate low income which in the end has an indirect bearing on access to basic services including family planning services (Karirah-Gitau, 1999). Kariah-Gitau reported that most residents in slums had primary education level (61 percent) and secondary level education (32 percent) with about 7 percent having no formal education. In the study, it was revealed that these households earn, on average, very low incomes ranging between Ksh. 1,000 and 28,000 with a majority earning between Ksh. 5,000 and 7,500 (Ngau, 1995). Such low incomes have an impact on access to basic needs.

In terms of ailments, APHRC (2001) noted that in the slums, the incidence of malaria, waterborne diseases such as typhoid and cholera is high. These have in the process contributed to high rates of child mortality and poor maternal health. Other common ailments according to APHRC (2001) include measles, flu, STIs

including (HIV/AIDS), and tuberculosis (TB). APHRC (2001) contended that poor environmental conditions including crowding, lack of access to family planning services as well as lack of clean water had accounted for the ailments. Given all these characteristics, there is likelihood that contraceptive prevalence rate and unmet needs in the slums are lower than the national rates estimated at 46 percent and 24 percent, respectively. Similarly, TFR are expected to be higher than the national rate of 4.6 percent. For these reasons, the study was perceived necessary in these areas to inform the policy process on the way forward.

### **3.6 Target Population**

The target population was women in slums in the three cities of Nairobi, Mombasa and Kisumu. A list of slums in each city was prepared as shown in table A1 in the appendices. From the list, Nairobi has the highest number of slums followed by Mombasa and finally Kisumu. The three city slums were selected because they are the largest towns in Kenya and therefore they are expected to have the largest population that lives in slums. Hence they are ideal representatives in terms of demand for family planning services.

### 3.7 Sampling Techniques and Sample Size

Multistage sampling and systematic sampling were applied to identify the sample elements. First, the study area was categorized into three cities, namely Nairobi, Mombasa and Kisumu. Various slums were identified in each city as indicated in table A1 in the appendices. To ensure equal representation in each city, eight slums were identified in Nairobi and five each in Mombasa and Kisumu as shown in the appendices as table A2.

The selected slums were thereafter divided into villages from which simple random sampling was applied to select villages. With the help of respective village elders, systematic sampling was applied to select women who provided the information. In order to obtain the sample size the following statistical formula borrowed from Saunders *et al.* (2003) was used.

$$n = p\% \times q\% \times \left( \frac{z}{e\%} \right)^2$$

where:

$n$  is the minimum sample size required;  $p\%$  is the proportion belonging to the specified category in this case women within reproductive age;  $q\%$  is the proportion not within the reproductive age;  $z$  is the  $z$  value corresponding to the level of confidence required in this case 1.96 for a 95% level of confidence, while

$e\%$  is the margin of error that can be tolerated. In the study,  $p$  and  $q$  were assumed to take the value of 0.7 and 0.3, respectively.

$$n = 0.7 \times 0.3 \times \left( \frac{1.96}{0.04} \right)^2 = 501$$

Hence, the minimum sample size was 501 women in the slums. To take care of problems of response rate, slightly more than 501 women were targeted.

### **3.8 Data Type and Source**

The objectives of the study were achieved by using both quantitative and qualitative data to analyze determinants of demand for family planning services in Kenya's city slums. The information obtained facilitated the analysis of demand for family planning in terms of both woman as well as provider characteristics and government policies by women in city slums. Specifically, primary data was collected to facilitate the realization of the study objectives. These data were obtained from women in terms of demographic as well as household's socio-economic variables. Additional data was also collected in terms of woman's perception with regard to provider/facility characteristics and how they affect their decision regarding use of family planning services. More data was also collected about the woman's perception in terms of the microeconomic and macroeconomic effects of uptake of family planning services.

### **3.9 Research Instruments**

As indicated in sub-section 3.8, the study relied on primary data. This was collected using a structured interview schedule that contained both open ended and closed ended questions. While closed ended questions were considered due to ease of their analysis, open ended questions were necessary in facilitating probing in order to obtain additional information.

### **3.10 Pre-testing**

Before collecting the necessary data, the research instrument was pilot tested with a small representative sample. The pre-test of the instrument was necessary to find out if the tool could collect the necessary data. This was because at a glance, it was not possible to foresee all the potential misunderstandings or biasing effects of the questions. This further facilitated in perfecting the concepts and wording.

### **3.11 Data Collection**

The required data was collected using the structured interview schedule specified in sub-section 3.9. This was done with the assistance of trained research assistants who were graduate students with past experience in data collection. As noted

earlier, a structured interview guide was adopted as the reliable tool for collecting the required information.

### **3.12 Data Cleaning, Coding and Refinement**

A code book was prepared for the various responses obtained. Thereafter, the data was cleaned to ensure completeness of the information. Data was then converted into the mode that could pick the necessary information based on the research problem.

### **3.13 Data Analysis**

The data collected was analyzed based on the objectives. In the case of objectives one and two, both descriptive and regression analyses were used. Regression analysis was based on a binomial logit model specified in sub-section 3.3. On the other hand, objective three was analyzed in terms of frequency tables and charts. Various diagnostic tests including normality test, model specification and heteroskedasticity were undertaken on the specified model. Correlation matrix was necessary to examine the level of multicollinearity between the explanatory variables. Descriptive analyses were done using Statistical Package for Social Scientists (SPSS) whereas econometrics analyses were done using STATA to generate marginal effects.

## **CHAPTER FOUR**

### **RESULTS, DISCUSSION AND IMPLICATIONS**

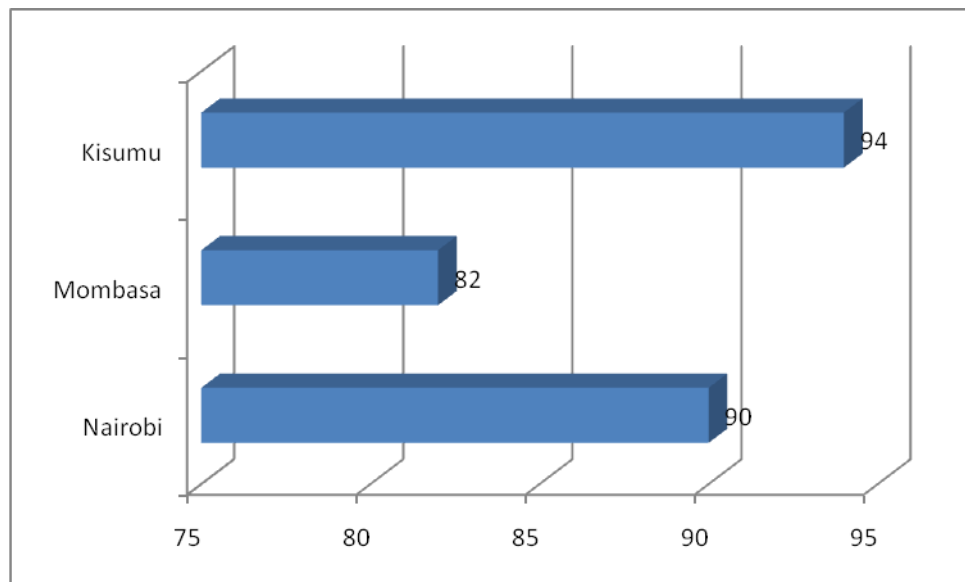
#### **4.1 Introduction**

This chapter presents the findings of the study based on the three research objectives specified in chapter one. Whereas the first objective was to examine the socio-economic factors that affect use of family planning services by women in city slums, the second objective was to determine the facility/provider factors influencing the use of family planning services by women in city slums. The last objective was to examine the microeconomic as well as macroeconomic effects of use of family planning services by women in the city slums.

The chapter explains the response rate and current rate of utilization of family planning services by women in slums. This is followed by the demographic, socio-economic and facility/provider factors that affect women's utilization of family planning services in the city slums and how they impact on the use of family planning services. Further, the chapter explains the women's' perception on the microeconomic and macroeconomic effects of low utilization of family planning services in Kenya. Finally, the chapter presents regression results on the factors that affect demand for family planning in city slums based on the first and second research objectives.

## 4.2 Response Rate

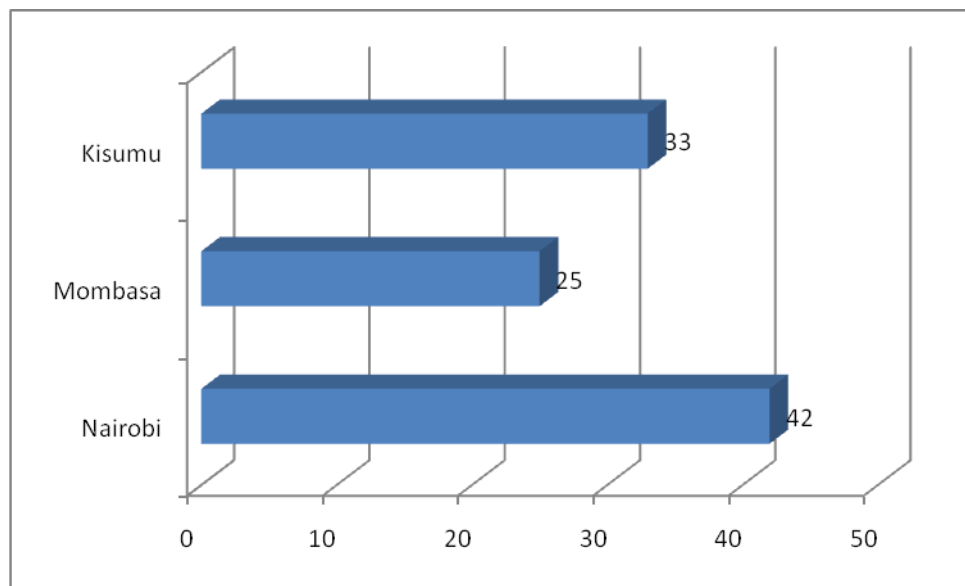
As indicated above, the chapter first provides the overall response rate in the three city slums before providing analysis based on the research objectives. Figure 4.1 presents the overall response rate in each city.



**Figure 4.1: Response Rate**

As presented in the figure, Mombasa had the lowest response rate of 82 percent, followed by Nairobi at 90 percent, while Kisumu had the highest response rate of 94 percent. The specific response rate in each city compares with the overall response rate of 89 percent. The response rates depicted in the table could partly be explained by the nature of the sensitivity of the information sought from the respondents and partly due to structures that were found to be vacant or destroyed and women absent for an extended period.

In many instances, interviews had to be terminated since some respondents were reluctant to share information, while some insisted that participation of their spouses was necessary. In such occasion, the interview had to be terminated and the next respondent was interviewed. In terms of utilization of family planning services by women in the three slums, figure 4.2 presents the results.



**Figure 4.2: Rate of Utilization of Family planning services in City Slums**

From the figure, respondents in Nairobi slums use family planning services more than those in Kisumu and Mombasa. However, the use is relatively low compared to the national average estimated at 46 percent (Republic of Kenya, 2008). Specifically, the use of family planning services in Nairobi slums was 42 percent, followed by Kisumu at 33 percent, while Mombasa had the least utilization rate of 25 percent.

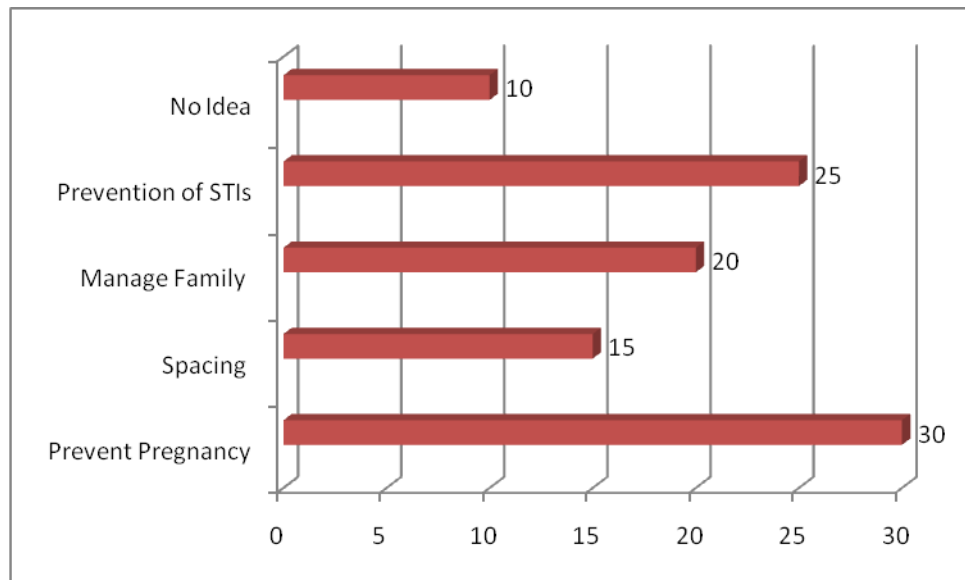
The results reveal low use of family planning services, which is likely to have various economic implication at both household and society level. In a way, the results compares with the study by Njogu (1991) who found use of contraceptives to be high in Nairobi compared to Nyanza and Coast provinces. Njogu (1991), however, found that Coast province had high usage rate compared to Nyanza province.

The increase in use of family planning services in Kisumu could justify the fact that women in the slums might be using the services for other purposes other than birth control. It is also necessary to note that in the recent past, HIV/AIDS prevalence rate has been on the increase, thereby attracting the attention of key stakeholders to reduce the rate in Kisumu and its environs. In the process, contraceptives have been distributed in the area to combat the HIV/IDS menace and other sexually transmitted infections (STIs).

#### **4.3 Current Status of Family Planning Services Usage**

Before examining the variables that affect the use of family planning services, the current status of family planning services usage among the respondents was considered. While 51 percent of the respondents were currently using family planning services, the remaining 41 percent were not. Respondents using family planning services cited various reasons, including spacing of children, prevention

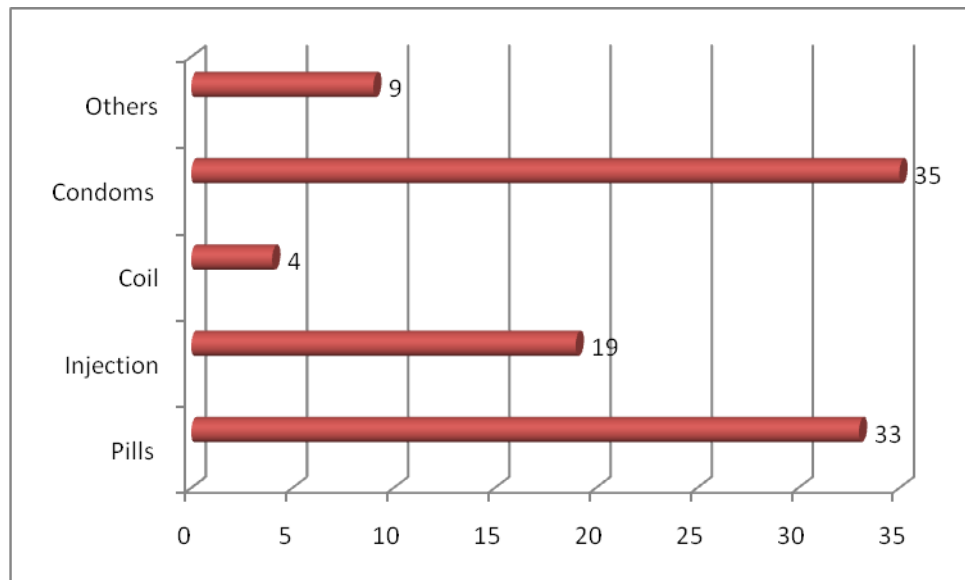
of pregnancy, and prevention of sexually transmitted diseases (STIs) (including HIV/AIDS) and managing the family. Figure 4.3 summarizes reasons provided by respondents for using family planning services in percentage.



**Figure 4.3: Reasons for Using Family Planning Services**

Whereas 20 percent of the respondents were using family planning to manage the family, 30 percent were using family planning for purposes of preventing pregnancy. This result points out that the major reasons why women in slums use family planning services are to prevent pregnancy and contraction of STIs. On the other hand, those who were not using family planning services cited factors such as infrequent sex, not married, want children, cultural norms, pregnant, religion and lack of support from the partner.

As a follow up to utilization of family planning services, it was necessary to examine the commonly utilized services. Figure 4.4 provides a summary of the responses in percentage.



**Figure 4.4: Commonly Used Family Planning Methods**

The study reveals that the 51 percent of the respondents using family planning services were using various types of services ranging from condoms, pills and injections. Specifically, 35 percent of the women used condoms, while 33 percent, 19 percent and 4 percent used pills, injection and coils, respectively. The remaining 9 percent used other methods that may have included Intra Uterine Devices (IUD), natural method, norplant and sterilization. This finding supports APHRC (2001) study that found the use of pills as the most preferred by women in Kenya.

According to the respondents, condoms, IUDs and injections were convenient, safe and effective for use. In addition, some methods like pills and injections were preferred because they cannot be easily detected by the sexual partner, which implies that they could be used secretly without the consent of the partner.

#### **4.4 Demographic and Socio-Economic Factors**

The first objective of the study was to examine demographic and socio-economic factors that affect the use of family planning services by women in city slums. In this sub-section, data collected was analyzed using descriptive statistics to facilitate the realization of this objective.

Various demographic and socio-economic factors considered include age of the woman, religion of the woman, level of education of the woman and partner, marital status, number of living children, desire for more children, partner's approval, employment status and average level of income.

##### **a) Age of the Woman**

Age of the respondent was expected to have influence on the use of family planning services. Table 4.1 presents the age of the women based on the responses provided by the respondents. The table reveals that majority of the respondents

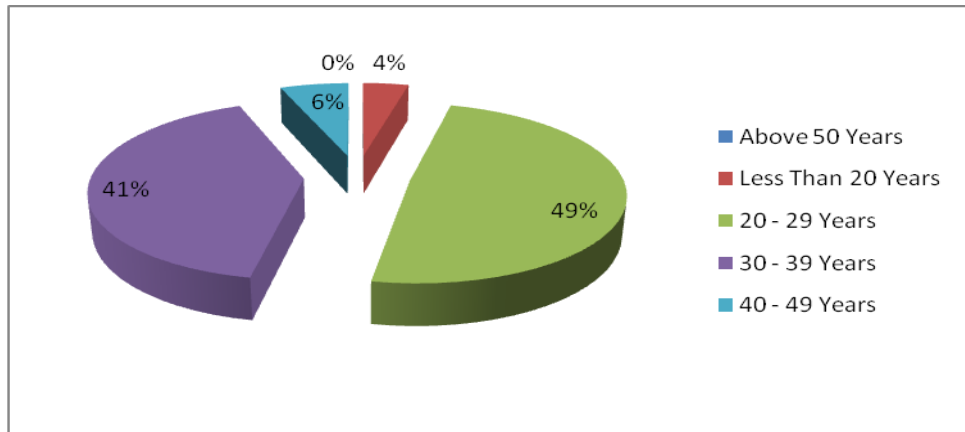
were aged between 20 – 39 years, implying that they are within the reproductive age of their life, and therefore the age has an implication on the use of family planning services.

**Table 4.1: Age of the Women**

<b>Age in Years</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Less than 20	10	2	2
20 – 29	280	56	58
30 – 39	160	32	90
40 – 49	35	7	97
Above 50	15	3	100
Total	500	100.0	

**Source: Survey Data 2010**

Whereas 56 percent of the women were aged between 20 - 29 years, 32 percent were aged between 30-39 years, while 7 percent were aged between 40 – 49 years. The remaining 3 percent of the respondents were aged 50 and above. As indicated earlier, age is likely to have influence on the use of family planning services as summarized in figure 4.5.



**Figure 4.5: Use of Family Planning Services by Age group**

As presented in the figure, use of family planning was found to be highest among women aged between 20 – 39 years compared to those below 20 years and above 39 years. Whereas 49 percent of the women that were using family planning services were aged 20- 29 years, 41 percent were aged between 30 - 39 years, while no woman aged 50 years and above was found to be using any form of family planning services. On the other hand, 4 percent and 6 percent of the women who were using family planning services were less than 20 years and between 40 – 49 years of age, respectively.

The findings could be explained by the fact that women aged between 20 - 39 years are likely to be married and at a high risk of getting pregnant. As result, they may resort to the use of birth control methods. Additionally, some of these respondents may also be using the services to protect themselves against sexually transmitted diseases, including HIV/AIDS. This compares to those aged 40 years

and above, who are not only sexually inactive but may be in their menopause and therefore there might be no need for them to use family planning services.

This finding is supported by Clements and Nyovani (2004) study which found the use of modern method of contraception to be lowest for women aged between 15 - 19 years as compared to those aged between 30- 39 years in Tanzania. In Zimbabwe, they found use of modern contraception to be lowest for those aged between 45- 49 years, as compared to women aged between 30-39 years. The finding is further supported by Njogu (1991), Giusti and Vignoli (2006) studies which found that the use of family planning services increased between the ages of 20 – 45 and declined thereafter.

#### **b) Women's Level of Education**

An educated woman is expected to be exposed and well informed about the benefits of family planning services. The exposed woman is thus expected to make a positive decision regarding use of the services. The level of education of the respondents is reported in table 4.2.

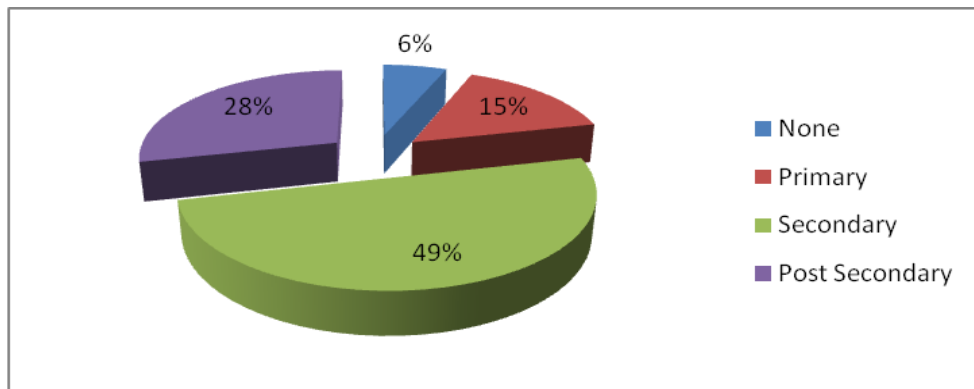
**Table 4.2: Women’s Level of Education**

<b>Level of Educ. of the Woman</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
None	10	2	2
Primary	105	21	23
Secondary	295	59	82
University	70	14	96
Others	20	4	100
Total	500	100.0	

**Source: Survey Data 2010**

The table reveals that whereas majority of the respondents had low levels of education, a few respondents had however not acquired any formal education. Seventy three (73) percent of the women had post primary education, with 59 percent of the women reporting secondary and 14 percent university education. On the other hand, 21 percent and 4 percent of the respondents reported having acquired primary education and a broad category of education (referred to as others) respectively. This broad category of respondents included certificate, diploma holders including computer studies, industrial training, accountancy holders, just to name but a few. Notwithstanding this, about 2 percent of the respondents had not acquired any formal education at all.

Given the low education level among these respondents, knowledge of family planning was expected to be low, thereby contributing to low use of family planning services. The results clearly reveal that majority of the women in slums have only acquired basic education, which as revealed in the literature, could have a negative implication on the use of family planning services (Republic of Kenya, 2009). Figure 4.6 shows the use of family planning services among respondents in relation to their level of education.



**Figure 4.6: Woman’s level of education and use of family planning services**

The figure shows that majority of the respondents that were using family planning services had post primary education, while the least users of family planning services were those with no education at all. More specifically, 49 percent of the users of family planning services had secondary education compared to 28 percent of those with university education. Only 15 percent of those with only primary education and 6 percent of those with no education used the services.

The results of this study, supports Ismet (2000) study that found that the use of modern method of family planning tended to increase with educational level of a woman. Moreover Clement and Nyovani (2004) also established that modern contraceptive use increased with the educational level of a woman in Tanzania. This finding also compares with Oyedokun (2007) who found the use of family planning services to be high for women who had more years of schooling in Nigeria.

#### **c) Partner's Education Level**

Like in the case of woman's educational level, the level of education of the spouse/partner was expected to influence positively the use of family planning services. Table 4.3 presents the summary of the respondents' responses regarding their partner's level of education.

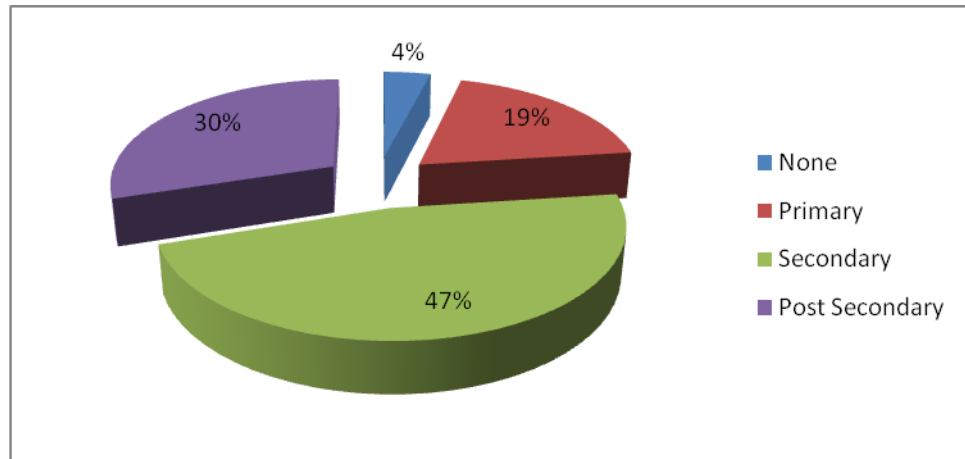
**Table 4.3: Partner’s Level of Education**

<b>Partner’s level of Education</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
None	60	12	12
Primary	175	35	47
Secondary	225	45	92
Diploma	30	6	98
University	10	2	100.0
Total	500	100.0	

**Source: Survey Data, 2010**

Forty five (45) percent of the women reported that their spouses had secondary education, while 35 percent had primary education. On the other hand, 12 percent of the respondents reported that their spouses had not acquired any education at all, while 6 percent and 2 percent had diploma and university education, respectively.

Like in the case of the woman’s level of education, partner’s education level had some influence on the use of family planning services. This is because an educated partner is expected to have some knowledge on the importance of family planning and therefore able to make an informed decision to use the services. This is shown in figure 4.7.



**Figure 4.7: Partner’s level of education and use of family planning services**

As indicated in the figure, 47 percent of the women who were using family planning services reported that their partner’s had secondary level of education. This compares with only 4 percent whose partners had no education at all. This finding supports Clements and Nyovani (2004) study which found that a woman was more likely to use modern contraceptive method if the partner had acquired formal education in Ghana. Similar results were also reported by Clements and Nyovani (2004) in Tanzania where it was found that women with partners who had completed primary education and some secondary or higher education had a significantly higher use than those with no education.

This study is further supported by Nazar-Beutelspacher *et al.* (1999) who established that although availability of family planning services regulated the

direct effect of schooling on contraceptive practice, lack of education remained an important predictor of non-use of contraceptives among women in Mexico.

**d) Religious Background of the Woman**

From the reviewed literature, religious background of a woman is likely to have an effect on the use of family planning services. Table 4.4 provides religious background of the respondent.

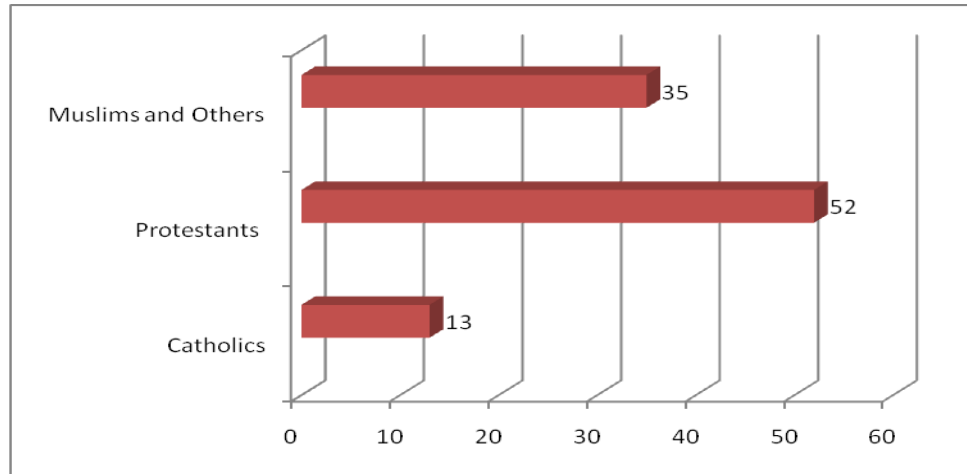
**Table 4.4: Religious Background of the Respondents**

<b>Religion of Women</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Catholics	175	35	28
Protestant	250	50	94
Muslims and others	75	15	37
Total	500	100.0	

**Source: Survey Data 2010**

The table shows that the majority of the respondents were Protestants, followed by Catholics and finally Muslims, More specifically, 50 percent of the respondents were Protestants, 35 percent were Catholics, and 9 percent were Muslims and

others. The relationship between religion and the usage of FP services is presented in figure 4.8.



**Figure 4.8: Use of family planning services and religion of the respondent**

As shown in the figure, out of the 51 percent of the women that were using family planning services, 52 percent were Protestants, 35 percent were Muslims and others while only 13 percent were Catholics. The study thus reveals that Catholics use family planning services the least. As revealed in the literature review this could be explained by the fact that Catholic faith discourages use of modern family planning services, preferring the use of natural methods such as observation of menstrual cycles and safe days of a woman.

#### e) Marital Status of the Respondents

Married couples are expected to use family planning services more than single ones. This is because married couples are at a high risk of getting pregnant. In table 4.5, a summary of the marital status of the women is provided. As shown in the table, majority of the respondents were married while less than a quarter were either separated or widowed.

**Table 4.5: Marital Status of the Respondents**

<b>Marital Status</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Married	295	59	59
Single	165	33	92
Separated	15	3	95
Widowed	15	3	98
Divorced	10	2	100.0
Total	500	100.0	

**Source: Survey Data, 2010**

Whereas 59 percent of the women were married, 41 percent were single. Out of those who were single, 3 percent were widowed while 5 percent were separated. In terms of use of family planning services, 63 percent of respondents using the services were married, while the remaining 37 percent were either single, widowed

or separated. Married women could be using family planning services more than single woman due to high incidences of sexual activities among married couples compared to single women. Use of contraceptives could be aimed at helping to space children and prevent unwanted pregnancy.

The finding is supported by Clements and Nyovani (2004), Mroz *et al.* (1999) and Thomas and Malucio (1995) studies which found that the married women were the most likely to be using a modern method. The finding however contradicts Oliver (1995) study which found that modern contraceptive use for never married women was relatively high.

#### **f) Partner's Approval to use Family Planning Services**

Based on the literature reviewed and the results of the 2008-9 demographic health surveys, partner's approval for the use of family planning services is important. Table 4.6 provides a summary of the respondents' responses regarding partners' approval before using family planning services.

**Table 4.6: Partner's Approval before Using Family Planning Services**

<b>Partner's Approval</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Yes	280	56	56
No	115	23	79
None	105	21	100.0
Total	500	100.0	

**Source: Survey Data 2010**

From the table, 56 percent of the women sought partner's approval before using contraceptives, while 23 percent did not bother seeking partner's approval before using any method of family planning services. Similarly, 21 percent of the respondents indicated neither yes nor no. This is an indication that either the respondents might not be having a regular sexual partner whom they could seek approval from, or that they were not sexually active.

The high percentage of those who sought approval from a partner clearly indicates the importance of a partner's consent in making a final decision on use of family planning services. This finding is supported by Oyedokun (2007) and Jayaraman (1995) studies. Jayaraman (1995) for instance, found that in Vanuatu and Melanesian states of Philippines, traditional values required women to play a subservient role to men who were considered as warriors and diplomats. As a

result, women had to consult their husbands before making decision on the use of family planning services.

**g) Number of Living children**

The number of living children is likely to affect the use of family planning. This is because those with few children or no children are the most likely to use family planning services in comparison to those with many children. Table 4.7 provides the summary in terms of the number of living children by women.

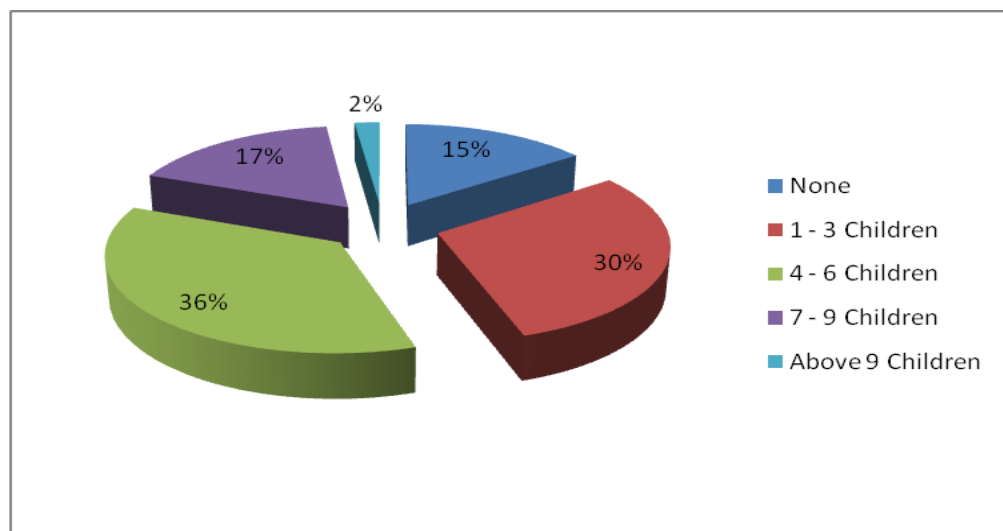
**Table 4.7: Number of Living Children**

<b>No. of Living Children</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
None	50	10	10
Between 1-3	165	33	43
Between 4 – 6	210	42	85
Between 7 – 9	60	12	97
Above 9	15	3	100
Total	500	100.0	

**Source: Survey Data 2010**

Majority of the respondents had more than three living children. Out of these, 42 percent had between 4 – 6 children, while 12 and 3 percent had between 7 – 9 and

over 9 living children, respectively. On the other hand, 33 percent had between 1 – 3 children, while 10 percent did not have any child. This reveals that women in the slums have many children, which signifies general low uptake of family planning services. Figure 4.9 provides a summary of use of family planning services among these women in comparison with the number of living children.



**Figure 4.9: Use of family planning services and number of living children**

As shown in the figure, women with more living children were using family planning services more compared to those with fewer children. Specifically, out of the women that were using family planning services, 36 percent had 4 – 6 children, followed by those with between 1-3 living children at 30 percent. On the other hand, 17 percent of those respondents using family planning services had between 7 – 9 living children, while 15 percent had no living child. This reveals that the higher the number of living children, the more the desire to use family planning

services. This is because with more children might not be having desire for children as the desire has already been satisfied.

Additionally, this could be attributed to fact that by the time a women has such number of children, chances are that the woman is past reproductive and sexually active age. This finding is supported by Ismet (2000) study which found that couples with three plus children had the highest proportion of contraceptive use. It was observed in the study that women with sons were most likely to practice contraception.

#### **h) Desire to have Children**

Desire for children by the woman was considered as a key variable in the utilization of family planning services. This is because women who have desire for children are likely to shun the use of family planning services. The respondents' responses in terms of desire for children are summarized in Table 4.8.

**Table 4.8: Desire to have Additional Children**

<b>Desire for Children</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Yes	205	41	41
No	295	59	100.0
Total	500	100.0	

**Source: Survey Data 2010**

Fifty nine (59) percent of the couples reported having no desire to have children, while 41 percent reported desire for more children. This finding supports the previous finding wherein it was reported that a high percentage of women had many children and therefore lacked the urge for more. The findings could be a pointer of the moderate use of family planning services by women in the city slums.

Desire to have children was attributed to many factors, including a cultural perception that more children signified a source of wealth. Those who had girls only needed boys to satisfy their parent in-laws, who insisted on them getting boys. On the other hand, those who reported no desire for children cited having enough children, not being married and economic factors, especially lack of necessary resources to take care of the children, to have contributed to lack of desire for additional children. Out of those with a desire to have more children, only 11 percent were using family planning services, while 89 percent were not.

The finding positively compares with Jayaraman (1996), who found that women who desire to have more children used contraceptives the least as compared to those who had no desire. According to Jayaraman (1996), women demanded children due to various perceived benefits. The benefits arise from their contributions to supplement family incomes. For instance, in traditional societies Jayaraman (1996) noted that, young children helped parents on their farms and in women enterprises, while in poor families with no property or assets of any kind; they worked for wages outside homes to supplement the family resources. This finding could be a reflection of the situation in slums in Kenya where children are perceived to provide a form of “social security” to parents in their old age.

#### **i) Employment Status**

Employment is important as it provides a source of livelihood as well as economic backing for making sound decision by women including use of family planning services. In table 4.9, employment status of the surveyed respondents is provided.

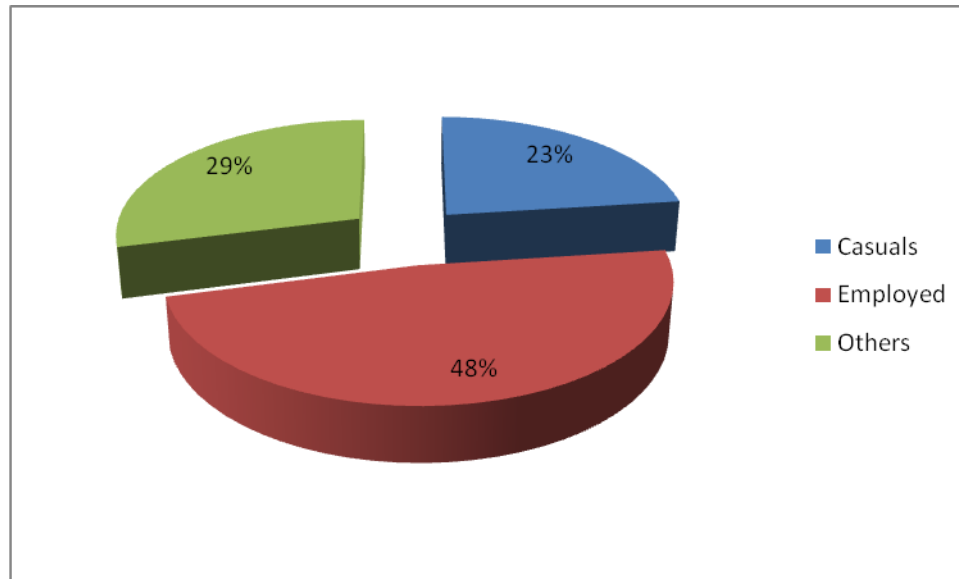
**Table 4.9: Employment Status of Respondents**

<b>Employment Status</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Casual	140	28	29
Employed	125	25	53
Others	235	47	100
Total	500	100.0	

**Source: Survey Data 2010**

Majority of the respondents were at least engaged, although as casuals or salaried employees while the rest were categorized as others. This category of others include those moving around doing manual jobs, hawking, or even selling vegetables, roasting maize, selling fish, among others. Specifically, 28 percent of the respondents were casuals, 25 percent were salaried employees, while the remaining 47 percent were either self employed or could not specifically specify what they do to earn a living.

It was expected that, employment status of the respondents could have effect on use of family planning services. This is because an employed woman is expected to be empowered economically and therefore able to make the necessary decision with minimal consultation of the partner. Figure 4.10 presents use of family planning services in relation to employment status of the respondents.



**Figure 4.10: Employment status and use of family planning services**

The figure reveals that out of the total number of respondents using family planning services, 48 percent were employed, 29 percent were those categorized as others, while casuals constituted the remaining 23 percent. The high rate of users among the employed could be attributed to various factors. First, employed people may access the services at work place or alternatively, working people may not be willing to take up the responsibilities of looking after children. Additionally, these people are most likely to be exposed to various sources of information regarding family planning services given the interaction they encounter at their work place.

In the end, they are likely to appreciate the importance of using family planning services, hence ending up using the services. As reported by Jayaraman (1996), in societies where women were relatively independent due to economic factors such

as employment and income, they had greater say in decision making. In this regard, therefore, women in employment are likely to make a positive decisions regarding use of family planning services.

**j) Average Monthly Income**

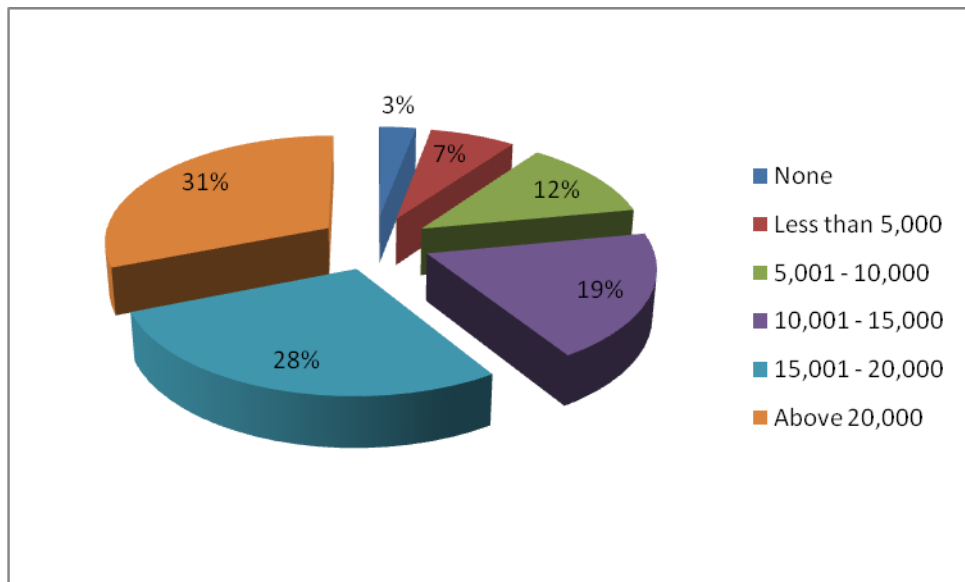
Like in the case of employment, women who have income are likely to be economically independent and therefore able to make necessary decision affecting family planning services. Table 4.10 provides the summary of the average monthly income of the women in slums.

**Table 4.10: Average Monthly Income**

<b>Average Monthly Income</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
No income	155	31	100.0
Below 5000	50	10	10
5,000-10,000	185	37	47
10,000 – 15,000	55	11	58
15,000- 20,000	55	11	69
Total	500	100.0	

**Source: Survey Data, 2010**

While 37 percent of women surveyed earned between Ksh. 5,000 – 10,000, 10 percent of the respondents earned below Ksh. 5,000, and about 31 percent reported no income at all. This finding is linked directly to the findings in terms of employment status of the respondents reported earlier. This implies that many women in slums earn meagre incomes while others earn no income at all. The low level of income for the women has a direct effect on the women’s ability to access family planning services as summarized in figure 4.11.



**Figure 4.11: Woman’s level of income and use of family planning services**

As presented in the figure, out of the total number of respondents using family planning services, 31 percent had an average monthly income of Ksh 20,000 and above while 28 percent had an average monthly income of between Ksh. 15,000 to 20,000. On the other hand, 7 percent of users had an average monthly income of

less than 5,000. Those with no income were, however, the least users of family planning services. The results thus reveal that in the absence of an income source, usage of family planning would decline.

**k) Knowledge of Family Planning Services**

Knowledge about family planning services is likely to have a positive implication on family planning services. Table 4.11 provides a summary of the respondents' responses in terms of their knowledge regarding family planning services.

**Table 4.11: Knowledge of Family Planning Services**

<b>Response</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Yes	310	62	62
No	190	38	100
Total	500	100.0	

**Source: Survey Data 2010**

A sixty two (62) percent of the respondents were aware of family planning services, while 38 percent were not. Awareness amongst these respondents was attributed to friends, media, spouses, health workers as well as health facilities. The high percentage of women who had no knowledge about family planning services is bound to have a negative implication in terms of usage of family

planning services. As revealed in the literature review, low utilization of family planning services was partly attributed to lack of knowledge on the existence of the various types of family planning services in the market (APHRC, 2001).

Among respondents who had knowledge about family planning services 72 percent were using family planning services, while the remaining 28 percent were not using the services. The finding points out that knowledge about family planning services affects the use of family planning services among women in slums. As observed by Oyedokun (2007), women who are aware about family planning methods use the services more than those who are not aware.

#### **4.5 Facility Factors determining the use Family Planning Services**

The second objective of the study was to examine facility factors that affect the use of family planning services by the respondents in city slums. In this subsection, an attempt was made to achieve the objective using descriptive statistics based on the responses received. Various facility factors were identified and considered in the study. These included family planning provider, quality of family planning services, availability of family planning services, user fees charged for family planning services, and proximity of the family planning facility.

### a) Family Planning Service Provider

Family planning services at any given time are expected to be dispensed by different providers. Figure 4.12 reveals existence of multiple sources of family planning services ranging from health facility to pharmacy, workplace as well as shops/kiosks.



**Figure 4.12: Family planning service providers**

Out of the 51 percent of the respondents who used family planning services, 49 percent obtained the services from health facilities, 15 percent from pharmacies, and a paltry 6 percent from both workplace and mobile health facility. On the other hand, 30 percent of the respondents could not specify the source of the services. These results clearly point out that government and other stakeholder's

sponsored large scale provision of family planning services might not be working effectively, especially in the slums.

As a result, there is likely to be a negative implication on the use of family planning services amongst these women. However, with multiple sources of family planning services, quality could be compromised, since incidences of selling expired and sub-standard commodities to users is likely to be rampant.

#### **b) Quality of Family Planning Services**

Quality of a product is critical, since many a times consumers are bound to base their consumption decision on the quality. Table 4.12 summarizes the responses about the respondents' perception with regard to the quality of the family planning services provided.

**Table 4.12: Quality of Family Planning Services**

<b>Quality of FP Services</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagreed	35	7	7
Disagreed	60	12	19
Uncertain	200	40	59
Agreed	155	31	90
Strongly Agreed	50	10	100.0
Total	500	100.0	

**Source: Survey Data 2010**

Whereas 40 percent of the respondents were uncertain about the quality of family planning services provided, 41 percent agreed that quality was good, while 19 percent were of the opinion that quality was not good. There is a possibility that women who were uncertain about the quality could be among those who were either unaware of the availability family planning services or not using the services, and therefore had no way of gauging the quality of family planning services.

Given the multiple sources of family planning services in slums, quality of the services was bound to be compromised, especially in slums where monitoring by health officials was likely to be limited if at all it existed. Out of the 41 percent

that agreed that quality of the services was good, 86 percent were using the services, while the remaining 14 percent were not using the services. The results reveals that although quality is an important consideration in making a decision regarding family planning services, other factors could also account for the use of the services among these respondents.

As revealed by Maletela *et al.* (2004), availability of quality infrastructure was important in determining the use of family planning services in health facilities. For instance, the conditions of the examination room could affect the quality of care given, which was likely to have negative implication on the clients' satisfaction with the facility.

### **c) Availability of Family Planning Services**

Table 4.13 presents the summary of women's' responses in terms of availability of family planning services.

**Table 4.13: Availability of Family Planning Services**

<b>Availability of FP Services</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagreed	15	3	3
Disagreed	50	10	13
Uncertain	140	28	41
Agreed	180	36	77
Strongly Agreed	115	23	100.0
<b>Total</b>		<b>100.0</b>	

**Source: Survey Data 2010**

About 60 percent of the respondents were in agreement that family planning services were available, while the remaining 40 percent were uncertain or disagreed. Specifically, a whopping 59 percent of the respondents supported the fact that family planning services were readily available, 28 percent were uncertain, while 13 percent disagreed that FP services were available. Whereas availability of family planning services could be attributed to the fact that there are multiple sources of family planning services (including shops, health facilities and workplaces), uncertainty about the services could have been attributed to lack of awareness and use by the respondents. This percentage is worrying and therefore may need to be addressed by the stakeholders involved in family planning programmes, especially in slums.

#### **d) Proximity of Family Planning Services Provider**

Distance to a family planning facility may affect the respondents' decision to use family planning services. This is because as revealed in the literature, the further away the provider is, there are likely to be some embedded costs such as transport or transaction costs which are likely to influence the use of services negatively. Table 4.14 provides a summary of the respondents' responses regarding distance to the family planning service provider.

**Table 4.14: Proximity of Family Planning Provider**

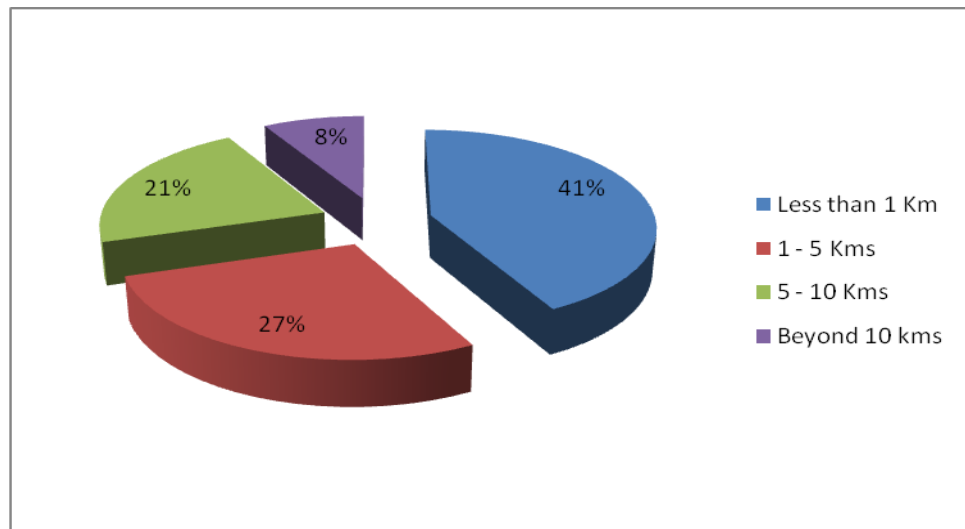
<b>Proximity to FP provider (Kms)</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Less than 1	240	48	48
1-5	170	34	82
5-10	55	11	93
Beyond 10	35	7	100
Total	500	100.0	

**Source: Survey Data 2010**

Majority of the respondents were of the opinion that family planning providers were within a walking distance, while others observed otherwise. Specifically, 48 percent of the respondents observed that providers of family planning services were within a walking distance of less than one kilometre, 34 percent were within

a distance of between one and five kilometres, while 11 percent were within a distance of between five and ten kilometres. Overall, 93 percent of the respondents were within a distance of less than ten kilometres.

In terms of use of family planning services in relation to proximity to the provider, figure 4.13 presents the summary.



**Figure 4.13: Proximity to the provider and use of family planning services**

The figure reveals that 41 percent of the users of family planning services lived within a distance of less than one kilometre, 27 percent lived between 1 and 5 kilometres, while an 8 percent lived beyond a distance of 10 kilometres. It is thus clear that distance could explain partly the use of family planning services among these women.

**e) Friendly Staff at Facility**

Friendly staff are expected to attract repeat purchase of a product in this case family planning services. Table 4.16 provides a summary of the respondents' perception about the friendliness of staff who administer or sale family planning services.

**Table 4.15: Friendliness of Family Planning Service Providers**

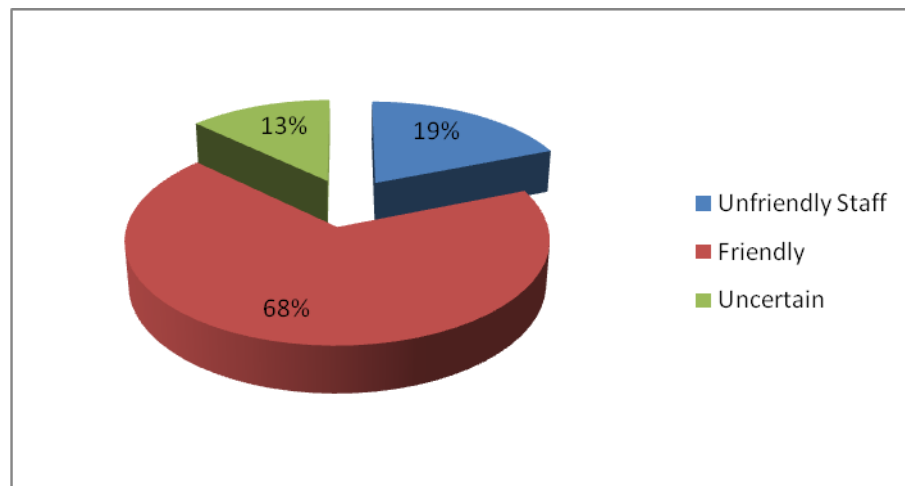
<b>Friendliness Staff at FP provider</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Unfriendly	40	8	8
Uncertain	195	39	47
Friendly	265	53	100
Total	500	100.0	

**Source: Survey Data 2010**

While 53 percent of the respondents indicated that staff who administer or sell family planning services were friendly, 39 percent were uncertain about the friendliness of the staff. On the other hand, only 8 percent of the respondents did not find the staff to be friendly. The high percentage of respondents who were uncertain about the friendliness of the staff could be further contributing factor

towards low levels of uptake of family planning services among women in the slums.

As revealed in figure 4.14, 68 percent of the respondents who were using family planning services perceived the staff to be friendly while 19 percent perceived the staff to be unfriendly. The remaining 13 percent were uncertain about their perception regarding the staff.



**Figure 4.14: Friendliness of staff and use of family planning services**

It is important to note that if customers are not comfortable with the way they are treated while in search of a service, they are bound to shy away depending on the sensitivity of the service being sought. Some respondents, for example, cited being shouted at by nurses in a family planning clinics and lack of confidence on those who were involved in the provision of the services, as factors that discouraged

them from seeking the services in future. From customer care management, a disillusioned customer is likely to spread the information to others compared to a satisfied customer (Smit *et al.*, 2002).

**f) Cost of Family Planning Services**

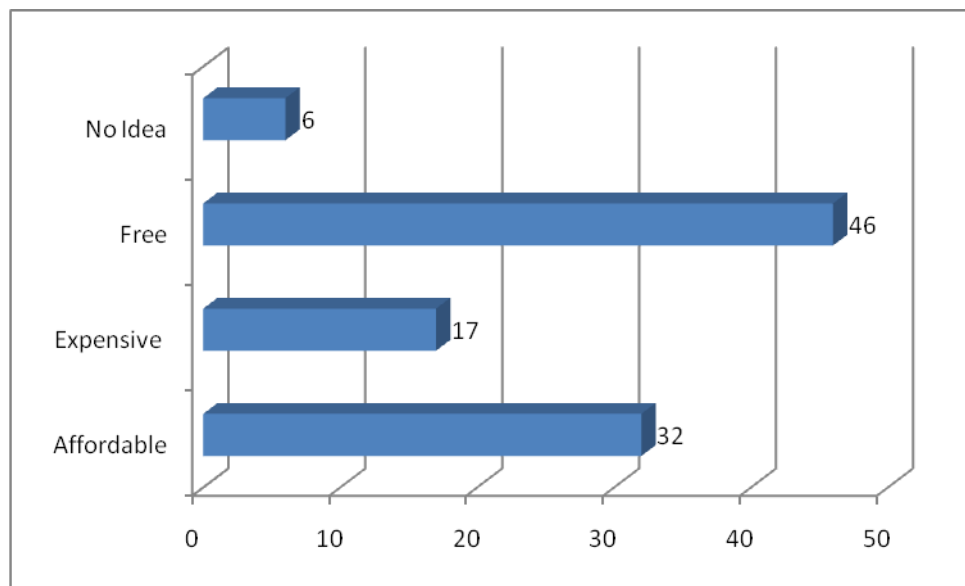
The cost of family planning services constitutes the price of family planning services as well as consultation fees charged by the doctor/clinician. Other costs include lab tests and costs of inputs such as gloves. Although in many public health facilities family planning services are free, these costs may sound discouraging. Table 4.16 shows the women’s responses in terms of cost of family planning services.

**Table 4.16: Cost of Family Planning Services**

<b>Cost of FP Services</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Expensive	45	9	9
Affordable	185	37	46
Free	150	30	76
No Idea	120	24	100.0
Total	500	100.0	

**Source: Survey Data 2010**

Whereas 30 percent of the respondents were of the opinion that family planning services was free, 37 percent were of the opinion that the services were affordable. Another 24 percent of the respondents had no idea about the cost of family planning services, whereas 9 percent were of the opinion that the services were expensive. Figure 4.15 shows the use of family planning services in relation to woman perception on cost of the services.



**Figure 4.15: Cost and use of family planning services**

Out of the total number of respondents that used family planning services, 45 percent of the respondents indicated that the cost of the services was free, 32 percent found the services affordable, while 6 percent found the service expensive. The remaining 17 percent had no idea whether cost of the services were expensive or not. This finding reveals that the cost of family planning service is an important determinant of the use of family planning services. This finding on one hand

contradicts Lewis (1986) while on the other hand supports Lewis (1986). Whereas in Sri Lanka, Colombia and Thailand Lewis (1986) found that prices parsee had no effect on demand for contraceptives, in Jamaica, the study found that demand rose with price increases.

**g) Promotion of Family Planning Services by Health Workers**

Creation of awareness on the importance and availability of family planning services among potential users is likely to facilitate uptake of the product. Table 4.17 summarizes respondents’ views with regard to promotion of family planning services by health workers among other stakeholders.

**Table 4.17: Promotion of Family Planning Services**

<b>Promotion of FP Services</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagreed	20	4	4
Disagreed	40	8	12
Uncertain	190	38	50
Agreed	170	34	84
Strongly Agreed	80	16	100.0
Total	500	100.0	

**Source: Survey Data 2010**

Although 50 percent of the respondents agreed that there was promotion of family planning services in the slums, the remaining 50 percent were either uncertain or disagreed. The high percentage of respondents who were uncertain or in disagreement could explain why majority of them obtained the family planning services from either shops or pharmacies. Further, lack of awareness could be attributed to lack of access to information regarding the services. The inability to access such important information is bound to affect the woman's ability to make an informed decision on uptake of family planning services.

#### **h) Availability of Family Planning Workers**

Use of family planning is likely to be affected by availability of family planning workers, who, not only administer the services, but also promote the use of the services at household level. Table 4.18 provides the respondents' views on the availability of family planning workers.

**Table 4.18: Availability of Family Planning Workers**

<b>Availability of FP Workers</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
None Available	65	13	13
Uncertain	140	28	41
Available	295	59	100
Total	500	100.0	

**Source: Survey Data 2010**

While 59 percent of the respondents were in agreement that family planning workers were available, 28 percent of the respondents were uncertain about the availability of the workers. On the other hand, 13 percent of the respondents were of the opinion that family planning workers were not available. This finding supports the previous findings where 38 percent of the respondents were uncertain about the promotion of family planning services by family planning workers.

This finding supports Kamal (1994) who revealed that rapid increase in Bangladesh's contraceptive prevalence rate was in part attributed to the introduction of grassroots-level family planning workers known as Family Welfare Assistants (FWAs). This percentage puts to question the commitment made towards increased uptake of family planning services amongst slum dwellers. This

is because non availability of family planning workers to promote use of family planning services not only limits awareness, but also limits stimulation of demand for the services. In the end, there will be low utilization of family planning services.

#### **4.6 Economic Effects of Family Planning Services**

The third objective of the study was to examine the microeconomic and macroeconomic effects of demand for family planning services by slum dwellers. To realize this objective, data was collected from respondents on their perception in terms of microeconomic and macroeconomic effects of use of family planning services. In this sub-section, descriptive statistics in terms of their perception are analyzed and reported. Various stakeholders, including government, donors, NGOs, CBOs and employers, provide family planning services due to various reasons. The reasons for provision of family planning services by these groups could range from economic to social as well as health and. In this study, only economic reasons are considered from the respondents' perception.

##### **a) Family Planning Services and Woman Income**

Inability to use the family planning services has an implication on the woman's income. This is because inability to use family planning services has an effect on

fertility rate which affects household's income negatively. Table 4.19 provides the summary of the informants' responses regarding use of family planning services and its effect on her income.

**Table 4.19: Family Planning Services and Woman Income**

<b>FP Services and Resp. Income</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagreed	40	8	8
Disagreed	50	10	18
Uncertain	160	32	50
Agree	145	29	79
Strongly Agreed	105	21	100.0
Total	500	100.0	

**Source: Survey Data 2010**

Whereas 50 percent of the respondents agreed that family planning services had some effect on their income, 32 percent were uncertain and the remaining 18 percent were in disagreement. The uncertainty about whether or not family planning services affect respondent's income could be attributed to the fact that a number of respondents were not using family planning services, therefore making them unable to categorically state whether or not the uptake of family planning services had effect on their income.

## b) Family Planning and Child Mortality

Family planning permits individuals to influence the timing and the number of births, which is likely to save lives of children. In the end, use of family planning services is expected to positively contribute towards reduction in child mortality. Table 4.20 shows respondents' views with regard to use of family planning and child mortality.

**Table 4.20: Family Planning Services and Child Mortality**

<b>FP Services Effects on Child Mortality</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagreed	20	4	4
Disagreed	55	11	15
Uncertain	190	38	53
Agreed	130	26	79
Strongly Agreed	105	21	100.0
Total	500	100.0	

**Source: Survey Data 2010**

Forty seven (47) percent of the respondents agreed that the use of family planning services contributed towards decline in child mortality, while 38 percent of the respondents were uncertain. On the other hand, 15 percent of the respondents disagreed that family planning services contributed towards reduction in child

mortality. The high proportion of those in support, demonstrates that as a bold step towards the realization of the millennium development goal of reducing child mortality, enhancing uptake of family planning services is inevitable. Those who disagreed noted that child mortality in the slums was partly due to the environment the children were exposed to and not merely family planning services.

### c) Family Planning and Maternal Health

Use of family planning services facilitate the reduction in unwanted pregnancies, injury, illness and death associated with child birth as well as abortions. In the process, this is likely to improve the health of the woman. Table 4.21 shows respondents' responses on the link between the use of family planning services and maternal health.

**Table 4.21: Family Planning and Maternal Health**

<b>FP and Maternal Health</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagreed	60	12	12
Disagreed	85	17	29
Uncertain	155	31	60
Agree	125	25	85
Strongly Agreed	75	15	100.0
Total	500	100.0	

**Source: Survey Data 2010**

Whereas 60 percent of the respondents either were uncertain or disagreed with the idea that family planning services had a positive impact on maternal health, the remaining 40 percent were in agreement. Those who disagreed observed that maternal health was affected by other factors and not necessarily family planning services. This further supports the earlier finding that people in slums were yet to understand the importance of uptake of family planning services.

#### **d) Family Planning Services and STIs**

Uptake of family planning services contributes towards reduction in incidences of sexually transmitted infections (STIs) including HIV/AIDS. Table 4.22 shows respondents' views regarding the relationship between the use of family planning services and STIs including HIV/AIDS.

**Table 4.22: Family Planning Services and Sexually Transmitted Infections**

<b>FP Services and STIs</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagreed	155	31	31
Disagreed	60	12	43
Uncertain	125	25	68
Agreed	85	17	85
strongly Agreed	75	15	100.0
Total	500	100.0	

**Source: Survey Data 2010**

Over 40 percent of the respondents did not support the use of family planning services to contain STIs including HIV/AIDS, while only about 30 percent supported use of family planning services in preventing sexually transmitted diseases. The remaining 25 percent were uncertain. The revelation is an indication that women in slums use family planning services for various other reasons other than family planning. This clearly demonstrates that among these women's, the uptake of family planning services serve dual purposes of family planning as well as prevention of STIs.

#### **e) Family Planning Services and Universal Education**

Low use of family planning services is likely to contribute towards high population growth which on the other hand is associated with high illiteracy rate and low education levels. This in the process makes it difficult to implement government programmes given their budgetary implications. Table 4.23 is a summary of the respondents' views on the relationship between family planning services and realization of universal education.

**Table 4.23: Family Planning Services and Universal Education**

<b>FP Services and Universal Education</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagreed	40	8	8
Disagreed	30	6	14
Uncertain	170	34	48
Agreed	155	31	79
Strongly Agreed	105	21	100.0
Total	500	100.0	

**Source: Survey Data 2010**

More than 50 percent of the respondents were in agreement that the use of family planning services would facilitate the realization of universal education. However, a significant 48 percent of the respondents were either uncertain or disagreed. This scenario indicates that people in the city slums were unable to understand the link between provisions of public goods by government, in this case universal education, and population growth. Inability to address this is likely to negatively affect the realization of the MDGs and the Vision 2030 as envisaged by the Government of Kenya (USAID/HPI, 2007, Republic of Kenya, 2007a).

#### **f) Population and Environment Conservation**

As earlier indicated, family planning contributes reduction in population growth which has a positive impact on preservation of the environment. Table 4.24 shows a summary of respondents' answers regarding the relationship between population and environment conservation.

**Table 4.24: Population and Environment Conservation**

<b>Pop. &amp; Environment Conservation</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagreed	60	12	12
Disagreed	45	9	21
Uncertain	125	25	46
Agreed	150	30	76
Strongly Agreed	120	24	100.0
Total	500	100.0	

**Source: Survey Data 2010**

Fifty four (54) percent of the respondents agreed that containing population growth had an effect on environmental conversation, while the remaining 46 percent of the respondents either disagreed or were uncertain. This finding suggests that in order to conserve the environment, population growth need to be contained. This can be realized through enhanced uptake of family planning

services at both woman and community level. However, given that a large percentage was either uncertain or disagreed, there is need to educate residents in the slums about the link between population growth and environmental conservation if the Millennium Development Goal of conserving the environment is to be realized.

**g) Family Planning and Women Empowerment**

Family planning services have been perceived to have an effect on women empowerment. Table 4.25 presents the relationship between family planning and women empowerment in slums as perceived by the respondents.

**Table 4.25: Family Planning and Women Empowerment**

<b>FP Services &amp; Women Empowerment</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagreed	30	6	6
Disagreed	45	9	15
Uncertain	170	34	49
Agreed	155	31	80
Strongly Agreed	100	20	100.0
Total	500	100.0	

**Source: Survey Data 2010**

It is clear from the table that 50 percent of the respondents were in agreement that the use of family planning services had effects on women in the society. However, the remaining 40 percent were either uncertain or in disagreed that utilization of family planning services contributed towards women empowerment in the society. One key reason that was cited by those who supported the idea was that with few children, a woman could have the time to be involved in economic activity instead of having to be bogged down with the responsibility of taking care of her children. In the end, a woman could have her own income to support her needs and those of other members of the family. This in the process is bound to contribute significantly to extended multiplier effects in the society.

#### **h) Unmet Needs and Provision of Public Goods**

Use of family planning services facilitate provision of public goods which could help realize the MDGs and Vision 2030 objectives in terms of immunization, clean water and sanitation, maternal health, and malaria. Table 4.26 provides a summary of the link between satisfying unmet needs and provision of public goods as perceived by the respondents in the slums.

**Table 4.26: Unmet Needs and Provision of Public Goods**

<b>Unmet Needs &amp; Provision of Public Goods</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagreed	10	2	2
Disagreed	50	10	12
Uncertain	170	34	46
Agreed	165	33	79
Strongly Agreed	105	21	100.0
Total	500	100.0	

**Source: Survey Data, 2010**

Fifty four percent of the respondents agreed that satisfying unmet needs could lead to improved provision of public goods such as basic education and health services. This is because the government could spend less revenue providing basic needs due to low population. On the other hand, 34 percent of the respondents were uncertain while 12 percent were in disagreed. This is a further indication of lack of awareness among the respondents.

### i) Fertility Rate and Demographic Bonus

Uptake of family planning services contribute towards reduction in fertility rate. This in the process has substantial economic benefits of contributing towards a shrinking share of the population consisting of dependent children at the same time as a greater share consisting of non working - age adults (known as “demographic bonus”). Table 4.27 shows the response on the perception of respondents in terms of the relationship between fertility rate and the reduction in the number of dependants who are either young or old.

**Table 4.27: Fertility Rate and Demographic Bonus**

<b>Fertility Rate &amp; Demographic Bonus</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagreed	20	4	4
Disagreed	60	12	16
Uncertain	205	41	57
Agreed	130	26	83
Strongly Agreed	85	17	100.0
Total	500	100.0	

**Source: Survey Data, 2010**

Fifty seven percent of the respondents were either uncertain or in disagreement about the relationship between uptake of family planning and demographic bonus, while the remaining 43 percent were in agreement. It is clear from the table that respondents in slums hold divergent views in terms of the contribution of family planning services towards reduction in demographic bonus (David *et al.*, 2002). This supports the earlier finding that showed that over 50 percent of the respondents had more than three children.

#### **j) Fertility Rate and Child Nutrition**

Low fertility rate imply few children, which in the end contribute towards provision of food to the members of the family. Table 4.28 presents the summary of the responses from the woman.

**Table 4.28: Family Planning Services and Child Nutrition**

<b>FP and Child Nutrition</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagreed	25	5	5
Disagreed	50	10	15
Uncertain	185	37	52
Agreed	130	26	78
Strongly Agreed	110	22	100.0
Total	500	100.0	

**Source: Survey Data 2010**

While 48 percent of the respondents agreed that uptake of family planning had positive effects on child nutrition, the remaining 52 percent were either uncertain or disagreed. As shown in the table, 15 percent disagreed that family planning services contributed towards improved child nutrition. The overwhelming positive response could be attributed to the fact that respondents could be using family planning service for purposes of spacing children, which in the process could affect child nutrition positively.

#### **k) Family Planning and Socio-Economic Development**

The use of family planning services is an important issue for the developing countries due to the benefits gained in terms of development through reductions in fertility levels. Specifically, uptake of family planning widens choices available to people, particularly women, by allowing individuals and society more opportunity for social and economic development. Table 4.29 provides the summary of the respondents' views with regard to family planning services and socioeconomic development.

**Table 4.29: Family Planning and Socio-Economic Development**

<b>FP Services and Socio-Economic Devt.</b>	<b>Frequency</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Strongly Disagreed	30	6	6
Disagreed	35	7	13
Uncertain	130	26	39
Agreed	125	25	64
Strongly Agreed	180	36	100.0
Total	500	100.0	

**Source: Survey Data, 2010**

Uptake of family planning services could positively contribute to socio-economic development in the society. A whopping 61 percent of the respondent supported this view while the remaining 39 percent were either uncertain or in disagreement with the view. The divergent views amongst respondents explain further why uptake of family planning services is low in the slums.

#### **4.7 Regression Results**

##### **4.7.1 Introduction**

In this sub-section, regression results to facilitate realization of objectives one and two are presented based on the equation 3.8 in chapter three. A binomial logit model was estimated and thereafter the marginal effects of the explanatory

variables derived. In the model, use of family planning services was the dependent variable and was used as a proxy for demand for family planning services. This took the value of one (1) if family planning services were used and zero (0) if otherwise.

The explanatory variables that were considered included age of the respondent, marital status, number of living children, average monthly income, educational level of the woman and partner, partners approval, proximity of family planning provider, price of family planning services, knowledge of family planning services, availability of family planning services, friendliness of the staff, quality of family planning services and religion of the respondent.

In order to determine the explanatory variables to use, correlation analysis was undertaken to establish the degree of correlation between the explanatory variables to avoid the problem of multicollinearity. Multicollinearity problem arises when two or more explanatory variables are highly but not perfectly correlated with each other. If two or more independent variables are sufficiently correlated, it becomes difficult to separate the effects of one explanatory variable on the dependent variable, from the effects of the others. However, explanatory variables are rarely uncorrelated with each other and so multicollinearity is a matter of degree. The degree of correlation between the explanatory variable is presented in the appendix six (6) in the appendices.

All the variables with a correlation of 0.50 and above were identified and only one of the variables was selected for use in the regression. For instance, the degree of correlation between age of woman and number of living children was 0.64. Number of living children was picked and age of woman dropped from the regression. The correlation between proximity to the family planning facility and price of family planning services was -0.50. Given that government health facility offers the services free of charge, proximity was considered an ideal proxy for price for family planning services. The further away from the facility a respondent is, the higher would be transport cost or transaction cost of accessing the facility.

The partner's approval was preferred over availability of family planning services. The choice of the variable was also influenced by the fact that marital status and partner's education had a correlation of 0.50. Since partners approval is already included, it was ideal to include marital status. The explanatory variables that were included in the regression were income, proximity, marital status, female education, knowledge of family planning services, partner's approval, number of living children, religion, friendliness of staff and quality of family planning services.

#### 4.7.2 Results of Logistic Regression

A logistic regression analysis was undertaken on the above variables to examine the significance of the use of family planning services. The results of the logistic regression are presented in table 4.30.

**Table 4.30: Results of Logistic Regression Analysis**

Dependent Variable	Use of Family Planning Services				
	Explanatory Variable	Coefficient	Z	P> z	[95 percent Conf. Interval ]
Marital Status	0.107	0.29	0.775	-0.628	0.843
Religion	-1.955*	-5.24	0.000	-2.685	-1.224
Partners Approval	7.362*	6.61	0.000	5.177	9.545
No. of living children	0.119	0.97	0.332	-0.122	0.361
Quality	1.023*	2.58	0.010	0.245	1.801
Proximity	-0.221*	-2.73	0.006	-0.380	-0.062
Friendly	1.125*	2.56	0.010	0.264	1.985
Income	0.011**	2.01	0.045	0.000	0.023
Women Education	-0.003	-0.05	0.958	-0.130	0.125
Knowledge of FP	1.369**	2.22	0.026	0.162	2.575
Constant	-2.945	-2.83	0.005	-4.984	-0.906 -2.945
<b>Pseudo R<sup>2</sup></b>	0.6843				
<b>LR chi<sup>2</sup>(10)</b>	468.56				
<b>Sample Size</b>	500.00				

\* Imply significance at 1 percent level while \*\* imply significance at 5 percent level.

Source: Derived from Data Analysis

From the table, all the coefficients of the explanatory variables had the expected sign except women education. Similarly, seven explanatory variables had coefficient that were statistically significant while the remaining three had coefficients that were statistically insignificant. The interpretation of the coefficient values is complicated by the fact that estimated coefficients from the model cannot be interpreted as the marginal effect on the dependent variable (Wooldridge, 2000). As a results, there was need to estimate the marginal effects.

#### **4.7.3 Diagnostic Tests**

Before interpreting the results of the logistic regression and estimating the marginal effects, diagnostic tests were conducted. These included normality list, tests for heteroskedasticity and the goodness of fit. It is useful to test whether a given data series approximates the normal distribution. This can be evaluated by checking how close the mean is to the median, whether skewness is approximately zero and whether the kurtosis is close to 3. However, a more formal test of normality is given by the Jarque-Bera (JB) statistic. The JB statistic follows a chi-square distribution with two (2) degrees of freedom (Wooldridge, 2000). In the case of JB test, the decision criterion is if the value is greater than the critical value of the chi-square, the null hypothesis of normality is rejected. In the study, all these measures were used to test for the normality of the data as presented in as appendix seven (7).

As shown in the appendix 7, the mean was not equal to the median while the skewness was greater than zero. In addition, the value of kurtosis was given by 51.871, which is far greater than three (3) while the JB value was far beyond the value of critical value of the chi square. All these measures clearly point out that the data was not normally distributed, therefore the null hypothesis that the sample exhibits normal distribution was rejected (Wooldridge, 2000). The results are however not worrying since the sample size was large, to neutralize the abnormality of the data.

Heteroskedasticity arise when the homoskedasticity assumption of  $Var(\varepsilon_i) = Var(Y_i) = \sigma^2$  is violated, giving rise to  $Var(\varepsilon_i) = Var(Y_i) = \sigma_i^2$  (Bollerslev and Wooldridge, 1992). This was tested using a residual graph as illustrated in appendix eight (8). The figure reveals that the residuals are scattered between 1.0 and -1.0. This shows that there is homoskedasticity since the values are scattered around the mean.

The Pseudo  $R^2$  of the regression was 0.68, which implies that the included explanatory variables explained only 68 percent of the variations in the use of family planning services among the respondents. The remaining 32 percent was explained by other explanatory variables not included in the model.

#### 4.7.4 The Marginal Effects

After establishing no diagnostic problem, the marginal effects were estimated (Woodridge, 2000). These are presented in table 4.31.

**Table 4.31: Results of Logistic Regression Analysis for Marginal Effects**

Dependent Variable	Use of Family Planning Services						
	dy/dx	Std. error	Z	P> z	[95percent Conf. Interval]		X
Marital Status	0.016	0.057	0.28	0.776	-0.095	0.128	0.640
Religion	-0.278*	0.086	-3.25	0.001	-0.446	-0.110	0.556
Partners Approval	0.829*	0.028	29.04	0.000	0.773	0.885	0.420
No of living children	0.018	0.019	0.95	0.343	-0.019	0.054	2.364
Quality	0.166**	0.079	2.08	0.037	0.009	0.322	0.622
Proximity	-0.033**	0.016	-2.14	0.033	-0.063	-0.003	3.158
Friendly	0.193**	0.093	2.09	0.037	0.012	0.373	0.701
Income	0.002***	0.001	1.74	0.081	-0.001	0.004	24.824
Woman Education	-0.001	0.009	-0.05	0.958	-0.019	0.019	10.123
Knowledge of FP	0.257***	0.139	1.85	0.064	-0.015	0.529	0.806

\* Imply significance at 1 percent level while \*\* and \*\*\* imply significance at 5 and 10 percent level of significance, respectively

Source: Derived from Data Analysis

As presented in table 4.32, all the explanatory variables had coefficients with expected signs except woman education, which was shown to negatively influence the use of family planning. The coefficient of woman education was, however, not statistically significant at 1 percent as well as 5 percent and 10 percent level of significance. Seven variables, namely marital status of the woman, partner's approval, number of living children, quality of family planning services, friendliness of family planning services providers, proximity to the provider, income of the woman and knowledge of woman on family planning services had coefficients with positive signs. This implies that they increase the likelihood of the respondent using family planning services. On the other hand, religious background of the woman, proximity to the provider and education level of the woman had negative coefficients. This implies that they reduce the likelihood of respondents using family planning services.

The coefficients of religion and partner's approval were statistically significant at 1 percent whereas the coefficients of quality of family planning services, proximity to the provider and friendly staff at facility were statistically significant at 5 percent. On the other hand, the coefficients of income and knowledge of family planning were statistically significant at 10 percent level. Marital status and number of living children had coefficients that were not statistically significant.

The most important determinant of the likelihood of respondents in the slums using family planning services was partner's approval, whose marginal effect was 0.83. This means that the probability of a respondent using family planning services was 83 percent higher where consent from partner was granted compared to where no consent was granted. The significance of this could be attributed to the fact that for a woman to use family planning services, partner's approval was critical. Otherwise if found using without the consent of partner it could be misinterpreted, thereby causing misunderstanding in a marriage.

The significance of partner's consent in the use of family planning services has been supported by findings of previous studies (see Phillips *et al.*, 1996; Curtis and Neitzel, 1996, Beksinska *et al.*, 2001; and Republic of Kenya, 2003). This finding is further supported by Mohamad *et al.* (1988), who found that in Indonesia, husband's approval of contraceptive was the most important determinant. Mohamad *et al.* (1988) further observed that partners who harboured traditions believes affected negatively the use of family planning services in societies. Further support for the finding is contained in APHRC (2001) study which contended that partner's disapproval of family planning was associated with a reduced probability of use of contraceptives.

The second most important determinant was religion, which took the value of one if Catholic and zero, otherwise. The marginal effect was negative 0.28, implying

that the probability of a woman using family planning services if she is a Catholic was 28 percent lower compared to others with different religious background such as Protestant and Muslims. This is because catholic faith discourages its faithfuls from using contraceptives as birth control measures. Faithfuls are instead encouraged to rely more on observation of menstruation cycles and natural safe days of a woman. This finding clearly indicates a significance difference in the use of family planning services between Catholics and other religions.

This finding compares positively with studies by Caldwell and Caldwell (1987), APHRC (2001) and Clement and Nyovani (2004). Caldwell and Caldwell (1987) in a study conducted in Nigeria found that within many traditional religions, there were likely to be high fertility norms and constraints on women's autonomy, which in the process impacts negatively on the ability of a woman to make meaningful decision regarding family planning services. APHRC (2001) in study on contraceptive dynamics in Kenya found Catholics to be using modern methods the least compared to Muslims and other religions. Clement and Nyovani (2004) in study conducted in Zimbabwe, Tanzania and Ghana found that women from traditional or other religions had the lowest use of contraceptives.

Knowledge of family planning services was found to be the third most important determinant of likelihood to use of family planning services with a marginal effect of 0.26. The likelihood of using family planning services would be 26 percent

higher for woman with knowledge of family planning services than those without. This clearly suggests that for increased uptake of family planning services, promotion that facilitates awareness about the available family planning services and their possible side effects and benefits is paramount. This finding supports empirical evidence by APHRC (2001), which showed that media exposure played an important role in family planning practice at the woman level. This according to APHRC (2001) was due to ability to access family planning messages over the radio and television.

Friendliness of family planning staff had a marginal effect of 0.19, implying that the likelihood of respondents using family planning services was 19 percent higher if family planning staff was friendly than when they were not. The significance of this determinant could be explained by the fact that provision of certain types of family planning services requires performance of some procedures by the person administering the services, for example injectables, hormone releasing implants and use of IUD.

With regard to quality of family planning services, the marginal effect was 0.17. This implies that the probability of a woman using family planning services was 17 percent higher for respondents who perceived the services to be of high quality than for those who perceived otherwise. The positive impact of quality could be attributed to the fact that in the process of making a decision on using family

planning services, perceived quality of the service is given a high consideration as supported by theory whereby taste and preference is an important factor in making demand decision (Hardwick *et al.*, 1993).

This finding supports studies by Mensch *et al.* (1994), Feyisetan and Ainsworth (1996), Omondi-Odhiambo (1999) and Maletela *et al.* (2004). While Mensch *et al.* (1994) found that quality of care had an impact in reducing unwanted and unplanned births in Peru, Feyisetan and Ainsworth (1996) found that the effect of service quality variables had strong effect on contraceptive use in Nigeria. Omondi-Odhiambo (1999) revealed that fear of side effects as well as sterility were the objection of use of family planning services in Kenya. Maletela *et al.* (2004) found that quality of infrastructure in health facilities was important in the use of family planning services. In a study by Abiodun and Balogun (2009), side effects of modern contraceptives was the most common reason for non-use of the services among female students attending tertiary institutions in Nigeria.

Proximity to family planning services provider, which was used to proxy price of family planning services, had a marginal effect of negative 0.03. This implied that the further away from the family planning services provider, the lower the likelihood of seeking the services by 3.3 percent. The negative impact of distance from the service provider could be attributed to the fact that when the provider is far away from the woman, there is bound to be some imbedded costs component in

terms of transport and transaction costs as well as waiting and travelling time, which may discourage a person from seeking the services.

This study results do in a way contradict the study by McNamara (1999), which found that travel effect was a weak complement to hospital services delivered at a particular location, since patients would visit facilities further away from their residential location, thus leaving the nearest options in order to derive the desired satisfaction. This inconsistency could be attributed to the fact that whereas health services are considered to be necessity, family planning services may not. In addition, couples in slums are yet to fully embrace the importance of family planning services. The last statistically significant variable was income, which had a marginal effect of 0.002, implying that an increase in average income of a woman by Kshs. 1,000 increased the likelihood of using family planning services by 2 percent.

Marital status and number of living children had each a marginal effect of about 0.02, although they were not statistically significant at either 1 percent, 5 percent and 10 percent. The positive influence of marital status on the likelihood of using family planning services could be attributed to the fact that couples might decide to postpone raising children by resorting to use of family planning services. This is supported by the finding in sub-section 4.2 where it was found that married couples were using family planning services more than singles. The value of the

marginal effect simply means that a married woman is 2 percent more likely to use family planning services than a single woman.

Whereas these findings contradict Olivier (1995), it supports Mroz *et al.* (1999), while Oliver (1995) found modern contraceptive use for never married women to be relatively high, Mroz, *et al.* (1999), found that married couples were the most likely to use modern method. Clements and Nyovani (2004) found that women who were newly married were much less likely to use contraceptives than those in polygamous or monogamous unions.

Finally, the positive influence of the number of living children on the likelihood of using family planning services could be attributed to the woman's desire for children having been satisfied. Mahidu *et al.* (1998) for instance found that once the teenage women and newlyweds had a child, contraceptive use prevalence rose to a level comparable to that of women in their twenties.

## **CHAPTER FIVE**

### **SUMMARY, CONCLUSIONS AND POLICY IMPLICATIONS**

#### **5.1 Introduction**

This chapter provides a summary of the study findings as well as conclusions based on the study. It ends with the policy implications and areas for further research.

#### **5.2 Summary**

The government of Kenya, in collaboration with other stakeholders, has put in place various strategies and policies to facilitate uptake of family planning services. This is considered a bold step towards reducing the fertility rates, increasing contraceptive prevalence rate and reducing unmet need. The concerted efforts have been necessitated by various factors including high total fertility rate and low contraceptive prevalence rate. High TFR together with high unmet need for family planning services and low CPR contribute towards high population growth, which in turn has economic effects.

Despite the strategies and policy measures that key stakeholders have initiated over time, the total fertility rate still remains high at 4.6 percent, while the CPR

and unmet need for family planning are estimated at 46 percent and 24 percent respectively. This raises questions that the study attempted to provide solutions. The specific objectives of the study were to determine the demographic and socioeconomic factors that affect the women's demand for family planning services in city slums in Kenya; to assess the influence of facility/provider factors on the demand for family planning services and to find out the microeconomic and macroeconomic effects of demand for family planning services in Kenya.

A survey design was adopted and the target population constituted respondents who were identified through multistage sampling in city slums of Nairobi, Mombasa and Kisumu. Primary data was collected using a structured interview schedule. Descriptive and regression analysis were carried out in the study in order to attain the objectives. In terms of regression analysis, a binomial logit model was estimated using data collected from 500 women and marginal effects of each explanatory variable derived.

Using descriptive statistics, this study has revealed that out of 500 respondents, about 50 percent were not at the time of the study using any family planning services. More specifically, use of family planning services in the Nairobi slums was 42 percent, followed by Kisumu at 33 percent, while Mombasa had the least utilization rate of 25 percent. Various reasons accounted for non-use of family planning services, including not being sexually active, lack of information,

religious background of the women and lack of partner's support. Those who were using family planning services were mostly using condoms, pills and injections. Moreover, prevention of pregnancy as well as sexually transmitted diseases (STIs) and spacing of children accounted for the use of family planning services.

The study further revealed that a majority of the respondents obtained their family planning services from off-counter (shops, pharmacies) as well as from health facilities and workplace. This is an indication that the nationwide distribution and awareness of family planning services by the government and other stakeholders may not be working as expected. This is likely to affect the use of family planning services at women level. Given that there exist multiple sources of family planning services in the slums, the issue of quality is likely to be a concern as some could either be selling sub-standard products or products which have expired. This is because monitoring the quality of products sold in the slums may not be effective.

In terms of the economic effects of family planning services, many respondents were uncertain about the economic implications of using family planning services. This uncertainty could partly account for the low use of family planning services by couples in the slums. This is because a significant proportion was yet to comprehend the economic effects of uptake of family planning services. Considering the woman and partner's levels of education, it is apparent that these women may not easily comprehend the same. Thus, it is necessary they understand

the importance of family planning services if there has to be a meaningful increase in the uptake of family planning services in the slums.

Various facility factors were considered, among them quality of family planning services, availability of family planning services, proximity of the family planning facility and friendliness of staff. Notable views provided were uncertainty by respondents about the availability of the family planning services as well as the availability of family planning health workers. This not only points out the inadequacy of family planning services but also the family planning workers in the slums.

Among the statistically significant determinants of likelihood of usage of family planning services by order of their marginal effect were the partner's approval, religion, knowledge of family planning services, friendliness of family planning staff, quality of family planning services, proximity to the family planning facility and income. All explanatory variables positively influenced the usage of family planning services except religion and proximity to the family planning facility. The study revealed that the farther away the women were from the family planning facilities, the lower the likelihood of using their services. In terms of the explanatory power of the model, 68 percent of the variation of the likelihood of the usage of family planning services was captured by the explanatory variables included in the model.

### **5.3 Conclusion**

Utilization of family planning services has been the concern of not only the government but also other stakeholders including researchers. In this study, it has been established that only a few couples in the city slums use family planning services. Various demographic, socio-economic and facility factors account for the low use of family planning services amongst women in slums. These include by order of their marginal effects partner's approval, religion, knowledge of family planning services, friendliness of family planning staff, quality of family planning services, proximity to family planning facility and income of the woman.

In terms of economic effects of family planning services, the study established that only a small proportion of respondents understood that uptake of family planning services contributed towards decline in child mortality, improvement in maternal health, reduction in HIV/AIDS prevalence rates, and increase in provision of public goods. Lack of awareness of importance of family planning services accounts for low utilization of the services in city slums.

## **5.4 Policy Implications**

In light of the research findings, demand for family planning services in Kenya in general and among women in Kenya's city slums in particular is affected by various factors. In order to enhance the uptake of family planning services as a bold step towards meeting the challenges envisaged in the Kenya's Vision 2030 and the realization of the MDGs, the following are recommended.

There is need for the government through the Ministries of Medical Services and Public Health and Sanitation to revive and support family planning education at both household and community level that targets the woman and her partner. This could be undertaken through print and mass media, chiefs' *barazas*, market places as well as newsletters and posters.

The government through the relevant Ministries should encourage the uptake of family planning services at household level by enhancing continuous promotion of family planning services and provision of free condoms. This could be realised by supporting family planning outreach activities by the health workers. This is expected to contribute positively towards enhancing awareness of family planning services and the benefits and side effects.

The government through the Ministry of Public Health and Sanitation and Division of Reproductive Health (DRH) needs to enhance the standards and regulation to ensure that family planning services provided are of good quality. This is because, in the study, the quality was found to be significant in determining the use of family planning services. In addition, public health facilities may need to use revenue generated through facility improvement funds (FIF) to improve the quality of family planning services, including infrastructure, to encourage utilization of the services at facility level by the providers.

Revamping and supporting distributors of family planning services such as CBDs, by the government, NGOs, and the CBOs is inevitable. This is because the study has established that the activities of CBOs are no longer available at the community level, especially in slums, an indication that they might have collapsed. As a result, many women who require family planning are not accessing them. The NGOs and CBOs need to revamp and support the services of community based distributors so that family planning services can reach the underserved who constitute the majority in slums.

The Ministry of Medical Services and Ministry of Public Health and Sanitation in collaboration development partners involved in the provision of family planning services need to enhance large scale training of service providers in quality care, client follow up, communication skills, counselling, referral and feedback and

provision of a wide choice of methods. This is because a majority of the respondents perceived the staff who administered family planning services as unfriendly. With good customer care, clients who seek family planning services will have confidence in the staff which in the process will attract more users while at the same time encouraging further usage on those currently using them. However, for this programme to be effective, donor support is critical.

Donor support in the provision of family planning services is necessary. This is because many women in slums were not able to access family planning services due to the embedded costs in terms of travelling costs, lab tests, examinations and registration fees. All these, combined, affect the use of family planning services negatively. Through donor support, many couples in the slums will be able to access the services.

CBOs and NGOs should encourage creation of advocacy groups at community level. This will not only articulate the rights of the clients, in this case the woman who seeks family planning services, but will lead to cultural change towards family planning services and encourage the uptake of family planning services. In the end, this is expected to contribute positively towards a reduction in the total fertility rate as well as decline in population growth rate. This is because the religious background and cultural practices in the slums were found to affect the women's use of family planning services negatively in the slums.

NGOs, CBOs, and other institutions involved in family planning need to initiate and promote targeting programmes for the uptake of family planning services in the slums. Programs that aim at increasing the proportion of women using family planning are likely to be more effective in increasing the uptake of family planning services in the slums.

### **5.5 Suggestions for Further Research**

It is recommended that an elaborate study be done covering the whole country and, where possible, disaggregate the population in terms of low income, middle income and high income. Additionally, it will be necessary for a mapping survey to examine which stakeholder is doing what as a bold step towards encouraging sector-wide approach towards the provision of family planning services. Similarly, it will be important for a study to be conducted that compares unmet needs to the contraceptive prevalence rate and total fertility rate in Kenya.

## REFERENCES

- Adam, C. (1998), *Macroeconomic Management: New Methods and Policy Issues. Time Series Econometrics for Developing Countries*; Centre for the Study of African Economies, Oxford: Oxford University.
- Abdullah K. H. (1997), A Hierarchical Model of Contraceptive use in Urban and Rural Bangladesh, *Contraception*, Vol. 55, No. 2:91-96.
- Abiodun, O.M., and Balogun, O.R. (2009), Sexual Activity and Contraceptive Use among Young Female Students of Tertiary Educational Institutions in Ilorin, Nigeria, *Contraception*, Vol. 79, No. 2:146-9.
- Africa Union (2006), Special Session of the Conference of African Union Ministers of Health Maputo, Mozambique, 18 – 22 September 2006, The Operationalisation of the Continental Policy Framework for Sexual and Reproductive Health Rights, 2007-2010.
- African Population and Health Research Centre (2001), *Contraceptive Use Dynamics In Kenya Further Analysis of Demographic And Health Survey (DHS) Data*, Maryland: Macro International Inc Calverton.
- Ahmed B., (1987), Determinants of Contraceptive Use in Rural Bangladesh: The Demand for Children, Supply of Children, and Costs of Fertility Regulation, *Demography*, Vol. 24, No. 3: 361-373.
- Agwanda T.A. O. (2005). Contraceptive Use Dynamics in Kenya: Analysis of Method Choice and Discontinuation, Working Paper No. 5 NCAPD.

- Ajakaiye, O., and Mwabu, G. (2007). *The Demand for Reproductive Health Services: Frameworks of Analysis*, Nairobi: African Economic Research Consortium.
- Ajayi, A and Kekovole, J. (1998). “Kenya’s Population Policy: From Apathy to Effectiveness,” in Anrudh Jain (ed.), *Do Population Policies Matter? Fertility and Politics in Egypt, India, Kenya, and Mexico*, New York: Population Council.
- Akin, J.S., and Rous, J.J. (1997). “Effect of provider characteristics on choice of Contraceptive Behaviour: a two-equation Full Information Maximum Likelihood Estimation”, *Demography*, Vol. 34, No. 4: 513-523.
- Alan Guttmacher Institute (1998). *Hopes and Realities: Closing the Gap between Women Aspirations and their Reproductive Experiences*. New York: Alan Guttmacher Institute.
- Barasa, J. and Kimani, S. (1991). *An Inventory of CBD Family Planning Services*. Nairobi Kenya: National Council for Population and Development (NCPD) and United Nations Population Fund (UNFPA).
- Beksinska M.E., Rees, V.H., McIntyre, J.A., and Wilkinson (2001). An Acceptability of the Female Condom in Different Groups of Women in South Africa - A Multicentre Study to Inform the National Female Condom Introductory Strategy. *South African Medical Journal*, Vol. 91, No. 8: 672-8.

- Beksinska, M.E, Rees, V.H., McIntyre, J.A, and Wilkinson, D. (2001).  
 Acceptability of the Female Condom in different groups of women  
 in South Africa- A Multicentred Study to Inform the National  
 Female Condom Introductory strategy. *South Africa Medical  
 Journal*, Vol. 91, No. 8:672-8
- Bertrand, J. T., Hardee K., Magnani, R.J., and Angle, M.A. (1995). “Access,  
 Quality of Care and Medical Barriers in Family Planning Programs”,  
*International Family Planning Perspectives*, Vol. 21, No. 2: 64-694.
- Blacker, J., (2000). *Kenya’s Fertility Transition: How Long Will it GO?* London:  
 Centre for Population Studies.
- Bongaarts J., (2008). Fertility Transitions in the Developing World: Progress or  
 Stagnation? *Studies in Family Planning*, Vol. 39, No. 2: 105-110.
- Bollerslev, T., and Wooldridge, J.M. (1992). “Quasi-Maximum Likelihood  
 Estimation and Inference in Dynamic Models with Time Varying  
 Covariance,” *Econometric Reviews*, 11, 143–172.
- Bulatao, R. A., Palmore, J.A., and Ward, S.E. (1989). *Choosing a Contraceptive:  
 Method Choice in Asia and the United States*. London: Westview  
 Press, Inc.
- Caldwell J.C and Caldwell, C.P. (1987). The Cultural Context of High Fertility in  
 Sub-Saharan Africa, *Population Development Review*, Vol. 13, No. 3:  
 409-437.

- Caldwell J. C and Caldwell, P.C. (2002). Family Planning Programs in the Twenty-First Century *Studies in Family Planning*, Vol. 33, No. 1: 76-86.
- Chamberlain, G. (1994). *Quantile Regression, Censoring, and the Structure of Wages*, in C. Sims and J.J. Laffont (eds.), Proceedings of the Sixth World Congress of Econometrics Society (Barcelona, Spain), New York: Cambridge University Press.
- Chimere-Dan, O. (1996). Contraceptive Prevalence in Rural South Africa. *International Family Planning Perspective*, Vol. 2, No. 22: 4-9.
- Cleland, J., S. Bernstein, A. Ezeh, A. Faundes, A. Glasier, J.(2006). “Family Planning: The Unfinished Agenda”, *The Lancet*, Vol. 368: 1810-1827
- Clement, S. and Nyovani, S. (2004). Who Is Being Served Least by Family Planning Providers? A Study of Modern Contraceptive Use in Ghana, Tanzania and Zimbabwe, *African Journal of Reproductive Health*, Vol. 8, No. 2: 124-136.
- Crichton, J., (2008). “Changing Fortunes: Analysis of Fluctuating Policy Space for Family Planning in Kenya”, *Health Policy and Planning*, Vol. 23, No. 5: 339-350.
- Curtis S.L. and Neitzel, K(1996). Contraceptive Knowledge, Use and Sources, Demographic and Health Surveys Comparative Studies No. 19. Calverton: Macro International Inc

- DaVanzo J., Boon, T, and Othman, R. (1989). Determinants of Contraceptive Method Choice in Peninsular Malaysia, 1961-75, in Bulatao, R. A.; J. A. Palmore and S. E. Ward (Eds.), *Choosing a Contraceptive: Method Choice in Asia and the United States*, London: West View Press.
- Deaton, A. (1997). *The Analysis of Household Surveys*, Baltimore: The Johns Hopkins University Press.
- David B., David C., and Jaypee S. (2002). *The Demographic Dividend: A New Perspective on the Economic Consequences of Population Change*, New York: Rand.
- Davidson, R., (1989). Psychosocial Aspects of Contraceptive Method Choice, in Bulatao, R. A.; J. A. Palmore and S. E. Ward (Eds.), *Choosing a Contraceptive: Method Choice in Asia and the United States*. London: West View Press.
- Domencich, T.A., and McFadden, D. (1995). *Urban Travel Demand*, Amsterdam: North-Holland Publishing Company.
- Donald R. C., and C. E. William, (1995). *Business Research Methods*, 5<sup>th</sup> Edition New York: McGraw-Hill Companies.
- Donaldson, P. J. and Tsui, A.O. (1990). The International Family Planning Movement, *Population Bulletin*, Vol. 45, No. 3: 1-45.
- Dow, W.H. (1999). Flexible Discrete Choice Demand Models Consistent with Utility Maximization: An Application to Health Care Demand. *American Journal of Agricultural Economics*, 81: 674–79.

- Elma P. L., Anna, L.C. and Aurora, E.R. (2000). *Contraceptive Use Dynamics in The Philippines: Determinants of Contraceptive Method Choice and Discontinuation*; Population Institute, Quezon City: University of the Philippines.
- Farley, P.J., (1986). Theories of the Price and Quantity of Physician Services, *Journal of Health Economics* Vol. 5: 315–333.
- Feyisetan, B. and Ainsworth, A. (1996). Contraceptive Use and the Quality, Price, and Availability of Family Planning in Nigeria, *The World Bank Economic Review*, Vol. 10 No. 1: 159-187.
- Feyisetan, B, J. and Bamiwuye, S. (1998). Postpartum Counselling and Contraceptive Use in Nigeria, *Ife Social Sciences Review*, Vol. 15, No. 1: 30-41.
- Gertler, P. and Van der Gaag, J. (1990). *The Willingness to Pay for Medical Care: Evidence from Two Developing Countries*. Baltimore: The Johns Hopkins University Press.
- Gertler, P., and Molyneaux, J.W. (1994). How Economic Development and Family Planning Programs Combined to Reduce Indonesian Fertility, *Asia-Pacific Population Journal*, Vol. 10, No. 2: 51-63.
- Giusti, C. and Vignoli, D. (2006). Determinants of Contraceptive use in Egypt: A multilevel Approach, *Statistical Methods and Applications*, Vol. 15: 89-106.

- Goldstein, H., and Healy, M.J. (1995). The Graphical Presentation of a Collection of Mean, *Journal of Royal Statistical Society*, Vol. 1, No. A: 175-177.
- Guiella G., and Madise, N.J. (2007). HIV/AIDS and Sexual-Risk Behaviours among Adolescents: Factors influencing the use of Condoms in Burkina Faso, *African Journal of Reproductive Health* Vol. 11, No. 3: 182-196.
- Gwatkin, D.R., (2004). Are Free Government Health Services the Best Way to Reach the Poor? *Health, Nutrition and Population (HNP), Discussion Paper*, Washington DC: World Bank.
- Hansman, J.A., Wise, D.A. (1978). Conditional Probit Model for Qualitative Choice: Discrete Recognizing Interdependence and Heterogeneous Preference, *Econometrica* Vol. 46, No. 2: 403-426.
- Hawkins, J.Matteson P.S. and Tabeek, E.S. (1995). A Fertility Control in Fogel, C. I. and N. F. Woods (Eds.), *A Comprehensive Handbook*. London: Sage Publishers, Inc.
- Hardwick, P., B. Khan and Lang, J. (1999). *Introduction To Modern Economics*, London: Longman.
- Health Policy Initiatives (2007). *Inequalities in the Use of Family Planning and Reproductive Health Services: Implications for Policies and Programs*, Washington DC: Futures Group International.
- Ismet K., (2000). Determinants of Contraceptive Use and Method Choice in Turkey, *Journal of Biological Science*, Vol. 32: 329-342.

- Ian A., Alex E., Bongaarts J.T. (2009). *Kenya's Fertility Transition, Determinants and Implications for Policy Programmes*, Nairobi: Population Council.
- International Center for Research on Women. (2004). *The Impact of Unmet Family Planning Needs on Women's Health Evidence from a Research Study in Madhya Pradesh, India*, Washington DC: International Center for Research on Women.
- Ipas (2004). *A National Assessment of the Magnitude and Complications of Unsafe Abortion in Kenya*, North Carolina: Ipas.
- Jayaraman, T. K. (1995). *Demographic and Socioeconomic Determinants of Contraceptive Use Among Urban Women in the Melanesian Countries in the South Pacific: A Case Study of Port Vila Town in Vannatu*, Manila: Asian Development Bank.
- Johnson, N. I., and Kota, S. (1970). *Continuous Univariate Distributional*, Boston: Houghton Mifflin Company.
- Kamal, N. (1994). Role of Government Family Planning Workers and Health Centres, *Asia-Pacific Population Journal* Vol. 9, No. 3:59-65
- Karanja J., Njoroge, P. and Orero, S. (2005), *Impact of Trends in Community Based Family Planning On Contraceptive Prevalence Rate*, Working Paper No. 8, Nairobi: National Coordinating Agency for Population and Development.
- Karirah-Gitau, S. (1999). *Housing, Environment and Poverty Management in Eastern Africa A Case of Slum Settlements in Nairobi, Kenya – A*

Final Report A Shelter Afrique Research Project funded by IDRC,  
Nairobi.

Koenig, M.A., Hossain, M.B., and Whittaker, M. (1997). The influence of quality of care upon contraceptive use in rural Bangladesh, *Studies in Family Planning*, Vol. 28, No. 4: 278-289.

Koome P. Nturibi, D. and Kichamu, G. (2005). *The Effect of Declining Family Planning IEC Efforts on Contraceptive Behaviour*, Working Paper No. 7, Nairobi: National Coordinating Agency for Population and Development.

Koray, T. L. (1992). Determinants of Contraceptive Choice Among Single Women in The United States, *Family Planning Perspectives* Vol.24, No. 4: 155-173.

Korir J. and Mwabu, G. (2004). Improving Access to Family Planning Services in Public Health Facilities by Underserved Populations in Kenya, A report prepared for POLICY Project, Nairobi.

Korir J., Obonyo, B. and Aloo-Obunga, C. (2004). Assessment of Formal and Informal User Fees paid by Maternal Health Services in Kenya, A report prepared for POLICY Project, Nairobi.

Kyalo, M.M. (1996). Determinants of Contraceptive Non-use in Kenya. Unpublished MA Thesis, University of Nairobi.

- Kwan, M. (1994). When the Client is the King, *Planned Parenthood Challenges*, London, Public Affairs Department of IPPF.
- Leite, D. C., (1997). “The Determinants of Contraceptive Choice in Northeast Brazil”, Paper Presented to the Annual Meeting of the Population Association of America, Washington, DC.
- Lema, V., Mtimavalye, L. and Gondwe, E. (1994). Utilization of Family Planning Services at the Teaching Hospital in Blantyre, Malawi, *East African Medical Journal*, Vol. 71, No. 11:703-711.
- Lewis M. A., (1986). Do Contraceptive Prices Affect Demand, *Studies in Family Planning*, Vol. 17, No. 3: 126-135.
- Lucas, D., (1992). Fertility and Family Planning in Southern and Central Africa, *Studies in Family Planning*, Vol. 23, No. 3: 145-158.
- Magadi, M., Zulu, E., Ezeh, A., and Curtis, S. (2001). *Contraceptive Use Dynamics in Kenya: Further Analysis of Demographic and Health Survey Data*, Maryland: Calverton.
- Mason A., Suits, B. and Phananimamai M. (1984). Fertility Decline in Four Asian Countries: How Important is Economic Development, Women in International Development, *Philosophical Transactions of the Royal Society*, Vol. 364, No. 1532 2991-3007
- Maletela, T., Nyovani, M., and Ian, D. (2004). Provision of Family Planning Services in Lesotho *International Family Planning Perspectives*, Vol. 30, No. 2: 77-86.

- McNamara, P.E., (1999). Welfare Effects of Rural Hospital Closures: A Nested Logit Analysis of the Demand for Rural Hospital Services. *American Journal of Agricultural Economics*, 81: 674–9.
- Mahidul I. Thomas, T. K., Barkat, K., Masud, R., Mian, B. (1998). *Determinants of Contraceptive Use among Married Teenage Women and Newlywed Couples*, International Centre for Diarrhoeal Disease Research, Working Paper No. 117 Bangladesh.
- Mamun, M. and Mazharul, I.S. (1989). Adolescent Contraceptive Use and its Determinants in Bangladesh: Evidence from Bangladesh Fertility Survey 1989, *Contraception*, Vol. 52, No. 3: 181-186.
- Margaret, L. E., Diane, J.M and Melville, O.G. (2000). Mobilizing Demand for Contraception in Rural Gambia, *Studies in Family Planning*, Vol. 31, No. 4: 325-335.
- Mensch, B., Arends-Kuenning, M. and Jain, A. (1994). *Assessing the Impact of the Quality of Family Planning Services on Contraceptive Use in Peru: A Case Study Linking Situation Analysis Data to the DHS*, The Population Council Programs Division Working Papers, No. 67, New York: The Population Council.
- Mohamad R.J., Andrew, L.B. and Baudi, U. (1988). Husband's Approval of Contraceptive Use in Metropolitan Indonesia: Program Implications; *Studies in Family Planning* Vol. 19, No. 3: 162-168.

- Mpiti, A. M. and Sabiti, L.K. (1985). *The proximate Determinants of Fertility in Lesotho*, WFS Scientific Reports No. 78, Voorburg: International Statistical Institute.
- Mroz T.A, Bollen, K.A, Speizer I.S. and Mancini, D.J. (1999). Quality, Accessibility, and Contraceptive Use in Rural Tanzania, *Demography*, Vol.36 No.1, 23-34.
- Moreland, S. (2006), *Egypt's Population Program: Assessing 25 Years of Family Planning*. Washington,DC: Constella Futures, POLICY Project.
- Moreland, S. and Talbird, S. (2006), *Achieving the Millennium Development Goals: The Contribution of Fulfilling the Unmet Need for Family Planning*. Washington, DC: Constella Futures, POLICY Project.
- Muia, E., E. Charlotte, Moses, L., Baya, E., Joyce, O. and Eigabeth, W. (2000). What do Family Planning Clients and University Students in Nairobi, Kenya, Know and Think about Emergency, *African Journal of Reproductive Health*, Vol. 4, No. 1: 77-87.
- Mugenda, O. M and Mugenda, A.G. (2003). *Research Methods: Qualitative and Quantitative Approaches*, Nairobi: ACTS Press.
- Mustapha C. D. and Ismaila, Z.M. (2006). Male Knowledge, Attitude, and family Planning Practices in Northern Nigeria, *African Journal of Reproductive Health* Vol. 10, No. 3: 53-65.
- Mwabu, G.M. (1984). A model of Household Choice Among Medical Treatment Alternatives in Rural Kenya, Ph.D Dissertation, Boston University.

- Mwabu, G., Wangombe, J. and Nganda, B. (2003). The Demand for Medical Care in Kenya, *African Development Review*, Vol. 15. No 2-3: 439-453.
- Mwabu, G. (2008). *The Demand for Health Care*, in: Heggenhougen, K., Ed., Encyclopaedia of Public Health, Amsterdam: Elsevier Science.
- Mwabu, G. (2009). The Production of Child Health in Kenya: A Structural Model of Birth Weight. *Journal of African Economies*, Vol. 18. No. 2: 212-260.
- Nathan J. H., Ulla, L., and Dairiku, H. (2004). Investigating Access to Reproductive Health Services Using GIS: Proximity to Services and the Use of Modern Contraceptives in Malawi, *African Journal of Reproductive Health/La Revue Africaine de la Santé Reproductive*, Vol. 8, No. 2: 164-179.
- Nazar-Beutelspacher, A., Molina-Rosales, D., Salvatierra-Izaba, E., Zapata-Martelo, E. and Halperin, D. (1999). Education and Non-use of Contraceptives among Poor Women in Chiapas, Mexico *International Family Planning Perspectives* Vol. 25 No. 3 PP 132-138.
- Nganda, B., (2003). The Safe Motherhood Programme in Kenya: Unit Costing Study. A Report Prepared for POLICY Project, Nairobi.
- Ngau, P (1995). Informal Settlements in Nairobi. A Baseline Survey of Slums and Squatter Settlements: An Inventory of NGOs and CBOs activities, Nairobi.

- Njogu, W. (1991). Trends and Determinants of Contraceptive Use in Kenya, *Demography*, Vol. 28, No. 1 PP 83-99.
- Obonyo B., Otieno, F. and Muga, R. (2005). *Effect of Infant and Child Mortality on Fertility in Kenya*, Working Paper No. 2, Nairobi, National Coordinating Agency for Population and Development.
- Odwee, J.A., Francis, N. and Asaf, A. (2006). *The Determinants of Health Care Demand in Uganda: The case study of Lira District, Northern Uganda*, Nairobi: African Economic Research Consortium.
- Omondi-Odhiambo (1999). *Fertility Change, Family Planning and the Impact of CBD in Siaya District, Kenya*. A Study Report for Ministry of Health/ GTZ reproductive Health Project, Kenya.
- Oliver R. (1995), Contraceptive use in Ghana. The Role of Service Availability, Quality and Price. Living Standards Measurement Study, *World Bank Working Paper* No. 111. Washington DC.
- Oyedokun A. O., (2007), Determinants of Contraceptive Usage: Lessons from Women in Osun State, Nigeria, *Journal of Humanities and Social Science*, Vol.1, Issue 2.
- Phillips, J., Binka, F., Adjuik, M. Nazzar, A., and Adazu, F. (1996). Determinants of Contraceptive innovation: A case-control Study of Family Planning in Traditional African Society, Presentation at the Population Association of America meeting, New Orleans, May 9-11, 1996

- POLICY Project (2003). *Targeting: A Key Element of National Contraceptive Security Planning: Policy Issues in Planning and Finance* No. 3  
Washington DC: Futures Group International.
- POLICY Project (2005). *Strengthening Family Planning Policies and Programs in Developing Countries: An Advocacy Toolkit*. Washington, DC: Futures Group.
- Rodriguez, G. (1978). Family Planning Availability and Contraceptive Practice. *International Family Planning Perspectives and Digest* No. 4: 100-115.
- Republic of Kenya (1981). *Kenya Fertility Survey 1977-1978. World Fertility Survey Programme*, Nairobi: Government Printers.
- Republic of Kenya (1984). *Kenya Contraceptive Prevalence Survey 1984*, Nairobi: Government Printer.
- Republic of Kenya (1994). *Health Policy Framework 1994-2010*, Nairobi: Government Printer.
- Republic of Kenya (1996a). *National Reproductive Health Strategy: 1997-2010*, Nairobi: Government Printer.
- Republic of Kenya (1996b). *Sessional Paper No. 1 1996 on National Population Policy for Sustainable*, Nairobi: Government Printer.
- Republic of Kenya (1997). *Reproductive Health/ Family Planning Policy Guidelines and Standards for Service Providers*, Nairobi: Government Printer.

- Republic of Kenya (1998). *Implementation Plan for National Reproductive Health Strategy 1999-2003*, Nairobi: Government Printer.
- Republic of Kenya (1999a). *Kenya Demographic and Health Survey 1998*, Nairobi: Government Printer.
- Republic of Kenya (1999b). *The National Health Sector Strategic Plan: 1999-2004*, Nairobi: Government Printer.
- Republic of Kenya (2000). *Family Planning Financial Analysis and Projections for 1995 to 2020 for Kenya*, Nairobi: Government Printer
- Republic of Kenya (2001). *National Condom Policy and Strategy: 2001-2005*, Nairobi: Government Printer.
- Republic of Kenya (2002). *Facility Improvement Fund-Supervision Manual*, Nairobi: Government Printer.
- Republic of Kenya (1996). *National Reproductive Health Strategy, 1997 – 2010*, Nairobi: Government Printer.
- Republic of Kenya (1997). *National Reproductive Health Strategy (NRHS) 1997-2010*, Nairobi: Government Printer.
- Republic of Kenya (2001). *National Condom Policy and Strategy*, Nairobi: Government Printer.
- Republic of Kenya (2003a). *Adolescent Reproductive Health and Development Policy*, Nairobi: Government Printer.
- Republic of Kenya (2003b). *Demographic Health Survey of 2003*, Nairobi: Government Printer.

- Republic of Kenya (2003c). *Economic Recovery Strategy for Employment and Wealth Creation (2003-2007)*, Nairobi: Government Printer.
- Republic of Kenya, (2003d). *Contraceptive Commodities Procurement Plan, 2003-2006*, Nairobi: Government Printer.
- Republic of Kenya (2005). *Family Planning Guidelines for Service Providers*, Nairobi: Government Printer.
- Republic of Kenya (2005). *Health Sector Strategic Plan II, 2005-2010*, Nairobi: Government Printer.
- Republic of Kenya (2007a). *National Reproductive Health Policy*, Nairobi, Government Printer.
- Republic of Kenya (2007b). *Kenya Vision 2030 The Popular Version*, Nairobi: Government Printer.
- Republic of Kenya (2009). *Demographic Health Survey of 2008*, Nairobi, Government Printer.
- Rice, N. and Leyland, A. (1996). Multilevel Models: Applications to Health Data, *Journal of Health Services Research and Policy*, Vol. 1, No. 3:154-164.
- Robey, B., Piotrow, P.T., and Salter, C. (1994). *Family Planning Lessons and Challenges: Making Programs Work*, Population Reports, Series J, Number 2. Johns Hopkins Population Program, Centre for Communication Programs, Baltimore.

- Rosenzweig, M.R., and Schultz, T.P., (1982). "The Behaviour of Mothers as Inputs to Child Health: The Determinants of Birth Weight, Gestation, and the Rate of Fetal Growth", pp. 53-92, in: Fuchs, Victor R., ed., *Economic Aspects of Health*, Chicago: The University of Chicago Press.
- Ross, J., Stover, J., and Wilard, A. (2000). *Profiles for Family Planning and Reproductive Health Programs*. Glastonbury: The Futures Group International.
- Schultz, T. P. (2004). "Health Economics and Applications in Developing Countries", *Journal of Health Economics*, Vol. 23, No. 4: 637-641.
- Sharma, S., Smith, S., Pine, M., and Winfrey, W. (2005a). *Formal and Informal Reproductive Healthcare User Fees in Uttaranchal, India*. Washington, DC: Constella Futures.
- Sharma, S., Smith, S., Sonneveldt, E. Pine, M., Dayaratnaya, V., and Sanders, R. (2005b). *Formal and Informal Fees for Maternal Health Care Services in Five Countries: Policies, Practices, and Perspectives*, Washington, DC: Constella Futures.
- Singh, S., Darroch, J., Vlassof, M., and Nadeau, J. (2004). *Adding It Up: The Benefits of Investing in Sexual and Reproductive Health Care*. New York: UNFPA.
- Smit, J. Gray, A., McFadyen, L., and K. Zuma (2001). *Counting the Costs: Comparing Depot Medroxy-Progesterone Acetate and*

*Norethisterone Oenanthate Utilization Patterns in South Africa*,  
Capetown: BMC Health Serim.

Smit J., McFadyen, L., Beksinska M. de Pinho, H., Morroni, C., Mqhayi, M.,  
Parekh, A., and Zuma, K. (2001). Emergency Contraception in  
South Africa: Knowledge, Attitudes, and Use among Public Sector  
Primary Healthcare Clients. *Contraception* Vol. 64, No. 6: 333-7.

Smit J.A. and Venter, W.M., (1993). Attitudes to family planning in the  
Natal/KwaZulu Region of South Africa Fertility, *Contraception*,  
1993; Vol. 1: 93-100.

Steele, F., Curtis, S., and Choe, M., (1999). The Impact of family planning service  
provision on contraceptive-use dynamics in Morocco, *Studies in  
Family Planning*, Vol. 30, No. 1: 28-42.

Stephenson, R., Baschieri, A., Clements, S., Hennick, M., and Madise, N. (2007).  
Contextual Influences on modern contraceptive Use in Sub-Saharan  
Africa, *American Journal of Public Health*, Vol. 97, No. 7:1233-1240.

Saunders, M., Lewis, P., and Thornhill, A. (2003). *Research Methods for Business  
Students*. (3<sup>rd</sup> ed.). Edinburgh: Pearson Education.

Tanfer, K., Cubbins, L., and Brewster, K. (1992). Determinants of Contraceptive  
Choice Among Single Women in the United States, *Family Planning  
Perspectives*, Vol. 24, No. 4:155-161.

- Thomas, D. and Maluccio, J. (1995). *Contraceptive Choice, Fertility and Public Policy in Zimbabwe*. Living Standards Measurement Study Working Paper No 109. Washington DC: World Bank.
- Tsui, A. O., Hogan, D.P., Teachman, J.D., and Welte-Chanes, C. (1981a). Community Availability of Contraceptives and Family Limitation. *Demography* Vol.18:615-625.
- Tsui, A. O., Hogan, D.P., Welte-Chanes, C. and Teachman, J.D. (1981b). Contraceptive Availability Differentials in Use and Fertility. *Studies in Family Planning*, Vol. 12:381-393.
- Tsui A.O., Croft, T.N., and Trevitt, T.L., (2009). Patterns and Trends in Adolescents' Contraceptive Use and Discontinuation in Developing Countries and Comparisons with adult Women, *International Perspectives On Sexual and Reproductive Health*, Vol. 35, No. 2: 63-71.
- Tuladhar J.M. (1985). Determinants of Contraceptive Use in Nepal, *Journal of Biosocial Science*, Vol. 17, No. 2: 185-93.
- USAID/HPI (2007). *Achieving Equity for the Poor in Kenya: Understanding Level of Inequities and Barriers to Family Planning Services*, Washington D.C: USAID.
- United Nations Population Fund (UNFPA) (1994). *Achieving ICPD Goals- Reproductive Health Commodity Requirements, 2000-2015*. New York: UNFPA.

- United Nations Population Fund. (2004). *State of World Population Report 2004—The Cairo Consensus at 10: Population, Reproductive Health, and the Global Effort to End Poverty*. New York: UNFPA.
- United Nations Population Fund (2005). *Reducing Poverty and Achieving the Millennium Development Goals: Arguments for Investing in Reproductive Health and Rights*. New York: UNFPA.
- Varea' G., Crognier, E., Bley, D. Boetsch, G., Baudot, P., Baali, A., and M.K. Hilali (1996). Determinants of contraceptive use in Morocco: Stopping Behaviour in Traditional Populations, *Journal of Biosocial Science*, 1996, Vol. 28, 1-13.
- Varian H. R. A. (2002), *Intermediate Microeconomics: A Modern Approach*, 6<sup>th</sup> Edition, New York: W.W. Norton & Co.
- Vera, F., Grace, L., and Arwen, B. (2006). Factors Affecting Vasectomy Acceptability in the Kigoma Region of Tanzania, E& R Study No.5, Dar –Es Salaam.
- Wawire, N.H.W. (2006). Determinants of Tax Revenue in Kenya, Unpublished PhD Thesis, Kenyatta University, Nairobi.
- Westaway M.S, Chabalala H.P., and Viljoen, E. (1997). Contraceptive usage and reasons for method-switching and discontinuation *S. Africa Medical Journal* 1997; Vol. 87, No. 11: 1551-2.
- Westoff C and Cross, A. (2006). *The Stall in the Fertility Transition in Kenya*, DHS Analytical Studies No. 9, Maryland: ORC Macro

- Wood, K., Maepa J., and Jewkes, R. (1997). Blood blockages and Scolding Nurses in the Northern Province. *HST Update 1997*; Vol. 27: 4-5.
- Wooldridge, J. M. (2000a). *Introductory Econometrics: A Modern Approach*. Natorp Boulevard: South-Western.
- World Bank (1984). *Family Planning Service World Development Report*, Chapter 7, Oxford: Oxford University Press.
- World Bank (1993). *World Development Report 1993: Investing in Health*, New York: Oxford University Press.
- World Bank (2003). *World Development Report 2004: Making Services Work for Poor People*, Washington, DC: World Bank.
- World Health Organization (2005). *World Health Report 2005*, Geneva: World Health Organization.
- World Facility Survey (1977). *Kenya Fertility Survey*, Office of Population Research, Princeton, NJ: Princeton University.

## APPENDICES

### Appendix 1: Household Interview Schedule

#### Introduction

My name is \_\_\_\_\_ representing Timothy C. Okech who is pursuing a Ph.D degree at Kenya University in the school of Economics. As part of the university requirement, Mr. Okech is required to write a research paper on Economic related issue. In this regard, Mr. Okech's research is on "Determinants of Demand for Family Planning Services in Kenya's City Slums". The study is bound to generate timely and comprehensive information that may benefit various stakeholders including you in the provision and utilization of family planning services in.

You were randomly selected among various women in the slum as key informant that can provide reliable and useful information. Please note that all the information you provide will be treated confidentially and will be used purely on an aggregated level and for the purpose intended. Mr. Okech is grateful for your kind cooperation.

#### **Section I: Demographic Characteristics**

Circle the appropriate response from the alternatives provided

i) Name of the slum:

\_\_\_\_\_

ii) Age of the woman in years:

iii) Marital Status: (1). Married (2). Single (3). Separated (4). Widowed  
(5). Divorced (6) None of the above

iv) Religion of the woman: (1). Catholic (2). Protestant (3). Protestant (4)  
Others specify

v) Years of Schooling

vi) Level of Education: (1). None (2). Primary (3). Secondary (4). Diploma  
(5) University

- vii) Partner's level of education: (1). None (2). Primary (3). Secondary (4). Diploma  
(5). University
- viii) Years of schooling of the Partner \_\_\_\_\_
- ix) Total number of children given birth to \_\_\_\_\_
- x) Number of Living Children \_\_\_\_\_
- xi) Do you have desire for more children? (1) Yes (2). No

**Section II: Socio-Economic Factors**

- i) Are you employed? 1. Yes 2. No.
- ii) If employed, specify type of employment: (1). Self-Employed (2). Casual (3) Salaried (4). Others (specify)
- iii) In the case of ii) above, specify the occupation  
1. Teacher 2. Artisan 3. Lawyer 4. Clinician 5. Finance 6. Others (specify)
- iv) In the table below, specify your sources of income and the corresponding average monthly income

Source of income	Average monthly income (Ksh.)

- v) Have you heard of family planning services? 1. Yes 2. No
- vi) In case yes, explain how

\_\_\_\_\_

\_\_\_\_\_

vii) Are you currently using family planning services? (1). Yes  
(2). No

viii) In the case of xi) above, was your spouse involved? 1. Yes 2. No  
Explain your answer

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

ix) Briefly explain the reasons for use or non use of family planning services

Reasons for use	Reasons for non-use

x) If currently using family planning services, specify which one and how much money you spend any time of use

Family planning services/Commodities	Amount spend

xi) In case you are currently using family planning services, where do you get the services from? 1. Health Facility 2. Workplace 3. Mobile health Worker 4. Pharmacy 5. Others (specify)

xii) How far is the source of family planning services from your house (in kilometres) \_\_\_\_\_

xiii) Does your culture/religion allow use of family planning services? 1. Yes  
2. No  
Explain your answer

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**Section III: Facility Factors and Utilization of Family Planning Services**

Using a scale of 1 – 5 tick the appropriate answer from the alternatives provided for each of the questions. **Strongly Disagree 2. Disagree 3. Uncertain 4. Agree 5. Strongly Agree**

i) The family planning services in use are of high quality	(1), (2), (3), (4), (5)
ii) Consultation fees for Family planning services are prohibitory	(1), (2), (3), (4), (5)
iii) Family planning services are accessible	(1), (2), (3), (4), (5)
iv) Family planning services are readily available:	(1), (2), (3), (4), (5)
v) Staff who administer family planning services are friendly	(1), (2), (3), (4), (5)
vi) Health workers promote uptake of family planning services:	(1), (2), (3), (4), (5)

How would you rate the family planning health workers? (1). Excellent (2). Good, (3). Uncertain (4). Insensitive (5) Others

**Section IV: Microeconomics and Macroeconomic Effects of Family planning services**

Using a scale of 1 – 5 tick the appropriate answer

**1. Strongly Disagree 2. Agree 3. Uncertain 4. Agree 5. Strongly Agree**

i) Use of family planning services has effect leading to increase in household savings	(1), (2), (3), (4), (5)
ii) Access to family planning led to decline in child mortality	(1), (2), (3), (4), (5)
iii) Access to family planning enhances maternal health	(1), (2), (3), (4), (5)
iv) Use of family planning services reduces population growth	(1), (2), (3), (4), (5)

v) Use of family planning services reduces HIV/AIDS prevalence	(1), (2), (3), (4), (5)
vi) Utilization of family planning services will enable the country to realize universal education	(1), (2), (3), (4), (5)
vii) Low population lead to preservation of the environment	(1), (2), (3), (4), (5)
viii) Use of family planning contributes towards women empowerment in the society	(1), (2), (3), (4), (5)
x) Low fertility rate will lead to improved child nutrition	(1), (2), (3), (4), (5)
Family planning contributes towards poverty reduction	(1), (2), (3), (4), (5)
xi) High population growth leads to high illiteracy rate and low education level	(1), (2), (3), (4), (5)
xii) Uptake of family planning allows individuals and society more opportunity for social and economic development	(1), (2), (3), (4), (5)
xiii) Reducing unmet needs will lead to increased provision of public goods	(1), (2), (3), (4), (5)

**Section V: General Questions**

- i) What problems do you experience in the use of family planning services? What solutions would you suggest?

<b>Problem</b>	<b>Suggested solution</b>
1.	
2.	
3.	
4.	
5.	
6.	
7.	

- ii) In order to increase use of family planning services amongst households in slums what do you think should be done?

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iii) Any comment regarding family planning services

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## Appendix 2: Interview Schedule for Government, NGOs, CBOs involved in FP services

### Introduction

My name is \_\_\_\_\_ representing Timothy C. Okech who is pursuing a Ph.D degree at Kenya University in the school of Economics. As part of the university requirement, Mr. Okech is required to write a research paper on Economic related issue. In this regard, Mr. Okech’s research is on “Determinants of Demand for Family Planning Services in Kenya’s City Slums”. The study is bound to generate timely and comprehensive information that may benefit various stakeholders in the provision and utilization of family planning services.

You were randomly selected among various managers of institutions involved in the provision of family planning services as key informant that can provide reliable and useful information. Please note that all the information you provide will be treated confidentially and will be used purely on an aggregated level and for the purpose intended. Mr. Okech is grateful for your kind cooperation.

i) Name of the organization(optional)\_\_\_\_\_

ii) Category of Organization: (1). Government (2). Private facility (3). NGOs (4). CBOs (5). Religion (6) Others (specify)

iii) Year of Establishment: \_\_\_\_\_

iv) Type of family planning services provided:

Item No.	Type of FP service provided	Charges/Price (Ksh.)

- v) In the case of the above FP services which ones are highly utilized (in order of demand) and why

Item No.	FP services	Reason

- vi) Who are your main clients? (1) Male (2) Female

**General Questions**

- iv) What problems do you experience in the promotion of the use of family planning services? What solutions would you suggest?

Problem	Suggested Solution
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	

- v) In order to increase use of family planning services amongst households in slums what do you think should be done?

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- vi) Any comment regarding family planning services in Kenya slums

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**APPENDIX 3: Table A1: Summary of Policy Responses towards Family Planning Services**

- **1965:** Population issues first highlighted in Sessional Paper No. 10 on *African Socialism and Its Application to Planning in Kenya*
- **1967:** Government adopted official population policy and established a national family planning action programme under the Ministry of Health, with an emphasis on reduction of family size and spacing of children to reduce population growth rate
- **1982:** Government established National Council for Population and Development (NCPD)
- **1984:** Sessional Paper No. 4 on *Population Policy Guidelines*
- **1994:** Kenya Health Policy Framework ‘Manage Population Growth’ A Strategic Imperative and reiterated in NHSSP I and II
- **1996:** National Council for Population and Development publishes National Population Advocacy and IEC Strategy for Sustainable Development
- **1997:** National Reproductive Health Strategy (1997- 2010) is launched
- **2000:** Sessional Paper No. 1 on National Population Policy for Sustainable Development (NPPSD) is launched
- **2003:** Adolescent Reproductive Health and Development policy
- **2004:** National Coordinating Agency for Population and Development replaces NCPD
- **2007:** National Reproductive Health Policy published
- **2007:** Population Growth, *Vision 2030*

*Compiled from various sources including KDHS, Ministry of Health reports among others*

**Appendix 4: Table A1: Slums in Nairobi, Mombasa and Kisumu**

<b>City</b>	<b>Name of Slums</b>
<b>Nairobi</b>	Kibera
	Mathare
	Mukuru
	Sewage
	Kwamaiko
	Kariobangi
	Bangala
	Huruma Slums
	Kyambio
	Embakasi Village
	Kawangware
	Kangemi
	Marigoini
	Viwandani
	Majengo
	Korogocho
<b>Kisumu</b>	Manyatta
	Obunga
	Shaurimoyo
	Nyamasaria
	Dunga
	Nyalenda
	Bondeni
	Pandieri
	Kondele
	Otongolo
Nyawita	
<b>Mombasa</b>	Kisumu Ndogo
	Maweni
	Matopeni
	Kadzongo
	Bomu
	Tudormoroto
	Bangladesh
	Bengala
	Bombolulu
	Muoroto
Majengo Kikambala	

**Appendix 5: Table A2: Randomly Selected Slums in each City**

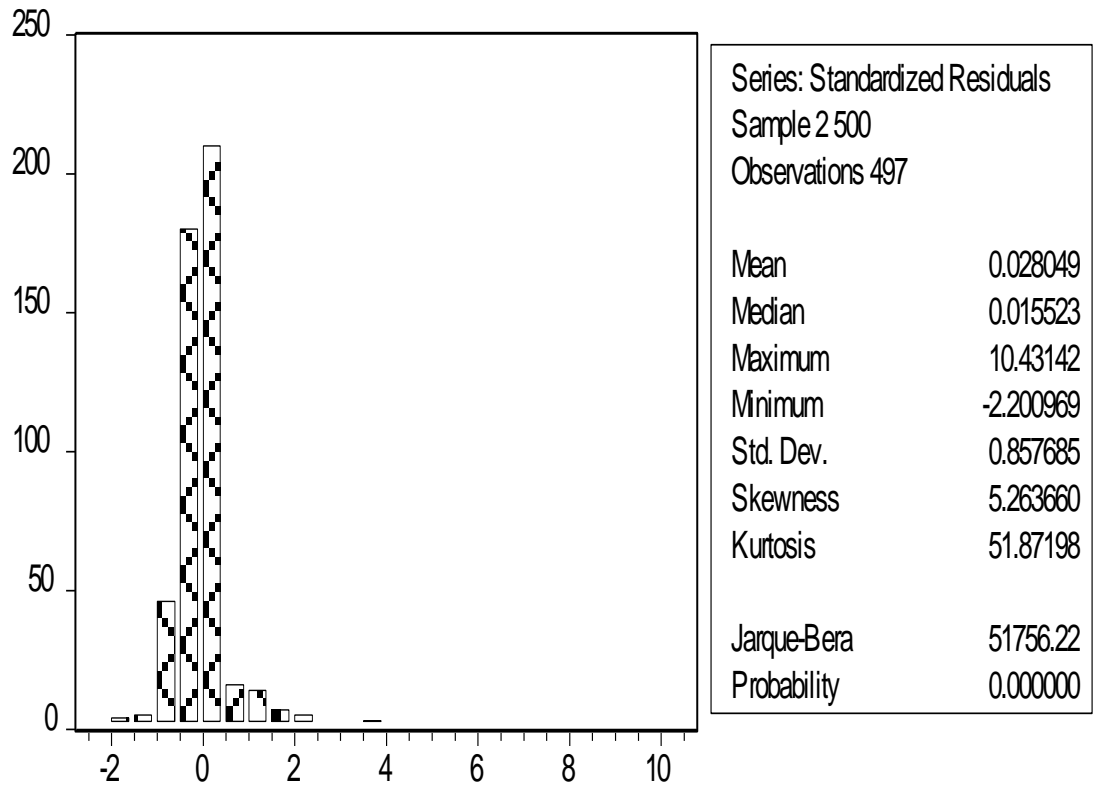
<b>Nairobi</b>	<b>Mombasa</b>	<b>Kisumu</b>
Kibera	Bangladesh	Nyalenda
Mathare	Tudormoroto	Otongolo
Mukuru	Matopeni	Obunga
Korogocho	Bombolulu	Kondele
Kiambio	Majengo Kikambala	Nyamasaria
Bangala		
Viwandani		
Kangemi		

*Source: Constructed by author*

**Appendix 6: Table A3: Pairwise Correlation Matrix for Explanatory Variables**

	Mstat	Price	Pappr	Age	Lchild	Quality	know	Proximity	DChild	Peduc	Relign	Wedu	Friend	IncM
MStat	1													
Price	0.058	1.000												
Pappr	0.248	0.482	1.000											
Age	0.354	0.077	0.060	1.000										
LChild	0.449	0.045	0.120	0.639	1.000									
Quality	-0.044	0.102	0.153	-0.050	-0.073	1.000								
know	-0.057	0.051	0.599	-0.060	-0.114	0.186	1.000							
Proximity	-0.041	-0.601	-0.205	0.102	0.139	-0.052	-0.091	1.000						
DChild	-0.045	-0.060	-0.130	-0.162	-0.109	-0.021	0.038	-0.050	1.000					
Peduc	0.498	0.079	0.231	0.178	0.301	-0.036	-0.012	-0.025	-0.095	1.000				
Relign	0.019	0.063	0.057	-0.034	-0.043	-0.015	0.001	-0.137	0.028	0.071	1.000			
Weduc	0.005	-0.002	0.059	0.034	-0.037	0.015	-0.008	0.063	-0.041	0.198	-0.013	1.000		
Frind	0.041	0.220	0.248	-0.021	-0.040	0.200	0.223	-0.241	0.066	0.027	0.074	0.044	1.000	
IncM	0.231	0.780	0.117	0.247	0.215	-0.007	-0.054	-0.002	0.610	0.613	-0.052	0.097	-0.051	1.000

### Appendix 7: Normality Test Results



**Appendix 8: Test for Heteroskedasticity using Residual Graph**

