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KNBS
KENYA NATIONAL BUREAU OF STATISTICS
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2009 Kenya Population and Housing Census

Analytical Report on Fertility and Nuptiality

Volume V

March 2012

Kenya National Bureau of Statistics
Ministry of State for Planning, National Development and Vision 2030

KENYA CENSUS2009
Nipo! Natambulika!
COUNTING OUR PEOPLE FOR IMPLEMENTATION OF VISION 2030

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2009 Kenya Population and Housing Census

"Counting Our People for Implementation of Vision 2030"

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Fertility and Nuptiality

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Abbreviations

AIDS	Acquired Immuno Deficiency Syndrome
ASFR	Age Specific Fertility Rate
CBR	Crude Birth Rate
CBS	Central Bureau of Statistics
CEB	Children Ever Born
CEDAW	Convention for the Elimination of all forms of Discrimination Against Women
FGM	Female Genital Mutilation
FPE	Free Primary Education
GRR	Gross Reproductive Rate
GSR	General Sex Ratio
HIV	Human Immunodeficiency Virus
ICPD	International Conference on Population and Development
ICT	Information, Communication and Technology
IUD	Intrauterine Devices
KDHS	Kenya Demographic and Health Survey
KFI	Keying from Image
KNBS	Kenya National Bureau of Statistics
MAFB	Mean Age at First Birth
MCH/FP	Maternal Child Health and Family Planning
MDGs	Millennium Development Goals
NCAPD	National Coordinating Agency for Population and Development
NCPPD	National Council for Population Policy and Development
NRR	Net Reproductive Rate
OCR	Optical Character Recognition
PPRs	Parity Progression Ratios
RoK	Republic of Kenya
SAPs	Structural Adjustment Programmes
SMAM	Singulate Mean Age at Marriage
TFR	Total Fertility Rate
UN	United Nations
UNECA	United Nations Economic Commission for Africa

Foreword

The 2009 Kenya Population and Housing Census (KPHC) was conducted from the night of 24th/25th to 31st August 2009. The Census was the fifth to be undertaken in Kenya since independence and the seventh in the country's history. Previous censuses were conducted in 1948, 1962, 1969, 1979, 1989 and 1999. Planning and execution of the 2009 Census was spearheaded by the Kenya National Bureau of Statistics (KNBS) on behalf of the Government – in accordance with the Statistics Act, 2006. The theme of the Census was *"Counting our People for Implementation of Vision 2030",* which was deemed necessary in order to respond to the greater demand for statistical information, for monitoring the implementation of Kenya's development plans and other global initiatives, such as the Millennium Development Goals (MDGs).

The main objective of the 2009 Census was to provide the Government and other stakeholders with essential information on the population, as regards demographic, social and economic characteristics, housing conditions and household amenities. By generating information at all administrative levels, it was also intended to provide a sound basis to evaluate the impact of population-related policies and programmes in the country.

The first series of the 2009 Census preliminary results were released on August, 2010, in a set of four volumes. The volumes presented census information in the following categories; Population Distribution by Administrative Units; Population Distribution by Political Units; Population Distribution by Age and Sex; and, Distribution of Households by Socio-economic Characteristics. This second set comprising thirteen analytical reports, addresses issues on Fertility and Nuptiality, Mortality , Housing Conditions, Amenities and Household Assets, Education and Training, Household and Family Dynamics, Disability, Migration, Urbanization, Labour Force Dynamics, Gender Dimensions, Population Dynamics, Population Projections and Census Atlas.

Preparation of the analytical reports involved collaborative efforts of both local and international experts as well as various Government Ministries and Departments. The authors were recruited on competitive basis, ensuring they possessed the necessary experience and skills. The authorship was done under the supervision of two experienced lead consultants.

Data capture was done using scanning technology. The processes were highly integrated, with tight controls to guarantee accuracy of results. To achieve internal consistency and minimize errors, rigorous data editing, cleaning and validation were carried out to facilitate further analysis of the results. The information presented in these reports is therefore based on more cleaned data sets, and is preferred in case there are differences in the results published in the first set of volumes.

This monograph presents levels, trends and differentials in fertility and nuptiality from the 2009 census data. The analysis reveals that the momentum of fertility decline slowed down during the 1999-2009 period. Rural-urban fertility differences remained large and adolescent fertility increased more among married adolescents. However, nuptiality levels, trends and differences changed marginally during the period 1999-2009.

On behalf of the Government of Kenya, I wish to thank the management and staff of Kenya National Bureau of Statistics, KNBS Board of Directors and authors for their contribution towards preparation of this monograph. I also thank the US Census Bureau for the technical support. I would also like to thank our development partners, especially UNFPA, for the financial support in writing and publication of this monograph.

Hon. Wycliffe Ambetsa Oparanya, E.G.H, MP
Minister of State for Planning, National Development and Vision 2030

Acknowledgement

The 2009 Kenya Population and Housing Census (KPHC), whose theme was *"Counting our People for Implementation of Vision 2030"* was the fifth to be conducted in Kenya since independence, and the seventh in the country's history. The census was carried out on a *de facto* basis, with August 24th/25th as the reference night. The first series of the 2009 Census preliminary results were released in a set of four volumes, in August, 2010. This was achieved in a record time of one year after successful enumeration. This monograph is one among a set of thirteen, which are a culmination of an ambitious, synchronized and all-inclusive in-depth analysis process, addressing various topical areas regarding the demographic, social and economic profiles of the Kenyan population.

The 2009 Census was accomplished through concerted effort of various organizations, institutions, Government Ministries and individuals who assisted in a variety of ways to prepare, collect, compile, process, analyze and publish the results. Kenya National Bureau of Statistics (KNBS), on behalf of the Government, takes this opportunity to thank all those who participated in the preparation of this monograph.

Special appreciation goes to Dr. Edward Sambili, the Permanent Secretary in the Ministry of State for Planning, National Development and Vision 2030; the KNBS Board of Directors led by the Chairman, Mr. Edwin Shisia Osundwa, staff of Population and Social Statistics Directorate and the entire KNBS staff, for their spirited efforts towards successful compilation of the monographs.

We also thank our Development Partners, namely, UNFPA, USAID, UNICEF, DfID, UNDP, SIDA, and the US Census Bureau for their material, financial and technical support, offered during various phases of implementation. Additional gratitude goes to UNFPA for coordinating donor support to the Census process.

Finally, we sincerely hope that the data contained in this monograph will be fully utilized in the national development planning process by all stakeholders for, the welfare of the people of Kenya.

A.K.M Kilele, MBS
DIRECTOR GENERAL
KENYA NATIONAL BUREAU OF STATISTICS

Fact Sheet, 2009

COUNTRY/PROVINCE	Adjusted CBR/1000	Reported TFR	ADJUSTED TFR	Reported Average PARITY (40-44 Yrs)	Singulate Mean Age at Marriage (SMAM)	
					MALE	FEMALE
KENYA	38.4	4.4	4.8	5.4	26.7	22.5
RURAL	42.9	5.0	5.8	5.9	26.9	21.9
URBAN	31.1	3.5	3.6	4.5	26.9	23.2
NAIROBI	36.0	2.9	3.0	3.4	26.8	23.7
CENTRAL	29.6	3.3	3.4	4.0	27.8	23.2
COAST	41.2	4.6	4.9	5.3	26.7	22.0
EASTERN	35.3	4.2	4.6	5.1	27.7	22.9
NORTH EASTERN	43.8	4.5	6.8	7.1	27.1	21.8
NYANZA	45.9	5.0	5.4	6.2	25.5	21.4
RIFT VALLEY	42.7	5.0	5.5	5.9	26.7	22.4
WESTERN	43.1	5.4	5.8	6.3	25.4	21.7

EDUCATION	Reported TFR	Reported Average Parity (40-44 Yrs)
None	5.3	6.6
Primary	5.0	5.8
Secondary+	3.2	4.0
MARITAL STATUS		
Never Married	1.6	2.3
Married	6.7	5.8
Widowed	4.0	5.5
Divorced/Separated	4.5	4.0

Executive Summary

Kenya experienced rapid fertility increase during the 1960s and 1970s, attaining the highest Total Fertility Rate (TFR) of 8.0 in 1979. The increase was attributed to improvement in the standard of living, low contraceptive use, low age at marriage, and cultural norms and practices that encouraged child bearing. These demographic trends enhanced rapid population growth rate, with concomitant development challenges to the Government in provision of basic needs and services. The situation was compounded by the introduction of structural adjustment programmes (SAPs) in the 1980s.

The Government, realizing the adverse consequences of rapid population growth on the economy, initiated several strategies to address the issue. An integrated National Population Policy for Sustainable Development was launched in a Sessional Paper of 1996. The policy promoted several programmes such as Reproductive Health, Maternal and Child Health Care and Family Planning (MCH/FP). More importantly, the policy outlined national population goals, objectives and targets to be achieved by population programmes up to the year 2010 (CBS, 2002). The achievements of these programmes are reflected by the 2009 Census data on fertility and nuptiality.

Levels, Trends and Differentials in Crude Birth Rate (CBR)

During the period 1999-2009, Kenya had an adjusted Crude Birth Rate (CBR) of 38.4 per thousand populations compared with 41.3 per thousand populations during 1989-1999. Rural CBR was 42.9 per thousand populations compared with 31.1 per thousand populations for urban areas. All provinces had a decline in their CBRs. The highest CBR of 45.9 per thousand populations was in Nyanza Province and the lowest CBR of 29.6 per thousand populations was in Central Province. At the county level, the highest CBR was in Nyamira with 56.6 per thousand populations, while the lowest was in Murang'a with 23.5 per thousand populations. However meaningful comparisons of crude birth rates cannot be made because they are heavily influenced by age structure.

Fertility Levels, Trends and Differentials

In Kenya, like most other developing countries, fertility is still largely realized in marriage. Today, there is evidence that population programmes launched in the 1980s and 1990s are yielding results, as Kenya is on the path to fertility transition. The 1989 and 1999 censuses had fertility substantially dropped by 2 births per woman from an average of 7.2 births in 1989 Census to 5.0 births in 1999 Census. The censuses of 1999 and 2009 experienced marginal declines in reported Total Fertility Rate (TFR) from 5.0 births to 4.8 births for the two periods, respectively.

The 2009 Census data on fertility and nuptiality levels, trends and differentials, confirm that the path to fertility decline has been dominated by women in urban centres and educated women, whose age at first marriage increased significantly since 1989. Total Fertility Rate has continued to remain higher in rural areas than in urban areas. In 2009 reported TFRs for rural women was 5.0 births compared to 3.5 births for urban women. Between 1989 and 2009, lifetime fertility for the older women aged 40-49 dropped by almost 3 births.

Furthermore, at provincial level, fertility drop between 1999 and 2009 censuses was more pronounced in Central Province, with reported TFR of 3.3 births and Eastern Province 4.2 births. Yet, pockets of relatively high reported fertility were also found in most areas of Nyanza Province with TFR of 5.0 births; Western Province 5.4 births and Rift Valley Province 5.0 births. Except for North Eastern Province which had enumeration problems, these reported births compare very well with TFRs adjusted by Relational Gompertz Method which were: Nairobi 3.1; Central 3.5; Coast 5.0; Eastern 4.7; Nyanza 5.7; Rift Valley 5.6 and Western 5.9. For North Eastern Province, the reported TFR of 4.5 births was deemed very low and adjusted to 6.8 births to account for over count of the population as well as omission of births and deaths.

County analysis revealed the following as having very high reported TFRs, namely: Narok 7.0; West Pokot 6.7; Samburu 6.6; Migori 6.0; Bungoma 5.7; Baringo 5.6; Homa Bay, Marsabit and Busia 5.5 and Trans Nzoia, Siaya and Kwale 5.4. All other counties had births which were below the reported national average of 4.4 births. The difference between reported and adjusted TFRs is negligible, see Appendix 7. Conclusively, the overall differences between direct estimate and 2008/09 KDHS are very small at all levels except for North Eastern Province, which had enumeration problems of data accuracy and reliability.

It is also noted that while fertility decline affected most age groups, the age group 30-39 made the greatest contribution to fertility decline between 1999 and 2009 censuses. On the other hand, while fertility dropped for all adolescents in the age group 15-19 between 1999 and 2009, average parity increased for married adolescents by 12.5 percent, widowed adolescents by 28.6 percent and divorced or separated adolescents by 22.2 percent. Nairobi Province had the greatest decline in adolescent average parity by 66.7 percent followed by Central 50.0 percent and Eastern 50.0 percent. The lowest percentage decline was in Nyanza 25.0 percent. It should be emphasized that the proportion of women not stating their parity is always very high among adolescents. Female adolescents are those aged 12 -19, who provided information on their fertility history. Male adolescents on the other hand provided information on their marital status.

Total Fertility Rates by level of education attainment confirm that fertility decreases with increasing levels of education attainment. In 2009, non-educated (never attended school) women had reported TFR of 5.3 births, primary 5.0 births and secondary and above 3.2 births. Education causes changes in fertility behaviour and increases use of modern contraceptives. Fertility by marital status also depicted distinct differences between marital categories. In 2009, the never married women had reported TFR of almost 2.0 births compared with 6.7 for married women; 4.0 for widowed and 4.2 for divorced or separated.

Nuptiality Levels, Trends and Differentials

The proportion of never married females aged 12 and above has not changed significantly since 1989. In 2009, the proportion of never married females aged 12 and above was 37.7 percent. Rural and urban trends were similar during the censuses of 1999 and 2009, with the proportion in urban areas higher at 41.0 percent compared with 36.0 percent for rural areas. The proportion of women of the same age groups and period for the married was

53.2 percent; married in monogamous unions 45.9 percent; married in polygamous unions 7.3 percent; widowed 6.1 percent and divorced or separated 3.0 percent. The proportion married in rural areas was also higher than in urban areas being 54.4 percent and 50.9 percent for the two areas, respectively.

In 2009, at provincial level, the proportion of women aged 12 and above who were married exceeded the national average of 53.2 percent in all provinces except Nairobi, with 49.1 percent and Central with 51.9 percent. The province with the highest proportion of married women was Nyanza with 55.0 percent followed by Western 54.8 percent.

The proportion of males aged 12 and above reported as married revealed a similar trend to that of females. The proportion of married men marginally increased from 46.4 percent in 1999 to 48.0 percent in 2009. In rural areas the proportion of married men increased from 44.5 percent in 1999 to 45.8 percent in 2009, whereas in urban areas the proportion of such males dropped from 52.9 percent in 1999 to 52.0 percent in 2009.

The provincial analysis revealed that the proportion of married males aged 12 and above was relatively lower than the national average in Eastern Province with 45.8 percent, North Eastern 39.5 percent and Rift Valley 46.7 percent. The censuses of 1999 and 2009 also indicated that with the exception of North Eastern Province, which experienced decline in proportion of married men, all other provinces had marginal increase in their proportions of married men.

Singulate Mean Age at Marriage (SMAM)

In 2009, the Singulate Mean Age at Marriage (SMAM) for females was 22.5 years, an increase from 22.3 years in 1999. In 2009 Nairobi had the highest female SMAM of 23.7 years followed by Central Province with 23.2 years. At the county level the lowest female SMAM was reported in Tana River with 18.8 years; Migori 20.2 years and Busia 21.2 years.

For males the increase was also marginal from 26.5 years in 1999 to 26.7 years in 2009. At provincial level in 2009, Central Province had the highest SMAM of 27.8 years followed by Eastern Province with 27.7 years. The counties with very low male SMAM were Tana River with 25.0 years; Migori 24.9 years and Busia 25.0 years. The provinces with the highest difference between male and female SMAM were North Eastern 5.3 years; Eastern 4.8 years and Coast 4.7 years.

Mean Age at First Birth

The Mean Age at First Birth (MAFB) is the average age at which women have their first born child. In Kenya, MAFB increased from 21 years in 1999 to 22.2 years in 2009. The provincial analysis showed that in 2009, Central Province had the highest MAFB of 23 years followed by Nairobi 22.9 years and Coast 22.8 years. The other provinces had relatively low MAFBs, though the analysis of 1999 and 2009 censuses confirm that all provinces had marginal increases except North Eastern Province. Coast Province had the highest increase of 8.6 percent rising from 21 years in 1999 to 22.8 years in 2009. Nairobi Province had the least increase of 0.2 percent during the same period.

Recommendations

Part of Kenya's population growth is tied to its relatively young population. Today, 75 percent of Kenyans are below 30 years, while 45 percent of total population are below 15 years. It is estimated that in the next two decades, Kenyan youth will have reached 24 million. For these reasons, part of the solution to socio-economic and sustainable environmental development is to drastically reduce the current level of population growth rate. Female higher education has emerged as one of the factors which could accelerate this process. Equally important are the late age at marriage, rapid urbanization, increased employment, improved health care services including increased use of modern contraceptive methods. The Government could therefore achieve this by encouraging the new devolved system of governance to implement these processes.

Chapter 1-Fertility and Nuptiality

1.1 Census Background

A population census is the total process of collecting, compiling, evaluating, analyzing and publishing or otherwise disseminating demographic, economic, and social data pertaining, at a specified time, to all persons in a country or in a well delimited part of a country. It is vital for effective national development planning because it provides detailed benchmark data on all population characteristics. The United Nations recommends that national population censuses should be undertaken at regular intervals of ten years.

1.1.1 History of Census-Taking in Kenya

The 2009 Kenya Population and Housing Census (KPHC) was the fifth to be undertaken in Kenya since independence and the seventh since 1948. Like the previous censuses, the 2009 Census was a *de facto* census conducted on the night of 24th/25th August 2009, though the questionnaire also allowed *de jure* enumeration for travellers, people in hotels, people in transit, and street sleepers. The 2009 Census was implemented in accordance with the Statistics Act, 2006. The theme of the census was "*Counting our people for the implementation of Vision 2030*". The 2009 Census aimed at providing demographic and socioeconomic data required to inform policy decision-making for Kenya's Vision 2030 as well as ascertain the achievements made in provision of basic services to the people. Data on disability were collected as part of this important endeavour for the second time in the history of census undertaking in Kenya. The first attempt to collect data on disability in Kenya was done in the 1989 census.

1.1.2 Objectives

The main objective of the 2009 Census was to provide essential information at national and sub- national levels on the demographic, social and economic characteristics of the population, as well as housing conditions and household amenities to assist the government in the implementation, monitoring and evaluation of Kenya Vision 2030. The specific objectives were to ascertain the following:

1. Size, composition and spatial distribution of the population.
2. Levels of fertility, mortality and migration.
3. Rates and patterns of urbanisation.
4. Levels of education attained by the population.
5. Size and deployment of the labour force.
6. Size, types and distribution of persons with disabilities.
7. Housing conditions and availability of household amenities.

New modules included in the 2009 Census were: disability; information, communication and technology; deaths in the households; number of livestock owned; and information on emigrants.

1.2 Overview of Fertility and Nuptiality

Fertility is defined as the actual number of live births a woman has had by the end of her reproductive life span, which according to international standards is between 15-49 years. In Kenya, the reproductive life span has been 12-49 years in order to comprehensively capture adolescent fertility and nuptiality. Conclusively, the 2009 Census, like the previous censuses, enumerated all females and males 12 years and above, to provide information on their fertility and nuptiality history.

Collection of fertility and nuptiality data is common across the world because they are important measurement indicators for human well-being. Fertility along with mortality and migration is one of the parameters of population change. It contributes directly to population growth. Demographers therefore consider it one of the most important variables in deriving many other demographic indices, such as life-tables, population projections and mortality indices.

Fertility and nuptiality affect individual and societal well-being. The physical, mental, psychological and financial costs that accompany child bearing in a society are well documented. Family formation is determined by marriage market conditions, such as the supply of men and women of marriageable age, cultural norms and practices that govern marriage and economic conditions.

Fertility and nuptiality play a critical role in the development planning of a nation. Projections for demand for social amenities such as education, health, housing, employment opportunities and others are partly based on projected indicators of fertility and nuptiality.

Family planning programmes, reproductive health programmes and laws that govern marital status in a society can influence fertility and nuptiality rates in a population.

1.2.1 Policies and Programmes

During the period 1960's to 1980's, policy strategies were created that laid the foundation for the onset of fertility transition in the late 1980's. Only few of these policies are highlighted in this section.

In 1967, the Ministry of Health officially adopted the Maternal Child Health and Family Planning Programme (MCH/FP). Consequently, knowledge, practice and attitude on family planning increased. The KDHS, 2008/09 reports that the percentage of women with knowledge of a modern contraceptive method increased from 88.4 percent in 1989 to 96.3 percent in 1998 and decreased marginally to 94.5 percent in 2009. Ever use of any method increased from 39 percent in 1989 to 51.3 percent in 1998, and increased marginally to 57.7 percent in 2008/09. During the period 1989 – 2008/09, use of traditional methods decreased substantially among married women.

1989 to 96.3 percent, and decreased marginally to 94.5 percent in 1998 and 94.5 percent

The government in 1982 established the National Council for Population Policy and Development (NCPPD), the current National Coordinating Agency for Population and Development (NCAPD). This unit is charged with population policy and coordination of all research activities on population and development. The government reports that Population Policy has succeeded in achieving the following:

- The population growth rate declined from a high of 3.4 percent in 1989 to the current growth rate of 3.0 percent.
- The Total Fertility Rate (TFR) reduced from 6.7 children in 1989 to 4.8 children in 2009.
- Contraceptive use in Kenya increased from 27 percent in 1989 to 46 percent in 2008/09.
- The reported ideal family size among married women declined from 4.4 children in 1989 to 4.1 children in 1998 and 3.8 children in 2008/09.

One major area not influenced by Population Policy during the period 1979 to 1999 was adolescent fertility. KDHS, 1998 reports that by ages 17 and 18, 22 percent of rural adolescents and 17.5 percent of urban adolescents were mothers. Among non-educated adolescents the percentage increased to 40 compared with 26 percent among those with primary education and 8 percent with secondary education.

Rural adolescents' fertility was relatively higher than urban adolescents. This was triggered by early marriages, a consequence of high school dropout rates coupled with low levels of education. Early marriage contributes to a longer reproductive period.

Between the 1999 and 2009 censuses, the policy environment changed drastically to influence adolescents' fertility. In 2003, the government launched Free Primary Education (FPE), through which relatively needy households were enabled to enroll their children in public schools, thereby reducing school dropout rates and early adolescent marriages due to pregnancy. In order to make the policy effective, adolescents who dropped out of school due to pregnancy were allowed to resume learning in other schools after delivery.

In 2003, the Government launched another policy, the Adolescent Reproductive Health and Development Policy, which aimed at addressing adolescent reproductive health issues.

1.2.2 General Trends

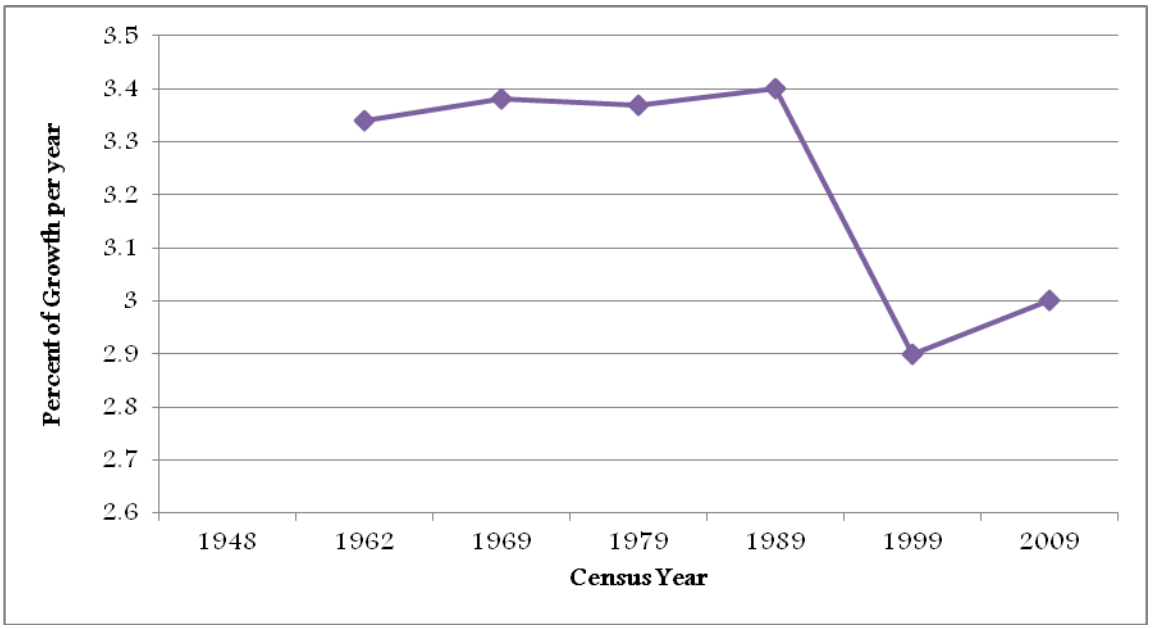
The 1979, 1989 and 1999 censuses included information on fertility and nuptiality. During the 1970's and 1980's, Kenya was going through a transition of high to low fertility. Between 1979 and 1989 censuses fertility rate dropped from about 7 births per woman to 5 births per woman in 1999-2009 periods.

Census data shows that the proportion of women aged 35-39 with 7 or more children declined from 47.1 percent in 1989 to 33.5 percent in 1999. Similarly the proportion of women aged 45-49 with 9 or more children dropped from 39.6 percent to 32.9 percent in same period. Fertility reduction was slower in rural areas than in urban areas. Fertility decline also occurred at all birth orders.

Age at first marriage is steadily increasing as well as the proportion of never married for both men and women. In 1989, Singulate Mean Age at Marriage (SMAM) for females was 21.6 years, which increased to 22.3 years in 1999 and to 22.5 years in 2009. The difference in years between males and females remained at 4.2 years between 1999 and 2009. Marriage has also remained fairly stable and the proportion of polygamous unions is steadily declining.

Relatively high fertility rates accounted for high annual population growth rates in the 1970's and 1980's. Figure 1.1 shows annual inter-censal population growth rates between 1962 and 2009. Between 1962 and 1969, the growth rate averaged above 3.3 percent. This continued to increase to reach a peak level of 3.4 percent between 1979 -1989, and then fell sharply to 2.9 percent in 1999.

Figure 1.1: Inter-censal Population Growth Rates, 1962-2009



Fertility change during the period 1989 to 2009 was real and not due to improved birth reporting. Brass and Jolly (1993) attribute the changes in the late 1980s to several factors namely: bio-social factors such as shorter birth intervals caused by declines in breastfeeding and post-partum abstinence; lengthening reproductive lives (increase in average life expectancy); better nutrition, increase in prenatal health care and reduced foetal mortality.

1.3 Methodology

1.3.1 Data Collection Procedures

The 2009 Census, like the previous censuses, adopted the *de facto* as opposed to *de jure* approach, and the canvasser as opposed to the householder method. However, an additional question was included to identify whether each individual was a usual resident in the household of enumeration, which helped to compile the *de jure* population. Additionally, some foreign and diplomatic missions were allowed to enumerate themselves using a short questionnaire.

The target population was all persons who spent the night of 24th/25th August, 2009 in households, institutions, or outdoor locations within the administrative boundaries of Kenya or those transiting through Kenyan territory on the census night. The frameworks for identification were defined to cover populations in conventional households, institutions, on transit and even those with no fixed abode (outdoor sleepers). The unit of enumeration for housing characteristics was the main dwelling unit.

All persons in conventional households and institutions such as boarding schools and colleges, were enumerated as scheduled within the seven days using the main (long) form, while the other categories such as lodgers, travellers and outdoor sleepers were strictly enumerated on the Census night using the short forms.

1.3.2 Data Capture Methodology

During the 2009 Census, data capture was done using the optical character recognition process commonly referred to as the scanning method just like the 1999 Census. This mode of data capture was quite effective despite a few technological hitches which were resolved with the help of the U.S. Census Bureau technical assistance. The process had several stages including: batching, scanning, keying from image (KFI), optical character recognition (OCR) and the library. Batching involved putting together a number of booklets from the same enumeration area and giving it a unique number for tracking purposes. Scanning was the process of electronically capturing the information from the questionnaires and maintaining it in the system for processing. Keying from image was the manual keying of the images that could not be recognized by the scanners due to various reasons. The characters that were not clear were done manually by the OCR team. All the captured data was then stored for analysis.

1.3.3 Measurement

Information on fertility was based on questions asked to all females aged 12 and above namely: children ever born alive, children living in the household or elsewhere, children born alive who died, date of last child born by sex and whether the birth was twin or triplet. Fertility has been measured in different ways throughout the history of census-taking. Fertility data was not collected in 1948. The 1962 and 1969 censuses used probability samples of 10 percent to collect data on female fertility, while 1979, 1989, 1999 and 2009 censuses included complete enumeration on fertility. Data on nuptiality was asked of each person aged 12 and above.

1.3.4 Data Quality

In spite of efforts to collect complete and accurate data on fertility and nuptiality, errors due to content and coverage are normally encountered. Content errors include younger women over-reporting live births, older women under reporting live births, age misreporting and wrong dating of births and marital status. Coverage errors result from double counting, omission of enumeration area units or population sub-groups.

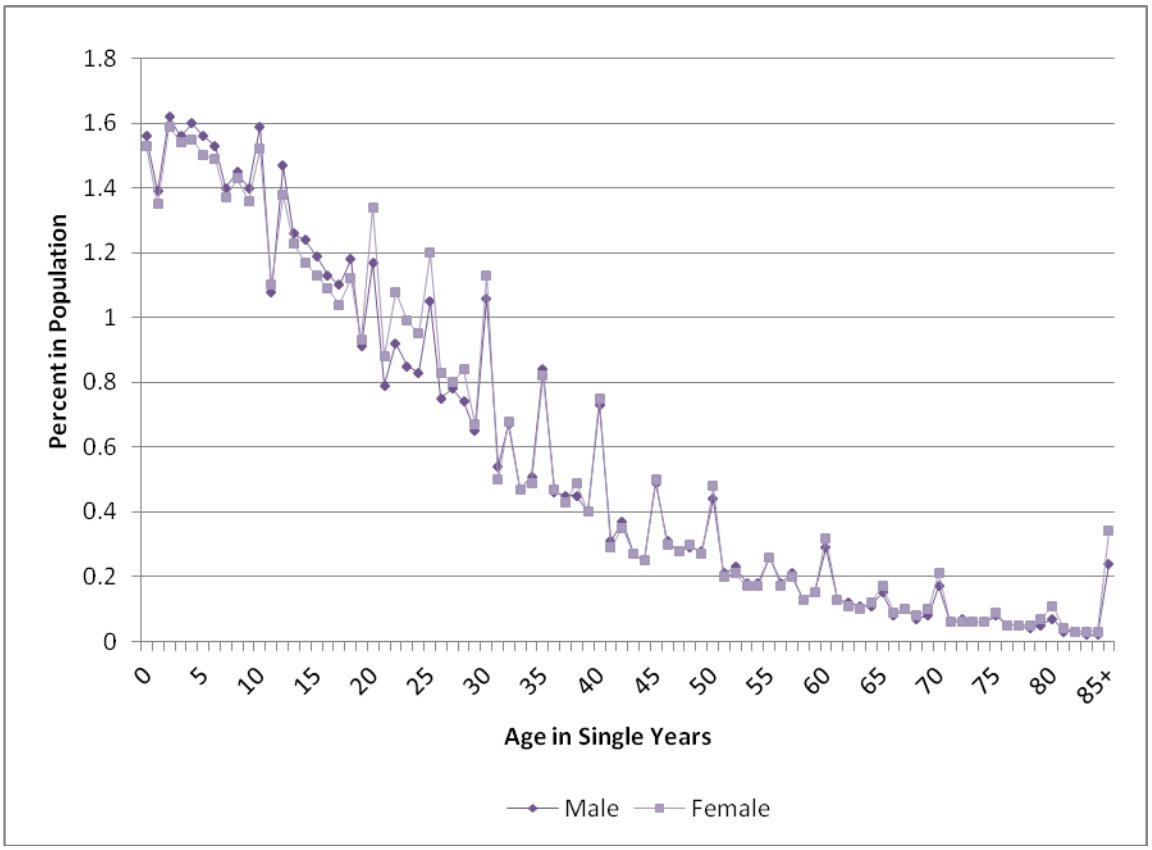
The quality of the fertility data is assessed by examining the extent of age misreporting for women of reproductive age. Examining average births, birth distribution and proportion childless, help to achieve further insights into the quality of reporting of fertility data for various cohorts.

Age Heaping

Figure 1.2 shows the percentage of population distribution by age for both male and female. The declining saw–edged pattern with peaks or spikes on ages ending with digit 0 and 5 is a common feature of sub-Saharan population census data. It shows preference for choosing ages with terminal digits 0 and 5 because of lack of knowledge of actual age. It is observed that for the age groups 25-29 the population of women was slightly higher. This

is likely to distort its fertility data. For all other age groups there appeared to be no difference.

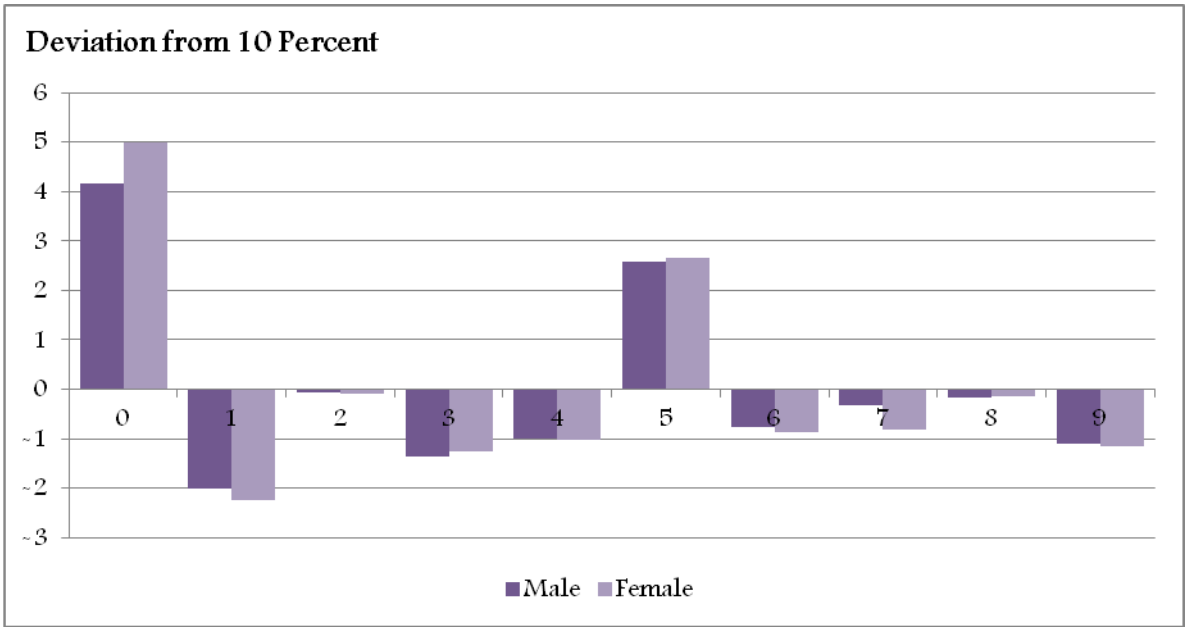
Figure 1.2: Percentage of Population Distribution by Age and Sex, 2009.



Myer's Index is a method used to detect which one of the ten digits 0 to 9 people prefer or dislike. It is applicable when age is given in single years, for example 0,1,2,3... If the sum at any given digit exceeds 10 percent of the total blended population for that age, then it indicates over-selection of ages ending in that digit (digit preference). Conversely, a sum that is less than 10 percent of the blended total indicates under-selection of ages ending in that digit (digit avoidance). Blended population is a weighted sum of the number of persons reporting ages ending in each of the ten terminal digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 (Kpedkepo, 1982). The Myer's Index of Preference has a scale which ranges from 0 to 180. The greater the value, the greater is the age distortion by over-reporting or under-reporting. A deviation from 10 percent shows either digit preference (a positive deviation value), or digit avoidance (a negative deviation value). Positive values indicate digit preference - that people prefer reporting their age ending in those digits.

Figure 1.3 shows the extent of digit preference, for the 2009 census data. Terminal digits (0 and 5) were highly preferred with zero having the highest preference, more so by females. Most people avoided reporting age ending with digit 1, 3 and 9 and thus shifted their ages to end with the most likely terminal adjacent digit zero.

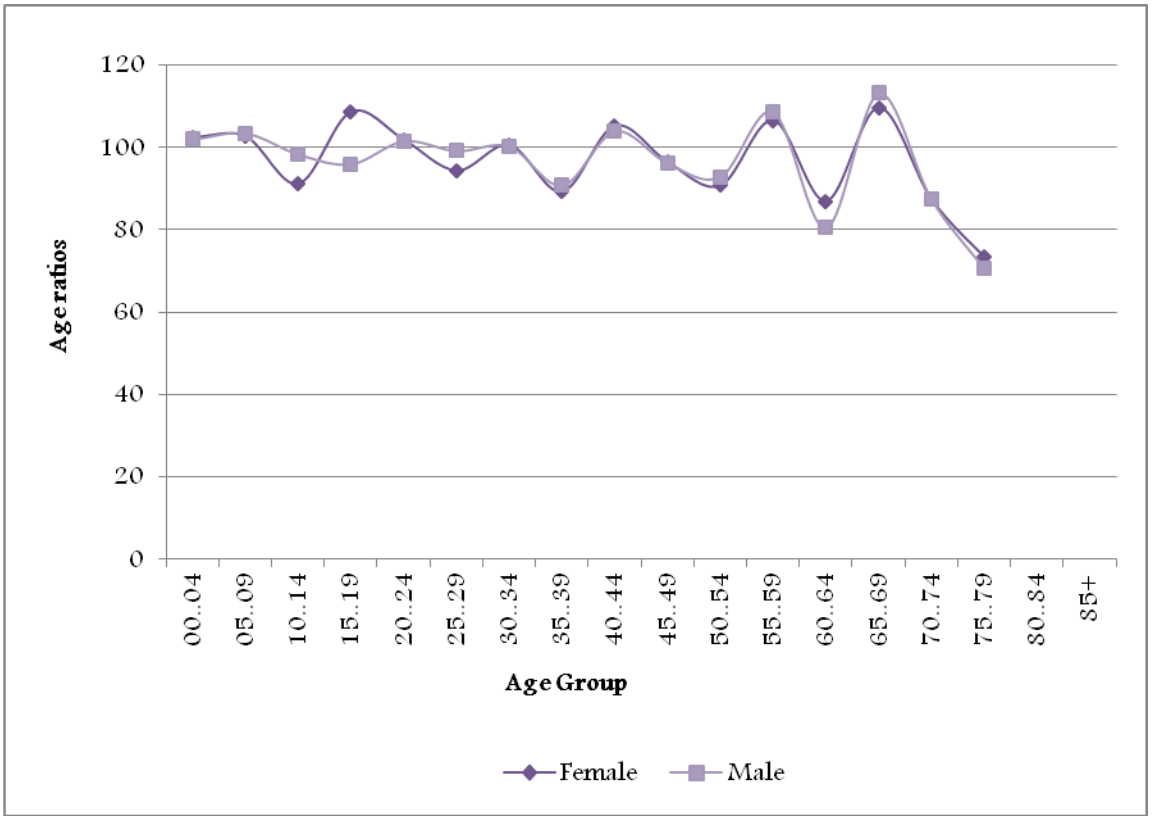
Figure 1.3: Myer's Index of Digit Preference or Avoidance, 2009



Five Year Age Group Distortions

The impact of single year age distortions on fertility indices can be reduced by aggregating reported age into 5-year age groups. In order to detect whether there has been transfer of females from one age group to another due to age misreporting, age-ratios can be calculated and plotted on a graph. For example, the age-ratio for females in age group 5-9 is calculated as follows: total population of female aged 5-9 divide by half of the total population of female aged 0-4 plus total population of female aged 10-14. The sum is then multiplied by 100. This method cannot be used to compute age-ratios for the first age group 0-4 and the last age-group 85 and above or any last open ended age group. Figure 1.4 shows age-ratios for both male and female. Age ratios for females of reproductive age, 15-49 are fairly good except for a slight transfer of female population from age 35-39 to 40-44.

Figure 1.4: Male and Female Age Ratios, 2009



Eligible Age Boundary Effects

Demographic data from majority of sub-Saharan countries show that female age misreporting is common at the boundaries of lower and upper age cut-off (i.e. ages 15-19 and 45-49 respectively).This often leads to exclusion of some eligible women of reproductive cohorts from the analysis of age specific birth rates. Such errors can be observed by examining the age-ratios and sex-ratios for women immediately above and below the eligible age boundaries as depicted in Table 1.1.

Table 1.1: Age Ratios and Sex Ratios for Upper and Lower Boundary Age Groups, 1989-2009

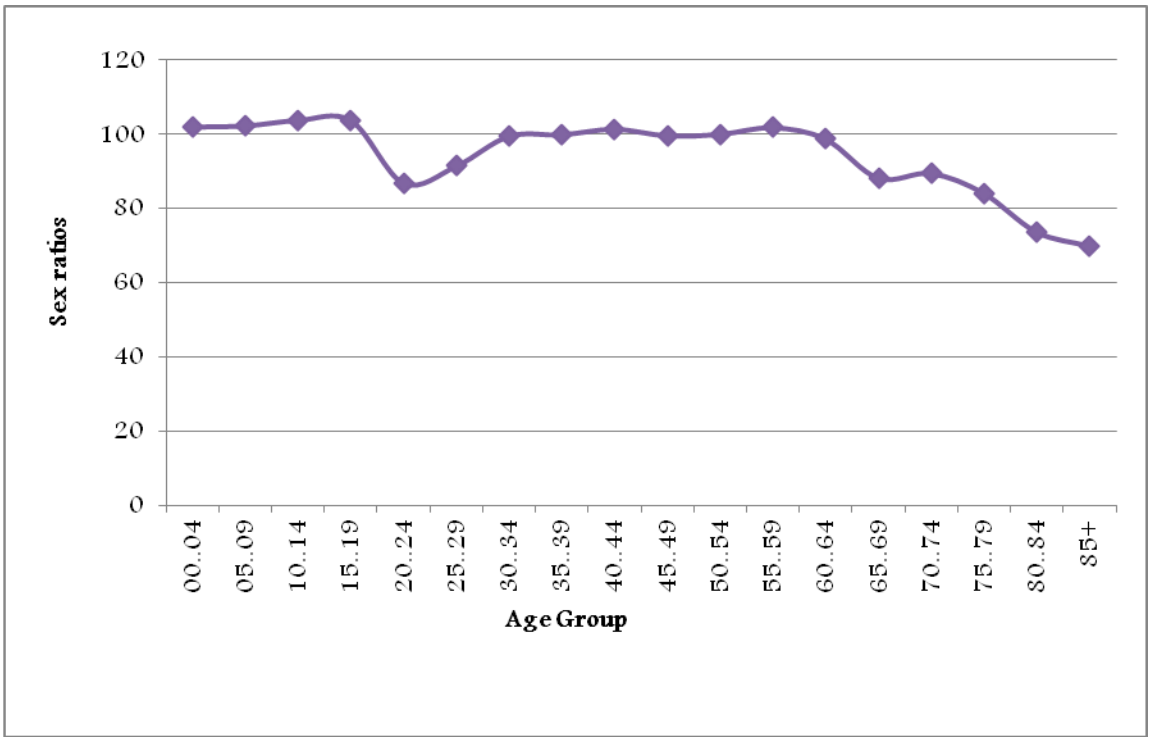
	Age Ratios			Sex Ratios		
Age Group	2009	1999	1989	2009	1999	1989
15-19	108.7	98.3	96.1	103.8	97.6	98.1
20-24	101.9	103.9	99.0	86.8	88.3	87.8
40-44	105.0	90.5	97.0	101.5	99.7	101.0
45-49	97.0	97.8	97.0	99.7	100.0	95.8
50-54	91.0	103.8	101.4.0	100.1	101.0	98.0

It is observed that between 15-19 years, age ratios are higher than those of previous censuses. This suggests that some of the females below 15 years were transferred to the ages 15-19. The age group 40-44 also shows higher female population than in the past censuses. However, for those aged 45-49, the pattern is similar to the previous censuses. The age group 50-54 has a lower population than the previous censuses.

Figure 1.5 gives sex-ratios by age group. From the Figure, there were slightly more males than females below age 15-19, while between 20-24 years and 30-34 years there were

more females than males. Since the female population is not affected it is assumed that this will not affect fertility analysis.

Figure 1.5: Population Sex Ratios, 2009



The observation based on the 2009 Census sex-ratios depicts a similar pattern. Further reference to the age group 15-19 shows higher values than those of past censuses. However, for the age group 20-24, the sex-ratio is similar to that of the past censuses.

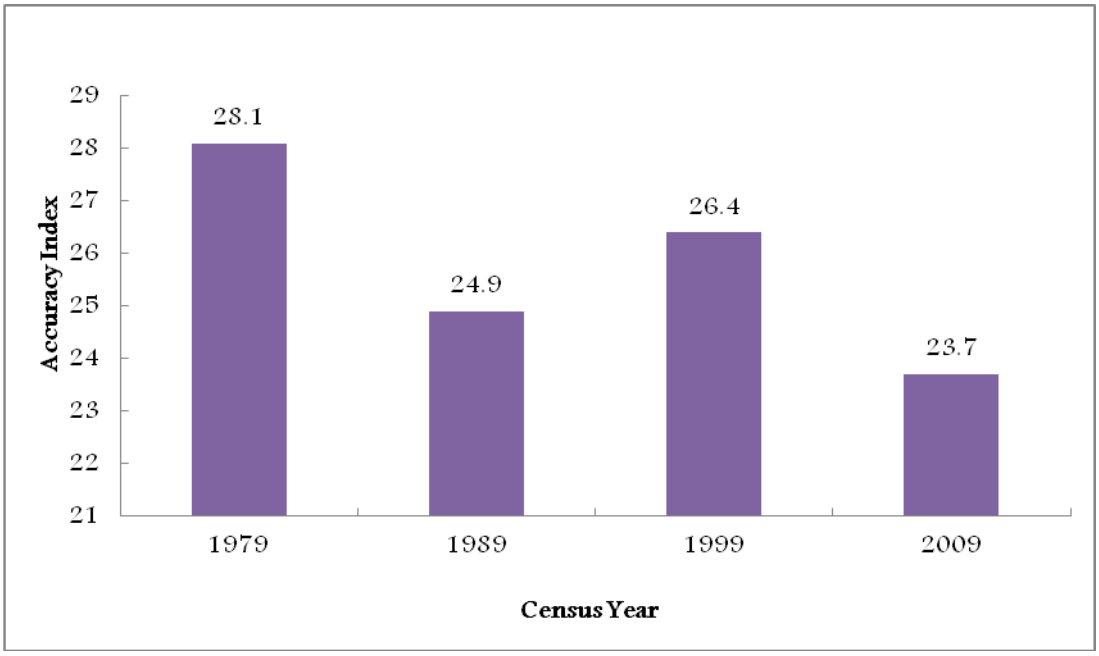
For the age group 40-44, 45-49 and 50-54 the pattern is similar to those of the two previous censuses. In conclusion it can be stated that the distribution of female population in the reproductive ages 15-49 might have been distorted in the lower age group 12-19.

Age-Sex Accuracy Index

The United Nations suggested a joint accuracy index to summarize the values of the age and sex ratios. Based on empirical analysis of the age and sex declaration in censuses from different developed and developing countries, the UN suggested that the age and sex structure of a population will be (a) *accurate* if the joint score index is under 20, (b) *inaccurate* if the joint score index is between 20 and 40 and (c) *highly inaccurate* if the index value is over 40. The Accuracy Index for the 2009 Census was 23.7, which is fairly accurate, as it is on the lower scale of 20-40.

Time series of such indices become good indicators as to whether the quality of the population age and sex reporting is improving or deteriorating. Accuracy Indices from past censuses since 1979 are presented in Figure 1.6.

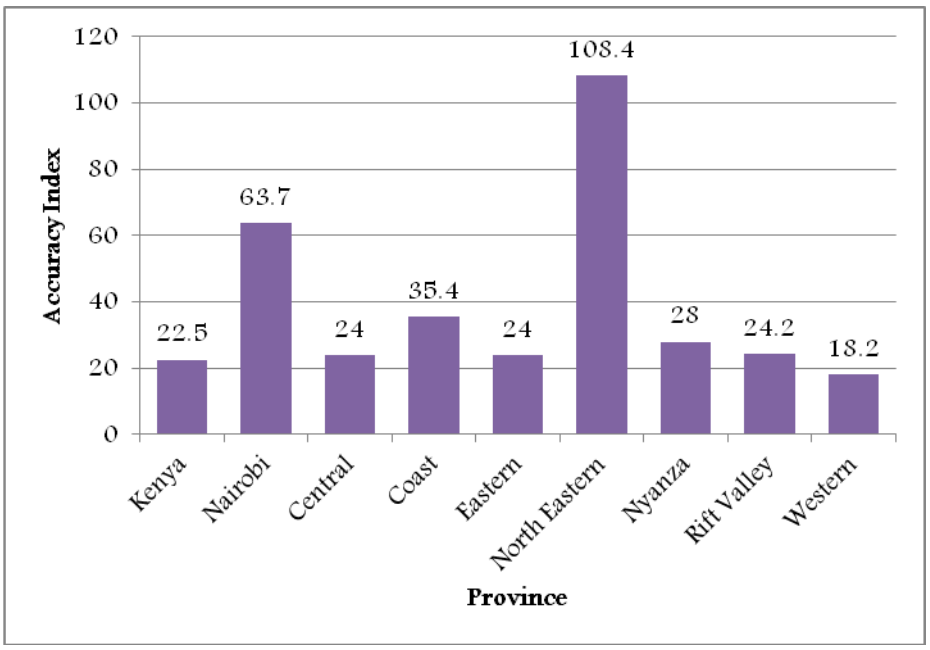
Figure 1.6: Accuracy Index, Kenya, 1979- 2009



There has been some improvement in the Accuracy Index since 1979. So far, the 2009 Census had the best Accuracy Index followed by the 1989 Census, with the 1979 Census recording the worst at 28.1.

A closer look at the Accuracy Index from the 2009 Census reveals regional differentials by province. The Accuracy Indices by province are indicated in Figure 1.7.

Figure 1.7: Accuracy Indices by Province, 2009

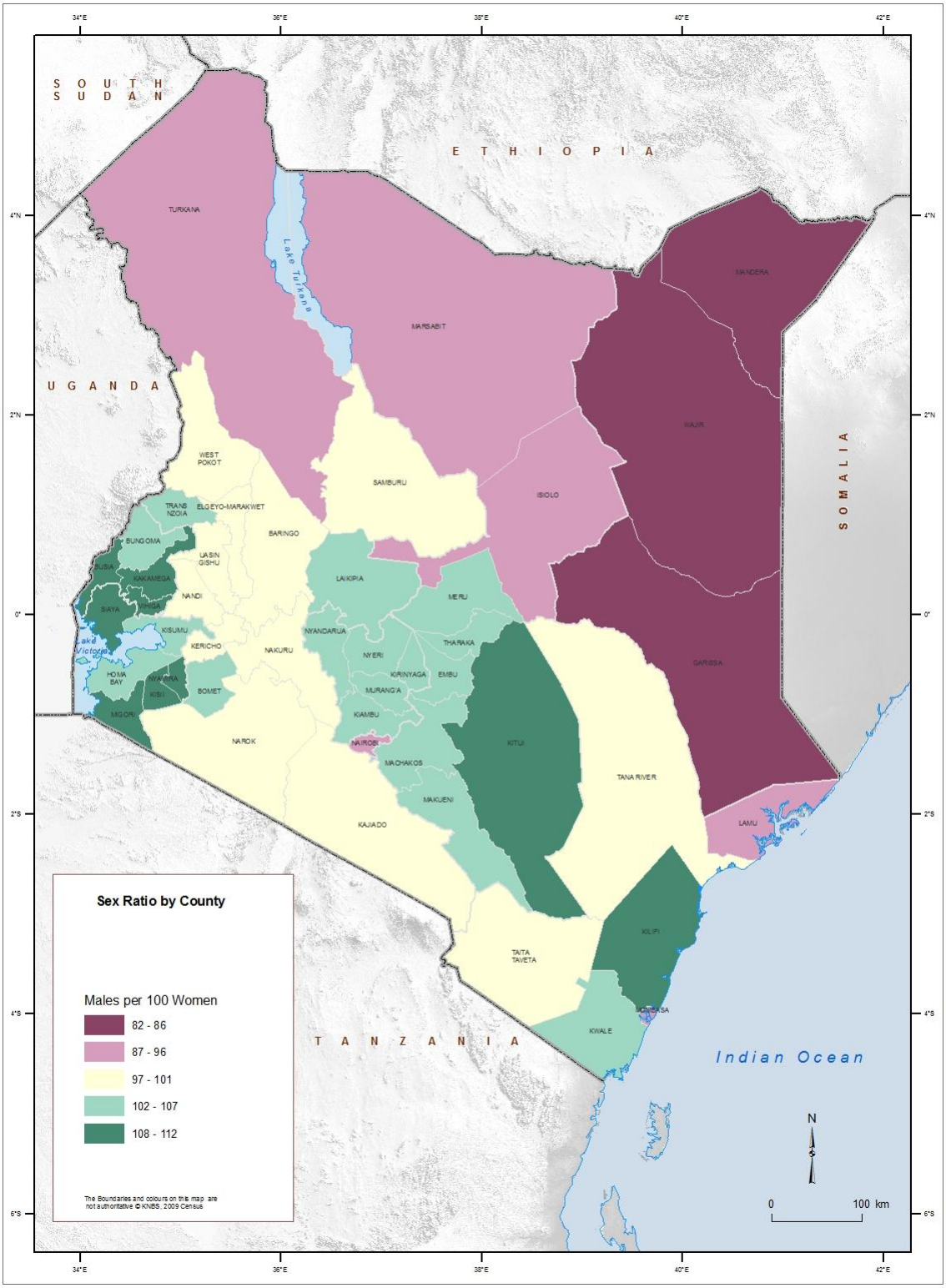


North Eastern Province accuracy index of 108.4 indicates highly inaccurate reporting, followed by Nairobi Province at 63.7. Only Western Province with an index of 18.2 fell in the category of accurate reporting. The rest of the provinces had indices that placed them in the category of *inaccurate*.

It is emphasized the analysis of national age sex accuracy index without the population of North Eastern Province does not change much the age sex ratio scores, which for 2009 Census were as follows: age ratio scores for males 4.9, females 6.0 and average age ratio score 3.8. This suggests that including the population of North Eastern Province marginally affected the national distribution of age sex structure.

Figure 1.8 shows the spatial pattern of the General Sex Ratio (GSR) at county level. GSR is a measure of the balance between the sexes and is calculated by taking the number of all males in a population and dividing it by the number of all females in that population, and the product is multiplied by a 100. Any product above 100 indicates a higher number of males per 100 females in that population, while any value below 100 indicates a lower number of males per 100 females. In 2009 the following counties had very high sex ratios between 108 and 112 per 100 females: Kilifi, Kitui, Migori, Kisii, Nyamira, Siaya, Kakamega and Busia. On the other hand the following counties had very low sex ratio between 82 and 86 males per 100 females: Mandera, Wajir, and Garissa. Note that most counties in the highlands of Central and Western Kenya also have high sex ratios ranging between 102 and107 males per 100 females, while the counties in the surrounding lowlands in the drylands had sex ratios that ranged between 87 and 101 males per 100 females.

Figure 1.8: Spatial Pattern of Sex Ratios by County, 2009



Lifetime Fertility Data

The quality of lifetime fertility data is often affected by errors of omission mainly due to recall lapse by older women, who sometimes forget to mention children who are dead or children who are living outside their household. Sometimes errors are caused by wrongful inclusion of still births, late foetal deaths and foster children, among children ever born (CEB) alive. Current fertility data is mostly affected by incorrect dating of recent births.

In order to examine the extent to which such errors affected lifetime fertility, the distribution of reproductive women aged 15-49 by Parity N and Parity Progression Ratios (PPRs) for birth cohorts is often used. In this monograph, PPRs have been computed only at the national level to show the trend in changing proportions of women of reproductive age between 1989 and 2009.

It is observed from Appendix 4, that for parity 0-1, the 2009 PPRs for the age groups 15-19 and 20-24 were lower than that of previous censuses. However for the age groups 25-29 and 30-34, there were inconsistencies suggesting errors either in reported fertility or age group, because for the age group 25-29, PPRs for 0-1 was higher than that of 1999 but lower than that of 1989, whereas for the age group 30-34, PPRs for 2009 was lower than that of 1999 but higher than that of 1989. For the rest of the age groups, the 2009 PPRs were consistently higher than that of the previous censuses.

For parity 1-2 the PPRs for 2009 were consistently lower in all the age groups than that of the previous censuses. In addition, for parity 2-3 for the age group 15-19, the PPRs for 2009 were higher than that of 1999, but lower than that of 1989. For the remaining age groups the PPRs for 2009 were consistently lower than that of previous censuses.

For parity 3-4, again it is evident that there were inconsistencies affecting the younger age groups 15-19 and 20-24 years. To illustrate, the PPRs for 2009 were higher than those of 1999 but lower than those of 1989 for the age group 15-19 as well as 20-24. However, for the other age groups PPRs for 2009 were consistently lower than those of the previous censuses.

Regarding parity 4-5 the PPRs for 2009 were consistently lower in all the age groups than those of the previous censuses, except for the age group 20-24 which showed some inconsistencies because PPRs for 2009 were higher than those of 1999 but lower than those of 1989.

Further reference to Appendix 4 shows that parities 5-6 and 6-7 have trends similar to that of parity 4-5. For all parities above 8 the PPRs for 2009 are consistently lower than those of the previous censuses. From this analysis it is concluded that there were minor anomalies affecting either age reporting of reproductive women or their fertility, affecting mostly the younger cohorts aged 15-19 and 20-24. These values have influenced the analysis of fertility levels and trends. Conclusively, data on reproduction for 2009 are fairly good compared to the previous censuses.

In addition, several methods of indirect fertility estimation such as the Relational Gompertz Fertility Model, Brass P/F Ratio Method and Arriaga 2-points Method (input based on 1999 and 2009 data), were used to adjust reported fertility in order to yield the best fertility fitting models for the 2009 fertility data.

In addition, for nuptiality levels and trends, the Hajnal (1953) method has been applied on proportions of never married males and females and those childless females by age group to produce indices for Singulate Mean Age at Marriage (SMAM) and Mean Age at First Birth (MAFB), respectively.

Evaluation of fertility data

The typical method for detecting omissions at young ages among older cohorts consists in inspecting "increments in mean parity across age groups" (Chidambaram et al. 1980, p.20). The other method for evaluating the quality of fertility data is the P/F ratio method (originally developed by Brass) which is used to detect under reporting of births from a single survey. Cleland et al. (1994) used it to evaluate data quality of fertility in a large number of surveys and censuses in sub-Saharan Africa. However, the P/F ratio has some limitations when fertility changes and is therefore incapable of distinguishing birth displacement and omissions. The general idea is to compare period fertility (F) cumulated to age X to parity (P) of the same age. If fertility is constant, the P/F ratio should be close to `. When there is perfect agreement between the current and retrospective levels of fertility, the value of P(i)/F(i) should be in the neighborhood of 1.02 (Hill, 1980). A ratio greater than 1 suggests under reporting of births in the covered period (because of displacements or omissions). However, a ratio greater than one may also be consistent with a fertility decline (Cleland et al. 1994, p.8).

Although P/F ratios usually indicate under reporting of current births, declining series of P/F ratios could mean that either fertility is currently rising, or any combination or all of the following:

- current fertility pattern is distorted by reporting errors;
- current births have been under reported by women in the younger age groups; or older women have over-reported the number of children ever born

Figures 1.9-1.12 show cumulative fertility plotted against average parity for some counties. Narok County illustrates a typical case of good data where cumulative current fertility is nearly matching at all ages with average parity. Except for first age group, the rest are within the neighbourhood of 1.02. Thus the reported Age Specific Fertility Rate (ASFR) for Narok can be taken as a very plausible result. Figure1.10 shows that P/F ratios decline with age implying that current fertility pattern is distorted by reporting errors, and that current births have been under reported by women in the younger age groups. Comparing Narok with Nyamira and Mandera illustrate extreme cases, as shown in Figures 1.10 -1.12. In the case of Mandera County as depicted in Figure1.12, one notices the declining P/F ratios with age; however, there are also distortions due to reporting in addition to over count of population of women in the reproductive age.

Figure 1.9: Average CEB and Cumulative Fertility for Narok County, 2009

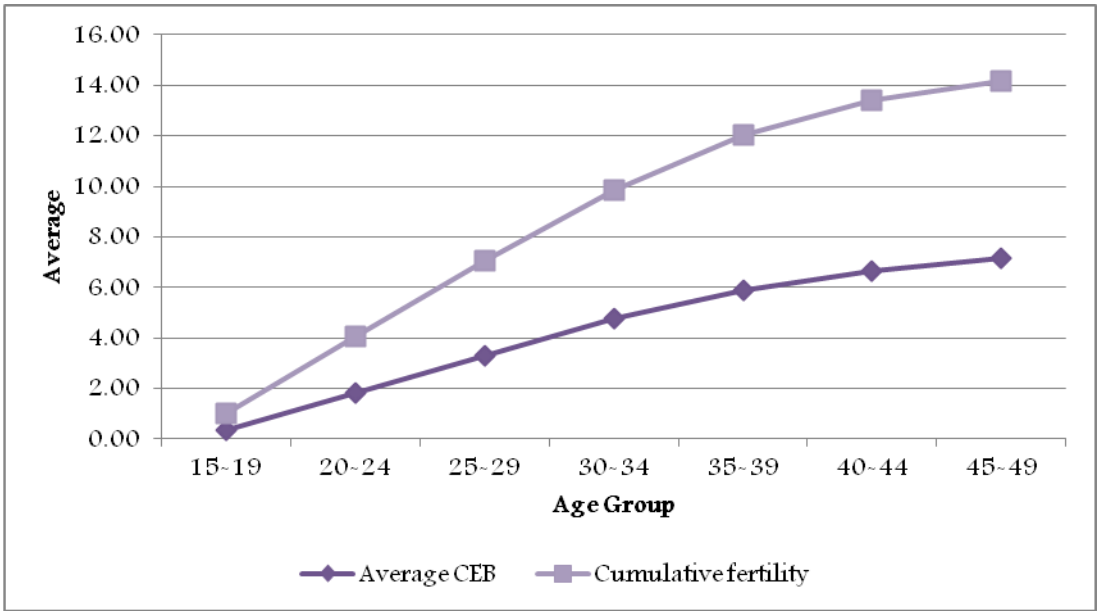


Figure 1.10: P/F Ratios by Age of Mother for Narok County, 2009

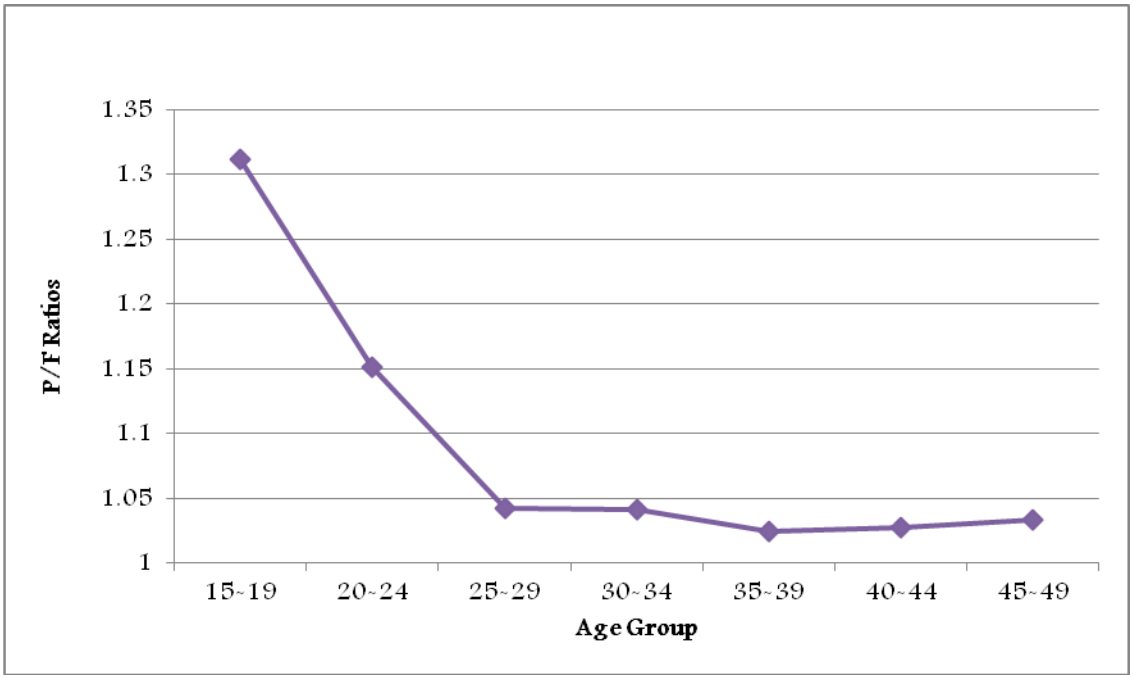


Figure 1.11: Average CEB and Cumulative Fertility for Nyamira County, 2009

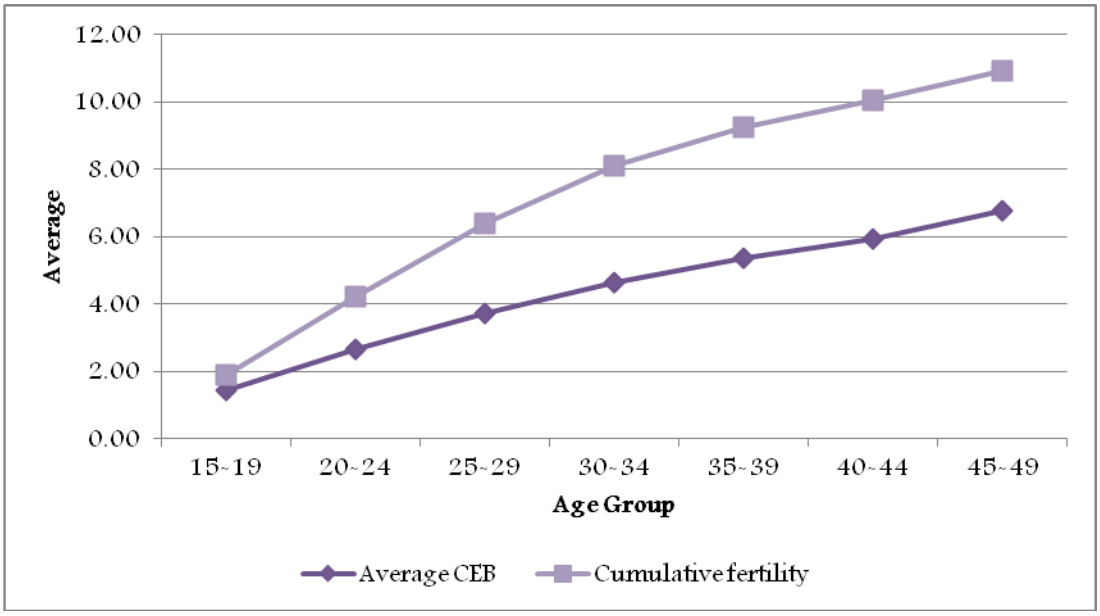
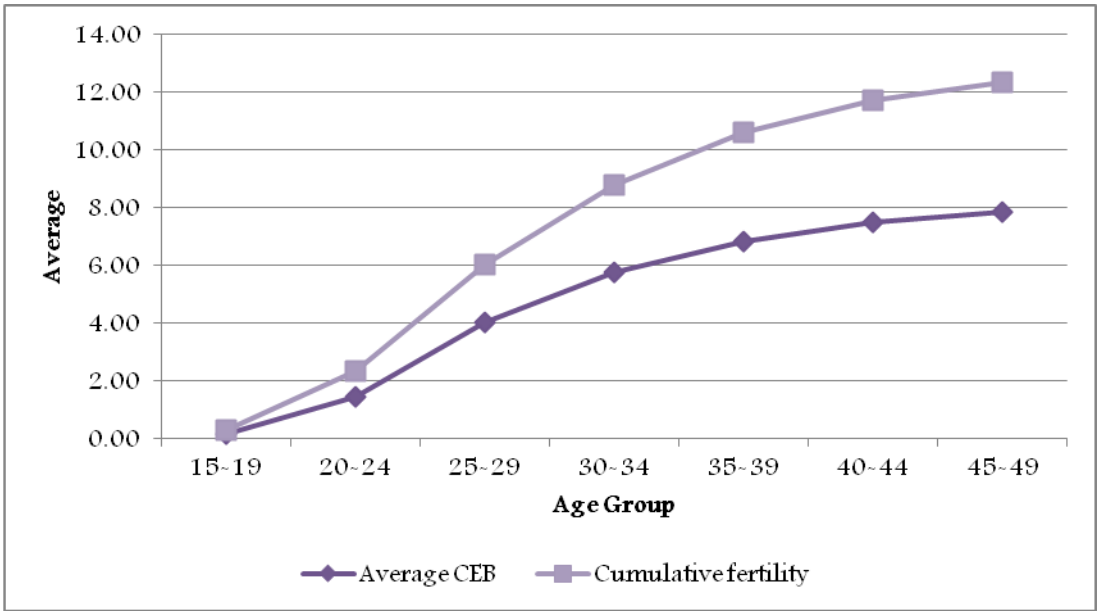


Figure 1.12: Average CEB and Cumulative Fertility for Mandera County, 2009



An examination of data from all the counties indicate that except for Lamu, the rest had under reporting or age distortions for age group 15-19 and occasionally for some 20-24. Nearly in all counties, women aged 45-49 under reported children they gave birth to when they were young. Nyamira, Kericho and Kajiado, had severe under reporting of teenage births, 15-19 years while in Mandera, Wajir, Garissa, and Turkana, the following may have occurred:

- current fertility pattern is distorted by reporting errors;
- current births have been under reported by women in the younger age groups;
- current fertility may have been affected by added non-existent population;.

In view of the reported errors data from all the counties were adjusted using indirect methods.

1.4 Definitions of Concepts

Household: Is a person or a group of persons who reside in the same homestead or compound but not necessarily in the same dwelling unit. They have same cooking arrangement, and are answerable to the same household head.

Household Head: Is the most responsible member of a household who makes key decisions of the household on a day-to-day basis and whose authority is recognized by all members of the household. It could be the father, mother or a child, or any other responsible member within the household

Sex: Refers to condition or character of being female or male

Rural: Are a large and isolated areas of an open country (in reference to open fields and not forests, etc.), often with low population density.

Urban: Is an area with an increased density of human-created structures in comparison to the areas surrounding it and has a population of 2,000 and above. In this definition, urban areas include the following: Cities, Municipalities, Town Councils, Urban Councils and all district headquarters, regardless of the population

Fertility: Is the actual number of live births a woman has had by the end of her reproductive life span (15-49 years).

Total Fertility Rate (TFR): The average number of children a woman would have assuming that current age-specific birth rates remain constant throughout her childbearing years which are considered to be ages 15 to 49. Total Fertility Rates are for the 36-month period prior to the census.

Current Fertility: Refers to births that occurred to a woman in the 12 months before the census date.

Lifetime Fertility: Refers to the total number of children ever born alive during the entire reproductive period of the woman.

Nuptiality: Refers to marriage as a population phenomenon, including the rate at which it occurs, the characteristics of persons united in marriage, and the dissolution of such unions through divorce, separation, widowhood and annulment.

Contraceptive Use: The percentage of women aged15 to 49 who are currently using any form of contraception or any method to prevent conception. “Modern” methods of contraception include female sterilization, pills, intrauterine devices (IUD), injectables, implants and condoms.

Mean Age at First Birth: Refers to the average age at which women have their first born child.

Chapter 2- Fertility Levels, Trends and Differentials

2.1 Introduction

This section analyzes levels, trends and differentials in lifetime fertility, current fertility, gross reproduction rates, crude birth rates and adolescent fertility. Emphasis is on how these fertility measurements vary by age-group, level of education attained and marital status. Rural-urban differences as well as county level indices are also provided for some measurements.

In this section, the analysis of fertility is based on reported fertility as well as adjusted fertility by different demographic techniques, in order to compare levels and trends with those of past censuses.

2.2 Levels, Trends and Differentials in Lifetime Fertility

One of the key indicators of fertility level is the average number of children born. However, because of under reporting of births, especially among the age group 45-49, the average number of children for women in age group 40-44 is used to summarize the lifetime fertility experience of a woman at the end of the reproductive period.

Table 2.1 shows percentage distribution of women in each age group by reported parity for 1989, 1999 and 2009 censuses. The age group 12-14 is excluded in the analysis because of reporting errors affecting adolescents, as the tendency among some adolescents in this age category is to omit their birth experiences, especially if they are never married.

Among the younger women age 15-19, the proportion with 0 children is gradually increasing, indicating an increase in age at entry into childbearing. The same can be said with regard to the proportions at parity 1 to 3. Among women in age group 20-24 the distribution has remained almost the same as in previous censuses; however, there is an increased proportion childless. Peak childbearing occurs in age groups 25-29 and 30-34. The distribution has almost remained the same except that the average parity has declined by about 1 birth. The proportion childless in age groups above 40 can always be taken as a proxy measure of infertility. The proportion childless in these age groups has been declining, though marginally. The average parity among the higher age groups has also been declining. For example, among women in the age group 45-49, the modal parity changed from 7 in 1989 to 5 in 2009.

Table 2.1: Percent Distribution of Women in Each Age Group by Parity, 1989-2009

	Year	Total	0	1	2	3	4	5	6	7	8	9	10+	NS
	1989	100	50.0	11.0	3.3	1.0	0.6	0.2	0.0	0.0	0.0	0.0	0.0	34.0
	1999	100	80.0	14.0	5.7	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	-
15-19	2009	100	77.0	10.0	3.2	0.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	8.0
	1989	100	20.0	22.0	20.0	13.0	5.8	3.4	1.2	0.0	0.0	0.0	0.0	15.0
20-24	1999	100	33.0	28.0	20.0	11.0	4.9	1.7	0.5	0.1	0.0	0.0	0.0	-
	2009	100	35.0	25.0	19.0	9.5	4.2	1.5	1.4	0.0	0.0	0.0	0.0	3.9
	1989	100	6.9	9.8	15.0	18.0	17.0	12.0	7.0	6.8	0.0	0.0	0.0	7.3
25-29	1999	100	15.0	16.0	21.0	18.0	14.0	8.4	4.4	2.0	0.9	0.3	0.2	-
	2009	100	14.0	19.0	22.0	18.0	12.0	6.6	3.3	1.4	1.3	0.0	0.0	2.6
	1989	100	4.1	4.4	6.7	9.6	13.0	15.0	15.0	16.0	11.0	0.0	0.0	5.6
30-34	1999	100	5.7	7.4	13.0	16.0	16.0	14.0	11.0	7.5	4.5	2.3	2.0	-
	2009	100	6.1	9.8	18.0	18.0	16.0	12.0	8.8	5.2	3.2	1.4	0.7	2.3
	1989	100	3.3	3.0	4.3	6.1	8.2	10.0	13.0	13.0	12.0	9.0	13.0	5.0
35-39	1999	100	4.0	4.1	7.3	11.0	13.0	14.0	13.0	11.0	8.8	5.9	7.6	-
	2009	100	3.6	5.8	12.0	15.0	15.0	13.0	12.0	8.8	6.9	3.7	2.1	1.9
	1989	100	3.2	2.7	3.6	4.7	6.0	7.7	9.5	11.0	12.0	9.0	13.0	5.0
40-44	1999	100	3.7	3.3	50.0	7.1	9.5	11.0	12.0	12.0	11.0	8.9	17.0	-
	2009	100	3.0	4.3	8.8	13.0	14.0	13.0	12.0	10.0	9.5	6.1	4.3	1.9
	1989	100	3.3	2.6	3.3	4.3	5.3	6.9	8.6	10.0	11.0	11.0	29.0	4.9
45-49	1999	100	3.5	2.9	4.1	5.6	7.5	9.2	11	12.0	12.0	10.0	23.0	-
	2009	100	2.7	3.6	6.6	10.0	13.0	13.0	13.0	12.0	11.0	7.7	5.9	1.7

The parity distribution indicates that younger cohorts are beginning to postpone entry into childbearing. The older women are also likely to stop child bearing early and average family size is declining. The proportion childless among older women has marginally declined indicating that infertility may be declining.

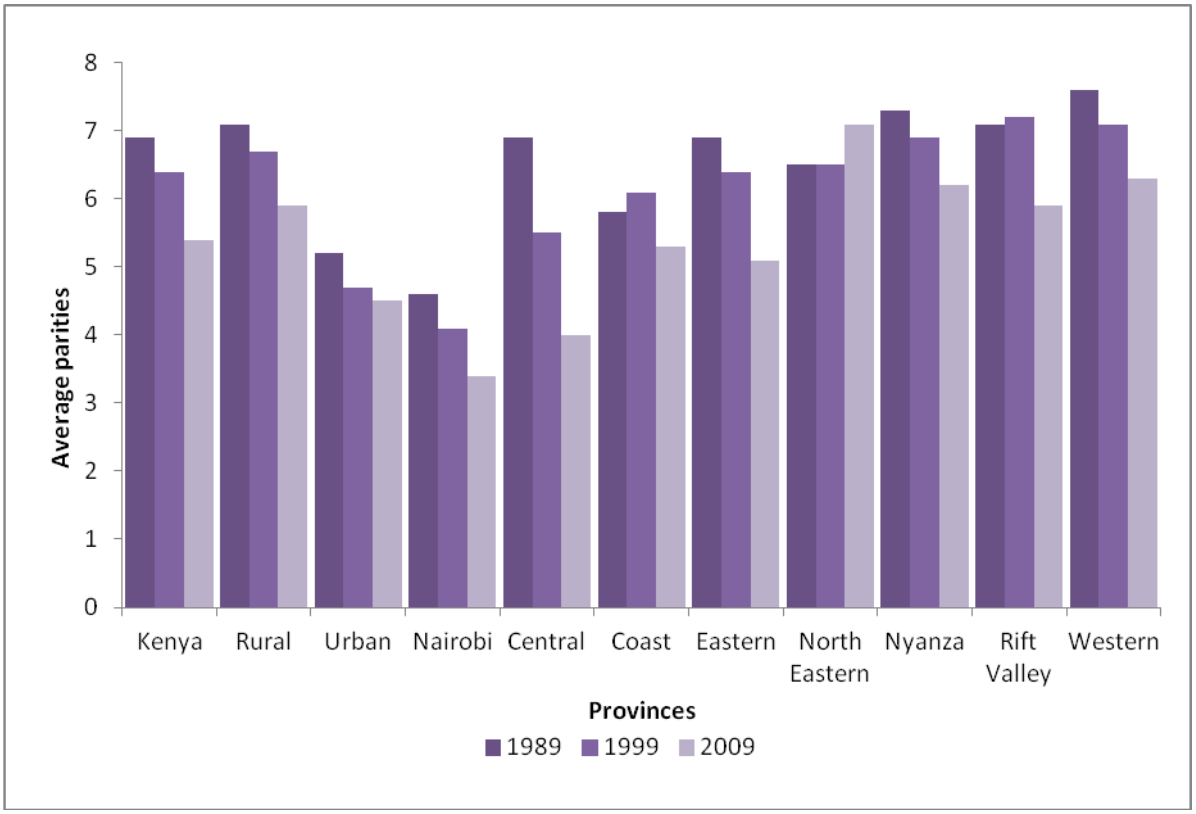
Table 2.2 shows the country and provincial analysis of reported mean parity. The average parity for Kenya in 2009 was 5.4 births per woman aged 40-44. The 1989 and 1999 censuses show that, all provinces except Coast and Rift Valley, experienced a fall in average parity per woman. The two provinces had a rise in average parity per woman because of massive in-migration to these provinces during the inter-censal period 1999-2009. Furthermore, all provinces except North Eastern had a drop in reported average parities in 1999 and 2009. The unique case of North Eastern Province is attributed to problem of over-enumeration that affected the province. The remaining provinces show declines in average parities. The drop was substantial in Central Province with almost one and half births or a decline of 27.3 percent.

Table 2.2: Reported Average Number of Children Ever Born Among Women Aged 40-44 by Province and Residence, 1989-2009

	Children Ever Born		
Region	1989	1999	2009
Kenya	6.9	6.4	5.4
Rural	7.1	6.7	5.9
Urban	5.2	4.7	4.5
Nairobi	4.6	4.1	3.4
Central	6.9	5.5	4.0
Coast	5.8	6.1	5.3
Eastern	6.9	6.4	5.1
North Eastern	6.5	6.5	7.1
Nyanza	7.3	6.9	6.2
Rift Valley	7.1	7.2	5.9
Western	7.6	7.1	6.3

Eastern Province had a reduction of one birth or a decline of 20.3 percent. Rift Valley likewise had a drop by one birth or a decline of 18.1 percent. Comparison between the average parity for rural Kenya with national average shows that, in rural Kenya, between 1999 and 2009, women aged 40-44 had their average parity higher by 11.9 percent, while urban women had their average parity as 4.5, which was below the national average of 5.4 births by 16.7 percent. Figure 2.1 shows that in 1989 Central Province had very high average parity per woman just like other provinces. Since then, it has experienced a steady decline. North Eastern Province unlike other provinces experienced an increase in parity since 1989. These provincial data reflect close values for their counties though small differences are expected at the county levels.

Figure 2.1: Reported Average Parities for Women Aged 40-44 by Province, 1989-2009



2.2.1 Lifetime Fertility by Place of Residence

Urbanization is inversely correlated with fertility. Table 2.3 shows reported average parities for 1989, 1999 and 2009 censuses by rural and urban areas.

Table 2.3: Trends in Reported Average Parities by Rural and Urban Areas, 1989- 2009

	Rural			Urban		
Age group	1989	1999	2009	1989	1999	2009
15-19	0.3	0.3	0.2	0.3	0.3	0.2
20-24	1.7	1.5	1.5	1.2	1.0	0.9
25-29	3.5	2.9	2.9	2.5	1.9	1.8
30-34	5.2	4.5	4.2	3.7	3.1	2.8
35-39	6.3	7.7	5.2	4.6	4.7	3.6
40-44	7.1	6.7	5.9	5.2	4.7	4.5
45-49	7.4	7.2	6.4	5.5	5.2	4.8

The average number of children ever born has been declining since 1989 for both rural and urban areas and at every age. The decline is due to several factors namely; increased female education, increased urbanization, increased contraceptive use and the rise in age at first marriage. The analysis of rural–urban differences in reported average parities for the 1989, 1999 and 2009 censuses indicate that urban parities were lower than rural parities for all age groups. All age groups experienced decline in average parities since 1989. The highest decline of one birth occurred in age group 40-44 in rural areas, whereas the highest decline in urban areas occurred in the 35-39 age group. The decline in average number of children ever born indicates that Kenya is on the path to fertility decline.

A closer examination of the older age groups, 40-44 and 45-49, show that between 1989 and 2009 women in these cohorts experienced the greatest decline. The age group 35-39 also had the greatest fall of 32.5 percent in rural areas and 23.4 percent in urban areas. Conclusively, rural cohort changes appear to be inconsistent.

2.2.2 Lifetime Fertility by Level of Education Attained

Education is one of the most important socio-economic factors that influence fertility. Extended formal education is one of the main reasons for postponement of marriage among women (Kpedkepo, 1982). Higher educational attainment is also associated with the use of more effective contraceptive methods (Hill et al, 1994), better nutrition and better access to health care services (Hawson et al, 1996).

Table 2.4 shows trends in average parities by level of education. There is a clear decline in average parities for all women. The decline increases with the level of education.

Table 2.4: Trends in Reported Average Parities by Education Attainment

	Reported Average Parities			Percent change
Education Attainment	1989	1999	2009	1999-2009
NONE				
15-19	0.5	0.4	0.4	0.0
20-24	2.0	1.7	1.8	5.9
25-29	3.6	3.2	3.4	6.3
30-34	4.9	4.9	5.0	2.0
35-39	6.4	6.1	6.0	-1.6
40-44	7.1	6.9	6.6	-4.4
45-49	7.4	7.2	7.0	-2.8
PRIMARY				
15-19	0.2	0.3	0.2	-33.3
20-24	1.7	1.6	1.6	0.0
25-29	3.3	2.9	2.8	-3.4
30-34	4.8	4.5	4.0	-11.1
35-39	6.2	5.7	5.0	-12.3
40-44	7.1	6.6	5.8	-12.1
45-49	7.5	7.1	6.3	-11.3
SECONDARY AND ABOVE				
15-19	0.1	0.2	0.1	-50
20-24	0.9	0.8	0.6	-25.0
25-29	2.3	1.9	1.5	-21.1
30-34	3.6	3.2	2.5	-21.9
35-39	4.4	4.2	3.4	-19.1
40-44	4.8	4.9	4.0	-18.4
45-49	4.7	5.2	4.5	-13.5

2.2.3 Lifetime Fertility by Marital Status

Table 2.5 presents average parities for women aged 15-49 by marital status between 1989 and 2009. In 2009, all women who were never married had lower average parity compared with those of 1989 and 1999 censuses. Their average parities ranged between 0.1 births among those aged 15-19 and 2.7 births among the older women aged 45-49. The age group 15-19 experienced the greatest decline in average parity by 50.0 percent, while the age group 45-49 had the least decline of 12.9 percent. However, comparison between 1989 and 1999 censuses reveals a slightly different trend. Women in the younger cohorts 15-19 and 20-24 had a marginal increase in average parity, while other age groups had a drop, in parity. Older women in the age groups 40-49 experienced a drop by 1 birth. Average parities by level of education and marital status are presented in Appendix 5.

Table 2.5: Average Parities for Women Aged 15-49 by Marital Status, 1989-2009

Marital Status	Reported Average Parities			
	1989	1999	2009	1999 – 2009 % Change
Never Married				
15-19	0.1	0.2	0.1	-50.0
20-24	0.6	0.6	0.4	-33.3
25-29	1.6	1.2	0.8	-33.3
30-34	2.6	2.3	1.4	-39.1
35-39	3.5	2.7	2.0	-25.9
40-44	4.0	3.1	2.3	-25.8
45-49	4.3	3.1	2.7	-12.9
Married				
15-19	1.0	0.8	0.9	12.5
20-24	2.1	1.8	1.9	5.6
25-29	2.6	3.0	2.8	-6.7
30-34	5.2	4.4	4.0	-9.1
35-39	6.3	5.7	5.0	-12.3
40-44	7.2	6.7	5.8	-13.4
45-49	7.5	7.2	6.3	-12.5
Widowed				
15-19	1.3	0.8	0.9	12.5
20-24	2.5	2.1	2.5	19.1
25-29	3.9	3.4	3.3	-2.9
30-34	5.2	4.6	4.2	-8.7
35-39	6.0	5.6	4.8	-14.3
40-44	6.6	6.4	5.5	-14.1
45-49	8.9	6.9	6.0	-13.0
Divorced/ Separated				
15-19	1.0	0.9	1.1	22.2
20-24	1.9	1.7	1.8	5.9
25-29	2.9	2.6	2.4	-7.7
30-34	3.9	3.6	3.0	-16.7
35-39	4.6	4.3	3.6	-16.3
40-44	5.1	4.9	4.0	-18.4
45-49	5.2	5.3	4.4	-17.0

Further analysis of average parity of married women reveals that in 2009, average parity for married women in the age groups 15-19 and 20-24 was marginally higher than that of married women in the same age groups in 1999 Census, while average parity for the other age groups was consistently lower and the difference marginal. The 2009 average parity for married women ranged between 1 birth among women aged 15-19 and 6 births among older women aged 45-49. The greatest fertility decline of 13.4 percent occurred among women aged 40-44. Further analysis of parity of women reveals that for the 1989 and

1999 censuses, all age groups experienced a fall in average parity except for a small gain affecting women aged 25-29.

Widowed women had similar experiences to married women. In 2009, women aged 15-19 and 20-24 had their average parity marginally higher than those in the same age groups in 1999 Census. Yet widowed women in the age groups 25 and above had marginally lower average parity. Widowed women had their average parity range between 1 birth and 6 births for the age group 15-19 and 45-49, respectively. In fact, the age group 35-39 experienced the greatest fertility decline of 14.3 percent. A similar trend is observed when average parity for the divorced or separated women is analyzed.

In summary, significant falls in fertility were observed for women aged 30-39 for all categories of marital status. It is also noted that the error pertaining to non-response by women as to their parity was inherent in these data. This affected more the age groups 15-19 and 45-49. The younger women under 29 years contributed more to fertility in all categories of marital status. Difference in fertility levels by marital status is therefore a reality. Focus on women aged 40-44 indicate never married average parity was 2.3, married 5.8, widowed 5.5 and divorced or separated 4.0. A difference of almost 2 births is observed between married women and divorced or separated women and almost 4 births between never married and married women.

2.3 Levels, Trends and Differentials in Current Fertility

Current fertility refers to estimates of birth in the recent past. In this monograph, the current fertility is limited to births that occurred in the last 12 months before the date of the census. Table 2.6 shows the 2009 TFRs reported and adjusted due to omission or under reporting.

Table 2.6: Direct and Adjusted Total Fertility Rates by Different Demographic Methods, 2009

Country/Province	TFR (2009 Census Direct Estimate)	KDHS 2008/09	Census 2009 adjusted using Gompertz Relational Method	Census 2009 adjusted using Arriaga 2-Point Method
Kenya	**4.4**	**4.6**	**4.8**	**4.4**
Kenya Rural	5.0	5.2	5.2	5
Kenya Urban	3.3	2.9	3.3	3.2
Nairobi	2.9	2.8	2.9	3.9
Central	3.3	3.4	3.1	4.9
Coast	4.6	4.8	4.6	6.4
Eastern	4.2	4.4	4.2	5.7
North Eastern	4.2	5.9	6.8	7.3
Nyanza	5.1	5.4	5.6	5.4
Rift Valley	5.0	4.7	5.5	6.2
Western	5.4	5.6	5.6	5.9

The 2009 TFRs for the country and provinces derived by direct method and the listed indirect demographic methods have very small differences, except in North Eastern Province, where the difference between direct estimates i.e. 4.2 and indirect estimates of TFR, 7.3 are incredibly large yielding up to 3 births. In the case of Arriaga 2-points method, the TFR derived by indirect method for the country and other provinces are very close to direct estimates and those of 2008/09 KDHS. A difference of 1-2 births is however observed only in Coast and Eastern provinces.

In order to determine whether the enumeration problem of North Eastern Province during the 2009 Census affected the national fertility level, further indirect estimates of fertility based on several demographic techniques have been applied to the reported fertility data of the province. However, it suffices to state that further indirect estimation of fertility for Kenya with and without data from North Eastern Province is shown in Appendix 3. The TFR remains almost at the same level of about 4.4, when North Eastern data is included with the national population. However, when the base population of North Eastern Province for women of reproductive age is adjusted and births in the last 12 months for North Eastern are included, the TFR increases marginally to 4.5. Further analysis of P(i)/F(i) ratios with and without North Eastern, show that ratios without North Eastern are closer to the expectation of match between current fertility and lifetime fertility. The North Eastern data problems completely distorts the true estimates of national fertility rate.

The analysis in this section is therefore based on direct estimates of TFR since the differences between direct and indirect estimates are small as indicated in Table 2.6. The analysis of Total Fertility Rates (TFRs) shows significant fertility decline for the country. In 2009 reported TFR for Kenya was 4.4 births, which was a small drop from 5.0 births in 1999 Census, but a significant drop of almost 3 births from TFR of 7.2 births in 1989 Census. In 2009, TFR in rural areas was higher than in urban areas, recording 5.0 and 3.3 births respectively.

The analysis of reported Total Fertility Rates at provincial level shows a consistent and substantial fall in TFR in 2009 Census compared to TFR of 1999 Census as in Table 2.7. All provinces show decline in fertility between 2009 and 1999. The following provinces had percentage drops in fertility by more than 10 percent between 1999 and 2009: Central 13.2 percent; Coast 11.5 percent; Eastern 19.2 percent; North Eastern 35.7 percent and Rift Valley 13.8 percent. It is observed that Nyanza, Nairobi and Western provinces had the lowest drop in Total Fertility Rate in the same period. Nyanza Province is one of the regions in Kenya with high incidence of HIV/AIDS that causes high maternal and infant mortality rates. Nairobi's drop is expected because its population enjoys a relatively high standard of living. North Eastern Province experienced unusually high drop in Total Fertility Rate by 35.7 percent, probably due to errors in reporting. Comparison with 2008/09 KDHS data shows insignificant differences at provincial level. However, KDHS data were slightly higher for all provinces except Nairobi.

Table 2.7: Reported Total Fertility Rate by Province, 1999-2009

Province	1999	2009	% Change	KDHS 2008/09
Nairobi	3.0	2.9	-3.3	2.8
Central	3.8	3.3	-13.2	3.4
Coast	5.2	4.6	-11.5	4.8
Eastern	5.2	4.2	-19.2	4.4
North Eastern	7.0	4.5	-35.7	5.9
Nyanza	5.5	5.0	-9.1	5.4
Rift Valley	5.8	5.0	-13.8	4.7
Western	6.0	5.4	-10.0	5.6

Assessment of the counties reported Total Fertility Rates shows that very few counties had reported TFR above the national average of 4.4 births per woman by more than 1 birth.

These counties are: Narok 7.0; Samburu 6.6; West Pokot 6.7; Migori 6.0; Bungoma 5.7; Baringo 5.6; Marsabit, Homa Bay and Busia 5.5; Kwale, Trans Nzoia and Siaya 5.4. Counties with very low Total Fertility Rates (TFRs) ranging between 2.9 and 3.9 as shown in Figure 2.2 are Nairobi and Kirinyaga 2.9; Nyeri 3.0; Mombasa 3.3; Murang'a and Embu 3.5, and Machakos 3.8. The remaining counties have TFR between 4.0 and 4.9. For further information on county level of Total Fertility Rates, see Appendix 6b.

Further reference to county adjusted TFRs as shown in Appendix 7 indicates that the absolute difference between reported TFRs and TFRs adjusted by Relational Gompertz Method, was less than one birth in nearly all counties; except in Turkana County with a difference of 2.4 births and all counties in North Eastern Province, which had very high absolute differences as follows: Garissa 2.0; Wajir 2.0 and Mandera 2.8. These values suggest that reporting births in the province had serious anomalies that needed further demographic adjustment. The Relational Gompertz adjusted TFR for Kenya in 2009 was 4.8 births. Only 17 out of 47 counties, representing 36.2 percent had adjusted TFR which was greater than the national average. These were Mandera 7.3; West Pokot 6.7; Wajir 6.5; Tana River, Turkana, Migori and Garissa 6.4; Baringo and Narok 6.3; Homa Bay and Bungoma 6.1; Busia 5.8; Samburu 5.8; Marsabit 5.7; Trans Nzoia, Siaya and Bomet 5.5; Kakamega 5.4; Elgeyo Marakwet 5.3; Kwale and Isiolo 5.2; Kericho and Kisii 5.1; and Kisumu 5.0. For the other counties' data see Appendix 7. It is therefore stated that the adjusted TFR are the accepted fertility statistics for use because they are close to real fertility levels in the country.

Further analysis of reported Age Specific Fertility Rates (ASFRs) which yield reported Total Fertility Rates show that, for the country, the 2009 Census ASFRs were lower than those of 1999 Census for all age groups up to 34 years. However, for the older age groups, above 40 years, ASFRs for 2009 were marginally higher. Rural-urban differences in age-specific fertility rates show a different trend for the same period. For rural areas in 2009 the ASFRs were consistently lower than those of 1999 Census for the age groups between 15 and 34, and were marginally higher for older age groups. The trend for urban areas is also similar because the 2009 ASFRs were consistently lower than those of 1999 up to age group 30-34. Comparison between rural and urban ASFRs reveals that in 2009, urban ASFRs were lower than those of rural for all age groups. The greatest difference of 32.0 percent was experienced by women aged 20-29. Note that rural-urban differences in ASFRs for the 1999 Census were negligible. Conclusively, comparison between urban areas and rural areas for the 1999 and 2009 censuses reveal that in 2009, there was a significant drop in ASFRs for the age groups between 15 and 39 only, with the age group 15-19 having a fall of 62.5 percent and 46.9 percent for the age group 20-24. These percentages are calculated based on data as shown in Table 2.8.

Table 2.9 shows the adjusted ASFRs for Kenya and the provinces in 2009. With the exception of North Eastern Province which had an enumeration problem, all the other provinces had ASFRs which were very close to the reported ASFRs. It is therefore assumed that adjusted ASFRs of each county should not vary greatly from the reported ASFRs.

Table 2.8: Reported Age Specific Fertility Rates (ASFR) for Kenya and Provinces,1999-2009

	Age group							TFR
Residence/Province	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	
KENYA1999	0.15	0.30	0.27	0.20	0.12	0.05	0.01	5.5
RURAL	0.16	0.32	0.29	0.21	0.14	0.05	0.01	5.9
URBAN	0.11	0.22	0.2	0.14	0.09	0.03	0.00	3.9
KENYA 2009	0.07	0.22	0.21	0.18	0.12	0.06	0.02	4.4
RURAL	0.08	0.25	0.25	0.20	0.14	0.07	0.03	5.0
URBAN	0.06	0.17	0.17	0.14	0.09	0.04	0.02	3.5
PROVINCES 2009								
NAIROBI	0.05	0.14	0.15	0.12	0.08	0.03	0.01	2.9
CENTRAL	0.04	0.17	0.17	0.13	0.09	0.04	0.01	3.3
COAST	0.08	0.22	0.22	0.19	0.13	0.07	0.02	4.6
EASTERN	0.05	0.21	0.21	0.17	0.12	0.06	0.02	4.2
NORTH EASTERN	0.03	0.16	0.23	0.19	0.15	0.08	0.05	4.5
NYANZA	0.12	0.26	0.24	0.19	0.12	0.06	0.02	5.0
RIFT VALLEY	0.08	0.23	0.24	0.20	0.15	0.08	0.03	5.0
WESTERN	0.09	0.27	0.27	0.22	0.15	0.07	0.02	5.4

Table 2.9: Adjusted Age Specific Fertility Rates by Provinces and Data Source, 2009

									2008/9
Residence/Province	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	TFR	KDHS
KENYA	**0.085**	**0.230**	**0.243**	**0.200**	**0.133**	**0.057**	**0.012**	**4.8**	**4.6**
RURAL	0.091	0.265	0.283	0.240	0.179	0.078	0.024	5.8	5.2
URBAN	0.061	0.187	0.213	0.144	0.081	0.030	0.004	3.6	2.9
NAIROBI	0.047	0.158	0.194	0.118	0.059	0.023	0.003	3.0	2.8
CENTRAL	0.056	0.178	0.206	0.135	0.073	0.027	0.004	3.4	3.4
COAST	0.087	0.233	0.245	0.204	0.138	0.060	0.013	4.9	4.8
EASTERN	0.082	0.224	0.239	0.190	0.124	0.051	0.010	4.6	4.4
NORTH EASTERN	0.131	0.300	0.321	0.272	0.204	0.099	0.035	6.8	5.9
NYANZA	0.090	0.250	0.265	0.225	0.161	0.070	0.019	5.4	5.4
RIFT VALLEY	0.090	0.254	0.270	0.229	0.165	0.072	0.020	5.5	4.7
WESTERN	0.091	0.265	0.283	0.240	0.179	0.078	0.024	5.8	5.6

Figure 2.2: Total Fertility Rate by County, 2009

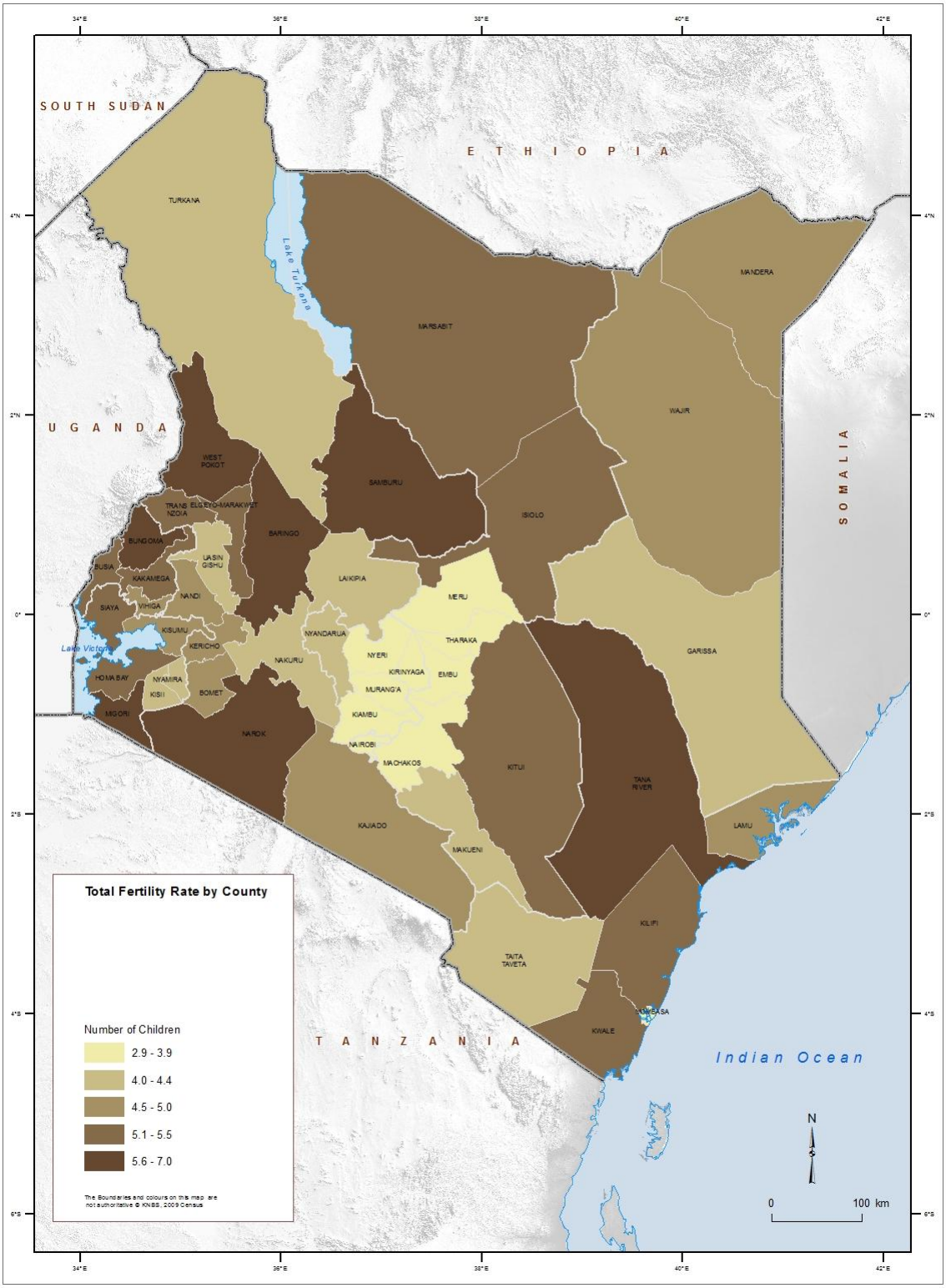
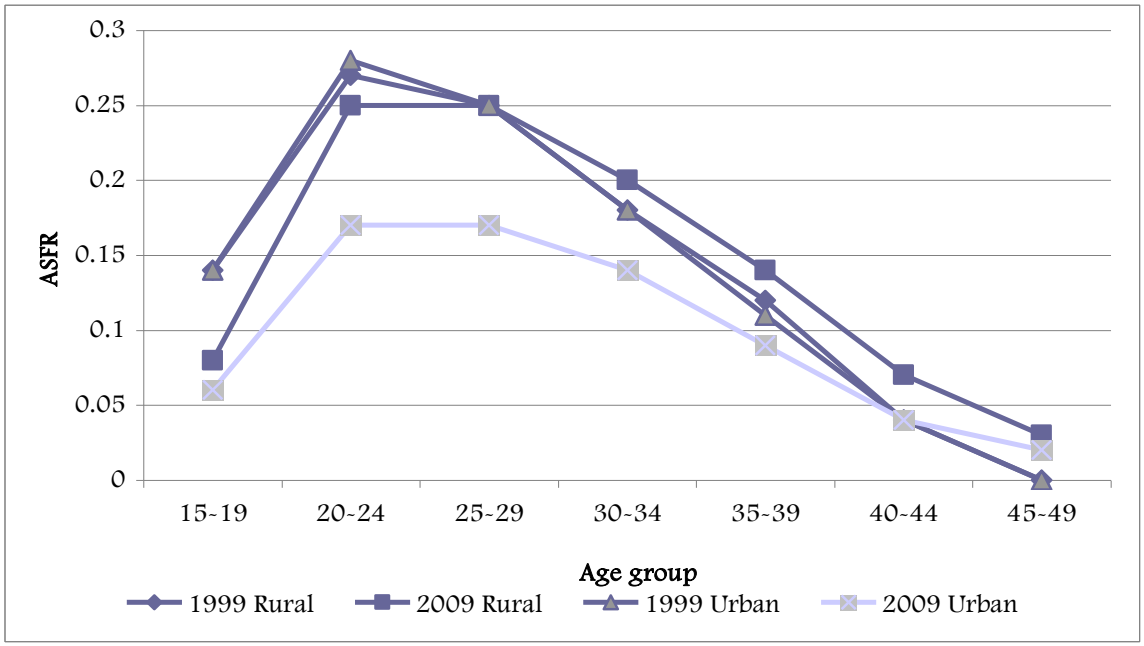


Figure 2.3 for both rural and urban women, depicts a typical early fertility peak with over half of the births in both rural and urban areas occurring to women aged 20-29. Between 1999 and 2009 both rural and urban ASFRs curves flatten between the age groups 20-24 and 25-29 before dropping. Further reference to Table 2.14 shows that, in 2009 urban teenage fertility (15-19 years) represented only 8.6 percent of total urban fertility, while in rural areas, teenage fertility represented only 8.0 percent of total rural fertility. In urban areas the contribution of women aged 20-24 to TFR in 2009 was only 24.3 percent and in rural areas the same women contributed 25.0 percent. The contribution of the age group 25-29 in 2009 was the same as that of age 20-24 in urban and rural areas, while the contribution of the older age groups was relatively lower because fecundity, which is the biological potential to reproduce, decreases with age.

Figure 2.3: Age Specific Fertility Rates for Rural and Urban Areas, 1989-2009



The relatively lower Total Fertility Rate of 3.5 in urban areas for the 2009 Census was expected. Generally, urban women marry later, tend to be more educated and are more prone to social change, including use of modern contraception, especially the more effective contraceptive methods (CBS, 2002).

Figure 2.4 on age-specific fertility rate curves by education attainment shows a typical pattern of early fertility peak for all categories of education. Women with secondary education however, showed a shift in fertility peak among those aged 25-29 for the 2009 Census. For the 1989 and 1999 censuses non-educated women of reproductive cohorts experienced a drop in ASFRs except those aged 20-29. This pattern changed for the 1999 and 2009 censuses where the younger age groups 15-29 experienced decline in ASFRs, while the older women experienced an increase. The age pattern of fertility for women with primary education has not changed. However, for those with no education there has been a shift in the peak age at childbearing.

Figure 2.4: Age Specific Fertility Rates by Education Attainment, 1989-2009

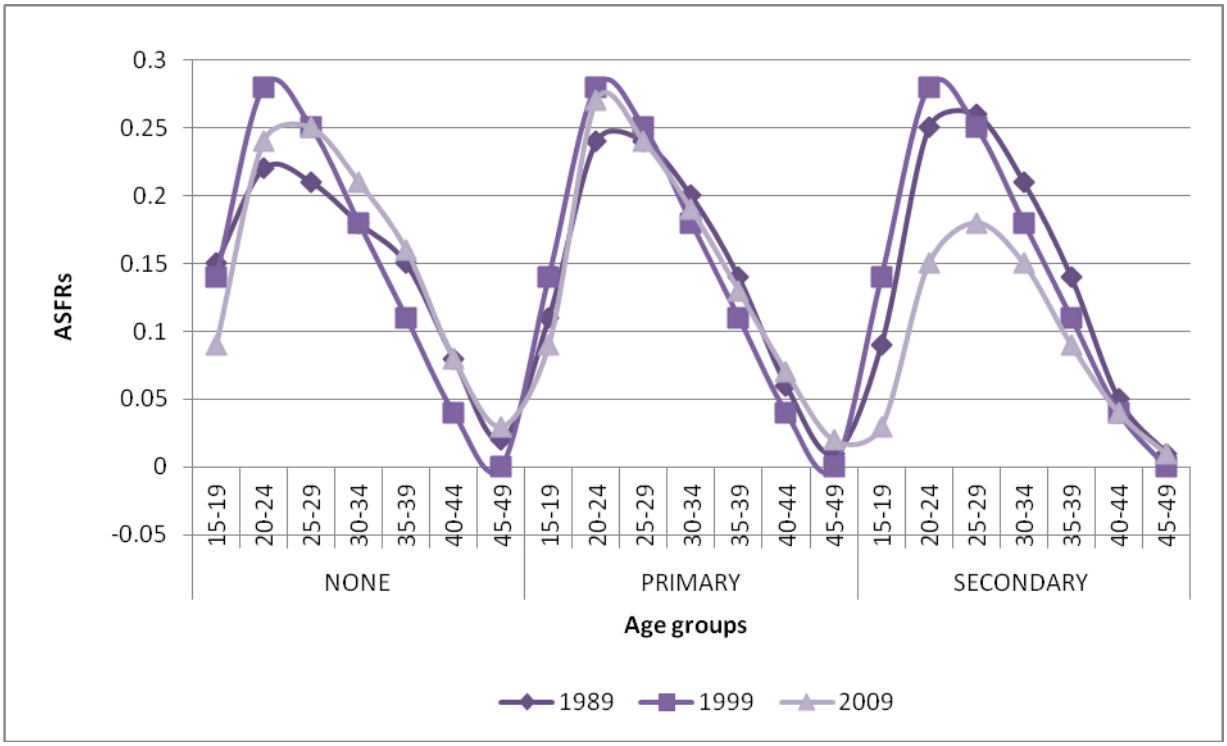


Table 2.10 presents reported ASFRs between 1989 and 2009 by education attainment. Women aged 15- 34 with no education in 2009 had marginally lower ASFRs than those of the same age group in 1999. Further, women aged 15 to 29 with primary education experienced decline in ASFRs in 2009 compared to the same age group in 1999. A very large increase of 100 percent was reported by women aged 40-44. The trend among women with secondary and above level of education was totally different. In 2009, ASFRs for such women decreased for all age groups when compared with ASFRs of 1999. A substantial decrease in ASRFs of about 76.9 percent was realized by adolescent women aged 15-19 and were followed by women aged 20-24 who experienced a decrease of about 42.3 percent.

Table 2.10: Age Specific Fertility Rates by Education Attainment, 1989-2009

Educational Attainment	Age Specific Fertility Rates			% Change
NONE	**1989**	**1999**	**2009**	**1999-2009**
15-19	0.22	0.19	0.09	-52.6
20-24	0.32	0.38	0.24	-36.8
25-29	0.31	0.34	0.25	-26.5
30-34	0.27	0.25	0.21	-16.0
35-39	0.22	0.15	0.16	6.7
40-44	0.12	0.06	0.08	33.3
45-49	0.02	0.01	0.03	200
TFR	**7.4**	**6.9**	**5.27**	
PRIMARY				
15-19	0.16	0.18	0.09	-50.0
20-24	0.34	0.36	0.27	-25.0
25-29	0.34	0.32	0.24	-25.0
30-34	0.28	0.23	0.19	-17.4
35-39	0.20	0.15	0.13	-13.3
40-44	0.09	0.06	0.07	16.7
45-49	0.01	0.01	0.02	100.0
TFR	**7.1**	**6.6**	**5.02**	
SECONDARY PLUS				
15-19	0.09	0.13	0.03	-76.9
20-24	0.25	0.26	0.15	-42.3
25-29	0.26	0.24	0.18	-25.0
30-34	0.21	0.17	0.15	-11.8
35-39	0.14	0.11	0.09	-18.2
40-44	0.05	0.04	0.04	0.0
45-49	0.01	0.0	0.01	0.0
TFR	**5.1**	**4.8**	**3.22**	

Further, the Table indicates that women aged 15-24 with secondary and above level of education had higher ASFRs in 1999 Census compared with their counterparts in 2009 Census. On the other hand, older women aged 30-49 had substantial decline in ASFRs during the same period. It is important to stress that, differences in quality of census data could explain some of these trends in ASFRs as both the 2009 and 1999 data were heavily imputed while the 1989 data were not, therefore comparison between 2009 data and 1989 data should be treated with caution. Nevertheless, the noted changes in ASFRs among adolescents could be attributed to changing fertility behavior among adolescents (CBS, 2002).

The foregoing analysis demonstrates that differences in fertility exist between women with no education and women with secondary and above level of education. However, there is general decline in fertility irrespective of level of education

Analysis of differences in age-specific fertility rates by marital status is depicted in Table 2.11. It reveals anomalies between ASFRs for the censuses of 1989 and 1999 on the one hand and those of 2009 Census, especially for the never married category. For the other marital categories, the results are plausible. The inconsistency affecting the never married category is minimal for the same age group in the analysis of ASFRs by education attainment in Table 2.10. The noted inconsistency for the never married status probably suggests that in 2009, the never married women aged 15-49 largely under reported their births in the 12 months preceding the census date, or the previous censuses had fertility response errors. Reference to 2009 data further confirms that ASFRs by marital status differ significantly, because as expected, the married had the highest ASFRs with TFR of 6.7 births compared with 4.0 births for the widowed and 4.2 births for the divorced or separated.

In 2009, among the never married, all age groups except 40-44 showed significant decline in fertility compared with the censuses of 1999 and 1989, while for the married category the age groups 15-19, 40-44 and 45-49 in 2009, experienced remarkable increase in ASFRs compared to those married in 1999 and 1989. The trends for those widowed, divorced or separated are totally different. In 2009, widowed adolescents (15-19 years) had no change in their ASFRs, while those between 20 and 44 experienced significant fall in their ASFRs compared to those of 1999 Census. In fact, the age group 30-34 had the greatest drop in ASFR by 40.0 percent. The older age groups, however, had a stall in their fertility trend. Comparison between ASFRs for 2009 and those of 1989 show that the younger cohorts 15-19, 20-24 and 25-29 exhibited an irregular trend, while the older cohorts aged 35 and above in 2009, had consistently lower ASFRs than those of 1989 Census.

Table 2.11 reveals that, in 2009, divorced or separated adolescents had very high ASFRs compared to those in 1999. Yet the other women experienced substantial decline in their ASFRs with those aged 35-39 having a decrease by 90.9 percent. Comparison with the 1989 census again reveals a trend similar to that of widowed women.

Table 2.11: Age Specific Fertility Rates by Marital Status, 1989-2009

	Age Specific Fertility Rate			
Never Married	**1989**	**1999**	**2009**	**1999-2009 % Change**
15-19	0.06	0.09	0.03	-66.7
20-24	0.15	0.19	0.07	-63.2
25-29	0.19	0.17	0.07	-58.9
30-34	0.19	0.12	0.06	-50.0
35-39	0.16	0.08	0.05	-37.5
40-44	0.10	0.03	0.02	-33.3
45-49	0.02	0.0	0.01	0.0
TFR	**4.4**	**3.4**	**1.55**	
Married				
15-19	0.26	0.17	0.32	88.2
20-24	0.28	0.34	0.32	-5.9
25-29	0.26	0.3	0.26	-13.3
30-34	0.23	0.22	0.20	-9.1
35-39	0.21	0.14	0.14	0.0
40-44	0.14	0.05	0.07	40.0
45-49	0.04	0.01	0.03	200.0
TFR	**7.1**	**6.2**	**6.7**	
Widowed				
15-19	0.30	0.15	0.15	0.0
20-24	0.27	0.30	0.23	-23.3
25-29	0.22	0.27	0.17	-37.0
30-34	0.19	0.20	0.12	-40.0
35-39	0.17	0.12	0.08	33.3
40-44	0.11	0.05	0.04	-20.0
45-49	0.03	0.01	0.01	0.0
TFR	**6.5**	**5.5**	**4.0**	
Divorced/Separated				
15-19	0.24	0.13	0.31	138.5
20-24	0.20	0.26	0.22	-15.4
25-29	0.16	0.23	0.15	-34.8
30-34	0.13	0.17	0.10	-41.2
35-39	0.11	0.11	0.01	-90.9
40-44	0.07	0.04	0.03	-25.0
45-49	0.02	0.00	0.01	0.0
TFR	**4.65**	**4.67**	**4.15**	

2.3.1 Levels of Gross Reproductive and Net Reproductive Rates

Gross Reproductive Rate (GRR) is a measure of current fertility and is similar to Total Fertility Rate except that it considers only births in the 12 months preceding the Census date rather than all births. It measures the potential of a woman to replace herself in childbearing. It is calculated as Total Fertility Rate but uses female age-specific fertility rates. The female ASFRs are summed and multiplied by 5 because each age group covers 5 years. Table 2.12 presents gross and net reproductive rates by province in 2009. Kenya had GRR of 2.2 births per woman meaning that without considering the impact of mortality on women, each woman could replace herself 2.2 times in childbearing. Western Province had the highest GRR of 2.8 births per woman followed by Nyanza Province 2.6; Rift Valley 2.5; Coast 2.3 and Nairobi 2.0. Central Province had the lowest GRR of 1.7 births per woman.

Net Reproductive Rate (NRR) is a GRR adjusted for mortality. The adjustment is done by multiplying each female ASFR by probability of surviving from birth to each age, before summing and multiplying by 5. The analysis of 2009 Census shows that, the NRR for the country was 1.9 births per woman. Western had the highest NRR of 2.4 births followed by Nyanza Province with 2.2 and Rift Valley Province with 2.1. Central Province had the lowest with 1.4 births followed by Nairobi 1.6; Eastern 1.8; North Eastern 1.9 and Coast Province 2.0. The net reproduction rates imply that in Coast, Nyanza, Rift valley and Western, women are 2 times more likely to replace themselves even at the current mortality rates. The low rates for Central and Nairobi reflect the impact of both modernization processes and high contraceptive prevalence rates. These values were derived by using survival rates obtained from the 2009 Life Tables in the Mortality Monograph.

Table 2.12: Gross Reproductive and Net Reproductive Rates by Province, 2009

Province	GRR	NRR
Kenya	**2.2**	**1.9**
Nairobi	2.0	1.6
Central	1.7	1.4
Coast	2.3	2.0
Eastern	2.1	1.8
North Eastern	2.3	1.9
Nyanza	2.6	2.2
Rift Valley	2.5	2.1
Western	2.8	2.4

2.3.2 Crude Birth Rates, Levels and Trends

Crude Birth Rate (CBR) is a measure of the proportion of births occurring annually to women aged 15-49 to the mid-year population. It is a crude measure of fertility because the denominator (mid-period population) used to calculate it includes all the population, some who are not at risk of giving birth, such as men, children and the aged. It is also very sensitive to unique environmental changes which may be confined to a particular year, such as wars, diseases, famine, floods and earthquakes, which may cause a large number of people to postpone childbearing. Despite these limitations of the method, CBR is still a good indicator of showing the changes in the total population in the context of births that have taken place over a given period. It is also a good indicator for comparing countries and sub-regions. Table 2.12a summarizes estimated crude birth rates for Kenya and provinces for the inter-censal periods 1989 to 2009. The adjusted CBR for Kenya in 2009 was 38.4 births per 1000 population. For the provinces, the adjusted CBR ranged between 29.6 per

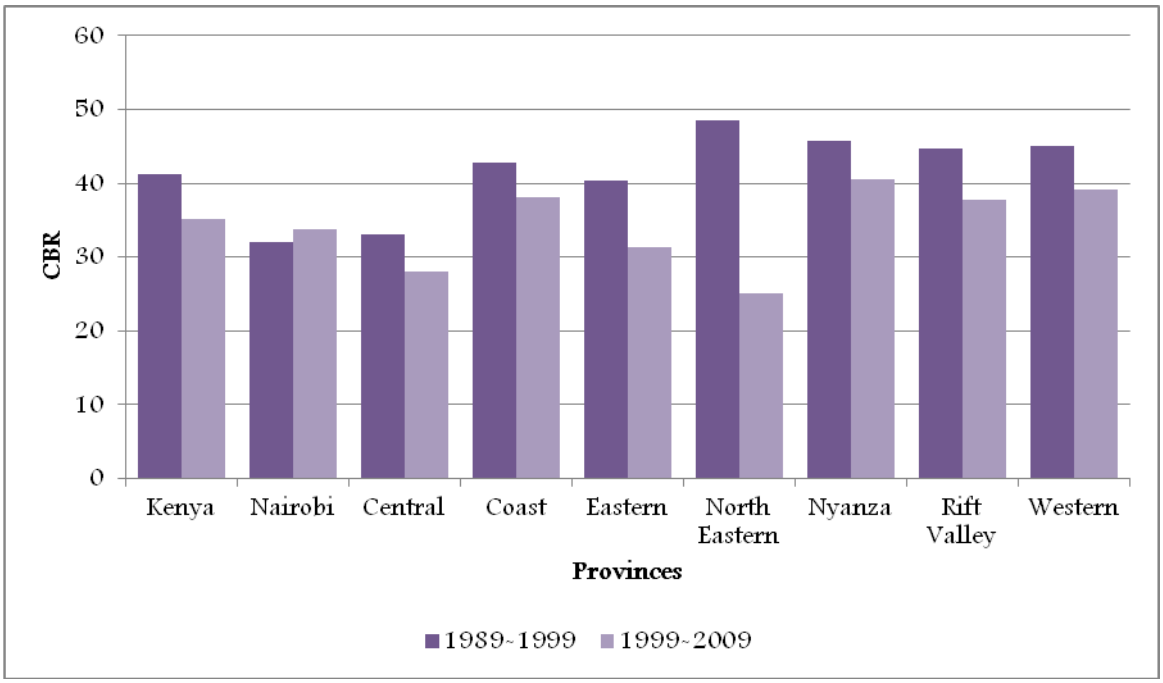
1000 in Central Province and 45.9 per1000 in Nyanza Province. However, CBR derived by direct method yielded relatively lower rates as follows: Kenya, 34.9 per1000 population; Central 27.8 per1000 and Nyanza 40.2 per1000. It is noted that unadjusted estimated CBR for Kenya of 34.9 per1000 population compares well with 34.8 per1000 population derived by KDHS 2008/09.

Table 2.12a: Trends in Crude Birth Rates per a Thousand Persons by Provinces, 1989-2009

Region	Reported 1989-1999	Reported 1999-2009	Adjusted CBR(2009)
Kenya	**41.3**	**34.9**	**38.4**
Nairobi	32.0	33.3	36.0
Central	33.0	27.8	29.6
Coast	42.8	37.5	41.2
Eastern	40.4	31.2	35.3
North Eastern	48.6	24.7	43.8
Nyanza	45.8	40.2	45.9
Rift Valley	44.7	37.4	42.7
Western	45.0	38.9	43.1

Under reporting of births within the 12 months preceding the Census in 1989 made it unrealistic to compute CBR directly from reported births. Hence, the reported ASFRs for the 1989 to 1999 period were adjusted (Table 2.12a). Figure 2.5 gives the estimated CBRs by province between 1989 and 2009. Except Nairobi, which had a small increase in unadjusted inter-censal CBR of 3.1 percent, all other provinces experienced reduction in CBR. The large drop of 49.2 percent for North-Eastern could probably be due to the observed data inconsistencies. The noted fall in other provinces is another pointer to declining trend in fertility between the two inter-censal periods.

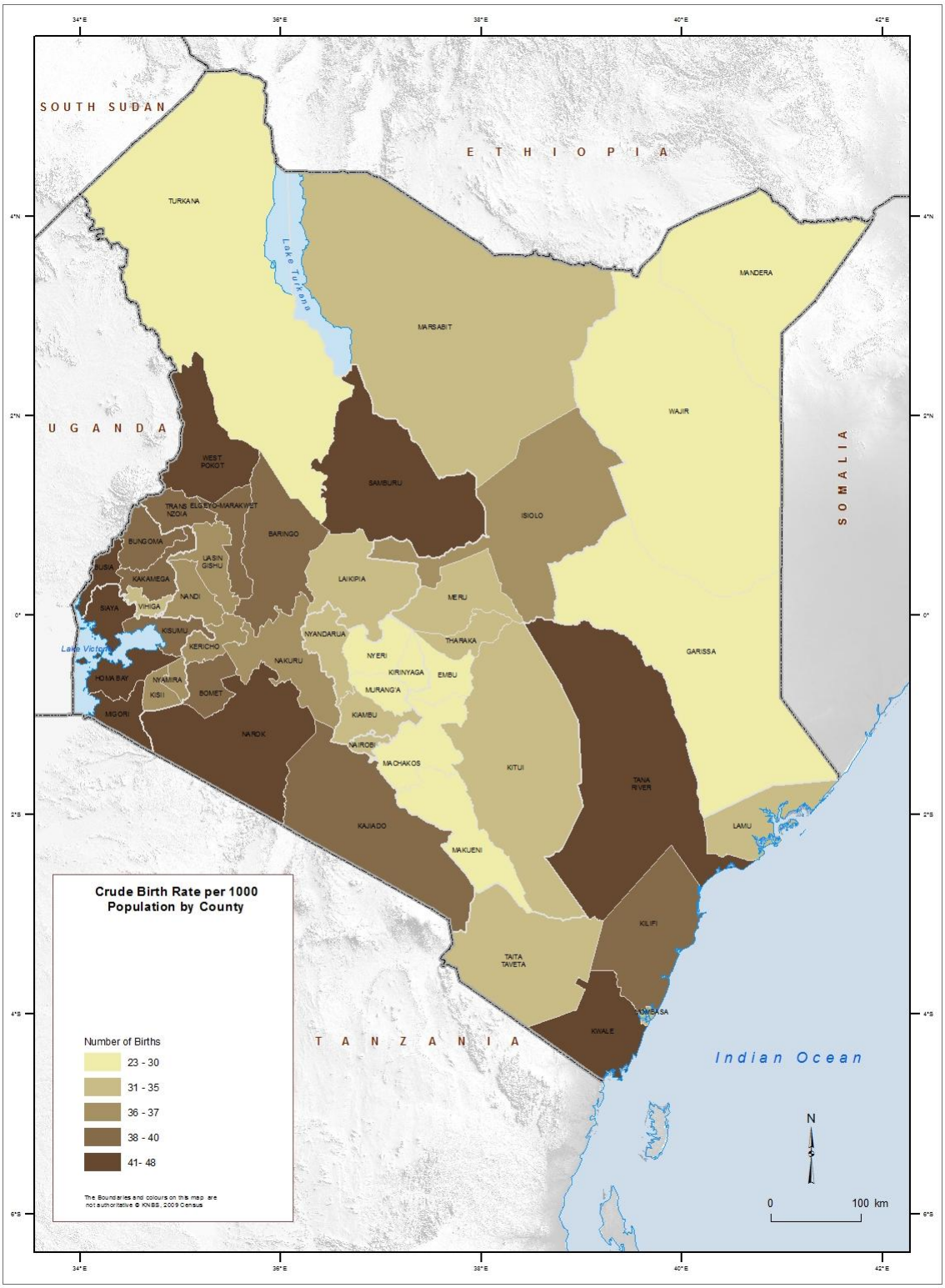
Figure 2.5: Estimated Crude Birth Rates by Province, 1989-2009



Reference to Appendix 6a, shows county variations in crude birth rates. Notably, the 47 counties cover diverse agro-ecological zones with equally diverse environmental health risks and provision of basic health care services. Counties inhabited largely by pastoralists

and agro-pastoralists had large decline in CBR during the period. These were Turkana, -43.6 percent; Tharaka, -32.9 percent; Meru, -30.9 percent; Makueni, -28.6 percent; Marsabit, -26.5 percent; Baringo, -25.9 percent; Nyandarua, -24.1 percent; Machakos, -24.3 percent; Kitui, -23.3 percent and Bomet -22.7 percent. For further analysis of county levels and trends in CBR, see Appendix 6a.

Figure 2.6: Crude Birth Rate per 1000 Population by County, 2009



2.4 Adolescent Fertility, Levels, Trends and Differentials

The proportion of women not stating their parity is always very high among adolescents. In this analysis adolescents are females aged 12-19 who provided information on their fertility history. Due to limitations of data for those aged 12-14 in past censuses, comparison on levels and trends is based on 1999 and 2009 censuses only.

2.4.1 Reported Average Parity for Adolescents

Table 2.13 shows adolescent fertility data for the 2009 Census for the age groups 12-19, while the 1999 Census data is limited to 15-19, due to data gaps for those aged 12-14. The reported average parity per woman aged 15-19 in 2009 was 0.2, indicating that adolescent fertility dropped from an average parity of 0.3 in 1999. This trend is reflected again by rural and urban adolescents whose parities were 0.2, 0.3 for rural areas and 0.2 and 0.3 for urban areas for the two censuses, respectively. In both cases urban adolescents had lower average parity.

The analysis at provincial level depicts similar trends as adolescents aged 15-19 showed the greatest percentage decline, especially in Nairobi with a fall of 66.7 percent, Central 50.0 percent and Eastern 50.0 percent. The lowest percentage decline was in Nyanza with 25.0 percent.

Further, the table reveals that adolescent parity by marital status gave a different scenario. While the never married aged 15-19 had a significant drop in their parity by 50.0 percent, the other adolescents experienced an increase in their fertility. For example, married adolescents had an increase of 12.5 percent, widowed 28.6 percent and divorced or separated 22.2 percent. As expected, the never married in 2009 had the lowest average parity of 0.1, while the divorced or separated had the highest level of 1.1 births per woman.

Table 2.13: Adolescents Reported Average Parity age 15-19 by Region, Marital Status and Education, 1999-2009

	1999	2009
Region		
Kenya	**0.3**	**0.2**
Rural	0.3	0.2
Urban	0.3	0.2
Nairobi	0.3	0.1
Central	0.2	0.1
Coast	0.3	0.3
Eastern	0.2	0.1
North Eastern	0.2	0.2
Nyanza	0.4	0.3
Rift Valley	0.3	0.2
Western	0.3	0.2
Marital Status		
Never married	0.2	0.1
Married	0.8	0.9
Widowed	0.7	0.9
Divorced/Separated	0.9	1.1
Education		
None	0.4	0.4
Primary	0.3	0.2
Secondary Plus	0.2	0.1

Further analysis by education attainment, confirms that fertility decreases with increase in the level of education attained. In 2009, adolescents with no education had the highest average parity of 0.4 while those with secondary plus education had the lowest parity of 0.1 per woman. With the exception of those adolescents with no education whose parity stalled between 1999 and 2009, average parity declined substantially by 50.0 percent among those with secondary plus education and by 33.3 percent among those with primary education.

The analysis of ASFRs of adolescents as depicted in Table 2.14 is also limited to the 2009 Census data. Table 2.14 shows that ASFRs was highest in Nyanza Province with 0.12, followed by Western with 0.09, Rift Valley and Coast with 0.08. On the other hand, adolescents in rural areas had higher ASFR of 0.08 compared to that of their urban counterparts of 0.06.

Table 2.14: Adolescents Age Specific Fertility Rates by Region, Marital Status, Education and Percent of Total Fertility Rate, 2009

Region/Marital Status/Education	Age Group		Percent of Adolescent Fertility to TFR
	12-14	15-19	
Kenya	**0.00**	**0.07**	**8.0**
Rural	0.00	0.08	8.0
Urban	0.00	0.06	8.6
Nairobi	0.00	0.05	8.6
Central	0.00	0.04	6.1
Coast	0.00	0.08	8.7
Eastern	0.00	0.05	6.0
N. Eastern	0.00	0.03	3.3
Nyanza	0.01	0.12	12.0
Rift Valley	0.00	0.08	8.0
Western	0.00	0.09	8.3
Marital Status			
Never Married	0.00	0.03	9.4
Married	0.02	0.32	23.9
Widowed	0.01	0.15	18.8
Divorced/Separated	0.06	0.31	34.4
Education			
None	0.00	0.09	8.5
Primary	0.00	0.09	9.0
Secondary Plus	0.01	0.03	4.7

With the exception of never married adolescents aged 15-19, those in other marital status generally had high ASFRs. The married adolescents had 0.32 widowed 0.15 and divorced had the highest rate of 0.31. Further analysis based on education attainment shows no difference between non-educated and those with primary education, while those with secondary plus education had the lowest ASFR of 0.03.

The contribution of adolescent fertility to Total Fertility Rate in Table 2.14 ranged between 3.3 percent in North Eastern Province and 12.0 percent in Nyanza Province. Assessment of marital status categories indicates that the contribution of adolescents' fertility to Total Fertility Rate was highest among divorced or separated adolescents with 34.4 percent and lowest among never married with 9.4 percent.

Adolescents' contribution to ASFRs by education attainment ranged between 4.7 percent among adolescents with secondary plus education and 9.0 percent among those with primary level of education. The difference between non-educated and those with primary

education was insignificant. Higher fertility rates occur in areas where early child bearing is prominent. High fertility in Nyanza and Western may be due to early initiation to childbearing.

2.5 Summary

Fertility data from the 1979-1989 period up to 1999-2009 period has been of varying quality in terms of enumeration coverage and fertility responses. However, comparison of fertility data has been facilitated by using either indirect estimates of fertility or imputed census data as was the case with 1999 and 2009 censuses.

It is noted from Table 2.2 that, at the national level, direct estimation of fertility based on census data of reported CEB for women aged 40-44, clearly indicated fertility decline since 1989 Census. Between 1989 and 2009 censuses, the decline in reported parity at the national level for women aged 40-44 was 1.5 births for Kenya and 1.2 births for rural Kenya.

The analysis of trends in average parity at the provincial level between 1989 and 2009 shows an almost similar declining trend except for three provinces namely Coast, North Eastern and Rift Valley. For Coast Province there was a marginal rise in average parity for women in age group 40-44 from 5.8 births in 1989 to 6.1 births in 1999 before a drop to 5.3 births in 2009. North Eastern Province had a stall in parity at 6.5 births in 1989 to 6.5 births in 1999 and an increase to 7.1 births in 2009. Rift Valley had an insignificant rise in births from 7.1 births in 1989 to 7.2 births in 1999 and a drop by 1.3 births to 5.9 births in 2009. The other provinces experienced a decrease in births among women aged 40-44. Analysis of trends in reported average parity for women aged 40-44 at county level is not possible because of administrative boundary changes affecting several districts since 1989. It is however expected that significant county variations exist with Nairobi County and most counties in Central and Eastern provinces, experiencing decline in average parity, while for other provinces, some counties experienced a decline, stall or even marginal increase.

Table 2.15 presents TFRs of censuses against those of KDHS between 1989 and 2009. The trends in TFRs show a consistent pattern of fertility drop at the national level, except for urban Kenya with a small increase from 2.7 births in the period 1989-1999 to 3.5 births in the period 1999-2009. During this period, in Kenya, on average, a woman at the end of her reproductive period had her fertility drop by 1.2 births, while urban women had a drop by 1.0 births compared to 2.0 births for rural women.

Table 2.15: Estimated Reported Total Fertility Rate and Data Source, 1989-2009

	TFR Census			TFR KDHS		
Country/ Province	1979-1989	1989-1999	1999-2009	1989 (1995-98)	2003 (2000-03)	2008-2009 (2008-08)
Kenya	**6.6**	**5.0**	**4.4**	**4.7**	**4.9**	**4.6**
Urban	4.5	2.7	3.5	3.1	3.3	2.9
Rural	7.0	5.8	5.0	5.2	5.4	5.2
Nairobi	3.8	3.0	2.9	2.6	2.7	2.8
Central	5.7	3.8	3.3	3.7	3.4	3.4
Coast	5.8	5.2	4.6	5.1	4.9	4.8
Eastern	6.5	5.2	4.2	4.7	4.8	4.4
N/Eastern	7.6	7.0	4.5	-	7.0	5.9
Nyanza	7.0	5.5	5.0	5.0	5.6	5.4
R. Valley	7.1	5.8	5.0	5.3	5.8	4.7
Western	7.6	6.0	5.4	5.6	5.8	5.6

Source i) KDHS 2008-09 and 1999 Census Vol. IV.

Further reference to Table 2.7 on TFRs shows a consistent pattern of fertility fall from the 1999 to 2009 censuses. With the exception of Nairobi and Coast provinces with fertility drop of about 1.0 birth each, all other provinces had a decrease of 2.0 births. This pattern of change is expected at the county level though with significant variations because of administrative boundary changes, fertility response errors and coverage errors at such geographical units as discussed in chapter one.

The 1989, 2003 and 2008/09 KDHS surveys reveal a systematic inconsistency in TFRs. At the national level TFR marginally increased from 4.7 births in 1989 to 4.9 births before dropping to 4.6 births in 2008-2009 survey. This trend was also reflected by urban and rural women. At provincial level inconsistency is shown in Nairobi and Central Provinces. Nairobi had a marginal rise in TFRs from 2.6 births in 1989 to 2.7 births in 2003 to 2.8 births in 2008/09 surveys. Central also had a drop in TFRs from 3.7 births in 1989 to 3.4 births in 2003 and a stall to 3.4 births in the period 2008/09. All these changes in fertility were marginal. The other provinces had a consistent pattern of an insignificant increase in TFR between 1989 and 2003 surveys, then an equally insignificant drop in fertility between 2003 and 2008/09 surveys, except for North Eastern Province, with a decline of 1.1 births.

The foregoing analysis demonstrates that at the national level, Kenya is on the path to fertility decline. This trend is also clear for Central and Eastern provinces. Nairobi Province because of massive rural–urban migration could be experiencing a stall in fertility. Other provinces such as Coast, Nyanza, Western and Rift Valley are experiencing a slow pace of fertility decline.

Chapter 3-Nuptiality Levels, Trends and Differentials

3.1 Introduction

Nuptiality refers to marriage as a population phenomenon, including the rate at which it occurs, the characteristics of persons united in marriage, and the dissolution of such unions through divorce, separation, widowhood and annulment (Haupt and Kane, 1998:33). The institution of marriage is, therefore, the cornerstone of human population growth.

The age pattern of the population by marital status is determined by several factors. It is affected by the interplay between a myriad of biological, social, economic, legal, cultural and religious factors. Moreover, nuptial patterns have an impact on both fertility and mortality and, hence, constitute important demographic phenomena (UNECA, 1983). Furthermore, marital characteristics of any society are dynamic and tend to vary in a spatio-temporal context.

In Kenya, as in many other developing countries, the collection, processing and interpretation of nuptiality data are influenced by problems of definition and categorization. The utility of such data in demographic analyses and in socio-economic development planning, therefore, depends on the level of data accuracy and reliability. The 2009 Census data was imputed and attempts made in the field to eliminate response errors. Conclusively, the data is considered to be of good quality.

Since 1948, population censuses have attempted to collect data on nuptiality. The 2009 Census questionnaire provided vital data on sex, age and marital status, respectively. The data was collected at the household level and was based on an individual's declaration of marital status without further probing for legal, religious or customary proof of status.

3.2 General Nuptiality Levels and Trends by Age and Sex

3.2.1 Levels, Trends and Differentials in Proportions Never Married

The national level of the proportion of never married females aged 12 and above has not changed significantly since 1989. The proportion of never married females increased from 37.7 percent in 1989 to 38.6 percent in 1999 and dropped to 37.7 percent in 2009. Rural and urban trends were similar during the same period. In 1999 the proportion of never married urban women aged 12 and above was higher, at 43.8 percent, compared with that of rural women at 37.3 percent. In 2009 the proportions decreased to 41.0 percent in urban areas and 36.0 percent in rural areas. This change could be attributed to changes in other marital conditions, see Appendix 8.

The provincial trends in proportions of females never married also reflect similar changes. Between 1999 and 2009, proportions of females never married in Nairobi declined from 46.5 percent to 44.3 percent. Coast Province increased from 34.6 percent to 35.7 percent, Eastern from 36.0 percent to 37.2 percent and Rift Valley from 39.2 percent to 39.4 percent. The two provinces which experienced negative changes were Nyanza from 34.2 percent to 33.7 percent and Western from 35.5 percent to 35.0 percent. The observed negative changes were probably due to changes in other marital conditions. Details of proportions of females never married by county are presented in Appendix 8.

Table 3.1 shows county proportions of females aged 12 and above who were never married in 2009. Nine counties out of 47 or 19.1 percent had females 12 years and above as never married. Almost half of these counties are in high potential agricultural areas where population pressure is acute. The other counties are in semi arid lands where cultural norms and practices for marriage are very costly, such as payment of dowry. It is also important to stress that percent never married is a crude measure, as entry into marriage is age dependent.

Table 3.1: Counties where Over 40 Percent of Women Aged 12 and Above Have Never Married, 2009

Region	% Never married
Kiambu	40.2
Wajir	40.4
Mandera	42.8
Turkana	44.8
Baringo	41.4
Uasin Gishu	43.4
Elgeyo Marakwet	41.3
Nandi	41.6
Bomet	40.9

Figure 3.1: Spatial Distribution of Never Married Females Aged 15 and Above by County, 2009

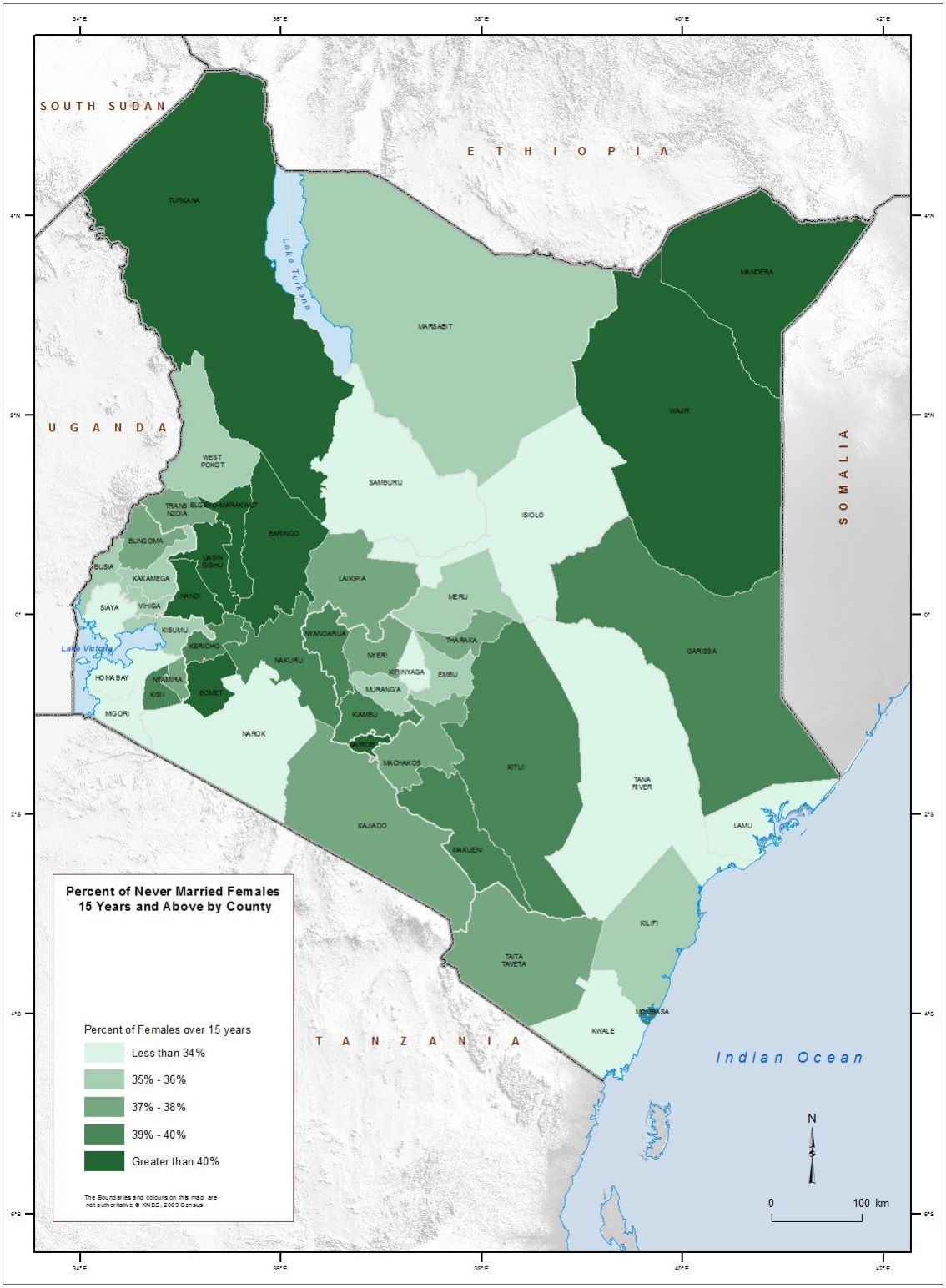
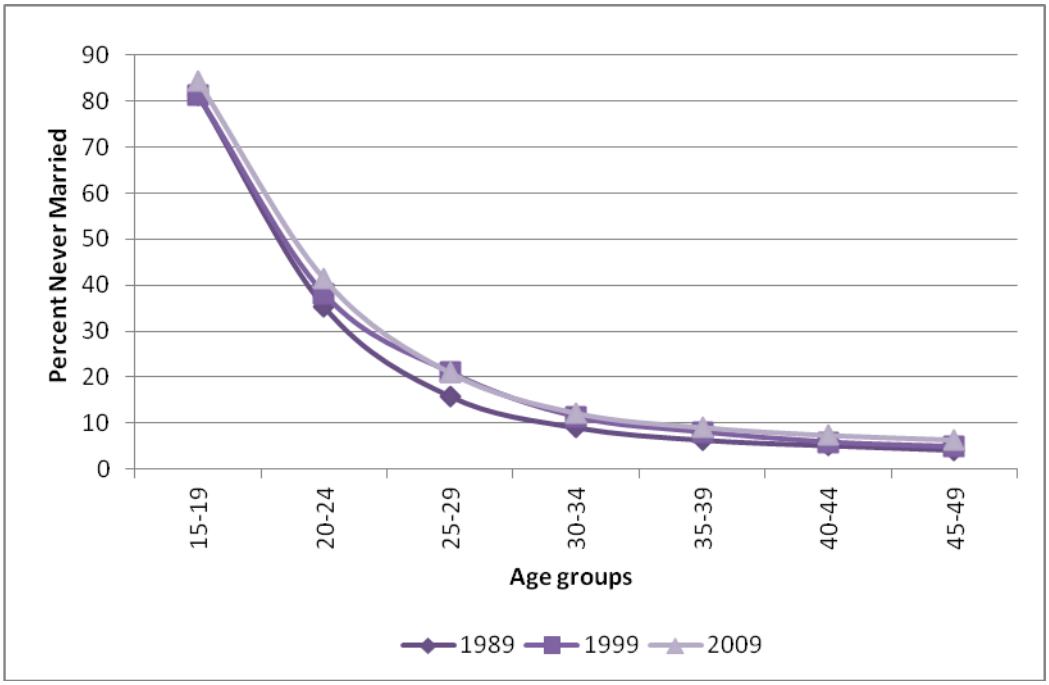


Figure 3.1 presents spatial distribution of females Never Married, age 15 years and above by County. In 29 of the 47 counties, proportions never married females was below the national average of 37.7 percent. Most of these counties were in Western Kenya, Coast and Rift Valley. As shown in Appendix 8, counties with very low proportions of females never married were Tana River, 27.6 percent; Siaya, 31.1 percent; Migori, 31.2 percent; Homa Bay, 31.6 percent; Narok, 32.2 percent; Kirinyaga, 32.2 percent; Lamu, 32.5 percent; Kwale, 33.6 percent; Isiolo, 33.9 percent; Samburu, 33.7 percent and Busia, 34.2 percent. These counties were characterized by high rates of polygamy and low school enrolment for females. Figure 3.2 shows the trend in females never married since 1989. It is observed that proportions never married were consistently higher for all age groups in 2009 Census than in 1989 and 1999 censuses. On the other hand, proportions for 1989 Census were also lower in comparison with those of 1999 and 2009 censuses.

Figure 3.2: Percent of Never Married Females by Age Group, 1989-2009



The analysis of data for males showed the proportion never married by age, registered an insignificant change in comparison with previous censuses. Between 1989 and 2009 the proportion of males never married increased from 51.2 percent in 1989 to 51.4 percent in 1999 and dropped to 49.5 percent in 2009. The proportion of never married males in 2009 was also higher in rural areas with 51.4 percent compared with 45.9 percent for urban areas. This phenomenon is probably due to the fact that males who migrate to cities tend to be adults who are probably married thus lowering the proportion of those who are never married in the urban areas (RoK 1996:52).

Analysis of never married males at the provincial level indicates that while most provinces had a small increase in proportions of never married males between 1989 and 1999, the trend during 1999 and 2009 shows a small decline. In 2009 the proportions were as follows: Nairobi 42.6 percent; Central 46.3 percent; Coast 48.3 percent; Eastern 50.9 percent; North Eastern 59.1 percent; Nyanza 49.2 percent; Rift Valley 51.4 percent and Western 48.7 percent. Detailed analysis by county is presented in See Appendix 9 and Figure 3.4.

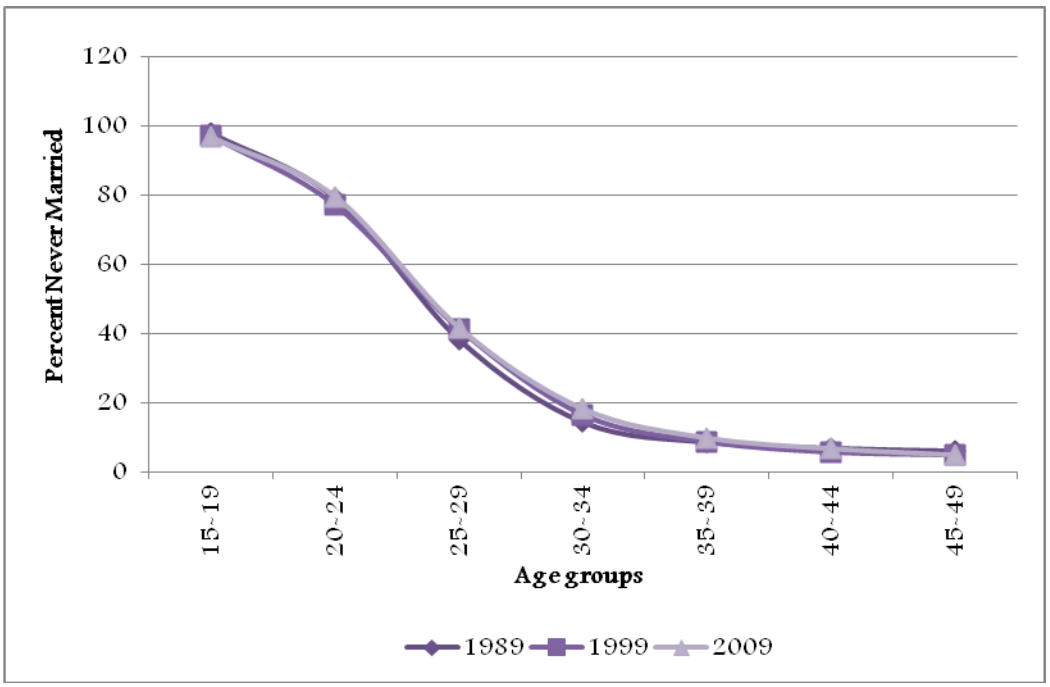
Table 3.2 shows the counties in 2009, where over 50 percent of males aged 12 and above never married. It is observed that 19 out of 47 counties are in this category. The highest proportion of 63.2 percent occurred in Turkana, followed by Mandera 60.7 percent.

Table 3.2: Counties with Over 50 Percent of Males Aged 12 and Above who are Never Married, 2009

County	Percent Never Married	County	Percent Never Married
Turkana	63.2	Kilifi	52.0
Mandera	60.7	Elgeyo Marakwet	51.7
Samburu	59.0	Bomet	51.6
Wajir	58.8	Taita Taveta	51.6
Marsabit	57.1	Machakos	51.2
Garrissa	57.0	Homa Bay	49.7
Baringo	55.8	Uasin Gishu	51.0
Makueni	55.6	Nandi	50.7
Kitui	55.2	Isiolo	50.3
West Pokot	52.3		

It is evident again that counties in the Arid lands and in high potential regions, shown in Figure 3.4, have high proportions of never married males, similar to the case of females. Counties with the lowest proportions below the national average of 49.5 percent were: Nairobi 42.6 percent; Kirinyaga 42.6; Mombasa 43.9 percent and Tana River 45.9 percent. In summary, counties with high percentage of never married males also had high Singulate Mean Age at Marriage (SMAM). Figure 3.3 portrays the trend of never married males since 1989.

Figure 3.3: Percent of Never Married Males by Age Group, 1989-2009



3.2.2 Levels, Trends and Differentials in Proportions Never Married by Age and Sex

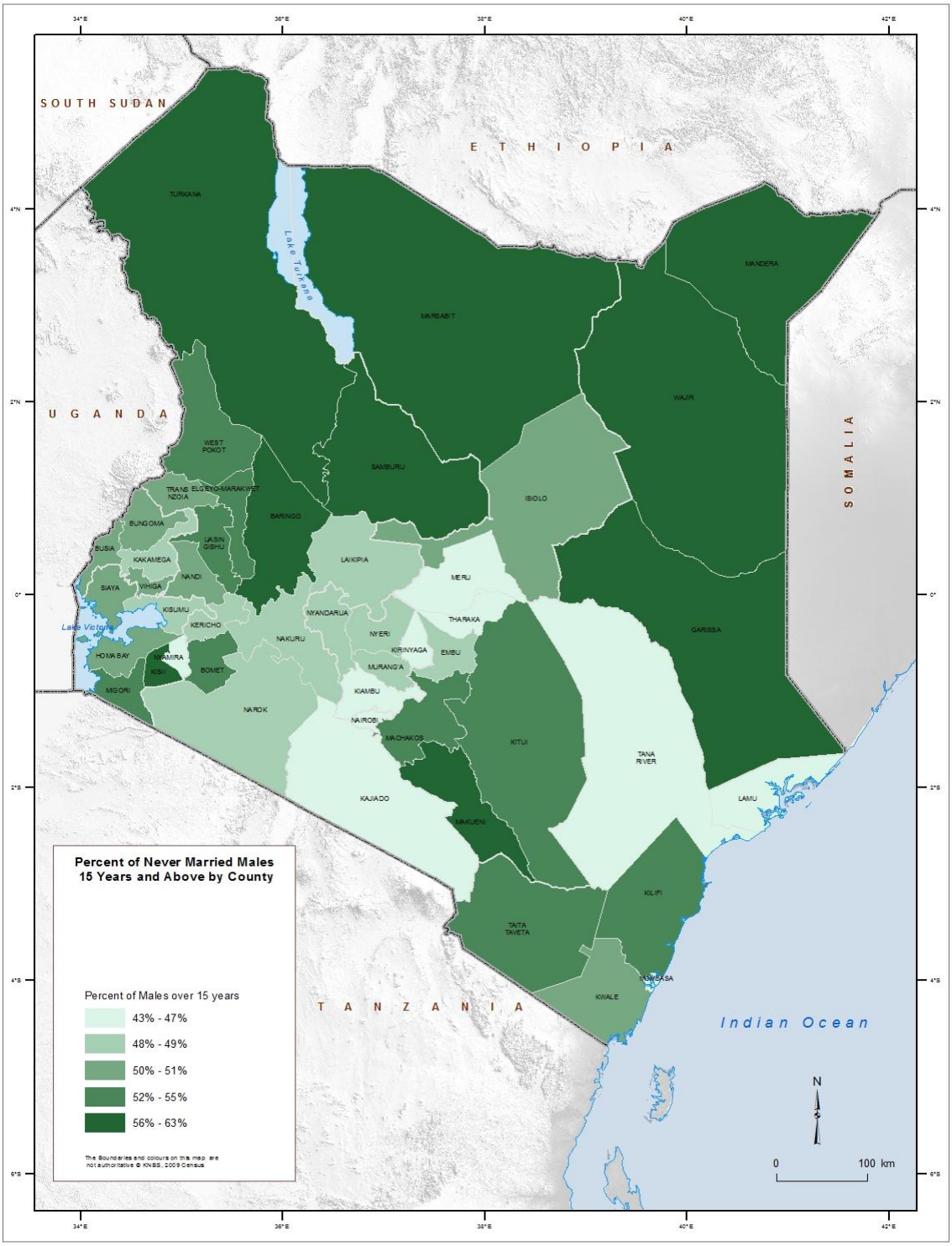
The proportions of never married females have been rising in all age groups, especially those aged 15-19, 20-24, 25-29 and 30-34. Consequently there has been a rise in SMAM for females from 21.6 years in 1989 to 22.3 years in 1999 and 22.5 years in 2009. This changing trend has affected all age groups as seen in Table 3.3.

The noted marginal increase in proportions never married which affected all age groups is attributed to the rising age at marriage. The trend for females for the 2009 and 1999 censuses indicates that the young age groups 15-19 and 20-24 experienced an increase of 3.2 percent and 3.4 percent respectively. For the same censuses the age group 40-44 and 45-49 had an increase of 1.6 percent. SMAM for females during this period increased marginally from 22.3 years to 22.5 years.

Table 3.3: Percent of Never Married and SMAM by Sex, 1989-2009

	1989		1999		2009	
Age Group	Male	Female	Male	Female	Male	Female
15-19	97.9	81.2	97.1	81.2	96.8	84.4
20-24	79.1	35.3	77.1	38.0	79.6	41.4
25-29	38.3	15.8	41.3	21.0	41.7	21.0
30-34	14.4	9.0	16.4	11.3	18.2	12.2
35-39	8.6	6.3	8.6	8.0	9.8	9.1
40-44	6.9	5.1	5.6	5.8	6.7	7.4
45-49	6.1	4.1	4.8	4.8	4.9	6.4
SMAM	**26.0**	**21.6**	**26.5**	**22.3**	**26.7**	**22.5**

Figure 3.4: Percent of Never Married Males Aged 15 and above by County, 2009



The analysis of never married males does not show much difference between 1999 and 2009. The age group 15-19 experienced a small drop in percentage never married of 0.3 percent. All the other age groups had an increase that ranged between 0.4 percent for the age group 25-29 and 2.5 percent for the age group 20-24. SMAM for males also increased marginally from 26.5 years to 26.7 years.

3.2.3 Levels, Trends and Differentials in Singulate Mean Age at Marriage (SMAM)

Singulate Mean Age at Marriage (SMAM) is an estimate of the average number of years lived singly by those who ever marry before age 50. A high SMAM therefore means a later age at first marriage. For females a high SMAM reduces lifetime fertility because it shortens the reproductive period. However, there is still a large proportion of childbearing outside marriage. Table 3.4 indicates SMAM for the country and provinces for the 1999 and 2009 censuses.

Table 3.4: Estimates of Singulate Mean Age at Marriage by Sex, Province and Residence , 1999-2009

Country/ Province	Male 1999	Female 1999	Difference	Male 2009	Female 2009	Difference
Kenya	**26.5**	**22.3**	**4.2**	**26.7**	**22.5**	**4.2**
Rural	26.5	21.9	4.6	26.9	21.9	5.0
Urban	26.5	22.9	3.6	26.9	23.2	3.7
Nairobi	26.8	23.5	3.3	26.8	23.7	3.1
Central	27.5	23.7	3.8	27.8	23.2	4.6
Coast	26.7	21.3	5.4	26.7	22.0	4.7
Eastern	27.2	23.1	4.1	27.7	22.9	4.8
N.Eastern	26.5	20.5	6.0	27.1	21.8	5.3
Nyanza	25.4	20.9	4.5	25.5	21.4	4.1
Rift Valley	26.3	22.1	4.2	26.7	22.4	4.3
Western	25.3	21.2	4.1	25.4	21.7	3.7

Female SMAM in urban areas was higher than in rural areas for 1999 and 2009 censuses. This means that females postpone early marriage much more in urban areas. Yet in 1999 male SMAM was constant at 26.5 years for both rural and urban areas. In 2009 SMAM for both males and females was slightly higher than those of 1999 for Kenya and all provinces. The trend since 1989 Census shows the SMAM for females as 21.6 years which increased to 22.3 years in 1999 and to 22.5 years in 2009. The difference in years between males and females was constant at 4.2 years between the inter-censal period. The 1999 Census further indicates that SMAM for females was highest in Central Province with 23.7 years followed by Nairobi with 23.5 years and Eastern 23.1 years. In 2009 Nairobi Province took the lead with a SMAM of 23.7 years followed by Central Province with 23.2 years. The other provinces had SMAM ranging from 21.4 years, (Nyanza Province) to 22.9 years (Eastern Province). North Eastern Province in 2009 also had the highest difference of male and female SMAM of 5.3 years. At the county level the lowest female SMAM was recorded in Tana River with 18.8 years, Narok 20.1, Migori 20.2 years and Busia 21.2 years. See Appendix 10.

The estimate for males also shows a marginal increase from 26.0 years in 1989 to 26.5 years in 1999 and 26.7 years in 2009. At provincial level, in 1999, Central Province had the highest male SMAM of 27.5 years followed by Eastern with 27.2 years. In 2009 the ranking did not change as Central Province had 27.8 years followed by Eastern Province with 27.7 years. Counties with very low male SMAM were Migori with 24.9 years, Tana River and Busia, with 25.0 years and West Pokot, with 25.1 years. The difference between other counties in 2009 was marginal as depicted in Appendix 10. In 2009 the provinces which reported the highest difference between male and female SMAM were North Eastern with 5.3 years; Eastern with 4.8 years and Coast with 4.7 years. The 2009 SMAM for males was constant at 26.9 years for rural and urban areas. It was also constant in 1999 at 26.5 years.

In summary, there seems to be an inverse association between SMAM and polygamy. Generally most counties which had low SMAM, especially among females, also had higher prevalence of polygamy, while counties with higher proportion of SMAM especially among women, had very low proportions of women in polygamous unions. It should be noted that a large difference between male and female SMAM implies that women marry younger and men at a later age. Consequently, such situations may mean that women enter reproductive cohorts early and therefore have a longer period of child bearing.

3.3 Levels, Trends and Differentials in Proportions Married

The proportion of females aged 12 and above who were married in 1989 was 54.7 percent, but declined to 53.3 percent in 1999 and dropped marginally to 53.2 percent in 2009. Among the married women in 2009, 45.9 percent were in monogamous unions and 7.3 percent in polygamous unions. The proportion married in rural areas at 54.4 percent was also higher than 50.9 percent of married women in urban areas.

In 2009, at provincial level, the proportion of married women aged 12 and above exceeded the national average of 53.2 percent in all provinces except Nairobi, with 49.1 percent and Central with 51.9 percent. All urban centres combined also had a low percentage of 50.9. The province with the highest proportion married was Nyanza with 55.0 percent followed by Western 54.8 percent. Figure 3.5 shows the distribution of married women by reproductive cohorts between 1989 and 2009. It is observed that the curve rises sharply from age 15 - 24 then begins to reduce momentum up to age 34. It then flattens up to age 49 before dropping.

Figure 3.5: Percent of Married Women Aged 15 to 59 by Age Group, 1989-2009

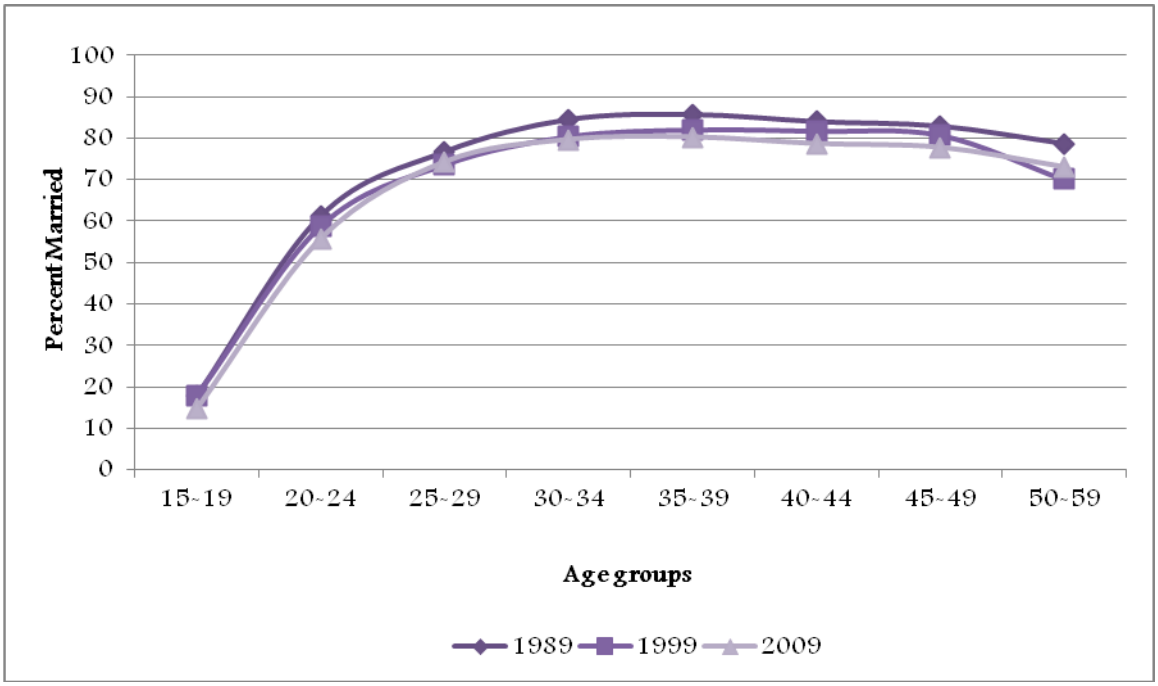


Table 3.5 summarizes the trends in proportion married among men and women aged 15-59 since 1989. For the 1999 and 2009 censuses all female age groups experienced decline in proportions married, except the age group 25-29. Furthermore, for the 1989 and 1999

censuses the trend was different because all age groups had a fall in proportions married except the adolescent group aged 15-19, whose values were constant.

Table 3.5: Percent of Married Males and Females by Age Group,1989-2009

	Male			Female		
	1989	1999	2009	1989	1999	2009
15-19	2.1	2.9	3.2	18.8	18.8	15.4
20-24	20.0	22.2	19.7	61.2	58.9	55.7
25-29	60.3	57.0	56.5	76.7	73.7	74.2
30-34	83.7	80.8	78.7	84.5	80.5	79.6
35-39	88.8	88.0	86.4	85.7	82.1	80.2
40-44	89.9	90.5	88.9	84.0	81.8	78.6
45-49	90.2	90.9	90.2	82.9	80.8	77.7
50-59	90.5	91.0	90.7	78.7	70.1	73.0

Table 3.5 presents trend of married males and females by age group for 1989-2009 censuses. Results indicate that trend in universal marriage is changing. The analysis of females aged 12 and above, who were married at the county levels, indicate that 19 out of 47 counties had their proportions of females married above the national average of 53.2 percent. These counties are presented in Table 3.6. The only two counties with proportions below the national average were Nairobi with 49.1 percent and Turkana with 47.3 percent.

Table 3.6: Percent of Married Women Aged 12 and Above for Selected Counties, 2009

County	Percent Above 53.2	County	Percent Above 53.2
Tana River	63.8	Kakamega	55.8
Narok	61.9	Isiolo	55.8
West Pokot	59.8	Kisii	55.7
Samburu	58.7	Homa Bay	55.6
Migori	58.0	Kirinyaga	55.5
Nyamira	56.3	Bungoma	55.3
Kajiado	56.0	Garissa	55.1
Marsabit	55.9	Lamu	54.8
Below National Average		Machakos	54.2
Nairobi	49.1	Trans Nzoia	54.2
Turkana	47.3	Busia	54.2

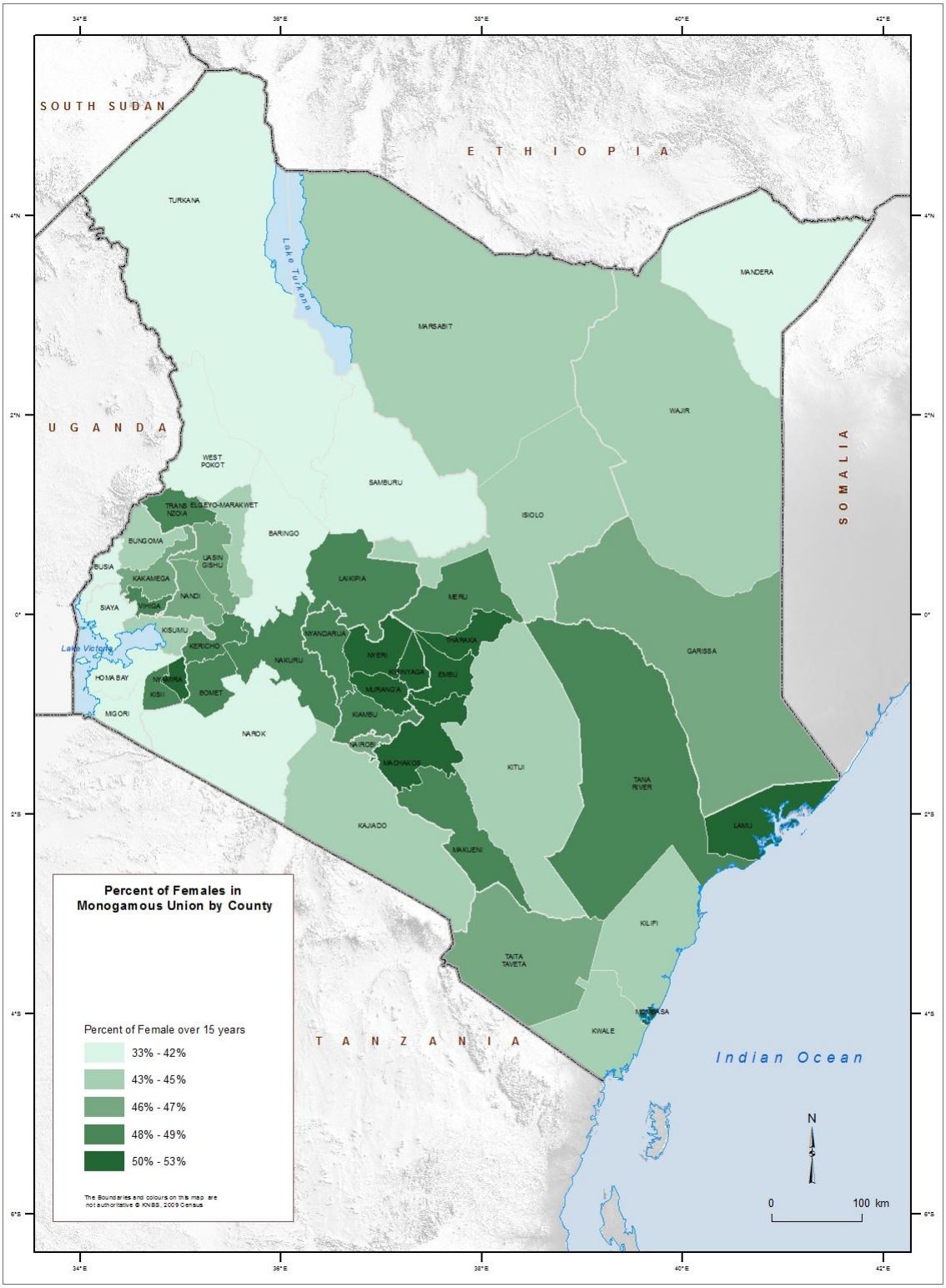
The regions with high proportions of married women are also those with very low SMAM and relatively low school enrolment. In addition, areas with very low proportions of females married had high SMAM and school enrolment. The only exception to high female enrolment is Turkana.

Figure 3.6 portrays the spatial pattern of female marriage in monogamous unions in Kenya for 2009. It is shown that the arid lands which cover nearly two - thirds of the country and have about 30 percent of the population, are regions of very high female marriage. This is due to cultural norms and practices encouraging marriage such as child betrothal, female genital mutilation and bride price. Furthermore, most of these arid and semi-arid areas are relatively underdeveloped in terms of education facilities that could promote education of the girl child. Most female pupils are therefore forced into early marriage.

Further reference to Appendix 8 shows that counties with very low percentage of women married in monogamous unions were as follows; Mandera 39.4 percent; Baringo 39.2 percent; West Pokot 36.4 percent; Samburu 36.0 percent and Turkana 33.0 percent. Conclusively, these were also counties with very high proportion of polygamy.

Counties with very high percentage of women in monogamous unions were: Kirinyaga 52.8 percent; Murang'a 51.3 percent; Nyamira 50.8 percent; Machakos 50.5 percent and Lamu 50.3 percent. These were also counties with very low proportion of women in polygamous unions. Such counties were mostly either in high potential agricultural areas where population pressure is acute or in urban areas where high cost of living is partly a deterrent to the practice.

Figure 3.6: Spatial Distribution of Married Females in Monogamous Unions by County, 2009



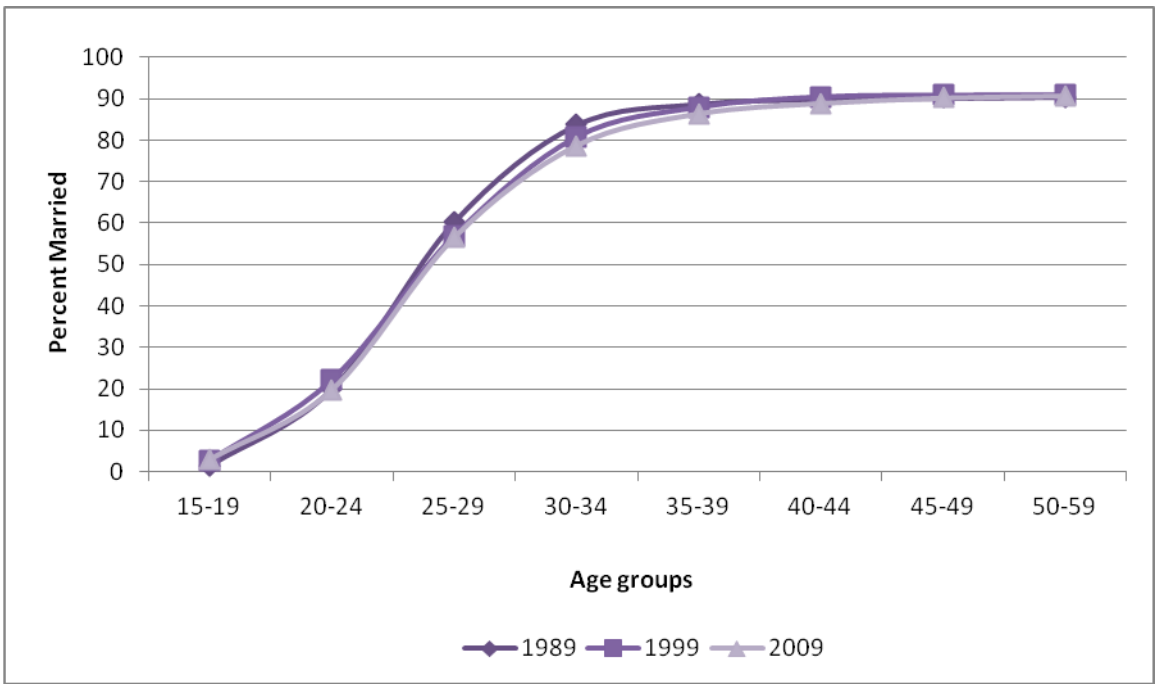
The analysis of the proportion of married men aged 12 and above reveals a similar trend to that of married women. In 1989 Census, the proportion of married men was 46.8 percent, which dropped to 46.4 percent in 1999 Census, then rose again to 48.0 percent in 2009. In rural areas, the proportion of married men was 44.5 percent in 1999, which rose to 45.8

percent in 2009. The proportions in urban areas slightly dropped from 52.9 percent in 1999 to 52.0 percent in 2009.

Appendix 9 presents distribution of men aged 12 and above by marital status. Provincial analysis for 2009 Census reveals that the proportion of married males was lower than the national average of 48.0 percent. Eastern Province had 45.8 percent; North Eastern 39.5 percent and Rift Valley 46.7 percent. However, the 1999 and 2009 Censuses show that with the exception of North Eastern Province which declined from 42.5 percent in 1999 to 39.5 percent in 2009, all other provinces had an increase; Nairobi from 54.6 percent to 55.8 percent; Central from 45.3 percent to 50.1 percent; Coast from 48.0 percent to 48.7 percent; Eastern from 43.1 percent to 45.8 percent; Nyanza from 46.4 percent to 48.5 percent; Rift Valley from 46.1 percent to 46.7 percent and Western from 46.2 percent to 48.0 percent.

Further, Table 3.5 reveals that between 1989 and 1999 the younger cohorts 15-24 years had an increase in proportions married, while the older cohorts experienced decline. The trend was similar for 1999 and 2009 Censuses. Figure 3.7 shows the age distribution of males, age 15-59 for 2009. Unlike the female pattern which increased sharply, the male pattern rises gradually up to age 35-39 years before it flattens at age 59.

Figure 3.7: Percent of Married Men Age 15-59, 1989-2009



Further analysis by county indicates that 16 counties had proportion of married males aged 12 and above exceeding the national average, 48.0 percent. The counties are listed in Table 3.7.

Figure 3.8: Percent of Males in Polygamous Unions by County, 2009

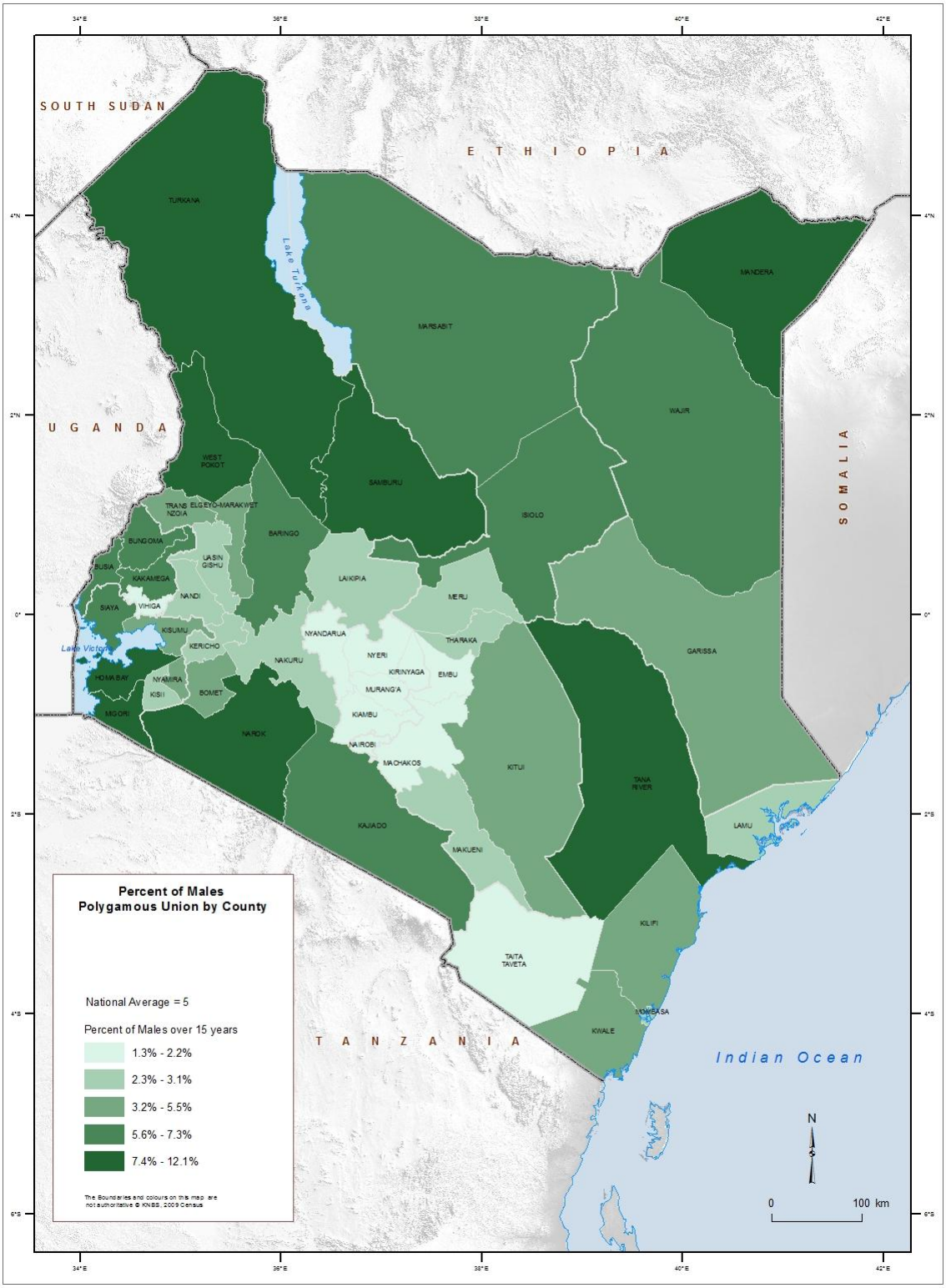


Table 3.7: Proportion of Married Males Aged 12 and above Exceeding National Average by County, 2009

County	Percent	County	Percent
Nairbi	55.8	Narok	49.7
Mombasa	53.7	Kakamega	49.2
Kirinyaga	52.8	Nyeri	48.9
Kiambu	52.0	Tharaka	48.8
Tana River	52.0	Laikipia	48.7
Nyamira	51.5	Lamu	48.6
Kajiado	51.1	Embu	48.3
Meru	50.3		
Kericho	49.7		

Counties with proportions of married males below the national average were: Baringo 41.9 percent; Samburu 40.1 percent; Wajir 39.9 percent; Mandera 38.0 percent and Turkana 35.2 percent. These counties had significant increase in the number of never married males from 1999 to 2009. Distribution of polygamous married males by county is shown in Figure 3.8.

3.3.1 Levels, Trends and Differentials in Polygamous Unions

The high prevalence of polygamy in sub-Saharan Africa is caused by several factors namely: limited social stratification, patrilineal descent structure, religion, prolonged post-partum, sexual abstinence and economics (Adetunji and Moore, 1999:91).

In Kenya, the proportion of women in polygamous unions is much lower than in some West African countries such as Togo and Mali, where the proportions of adult women aged 15-49 in polygamous unions exceed 50 percent (Adetunji and Moore, 1999:91). The proportion of females aged 12 and above in polygamous unions increased from 8.5 percent in 1989 to 9.3 percent in 1999 and dropped to 7.3 percent in 2009. The decline in polygamous unions affected rural areas more than urban areas. For example, in 1999 proportions of women in polygamous unions in rural areas was 10.4 percent compared to 4.6 percent in urban areas. 1n 2009 the proportions declined to 9.0 percent in rural areas and 3.9 percent in urban areas. Rural areas therefore continue to have higher proportions of polygamous unions than urban areas.

Further analysis at provincial level reveals that all provinces had a drop in polygamous unions. In 2009, Nyanza Province with 11.1 percent had the highest proportion of women in polygamous unions. North Eastern Province followed with 10.6 percent, Western 10.1 percent, Rift Valley 9.0 percent and Coast 7.7 percent. The other provinces had very low proportions, see Appendix 8. The 1999 and 2009 censuses reveal that the province with the greatest drop in proportions of polygamous women was Central, which experienced decline by 9.8 percent from 11.8 percent to 2.0 percent. Nyanza also had a fall in its proportion by 4.0 percent and Coast by 3.7 percent.

The analysis at county level reveals mixed results. In 2009, 21 counties had their proportions of women in polygamous unions exceeding the national average of 7.3 percent. The counties whose proportions exceeded 10.0 percent are presented in Table 3.8

Table 3.8: Counties with 10 Percent of Females Aged 12 and Above in Polygamous Union , 2009

County	Percent Above 10.0	County	Percent Above 10.0
West Pokot	23.4	Kajiado	12.2
Samburu	22.7	Bungoma	12.2
Narok	19.6	Baringo	12.2
Homa Bay	17.8	Marsabit	11.8
Tana River	16.2	Siaya	11.8
Migori	15.3	Isiolo	10.4
Turkana	14.2	Wajir	10.1
Busia	12.5	Kilifi	10.1
Mandera	12.4		

Table 3.8 shows that West Pokot was the leading county in polygamy 23.4 percent followed by Samburu 22.7 percent and Narok 19.6 percent. Majority of these counties are in arid and semi-arid parts of Kenya, where pastoralism and agro-pastoralism dominate the economy and generally have high levels of illiteracy, especially among women. Counties with very low proportions of females in polygamous unions were mostly in either high potential agricultural areas where population pressure is acute or were in urban areas where high cost of living is partly a deterrent to the practice. These were Nairobi 2.1 percent; Mombasa 3.5 percent; Nakuru 3.3 percent; Lamu 4.5 percent. Others were: Nyandarua 2.6 percent; Nyeri 1.8 percent; Kirinyaga 2.7 percent; Murang'a 2.1 percent; Kiambu 1.7 percent; Taita Taveta 3.3 percent; Embu 3.5 percent; Machakos 3.7 percent; Uasin Gishu 4.4 percent; Nandi 4.5 percent and Vihiga 3.2 percent. Appendix 8 gives more information.

Analysis of polygamy at national level indicate that the proportion of males aged 12 and above in polygamous unions increased from 2.8 percent in 1989 to 5.2 percent in 1999, and thereafter, fell to 4.2 percent in 2009. This downward trend affected all provinces during the same period. In 2009 the proportion of males in polygamous unions in rural areas was 5.0 percent compared to 2.7 percent in urban areas. The province with the highest proportion was North Eastern with 6.4 percent, followed by Nyanza 6.2 percent and Western 5.8 percent - see Appendix 9. Among all provinces, the greatest percentage decline in polygamy occurred in Nyanza Province with 2.0 percent. The other provinces had very small percentage decline. In 2009 the counties with the highest proportion of males in polygamous unions were; West Pokot with 12.1 percent followed by Samburu with 10.5 percent.

The general decrease in polygamy could be partly due to the intensified campaigns against the spread of HIV/AIDS in the country and the accelerated cost of living during the period. Levirate marriage is, however, a common practice in pastoral and other communities in Nyanza and Western provinces.

3.3.2 Levels Trends and Differentials in Proportions Married by Age

Figures 3.5 and 3.7 portray the distribution of married women and men by age. The percentage values are in Table 3.5. It is observed that the proportion of men married in 2009 was marginally lower than the proportions of 1999, except for the adolescent age group 15-19. The anomaly in the age group 15-19 could be due to errors in age reporting. Furthermore, the proportion of males aged 35 and above who were married was above 80 percent for the three recent (1989-2009) censuses. Furthermore, the proportion of married males who were above 30 years was also greater than the proportion of married young males aged 15 to 29.

The scenario for married women changed slightly. The proportion of women aged 15 and above who married was marginally lower in 2009 than in 1999 for all reproductive age groups, except for an insignificant increase of 0.5 percent that affected the age group 25-29. Unlike the situation of married males, the proportion of females married in 2009 was below 80 percent in all age groups except the age group 35-39 with 80.2 percent. The noted anomaly affecting the age groups 25-29 and 35-39 could partly be due to errors in age reporting and effects of maternal mortality (CBS, 2002:71). All proportions for the age groups above 25 were greater than the proportions for the young age groups 15-24.

3.3.3 Levels and Trends in Timing of First Marriages

The analysis of timing of first marriages is based on two indicators namely: percent married at age 15-19, which captures the extent of young marriages, and Singulate Mean Age at Marriage (SMAM), which summarizes the age distribution of first marriages. Table 3.9 shows the trends in timing of marriages for married males and females, age 15-19 between 1989 and 2009 censuses, and SMAM for the country. It is evident there is a slight increase in the proportion of males married in the age group 15-19, though the proportion is still very low compared to that of females, whose proportion has been increasing, suggesting that women have been postponing entry into marriage as seen in the trend of their SMAM. Reference to Appendix 10 on indicators of marriage timing for counties, shows that, in 2009, only 10 counties had less than 10 percent of women ever married in age group 15-19 years. These were Nyeri, Murang'a, Kiambu, Tharaka, Embu, Kitui, Machakos, Makueni, Elgeyo Marakwet and Nyandarua, while only Tana River County had a very high proportion of over 40 percent. The shift to late marriage pattern is therefore evident in counties of Central and South Eastern parts of Kenya, with the exception of Elgeyo Marakwet County in the North Rift. Further reference to SMAM in Appendix 10 confirms that early marriage among men was common in Migori County with SMAM of 24.9 years and Busia 25.0 years, while late marriage was more common in Turkana at 29.4 years and Marsabit 29.0 years. For women early marriage was in Tana River with SMAM of 18.8 years and Narok 20.1 years, while late marriage was in Turkana 24.0 years and Nairobi 23.7 years.

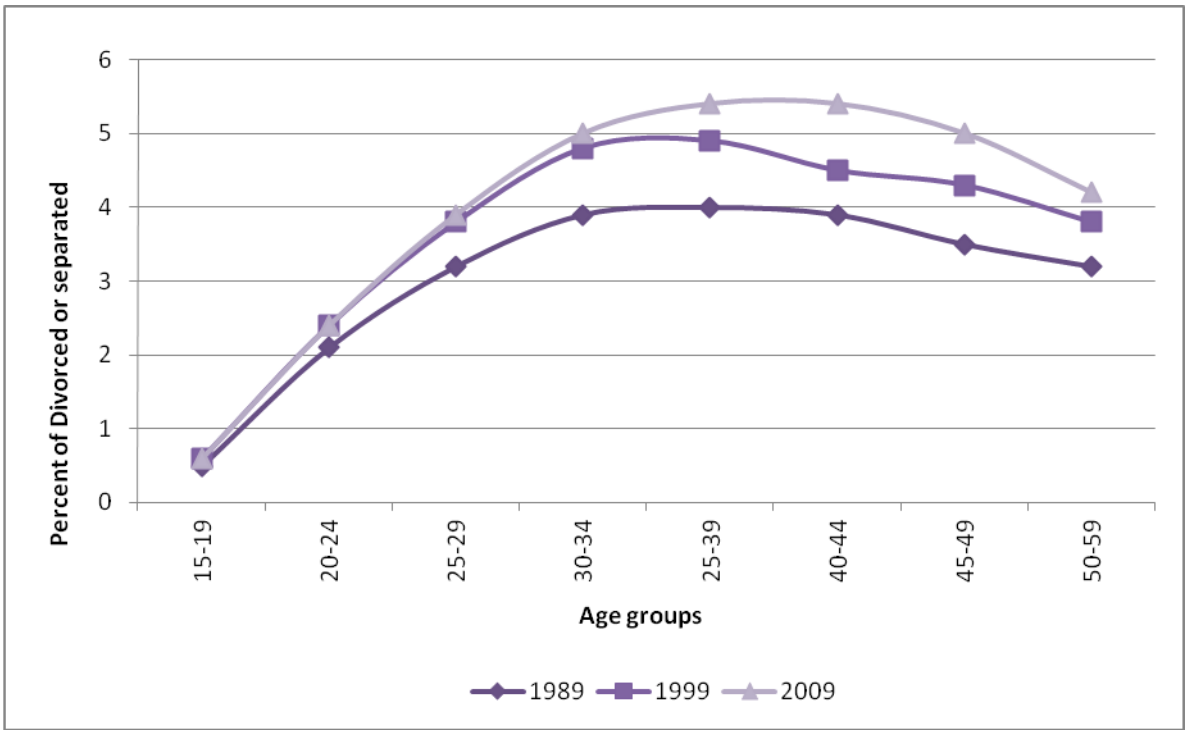
Table 3.9: Trends in Timing of Marriages, Kenya 1989-2009

	1989		1999		2009	
	Male	Female	Male	Female	Male	Female
Percent ever married 15-19 years	2.1	18.8	2.9	18.8	3.2	15.4
SMAM	26	21.6	26.5	22.3	26.7	22.5

3.4 Levels, Trends and Differentials in Proportions Divorced or Separated

The trend in proportion of females aged 12 and above, who were divorced or separated is shown in Figure 3.9. The proportion increased marginally from 2.2 percent in 1989 to 2.7 percent in 1999 and to 3.0 percent in 2009. In rural areas the proportions increased from 2.5 percent in 1999 to 2.6 percent in 2009, while in urban areas proportions increased from 3.4 percent to 3.7 percent in 1999 and 2009 censuses respectively.

Figure 3.9: Percent of Divorced or Separated Women, 1989-2009



Provincial analysis reveals that the change between 1999 Census and 2009 Census was inconsistent. Provinces which recorded marginal increases were Nairobi which increased from 3.0 percent in 1999 to 3.9 percent in 2009; Central from 3.0 percent to 4.1 percent; Eastern from 3.0 percent to 3.2 percent; Rift Valley from 2.4 percent to 2.6 percent and Western from 2.5 percent to 2.6 percent. Coast Province dropped from 4.7 percent to 4.6 percent and North Eastern dropped from 3.7 percent to 2.6 percent. Nyanza recorded no change remaining at the lowest proportion of 1.2 percent for the two censuses, respectively.

Analysis at the county level shows wide variations because 18 counties out of 47 had their proportion of divorced or separated women exceeding the national average of 3.0 percent.

Table 3.10 shows counties with proportions of divorced or separated women aged 12 and above, which exceeded the national average. From the analysis, it is noted that counties in North Eastern Province, Nyanza and Western provinces did not have proportions of divorced or separated women above the national average of 3.0 percent.

Table 3.10: Counties with Over 3 percent of Women Aged 12 and Above Divorced or Separated, 2009

County	% Above 3.0	County	% Above 3.0
Lamu	7	Embu	4.3
Kwale	5.4	Isiolo	4.2
Kirinyaga	5.1	Tharaka	4.1
Taita Taveta	4.7	Nairobi	3.9
Mombasa	4.6	Nakuru	3.9
Nyandarua	4.5	Murang'a	3.4
Kiambu	4.5	Nyeri	3.3
Meru	4.4	Trans Nzoia	3.1
Kilifi	4.2	Tana River	3.1

Figure 3.11 gives distribution of divorced or separated females by county in 2009 Census, see also Appendix 8. Majority of the counties, 59.6 percent had proportions of divorced or separated women below the national average. Some of the counties with very low proportions were: Siaya 1.3 percent; Kisumu 1.3 percent; Homa Bay 1.0 percent; Migori 0.8 percent; Nyamira 1.4 percent; West Pokot 1.7 percent; Samburu 1.7 percent; Nandi 1.9 percent; Narok 1.9 percent; Kericho 1.8 percent and Bomet 1.6 percent. The remaining counties also had low percentages that ranged between 2.2 percent for Makueni to 2.9 percent for Elgeyo Marakwet.

Counties with very high percentage of females divorced or separated in 2009 were: Kirinyaga 5.1 percent; Kwale 5.4 percent; Lamu 7.0 percent; Nyandarua 4.5 percent; Kiambu 4.5 percent; Mombasa 4.6 percent; Taita Taveta 4.7 percent; Isiolo 4.2 percent; Meru 4.4 percent; Tharaka 4.1 percent and Embu 4.3 percent. Some of these counties were either major urban centres, high potential agricultural lands or in arid and semi-arid lands. In all these regions population pressure and high cost of living is a reality.

The distribution of divorced or separated women by reproductive age groups is also indicated in Figure 3.9. It is observed that for the three recent censuses, proportions divorced or separated women increased sharply up to the age group 30-34 before dropping. For the 2009 Census the drop started later among the age group 40-44. Table 3.11 depicts that the proportions increased for all age groups between 1989 and 1999. However, for the censuses of 1999 and 2009, the increase stalled for the age groups 15-19 and 20-24. Between ages 25-49, the increase was marginal.

The trend in proportions of divorced or separated men is depicted in Figure 3.10. The proportions were relatively low throughout the country and were similar to that of women. The proportion of males aged 12 and above who were divorced or separated increased from 1.1 percent in 1989 to 1.5 percent in 1999 and to 1.6 percent in 2009. The proportion of divorced or separated men was also higher in rural areas than in urban areas. The differences in 2009 were 0.1 percent in rural areas and 0.4 percent in urban areas. Figure 3.10 shows percent of divorced or separated men by age groups and depicts the 2009 proportions as consistently higher than those of 1999 and 1989.

Figure 3.10: Percent of Divorced or Separated Men, 1989-2009

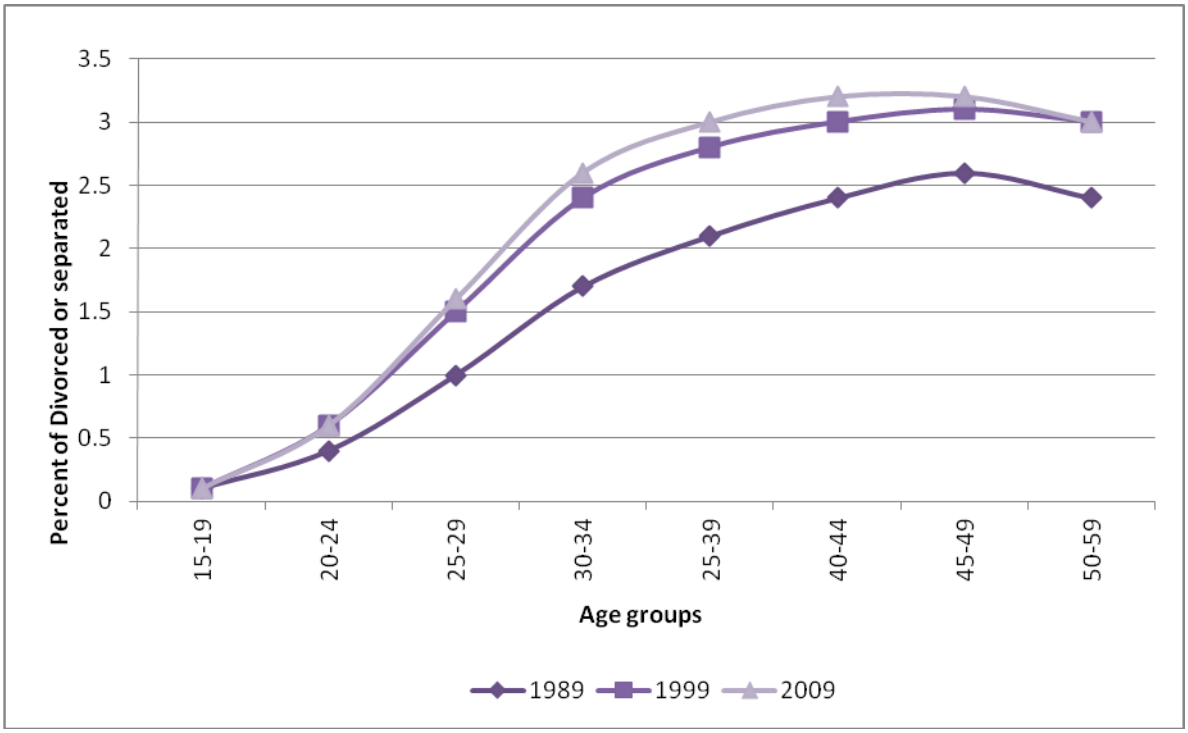


Figure 3.11: Percent of Divorced or Separated Females by County, 2009

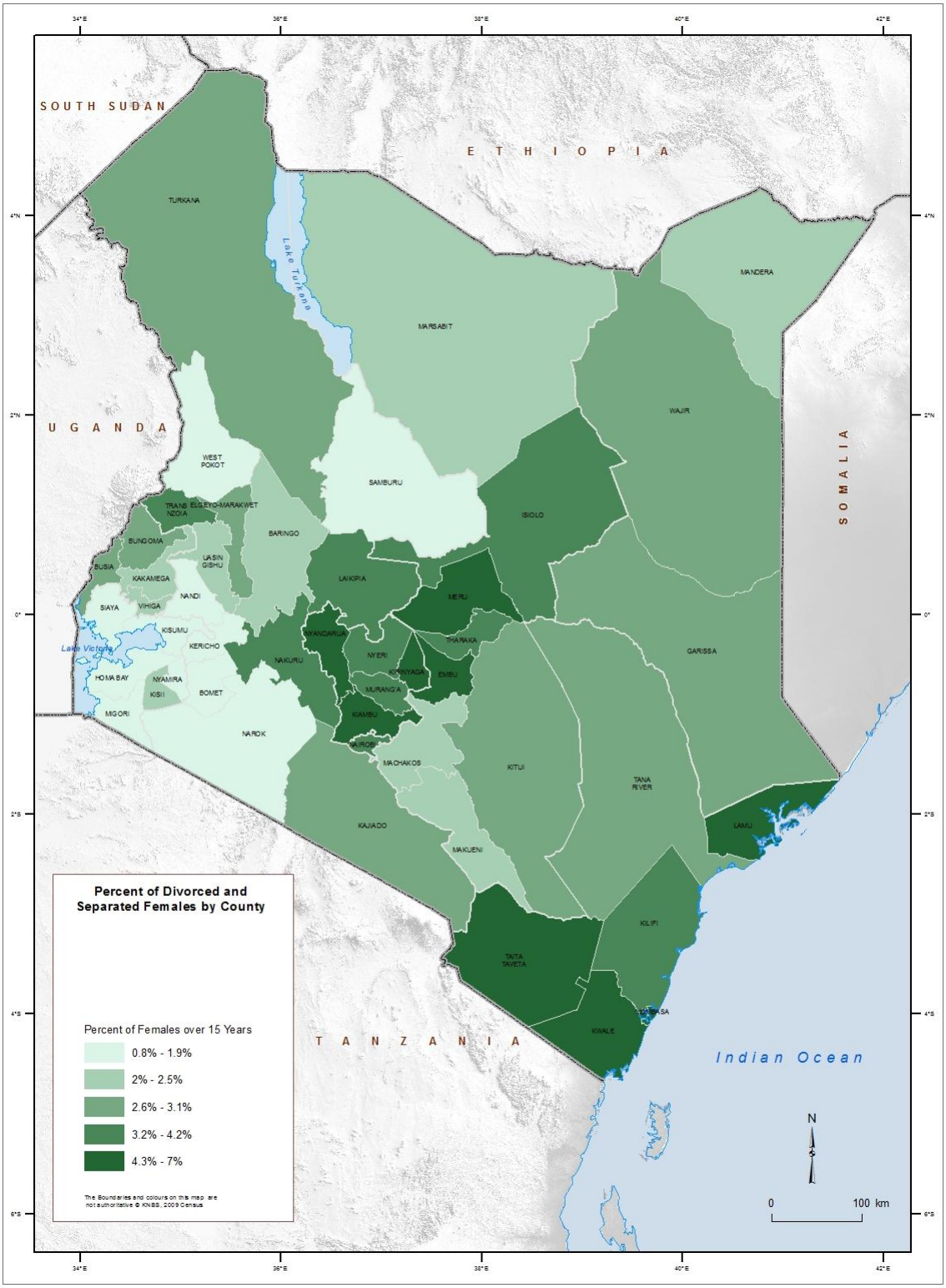
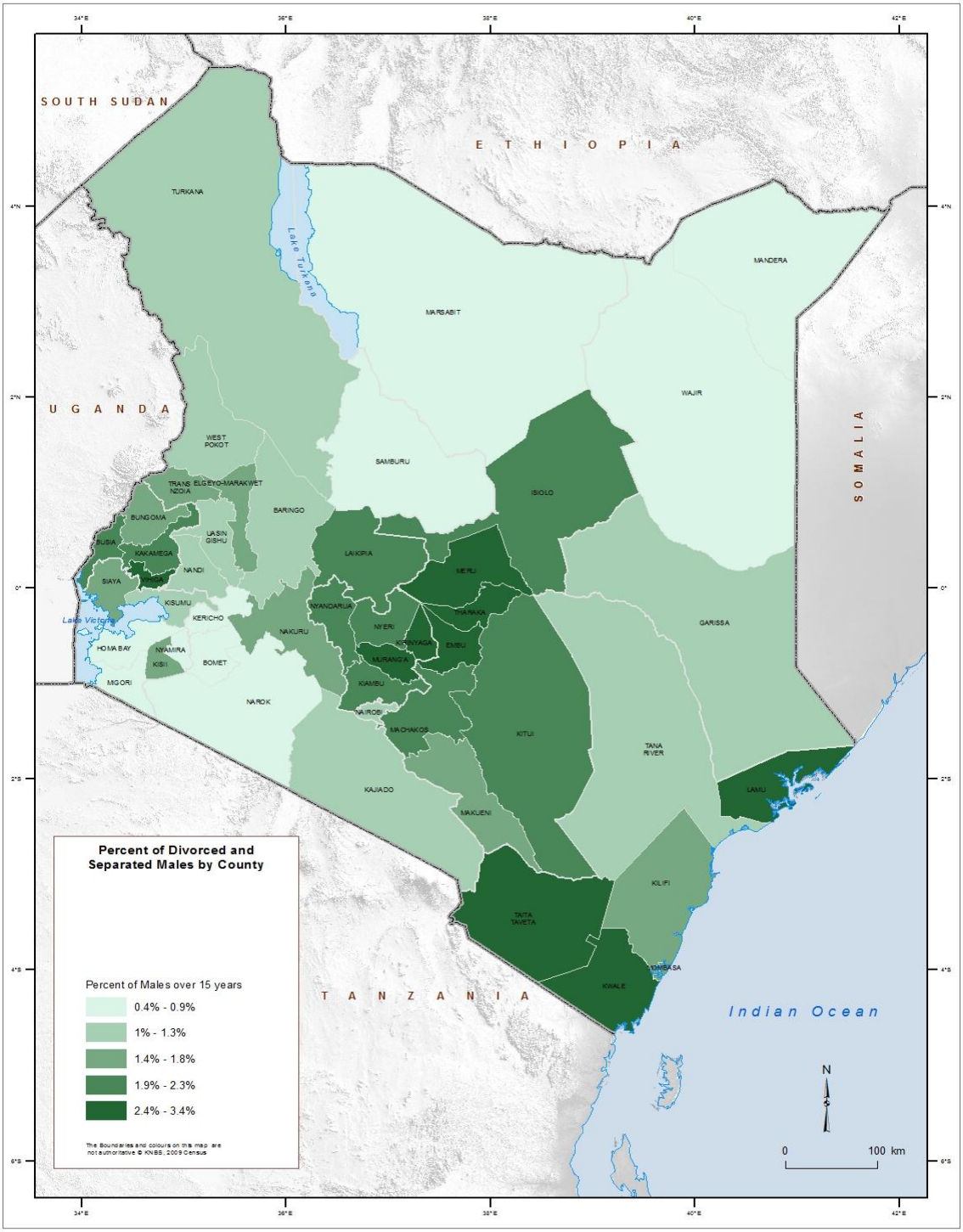


Figure 3.12: Percent of Divorced or Separated Males by County, 2009



The provincial proportions of divorced or separated men for 2009 were very low ranging between 1.0 percent in Nyanza Province to 2.4 percent in Central Province. At the county level, 4 counties had significantly high proportions (compared to the national average of 1.6 percent). These were Kirinyaga 3.4 percent; Lamu and Vihiga, 3.3 percent; Tharaka, 3.0 percent. Furthermore, 12 counties representing 25.5 percent of all counties (N=47) had proportions which were below 1.0 percent. They were Kericho 0.9 percent; Migori 0.9 percent; Garissa 0.9 percent; West Pokot 0.9 percent; Marsabit 0.8 percent; Homa Bay 0.8

percent; Narok 0.8 percent; Bomet 0.7 percent; Nyamira 0.7 percent; Wajir 0.7 percent; Mandera 0.7 percent and Samburu with the lowest proportion of 0.4 percent, see Figure 3.12 and Appendix 9.

The proportions of males and females who were divorced or separated by age groups in 2009 are portrayed in Table 3.11. In 2009, the proportion of young females aged 15-29 who were divorced or separated tripled the proportion of divorced or separated men of the same age groups. For the older age groups the proportion of women was consistently higher than that of males. This scenario is similar for the 1999 Census. However, for the 1989 and 1999 censuses the proportion of divorced or separated women was also higher than those of females for all age groups but the differences were very small.

Table 3.11: Percent of Males and Females Who Were Divorced or Separated by Age, 1989-2009

	Male			Female		
	1989	1999	2009	1989	1999	2009
15-19	0.1	0.1	0.1	0.5	0.6	0.6
20-24	0.4	0.6	0.6	2.1	2.4	2.4
25-29	1.0	1.5	1.6	3.2	3.8	3.9
30-34	1.7	2.4	2.6	3.9	4.8	5.0
35-39	2.1	2.8	3.0	4.0	4.9	5.4
40-44	2.4	3.0	3.2	3.9	4.5	5.4
45-49	2.6	3.1	3.2	3.5	4.3	5.0
50-59	2.4	3.0	3.0	3.2	3.8	4.2

In 2009, the male age groups with the highest proportions of divorced or separated were between 40 and 49, while for females the highest proportions were between 25 and 44. The marginal increase in the proportions of females divorced or separated since 1989 indicates that marital unions in Kenya have been changing at a very slow pace. This is probably due to remarriage and levirate marriages which are commonly practiced in some communities, especially after the death of the husband.

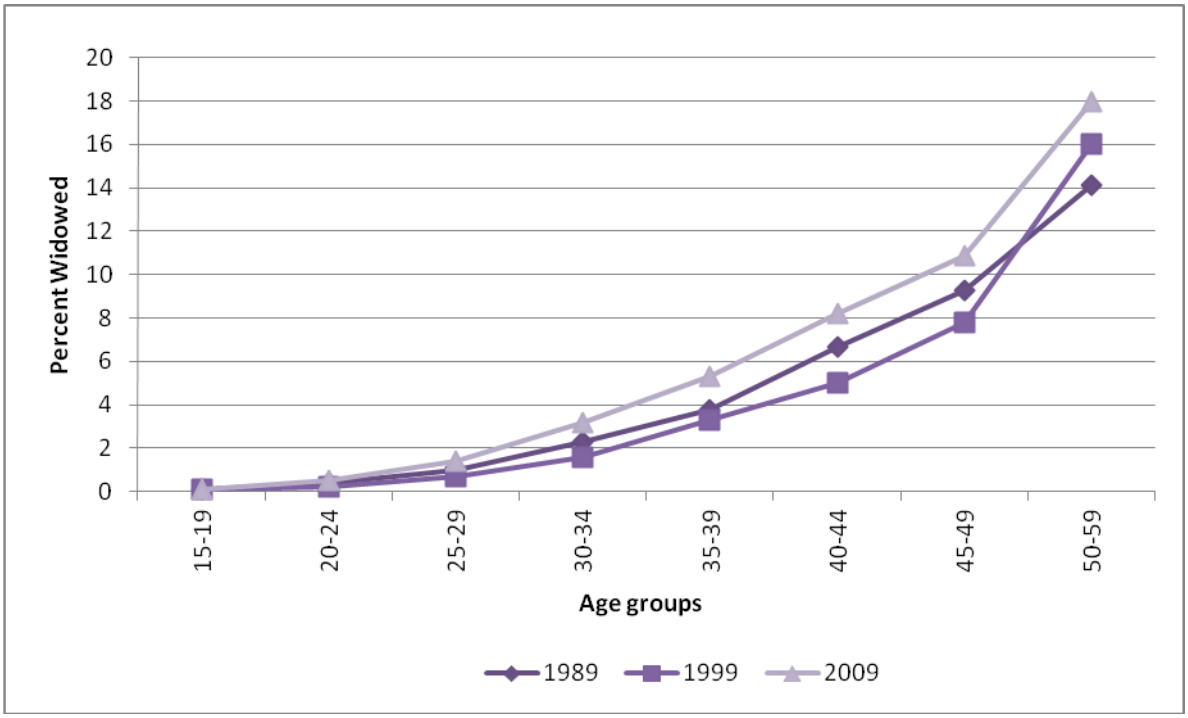
3.5 Levels, Trends and Differentials in Proportions Widowed

In sub-Saharan Africa widowhood affects women more than men and Kenya is not an exception. The proportion of females aged 12 and above who were widowed increased from 5.1 percent in 1989 to 5.4 percent in 1999 and to 6.1 percent in 2009. Between 1999 and 2009, females widowed in rural areas increased marginally from 6.0 percent to 7.0 percent. In 2009, the proportion widowed in rural areas almost doubled the proportion in urban areas of 4.4 percent. Provincial analysis ranked Nyanza Province as leading with 10.2 percent of females widowed. Western followed with 7.5 percent and Central with 6.7 percent, Coast with 6.3 percent and Eastern 6.2 percent. The other provinces had very low values. See Appendix 8 showing the percentage distribution of widowed females at county level.

The observed marginal increase in the level of female widowhood since 1989 could be partly due to the inter-censal increase of HIV/AIDS incidence. In 2009 the county level of proportions of widowhood revealed that 38.3 percent of the counties had their proportions exceeding the national average of 6.1 percent. The counties are shown in Figure 3.14 and Appendix 8. The data reveals that Siaya County is leading with 15.3 percent, followed by

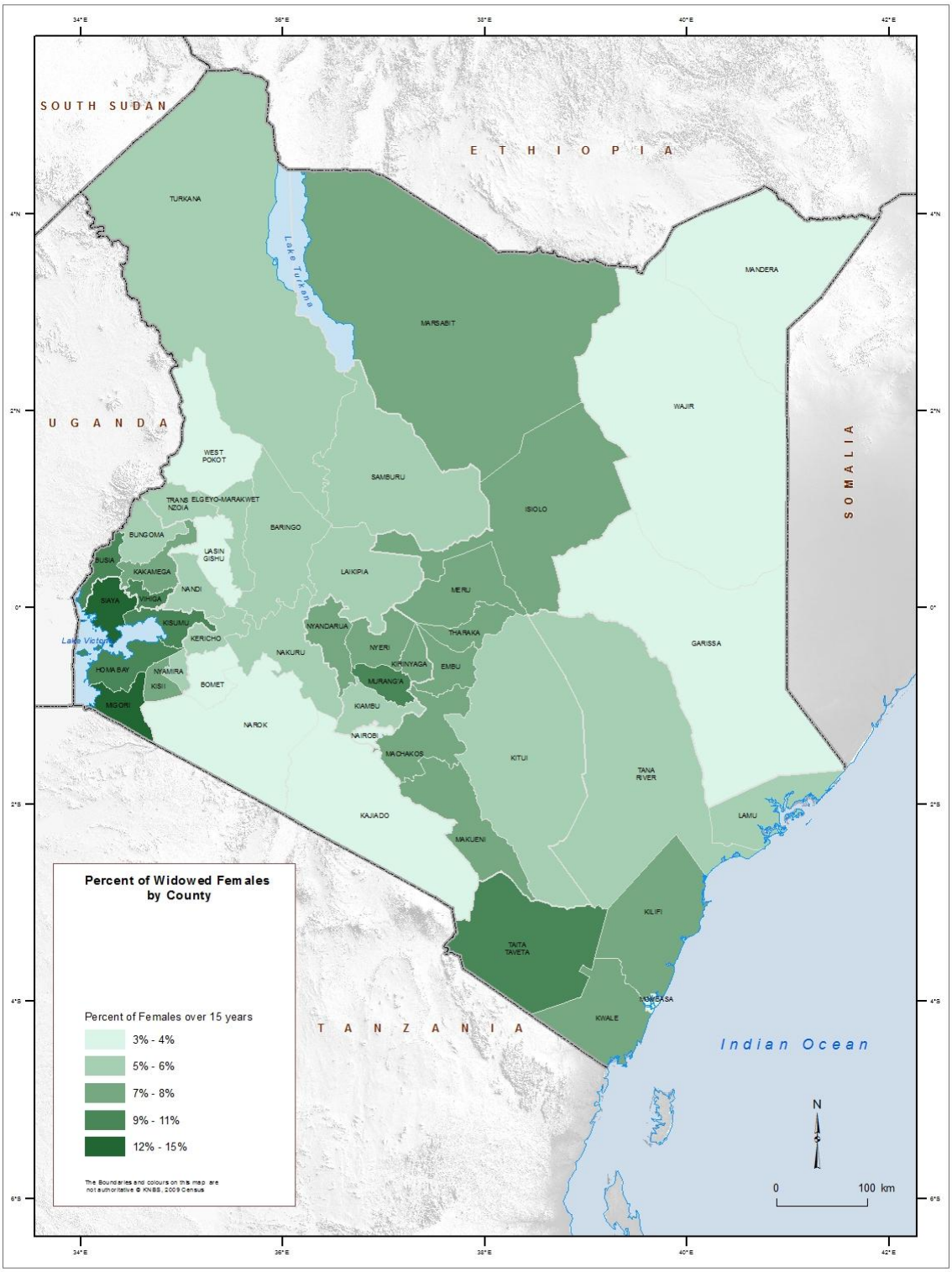
Migori 12.5 percent, Kisumu 11.1 percent and Vihiga 10.2 percent. All these counties are in the Lake Victoria Basin which is heavily affected by malaria and HIV/AIDS epidemics. Furthermore, no county in the Rift Valley had proportion exceeding the national average. Counties which had proportions below the national average were 26, representing 55.3 percent of the counties. Figure 3.13 shows the percentage of windowed females, age 15-59 between 1989 and 2009 censuses. The 2009 proportions were consistently higher for all age groups since 1989.

Figure 3.13: Percent of Widowed Females, 1989- 2009



The scenario for men shows that, generally men experienced very low levels of widowhood. The proportion of males aged 12 and above who were widowed was constant at 0.7 percent for both 1989 and 1999 censuses. The proportion however increased to 1.0 percent in 2009, see Appendix 9. The proportion of male widowers in the rural areas was 1.1 percent, thus almost doubling the urban proportion of 0.7 percent. Provincial analysis shows that Central, Eastern, Nyanza and Western which recorded 1.2 percent, had the highest widowers in 2009.

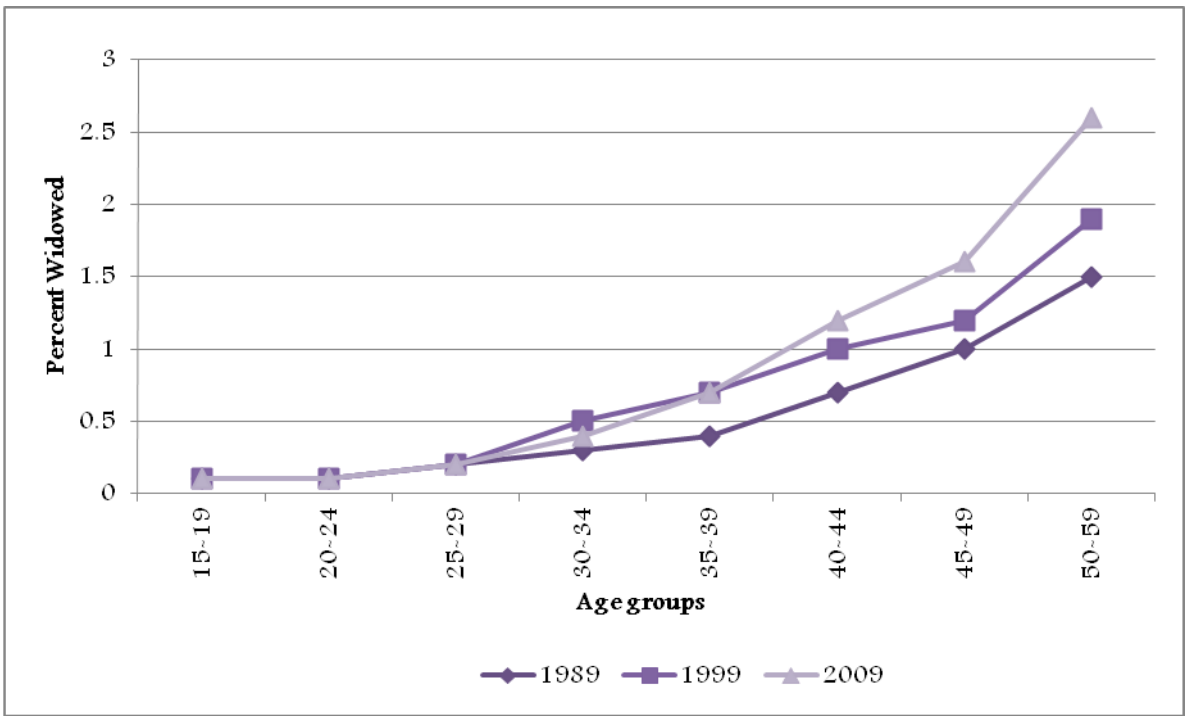
Figure 3.14: Percent of Widowed Females by County, 2009



The 1999 and 2009 censuses reveal that, with the exception of North Eastern Province which experienced decline in the proportion of widowers from 1.0 percent to 0.6 percent for the two censuses respectively, all other provinces had little increase in proportions of widowers. Central Province had the greatest increase of 0.5 percent with percentage change from 0.7 percent in 1999 to 1.2 percent in 2009.

Counties also had very low proportions of widowers in 2009. Counties whose proportions doubled the national average of 1.0 percent were Siaya 2.0 percent and Vihiga 2.4 percent. These two counties are within the Lake Victoria Basin. The other counties with high proportions were Murang'a with 1.7 percent and Taita Taveta 1.8 percent. The counties with very low percentages were; Nairobi, Marsabit, West Pokot, Kajiado, Bomet, at 0.5 percent; Samburu and Narok at 0.4 percent. It is noted that men experience low proportions of widowhood because men tend to remarry more than women, and the survival rate of women is higher at older ages (CBS, 2002). Figure 3.15 depicts the age pattern of the proportions of male widowers.

Figure 3.15: Percent of Widowed Males, 1989-2009



It is observed that the 2009 proportions of widowed males were higher than those of 1999 from 35 years. Table 3.12 shows that, the proportions of widowers for 1989 and 1999 were equal from age 15 to 29, after which the 1999 proportions rose for the older ages 30-59. The pattern was the same between 1999 and 2009, except for an insignificant decline for the age group 30-34. Comparison between male and female widowhood shows that the 2009 proportions were consistently higher for females than males.

Table 3.12: Percent of Males and Females Who Were Widowed by Age Group, 1989-2009

	Male			Female		
Age Group	1989	1999	2009	1989	1999	2009
15-19	0.1	0.1	0.1	0.1	0.1	0.1
20-24	0.1	0.1	0.1	0.4	0.2	0.5
25-29	0.2	0.2	0.2	1.0	0.7	1.4
30-34	0.3	0.5	0.4	2.3	1.6	3.2
35-39	0.4	0.7	0.7	3.8	3.3	5.3
40-44	0.7	1.0	1.2	6.7	5.0	8.2
45-49	1.0	1.2	1.6	9.3	7.8	10.9
50-59	1.5	1.9	2.6	14.1	16.0	18.0

The same trend is reflected when both 1989 and 1999 proportions are considered. Proportions for females only indicate that, for 1989 and 1999 censuses, all the 1999 age groups had lower percentages than those of 1989, except for the last age group 50-59. Between 1999 and 2009 the scenario changed because the 2009 proportions were consistently higher than those of 1999. This may have been as a result of HIV/AIDS impact during the period (CBS, 2002).

3.6 Levels, Trends and Differentials in Mean Age at First Birth

The mean age at first birth (MAFB) is the average age at which women have their first born child. In Kenya the 1989 and 1999 censuses depict that the MAFB for Kenyan women increased by one year from 20 years in 1989 to 21 years in 1999 and by 1.2 years to 22.2 years in 2009. The greatest change was reported by urban women as was the case for the 1989 and 1999 censuses.

The provincial analysis shows that in 2009 Central Province had the highest MAFB of 23 years. It was followed by Nairobi with 22.9 years and Coast with 22.8 years. The other provinces had MAFB ranging from 21.3 years for North Eastern Province to 22.2 years for Eastern Province. The trend for the 1999 and 2009 censuses shows a marginal increase for all provinces except North Eastern which had an insignificant drop of 0.2 years from 21.5 years in 1999 to 21.3 years in 2009. Coast Province had the highest increase of 8.6 percent rising from 21 years in 1999 to 22.8 years in 2009. Nairobi however had the least increase of 0.2 percent rising from 22.5 years in 1999 to 22.9 years in 2009. Although computations were not done for the 47 counties, the increase was expected to be marginal and that the MAFB levels were also low as exhibited by the provinces.

In summary, evidence based on the 1999 MAFB shows that regions with very high SMAM also had high MAFB. In situations where most women have their first birth before marriage, MAFB tends to be lower than SMAM.

Chapter 4- Fertility and Nuptiality in Development

4.1 Introduction to the Links between Fertility and Nuptiality

This Chapter looks at the analysis of the inter-relationship between fertility and nuptiality and implications on the achievement of national development goals – Kenya's Vision 2030 and Millennium Development Goals (MDGs). It also examines its impact on individual household and societal well-being in the context of past and present policies. The indicators used in the discussion are dependency ratios by sex.

Also, an attempt is made to examine the current Constitution and how it may influence future fertility levels and trends in the context of Bill of Rights, Property Ownership and dissolution of Marriage.

4.2 Fertility and Nuptiality in Development

Fertility and Nuptiality impact on development through several processes. One such important process is population annual growth rate. Population, in any country, is the tool and goal for any balanced comprehensive development. In the first decade of Kenya's independence, population grew from 2.5 million in 1962 to 10.9 million in 1969. Population growth rate averaged at 3.4 percent per annum. During this time fertility was very high because Total Fertility Rate (TFR) increased from 7 births per woman in 1962 to 7.6 births per woman in 1969 reaching the highest level of 7.9 births per woman during the period 1975 -1979. This relatively high fertility was sustained by universal marriage and falling mortality rates. It is emphasized that fertility (births) is one of the factors that determine household size which is important in economic production at the household and societal levels.

Research has shown that there is a strong and consistent relationship between population growth and social and economic development. The economy during 1962-1979 however grew at an impressive rate. The Gross Domestic Product (GDP) expanded at 6.5 percent per annum; per capita output grew at 6.5 percent per annum while agricultural output exceeded population growth by 1.3 percent per annum. However, the population growth witnessed between mid 1970s and 80s, combined with low mortality, led to declining economic performance, translating into less income per person. Today, slightly less than half (46 percent) of Kenyans live below poverty line. Empirical evidence has shown that bigger families tend to be poorer than smaller families as wealth tends to be distributed among the family members.

Part of Kenya's population growth is tied to its relatively young population. Today, 75 percent of Kenyans are below 30 years while 45 percent of them are below 15 years. It is estimated that in the next two decades by the year 2030, Kenyan youth will have reached 24 million. Kenya's current population policy recognizes the rights of an individual to decide freely and responsibly the number and spacing of children, and have access to information and education in order to make informed choices. This current trend of high population growth is as a result of the interplay between declining fertility and population momentum - that is, the inertia in population growth from having large child-bearing populations. The current fertility decline is balanced by the still-growing numbers of people

of child-bearing age. But over the next two to three decades, the effect of declining fertility will become stronger, and hence slow the current population momentum. This high population growth poses a major challenge to the economy. Some of the challenges are:-

- Increased unemployment due to increase in labour force. This leads to increased dependency constraining the national economy and hence development.
- Increased demand for basic and higher education beyond the country's institutional capacities, leading to a reduction in school enrolments and to high attrition rates. If this is not addressed, it will impact negatively on quality of education thereby defeating the government goal to meet one of the Millennium Development Goals (MDGs).
- Increased pressure on both financial resources and health facilities. At present, the health delivery system is characterized by congestion and shortage of both medical personnel and service delivery points.
- Increased demand for food and other basic services such as housing
- Increased environmental degradation through the removal of ground cover and cultivation of hillsides, river banks, catchment areas and other marginal lands.
- Significant vulnerability to HIV infection and substance abuse.
- Poor sanitation
- Exposure to conflicts and increased prevalence of urban violence.
- Growing poverty and food insecurity.

To endeavor to address these challenges, there is need for more resources to meet the basic needs of the people, which include food, clothing, education and health services. High fertility contributes to the changing levels, trends and differentials in demand for basic needs. Table 4.1 on dependency ratios shows that the working or active population in the country, often those aged 15-64 have the greatest burden to care for the dependent population of children aged 0-14 and the aged population 65 years and above.

Figure 4.1: Spatial Pattern of Percent of Dependent Population by County, 2009

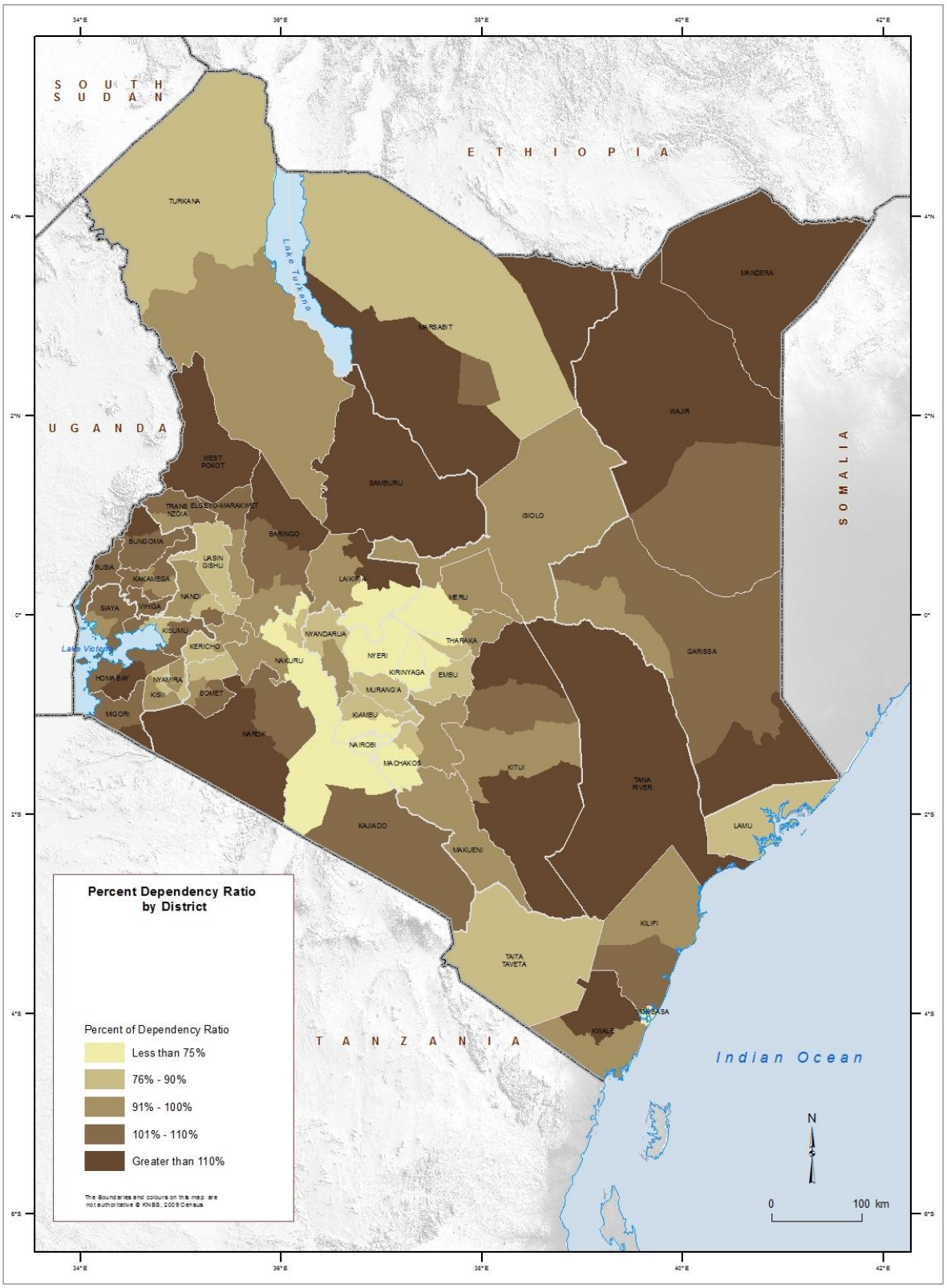


Table 4.1: Kenya's Dependency Ratios, 2009

Country/Province	Total	Male Dependency Ratios	Female Dependency Ratios
Kenya	86.9	89.1	94.7
Rural areas	100.4	104.9	96.3
Urban	62.7	62.0	96.3
Nairobi	46.7	44.2	48.1
Central	49.8	70.8	68.9
Coast	83.9	85.4	82.6
Eastern	87.7	91.0	84.6
North Eastern	116.5	116.9	116.0
Nyanza	95.5	105.2	92.7
Rift Valley	93.5	95.1	91.9
Western	103.9	110.1	98.4

It is observed that the dependency problem is greater in rural areas with a ratio of 100.4 compared with urban dependency of 62.7. At the provincial level North Eastern is leading followed by Western Province and Nyanza. Nairobi has the lowest dependency ratio of 46.1. At provincial level, male and female ratios do not show any consistent pattern. High economic dependency leads to poverty which is strongly correlated with high fertility.

Figure 4.1 showing the spatial pattern of dependency ratios at county level indicates that counties in arid and semi-arid regions have very high dependency ratios above 100 percent. The counties in the Lake Victoria basin also have very high dependency ratios. Otherwise, Figure 4.1 clearly shows that very few counties have low dependency of less than 70 percent. These counties are Nyeri, Kirinyaga, Kiambu, Thika and Nairobi.

4.3 Vision 2030

Kenya's Vision 2030 aims at transforming the nation into a newly industrializing, middle income country providing a high quality of life to all citizens in a clean and secure environment. To achieve this Vision, government must know how many people to plan for, where they live and work, their age and sex structure, their dynamics and key socio-economic characteristics. At the current fertility, population is projected to reach 62 million by 2030, the year of actualization of the Vision. Kenya's population size is high compared to the current level of socio-economic development. This means for the Vision to be attained, government must invest heavily on key sectors of the economy - agriculture, energy, water, infrastructure, and as much as possible, reverse the effects of environmental changes. In a nutshell, planning for provision of basic needs services must consider projected fertility levels which will be as follows: TFR of 4.5 in 2015, 4.4 in 2020, 4.2 in 2025 and 4.1 in 2030, in the current projections.

4.4 Poverty and Development

The proportion of Kenya's population living below the poverty line rose from 40 percent in 1994 to 54 percent in 1997. Although, the rate has been declining in the recent past (currently estimated at 46 percent), in absolute numbers, the population has been rising with large regional variations. Poverty reduction is the central goal of the government's

medium-term economic programme and Vision 2030. At the current poverty levels, which are one result of unemployment, people can hardly be expected to contribute meaningfully to development and by extension poses a serious threat to the achievement of the Kenya Vision 2030. The eradication of abject poverty, creation of decent jobs and improvement of access to social services are imperative. Studies in developing countries associate poverty levels to higher fertility.

4.5 The New Constitution

Kenya's new Constitution gives both women and men the right to equal treatment, including the right to equal opportunities in political, economic, cultural and social spheres. It embraces elimination of all forms of discrimination against a person on any ground including race, sex, pregnancy, marital status, health status, ethnic or social origin, colour, age, disability, religion, conscience, belief, culture, dress, language or birth. The constitution bans all forms of sexual offences including female genital mutilation (FGM), rape and sexual violence, and recognizes creation of a favourable environment in the provision of reproductive health services. Besides, Kenya is a signatory to the Convention for the Elimination of all Forms of Discrimination against Women (CEDAW) and ICPD's affirmation of women's ability to control their own fertility.

On the other hand, the Bill of Rights under the new constitution recognizes the institution of marriage. The Bill spells out that every adult has the right to marry a person of the opposite sex based on the free consent of the parties. Parties to a marriage are entitled to equal rights at the time of the marriage, during the marriage and at the dissolution of the marriage. Some of these legal conditions may go against cultural norms and practices that govern the institution of marriage in some communities and they are likely to have impact on future levels and trends in marriage and hence fertility.

The law provides the right to reproductive health services including the right for women to control their own fertility. However, in some Kenyan communities, the impact of these laws and agreements is yet to be felt and harmful socio-cultural practices such as early marriage, FGM and nutritionally biased taboos (a fertile ground to uncontrolled fertility) still exist. Other factors hampering provision of adequate reproductive health services include religious beliefs and practices, lack of women's empowerment, low male involvement, poverty and weak health management systems. The new constitution therefore creates challenges that must be addressed in order to improve human well being. Most of these challenges are directly and indirectly linked to reproduction.

4.6 Proposed Measures to Address Kenya's High Fertility

The proposed National Population Policy has suggested a number measures to address Kenya's high fertility which, if they can be implemented, will speed up achievement of Kenya's development goals, including the Vision 2030 and hence, the Millennium Development goals. Some of these are:-

- Reduce population growth, fertility and mortality rates in order to be consistent with the economic and social developments envisioned in Vision 2030.

- Promote awareness among Kenyans of the population problem and dynamics, the impact of high population growth on personal welfare and national development, and their constitutional right to health care, including reproductive health care.
- Increase the availability of quality, accessible, acceptable and affordable reproductive health and family planning services to individuals and families, with special emphasis on youth, men and people with disabilities.
- Reduce illiteracy by increasing access to education, improving the transition rate from primary to secondary school, and raising the quality and relevance of education.
- Promote gender equality and protect the rights of women, children, youth, people with disabilities, elderly people and other vulnerable groups.
- Enhance the proper management of the environment including more balanced spatial population distribution to ensure proper balance in the management of migrations, human settlements and infrastructure.
- Promote and sustain the collection, analysis and dissemination of demographic and health data on regular basis for planning and other purposes.
- Increase funding through budgetary allocation and public/private partnerships to ensure the sustainability of the population programme and effective impacts on population dynamics.

4.7 Summary

The Kenya's Population size and growth is high compared to the current level of socio-economic development. To achieve the country's Development Goals such as Kenya Vision 2030 and the Millennium Development Goals (MDGs), there is need to address the current high population growth as it presents formidable challenges for sustainable development. Kenya should endeavor to attain population-resource equilibrium to achieve sustainable development in all sectors of development.

Chapter 5- Summary and Conclusion

5.1 Introduction

The first post-independence census was undertaken in 1969 and enumerated 10.9 million persons. Since then, the country has conducted decennial population censuses – in 1979, 1989 and 1999. The 2009 Census enumerated a total of 38.6 million persons, increasing from 15.3 and 21.4 million persons in 1979 and 1989 respectively. All post-independence censuses have been implemented in accordance with the UN Principles and Recommendations for modern censuses. The 2009 Census was implemented by the Kenya National Bureau of Statistics (KNBS) on behalf of the Kenya government – in accordance with the Statistics Act 2006. The theme of the census was "Counting our People for the Implementation of Vision 2030". The main objective of the 2009 Census was to provide essential information on the demographic, social and economic characteristics of the population, as well as housing conditions and household amenities.

5.2 Highlights of Fertility Findings

The average parity for Kenya in 2009 was 5.4 births per woman aged 40-44 years. Furthermore, all provinces except North Eastern had a drop in reported average parities during 1999-2009. The unique case of North Eastern Province is attributed to the problem of over-enumeration that affected the province. The decline in average parities was substantial in Central Province with almost one and half births or a decline of 27.3 percent.

5.2.1 Fertility by Place of Residence

The analysis of rural–urban differences in reported average parities for the 1989, 1999 and 2009 censuses indicate that urban parities were lower than rural parities for all age groups. Also, all age groups experienced decline in average parities since 1989. Closer examination of the older age groups 40-44 and 45-49, show that between 1989 and 2009, women in these cohorts lost almost three births. Rural-urban drop in average parity during the period 1999-2009 affected more the age group 15-19 which had a fall in average parity by 33.3 percent, in both rural and urban areas. The age group 35-39 had the greatest fall of 32.5 percent in rural areas and 23.4 percent in urban areas.

5.2.2 Fertility by Level of Education

For the 1989 and 1999 censuses, all women in the reproductive cohorts who never attended school (non-educated) experienced decline in average parities. However, for the 1999 and 2009 censuses the pattern changed because the age group 20-34 had a marginal increase in average parity, while the older women aged 35-49 experienced declines in average parity. All women of reproductive age groups with primary education for the 1989 and 1999 Censuses had a drop in average parity except teenage women 15-19, who experienced a stall in average parity. For the Censuses of 1999 and 2009, all women had a fall in their parities except women in the age group 20-24 who recorded no change. Women in this particular age group carried along their high fertility of ten years before when they were 10-14 years.

The analysis of the 2009 Census of reproductive women with secondary and above level of education shows that, all such women experienced a decline in average parity between 1999 and 2009. In fact, a very significant drop in reported fertility is noted with teenage women 15-19 years experiencing a significant drop in average parity by 50.0 percent and 25.0 percent for the women in age group 20-24. In summary, a closer look at the average parity for women aged 40-44 by education indicates significant differences as follows: non-educated (6.6), primary (5.8), and secondary plus (4.0). The difference between non-educated women and women with secondary and above level of education yields about 2.6 births.

5.2.3 Fertility by Marital Status

The never married age groups 15-19 and 20-24 had an increase in average parity between 1989 and 1999. The other age groups experienced decreases in parity. The situation for the 1999 and 2009 censuses was different. All age groups had significant drop in average parity which ranged between 50.0 percent for the age group 15-19 and 12.9 percent for the age group 45-49.

Further analysis of parity of married women reveals that for the 1989 and 1999 censuses, all age groups experienced a fall in average parity except for a small gain affecting women aged 25-29. The Censuses of 1999 and 2009 reveal that, the younger women (age 15-19) had an increase of 12.5 percent, while those aged 20-24 had a small increase of 5.6 percent. The other women had a drop in their average parity, with women aged 40-44 experiencing decline of 13.4 percent.

Widowed women had similar experiences in 1989 and 1999 Censuses because all age groups had a decrease in their average parity. However, for the 1999 and 2009 Censuses, the women aged 15-19 and 20-24 had an increase in average parity by 12.5 percent and 19.1 percent for the two age groups respectively. The other older women experienced a drop in average parity.

The trend for 1999 and 2009 Censuses also confirms decline in fertility except for the age group 15-19 and 45-49, which show an irregular pattern probably due to fertility response errors. Divorced or separated women experienced a similar trend to that of widowed women.

In summary, significant falls in fertility were observed for women 30-39 years for all categories of marital status. It also noted that the error pertaining to non-response by women as to their parity was inherent in the data. This affected more the age group 15-19 and 45-49. The younger age groups under 29 contributed more to fertility in all categories of marital status.

5.3 Levels and Trends in Current Fertility

The analysis of Total Fertility Rates (TFRs) shows significant fertility decline for the country in the context of the 1989 and 1999 censuses. In 1989, TFR was 7.2 births and reduced by 2 births per woman to 5.0 births in 1999. The decline in reported TFR between 1999 and 2009 censuses was small as it dropped to 4.4 births. In 2009, TFR in rural areas was higher than in urban areas being 5.0 and 3.5 births respectively. The adjusted TFRs by Relational Gompertz Method yielded values that are very comparable with reported TFR for all

regions, except for North Eastern Province, which had enumeration problems. The adjusted TFRs were: Kenya 4.8; Nairobi 2.9; Central 3.1; Coast 4.6; Eastern 4.2; North Eastern 7.3; Nyanza 5.6; Rift Valley 5.5 and Western 5.6. Reported and adjusted TFRs by county are given in Appendix 7.

All provinces show decline in fertility for the Censuses of 1989 and 1999, and the following provinces had percentage drop in fertility by more than 10 percent for the two censuses: Central 13.2 percent; Coast 11.5 percent; Eastern 19.2 percent; North Eastern 35.7 percent; Rift Valley 13.8 percent and Western 10.0 percent. It is observed that Nyanza, Nairobi and Western provinces had the lowest drop in Total Fertility Rate in the same period. Nyanza Province is one of the regions in Kenya with high incidence of HIV/AIDS that causes high maternal and infant mortality rates. It should be noted that high maternal and infant death rates affects reporting of live births in an area. Nairobi's drop is expected because its population enjoys a relatively high standard of living. North Eastern Province experienced unusually high drop in Total Fertility Rate by 35.7 percent, probably due to excessive data cleaning in the field that could have affected some births.

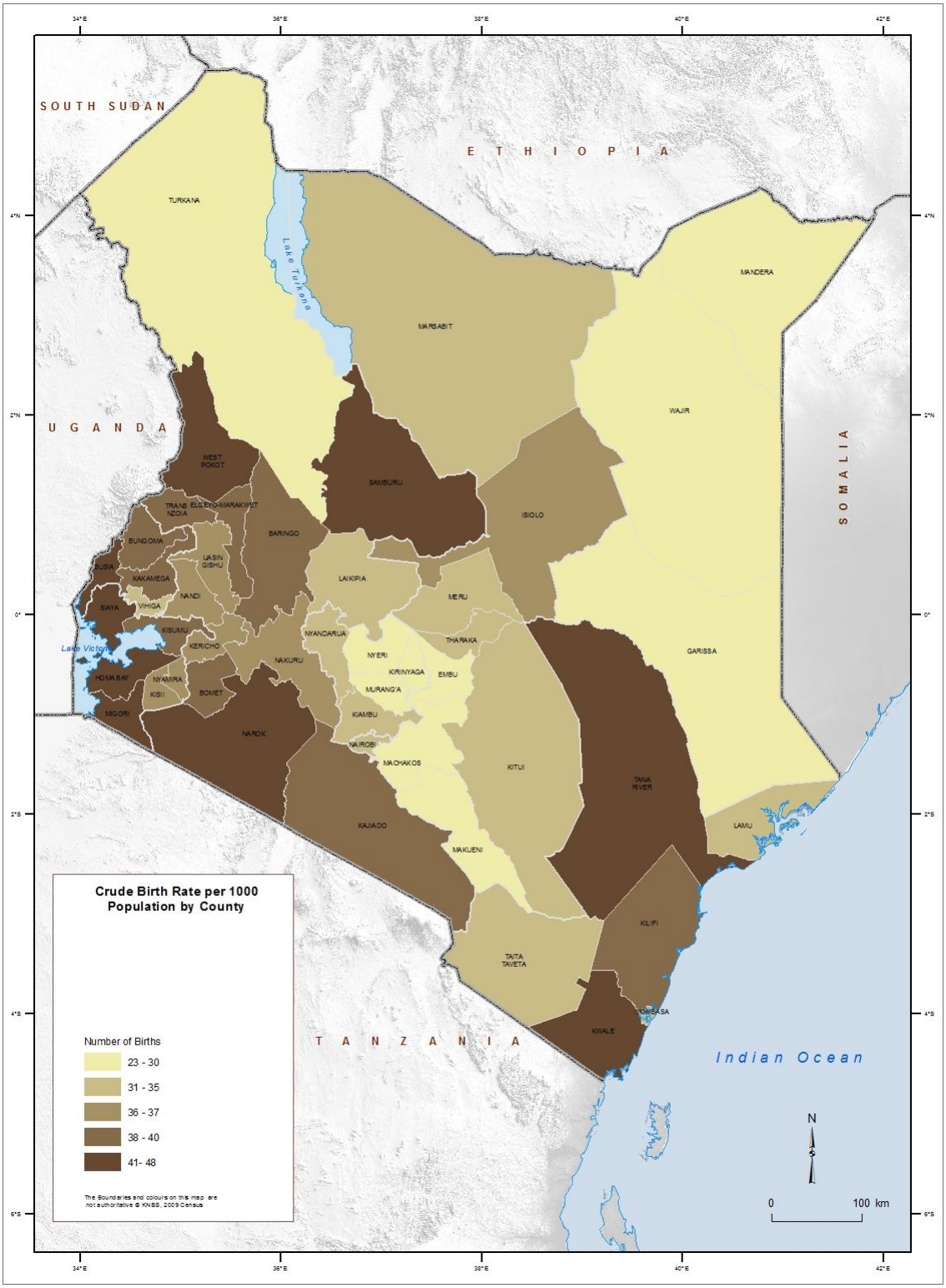
5.3.1 Levels and Trends in Total Fertility Rates by Place of Residence

Further analysis of age-specific fertility rates (ASFRs) which yield Total Fertility Rates shows that, for the country, the 1999 and 2009 censuses had ASFR figures which were lower than those of the 1989 and 1999 censuses for all age groups. However, differences in age-specific fertility rates show different trends for both rural and urban areas. For the 1989 and 1999 censuses, urban ASFRs were consistently higher than ASFRs for rural areas for the age groups 15-19 up to 30-34, before taking a falling trend in the older age groups. The analysis of 1999 and 2009 censuses also shows that, ASFRs for urban areas were consistently lower for all age groups. Comparison between urban areas and rural areas for the 1989 and 1999 years and 1999 and 2009 years reveals that there is a significant drop in ASFRs for all age groups with the age group 15-19 years having a fall of 57.1 percent and 37.0 percent for the age group 20-24. These percentages are calculated based on data in Table 2.8.

5.4 Levels and Trends in Crude Birth Rates

In 2009 the country had Crude Birth Rate of 35.2 per thousand populations, while rural Kenya had Crude Birth Rate of 35.4 per thousand populations and urban areas had Crude Birth Rate of 34.7 per thousand populations. Further Reference to Figure 2.5 and Appendix 6a shows county variations in crude birth rates. The 47 counties cover diverse agro-ecological zones with diverse environmental health risks and provision of basic health care services. Analysis at the county level therefore reveals two features namely; the problematic districts in North Eastern Province had substantial drop in unadjusted CBR from 1989 to 2009. For example, Garissa had a drop of 40.9 percent, Mandera dropped by 53.6 percent and Wajir 47.9 percent. Also, counties inhabited largely by pastoralists and agro-pastoralists had large decline in CBR during the period. These were Turkana 43.6 percent; Tharaka 32.9 percent; Meru 30.9 percent; Makueni 28.6 percent; Marsabit 26.5 percent; Baringo 25.9 percent; Nyandarua 24.1 percent; Machakos 24.3 percent; Kitui 23.3 percent and Bomet 22.7 percent. For further analysis of county levels and trends in CBR (see Appendix 6a)

Figure 5.2: Crude Birth Rate by County, 2009



5.5 Levels and trends in Adolescent Fertility

The reported average parity per woman aged 15-19 since 1999 shows that fertility dropped. The average parities were 0.3 and 0.2 for the 1999 and 2009 censuses respectively. This trend is reflected again by rural and urban adolescents whose parities were 0.3, 0.2 for rural areas and 0.3, 0.2 for urban areas for the two censuses respectively. In both cases urban adolescents had lower average parity.

The analysis at provincial level depicts similar trend as adolescents aged 15-19 showed the greatest percentage decline, especially in Nairobi with a fall of 66.7 percent, Central 50.0 percent and Eastern 50.0 percent. The lowest percentage decline was in Nyanza with 25.0 percent.

Adolescent parity by marital status indicated a different scenario. While the never married aged 15-19 had a significant drop in their parity by 50.0 percent, the other adolescents experienced an increase in their fertility. For example, married adolescents had an increase of 12.5 percent, widowed 28.6 percent and divorced/separated 22.2 percent. As expected the never married in 2009 had the lowest average parity of 0.1, while the divorced or separated had the highest level of 1. 1 births per woman.

The contribution of adolescents fertility to Total Fertility Rate (TFR) in Table 2.14 ranged between 3.3 percent in North Eastern Province and 12.0 percent in Nyanza Province. Assessment of marital status category indicates that the contribution of adolescents' fertility to Total Fertility Rate was highest among divorced/separated adolescents with 34.4 percent and lowest among married with 9.4 percent.

5.6 Levels, Trends and Differentials in Nuptiality

The national level of the proportion of never married females aged 12 and above has not changed significantly since 1989. The proportion of never married females increased from 37.7 percent in 1989 to 38.6 percent in 1999 but dropped to 37.7 percent in 2009. Rural and urban trends were similar during the same period. In 1999 the proportion of never married urban women aged 12 and above was higher, at 43.8 percent, compared with that of rural women, 37.3 percent. In 2009 the proportions decreased to 41.0 percent in urban areas and 36.0 percent in rural areas. This change could be attributed to changes in other marital conditions. See Appendix 8.

The provincial trends in proportions of never married females also reflect similar changes because between 1999 and 2009 Nairobi declined from 46.5 percent to 44.3 percent. Coast increased from 34.6 percent to 35.7 percent, Eastern from 36.0 percent to 37.2 percent and Rift Valley from 39.2 percent to 39.4 percent. The two provinces which experienced negative changes were Nyanza from 34.2 percent to 33.7 percent and Western from 35.5 percent to 35.0 percent. The observed negative changes were probably due to changes in other marital conditions.

The proportions of females aged 12 and above who were never married in 2009 at county level reveal that nine counties out of 47 or 19.1 percent had females 12 years and above as never married. Almost half of these counties are in high potential agricultural areas where population pressure is acute. The other counties are in semi-arid lands where cultural

norms and practices for marriage are very costly as in payment of dowry. It is also important to stress that percent never married is a crude measure as entry into marriage is age dependent.

The analysis of males 12 years and above reported as never married also showed an insignificant change in comparison with previous censuses. Between 1989 and 2009, the proportion of males never married increased from 51.2 percent in 1989 to 51.4 percent in 1999 and dropped to 49.5 percent in 2009. The proportion never married for males was also higher in rural areas with 51.4 percent compared with 45.9 percent for urban areas. This phenomenon is probably due to the fact that males who migrate to cities tend to be adults who are probably married thus lowering the proportion of those who are never married in the urban areas (Rok, 1996:52).

Analysis of never married males at the provincial level indicates that while most provinces had a small increase between 1989 and 1999, the trend for the 1999 and 2009 censuses shows a small decline. In 2009 the proportions were as follows: Nairobi 42.6 percent, Central 46.3 percent, Coast 48.3 percent, Eastern 50.9 percent, North Eastern 59.1 percent, Nyanza 49.2 percent, Rift Valley 51.4 percent and Western 48.7 percent. See Appendix 9.

5.7 Levels and Trends in Singulate Mean Age at Marriage

Female SMAM for urban areas was higher than rural areas for 1999 and 2009 censuses. Yet in 1999, male SMAM remained constant at 26.5 years for both rural and urban areas. The 1989 Census shows the SMAM for females was 21.6 years which increased to 22.3 years in 1999 and to 22.5 years in 2009. The difference in years between males and females remained constant at 4.2 years between the two inter-censal periods. The 1999 Census further indicates that SMAM for females was highest in Central Province with 23.7 years followed by Nairobi with 23.5 years and Eastern 23.1 years. In 2009 Nairobi Province took the lead with a SMAM of 23.7 years followed by Central Province with 23.2 years. The other provinces had SMAM ranging from 21.4 years (Nyanza Province) to 22.9 years (Eastern Province). North Eastern Province in 2009 also had the highest difference of 5.3 years between male and female SMAM. At the county level the lowest female SMAM occurred in Tana River with 18.8 years, Migori 20.2 years and Busia 21.2 years. See Appendix 10.

The estimate for males also shows a marginal increase from 26.0 years in 1989 to 26.5 years in 1999 and 26.7 years in 2009. At provincial level in 1999, Central Province had the highest male SMAM of 27.5 years followed by Eastern with 27.2 years. In 2009 the ranking did not change as Central Province had 27.8 years followed by Eastern Province with 27.7 years. The counties with very low male SMAM were Tana River with 25.0 years, Migori with 24.9 years and Busia 25.0 years. The difference between other counties in 2009 was marginal as depicted in Appendix 10. In 2009 the provinces which reported the highest difference between male and female SMAM were North Eastern with 5.3 years, Eastern with 4.8 years and Coast with 4.7 years.

5.8 Levels, Trends and Differentials in Proportions Married

The proportion of females aged 12 and above who were married in 1989 was 54.7 percent, but declined to 53.3 percent in 1999 and dropped marginally to 53.2 percent in 2009.

Among the married women in 2009, 45.9 percent were in monogamous unions and 7.3 percent in polygamous unions. The proportion married in rural areas of 54.4 percent was also higher than 50.9 percent of married women in urban areas.

In 2009, at provincial levels, the proportions of women aged 12 year and above who were married exceeded the national average of 53.2 percent in all provinces except Nairobi with 49.1 percent and Central with 51.9 percent. All urban centres combined also had a low percentage of 50.9. The province with the highest proportion married was Nyanza with 55.0 percent followed by Western 54.8 percent.

The analysis of the proportion of males aged 12 years and above reported as married reveals similar trends to that of married women. The proportion of married men marginally increased in 2009. In 1989 the proportion was 46.8 percent but dropped to 46.4 percent in 1999 before rising again to 48.0 percent in 2009. In rural areas the proportions of married men increased from 44.5 percent in 1999 to 45.8 percent in 2009, and were relatively lower than in urban areas. The proportions in urban areas slightly dropped from 52.9 percent in 1999 to 52.0 percent in 2009.

The provincial analysis for 2009 Census reveals that the proportion of married males was lower than the national average of 48.0 percent. Eastern Province had 45.8 percent; North Eastern 39.5 percent and Rift Valley 46.7 percent. However, the 1999 and 2009 Censuses show that with the exception of North Eastern Province which declined from 42.5 percent in 1999 to 39.5 percent in 2009, all other provinces had an increase; Nairobi from 54.6 percent to 55.8 percent; Central from 45.3 percent to 50.1 percent; Coast from 48.0 percent to 48.7 percent; Eastern from 43.1 percent to 45.8 percent; Nyanza from 46.4 percent to 48.5 percent; Rift Valley from 46.1 percent to 46.7 percent and Western from 46.2 percent to 48.0 percent.

5.8.1 Levels, Trends and Differentials in Proportions in Polygamous Unions

The proportion of females aged 12 and above in polygamous unions increased from 8.5 percent in 1989 to 9.3 percent in 1999 and dropped to 7.3 percent in 2009. The decline in polygamous unions affected more rural areas than urban areas. For example, in 1999 proportions of women in polygamous unions in rural areas was 10.4 percent compared with 4.6 percent in urban areas. 1n 2009 the proportions declined to 9.0 percent in rural areas and 3.9 percent in urban areas. Rural areas therefore continue to have higher proportions than urban areas.

Further analysis at provincial level reveals that all provinces had a drop in polygamous unions. In 2009, Nyanza Province with 11.1 percent had the highest proportion of women in polygamous unions. North Eastern Province followed with 10.6 percent, Western 10.1 percent, Rift Valley 9.0 percent and Coast 7.7 percent. The other provinces had very low proportions. The 1999 and 2009 Censuses reveal that the province with the greatest drop in proportions of polygamous women was Central, which experienced decline by 9.8 percent from 11.8 percent to 2.0 percent. Nyanza also had a fall in its proportion by 4.0 percent and Coast by 3.7 percent. See Appendix 8.

Analysis of Polygamy reflects a different scenario at the national and provincial levels. The proportion of males aged 12 and above in polygamous unions and country increased from 2.8 percent in 1989 to 5.2 percent in 1999, and thereafter, fell to 4.2 percent in 2009. This

downward trend affected all provinces during the same period. In 2009 the proportion of males in polygamous unions in rural areas was 5.0 percent compared to 2.7 percent in urban areas. The province with the highest proportion was North Eastern with 6.4 percent, followed by Nyanza 6.2 percent, and Western 5.8 percent. Among all provinces, the greatest percentage decline in polygamy occurred in Nyanza Province with 2.0 percent. The other provinces had very small percentage decline. In 2009 the only counties with the proportion of males in polygamous unions exceeding the national average of 4.2 percent were; West Pokot with 12.1 percent and Samburu with 10.5 percent.

5.9 Levels, Trends and Differentials in Proportions Divorced or separated

The proportion of females aged 12 years and above who were divorced or separated increased marginally from 2.2 percent in 1989 to 2.7 percent in 1999 and to 3.0 percent in 2009. In rural areas the proportions increased from 2.5 percent in 1999 to 2.6 percent in 2009, while in urban areas proportions increased from 3.4 percent to 3.7 percent for the two censuses respectively.

Provincial analysis reveals that the change between 1999 and 2009 censuses was inconsistent. Provinces which had marginal increase were Nairobi which increased from 3.0 percent in 1999 to 3.9 percent in 2009, Central from 3.0 percent to 4.1 percent, Eastern from 3.0 percent to 3.2 percent, Rift Valley from 2.4 percent to 2.6 percent and Western from 2.5 percent to 2.6 percent. Coast Province had a drop from 4.7 percent to 4.6 percent and North Eastern also had a drop from 3.7 percent to 2.6 percent, while Nyanza had no change remaining with the lowest proportion of 1.2 percent for the two censuses, respectively.

The proportions of divorced or separated men were relatively low throughout the country and were similar to that of women. The proportion of males aged 12 years and above who were divorced or separated increased from 1.1 percent in 1989 to 1.5 percent in 1999 and to 1.6 percent in 2009. The proportion of divorced or separated men was also higher in rural areas than in urban areas. The differences in 2009 were 0.1 percent in rural areas and 0.4 percent in urban areas. Figure 3.10 showing percent of divorced or separated men by age groups depicts the 2009 proportions as consistently higher than those of 1999 and 1989.

The provincial proportions for 2009 of divorced or separated men were very low ranging between 1.0 percent in Nyanza Province to 2.4 percent in Central Province. At the county level, only three counties had their proportions above the national average of 1.6 percent. These were Kirinyaga 3.4 percent, Lamu 3.3 percent and Vihiga 3.3 percent. Furthermore, 12 counties representing 25.5 percent of all counties (N=47) had proportions which were below 1.0 percent. They were Kericho 0.9 percent, Migori 0.9 percent, Garissa 0.9 percent, West Pokot 0.9 percent, Marsabit 0.8 percent, Homa Bay 0.8 percent, Narok 0.8 percent, Bomet 0.7 percent, Nyamira 0.7 percent, Wajir 0.7 percent, Mandera 0.6 percent, and Samburu with the lowest proportion of 0.4 percent. See Appendix 9.

5.10 Levels, Trends and Differentials in Proportions Widowed

The proportion of females aged 12 and above who were widowed increased from 5.1 percent in 1989 to 5.4 percent in 1999 and to 6.1 percent in 2009. Between 1999 and

2009, females widowed in rural areas increased marginally from 6.0 percent to 7.0 percent, In 2009, the proportion widowed in rural areas almost doubled the proportion in urban areas of 4.4 percent. Provincial analysis ranked Nyanza Province as leading with 10.2 percent of females widowed. Western followed with 7.5 percent and Central with 6.7 percent, Coast with 6.3 percent and Eastern 6.2 percent. The other provinces had very low values. See Appendix 8.

The observed marginal increase in the level of female widowhood since 1989 is partly due to the inter-censal increase in the incidence of HIV/AIDS and poor provision of maternal and child health care services in rural areas. In 2009 the county level of proportions of widowhood revealed that 38.3 percent of the counties had their proportions exceeding the national average of 6.1 percent. The counties are shown in Figure 3.14 and Appendix 8. The data reveals that Siaya County is leading with 15.3 percent, followed by Migori 12.5 percent, Kisumu 11.1 percent and Vihiga 10.2 percent. All these counties are in the Lake Victoria Basin which is heavily affected by malaria and HIV/AIDS epidemic. Furthermore, no county in the Rift Valley had proportion exceeding the national average. The 2009 proportions were consistently higher for all age groups since 1989.

The scenario for men shows that, generally men experienced very low levels of widowhood. The proportion of males aged 12 and above who were widowed was constant at 0.7 percent for both 1989 and 1999 Censuses. The proportion however increased to 1.0 percent in 2009 (See Appendix 9). For the 2009 Census rural proportion of male widowers was 1.1 percent, thus almost doubling the urban proportion of 0.7 percent. Provincial analysis shows that Central, Eastern, Nyanza and Western which recorded 1.2 percent, had the highest widowers in 2009.

5.10.1 Mean Age at First Birth

The mean age at first birth (MAFB) is the average age at which women have their first born child. In Kenya the 1989 and 1999 Censuses depict that the MAFB for Kenyan women increased by one year from 20 years in 1989 to 21 years in 1999 and by 1.2 years to 22.2 years in 2009. The greatest change was reported by urban women as was the case for the 1989 and 1999 censuses.

The provincial analysis shows that in 2009 Central Province had the highest MAFB of 23 years. It was followed by Nairobi with 22.9 years and Coast with 22.8 years. The other provinces had MAFB ranging from 21.3 years (North Eastern) to 22.2 years (Eastern). The trend for the 1999 and 2009 censuses show a marginal increase for all provinces except North Eastern which had an insignificant drop of 0.2 years from 21.5 years in 1999 to 21.3 years in 2009. Coast Province had the highest increase of 8.6 percent rising from 21 years in 1999 to 22.8 years in 2009. Nairobi however had the least increase of 0.2 percent rising from 22.5 years in 1999 to 22.9 years in 2009. Although computations were not done for the 47 counties, the increase was expected to be marginal and that the MAFB levels were also low as exhibited by the provinces.

5.11 The Links Between Fertility, Nuptiality and National Development

Part of Kenya's population growth is tied to its relatively young population. Today, 75 percent of Kenyans are below 30 years while 45 percent of them are below 15 years. It is estimated that in the next two decades, Kenyan youth will have reached 24 million. Kenya's

current population policy recognizes the rights of an individual to decide freely and responsibly the number and spacing of children, and have access to information and education in order to make informed choices. This current trend of high population growth is as a result of interplay between declining fertility and population momentum - that is, the inertia in population growth from having large child-bearing populations. The current fertility decline is balanced by the still-growing numbers of people of child-bearing age. However, over the next two to three decades, the effect of declining fertility will become stronger, and hence slow the current population momentum. This high population growth poses a major challenge to the economy.

5.12 Recommendations

Part of the solution to socio-economic development in the country is to reduce drastically the current level of population growth rate. This requires that fertility transition be accelerated in most parts of the country.

Female higher education has emerged as one of the factors which could accelerate this process. Equally important are late age at marriage, rapid urbanization and increased use of modern contraceptive methods. The government should therefore, through the new devolved system of governance, promote more vigorously, policies and programmes that enhance these development strategies.

Trends and patterns of Nuptiality have also been affected by processes of modernization, health care services and urbanization. Effects of adolescent fertility have also been observed to be significant in some counties. There is need therefore to promote female education, generate more employment opportunities for the youth and promote access to youth contraception.

In order to improve the quality of fertility and nuptiality data the following strategies should be adopted:

- Mapping census enumeration area households should be an on–going activity. This will enable accurate location and updating of household units and cater for changes in enumeration area units.
- Publicity is usually effective in promoting good public response during census exercise. The Kenya National Bureau of Statistics should endeavour
- Census coverage on fertility of the labour force is still a challenge that requires a commissioned study on how best to integrate labour force variables into the study (CBS, 2002).

Areas for further research and analysis

- There is need to carry out fertility survey in areas where there has been serious under reporting of births.
- Birth registration in Kenya has not been successful. There is need to carry out research to understand some of the fundamental factors which have contributed to poor public response to birth registration and other civil registration systems.
- There is need for the government to invest more in infrastructure in order to enhance civil registration systems in the country.
- There is need for further research on the implications of increasing proportions of all the people remaining single on the household well being and dynamics.

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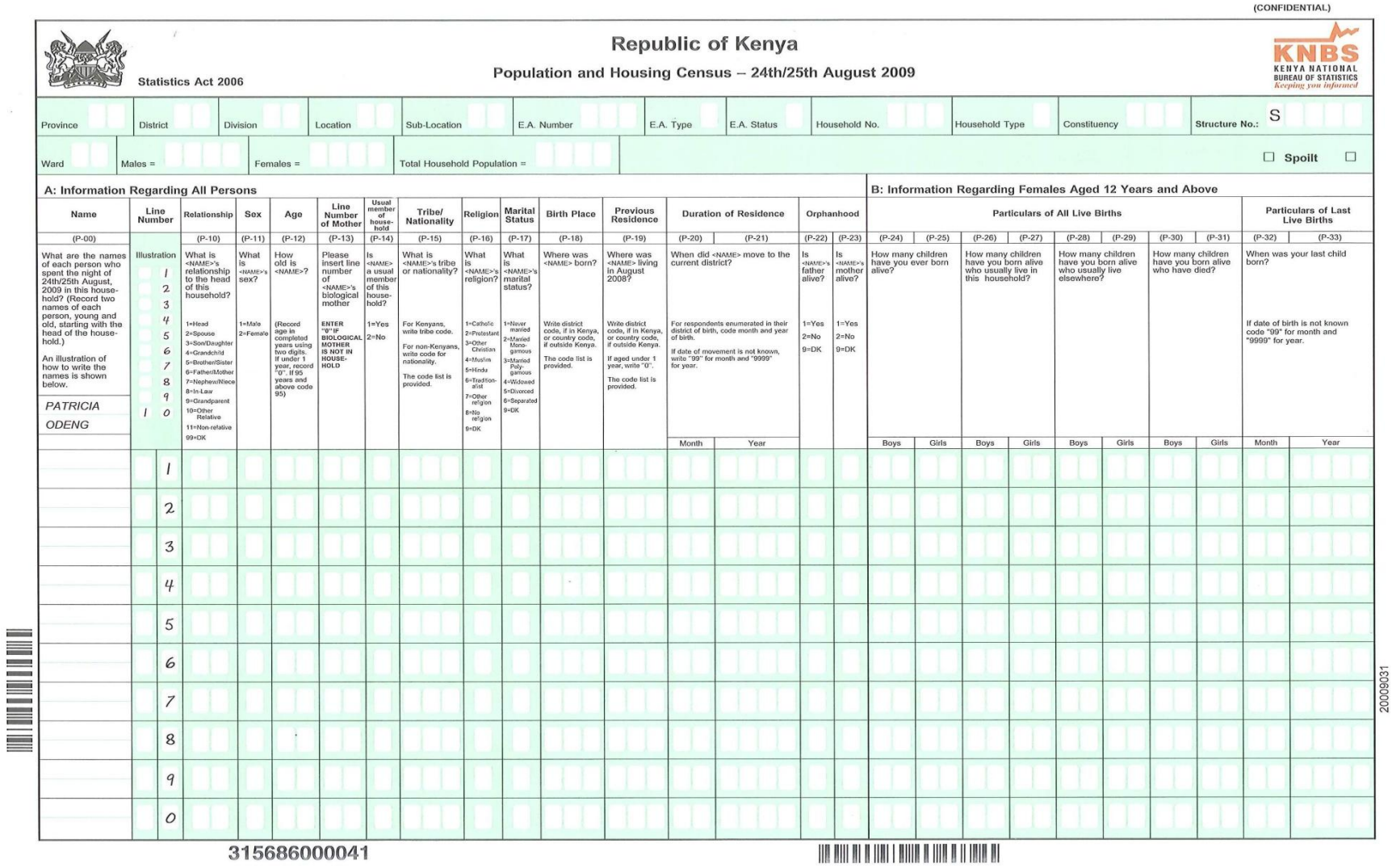
Appendices

Appendix 1(a): Main Census Questionnaires



(CONFIDENTIAL)

Republic of Kenya

Statistics Act 2006

Population and Housing Census – 24th/25th August 2009

KNBS KENYA NATIONAL BUREAU OF STATISTICS *Keeping you informed*

Province | District | Division | Location | Sub-Location | E.A. Number | E.A. Type | E.A. Status | Household No. | Household Type | Constituency | Structure No.: S

Ward | Males = | Females = | Total Household Population = | ☐ Spoilt ☐

A: Information Regarding All Persons

B: Information Regarding Females Aged 12 Years and Above

Name	Line Number	Relationship	Sex	Age	Line Number of Mother	Usual member of household	Tribe/ Nationality	Religion	Marital Status	Birth Place	Previous Residence	Duration of Residence		Orphanhood		Particulars of All Live Births								Particulars of Last Live Births	
																How many children have you ever born alive?		How many children have you born alive who usually live in this household?		How many children have you born alive who usually live elsewhere?		How many children have you born alive who have died?			
(P-00)		(P-10)	(P-11)	(P-12)	(P-13)	(P-14)	(P-15)	(P-16)	(P-17)	(P-18)	(P-19)	(P-20)	(P-21)	(P-22)	(P-23)	(P-24)	(P-25)	(P-26)	(P-27)	(P-28)	(P-29)	(P-30)	(P-31)	(P-32)	(P-33)
What are the names of each person who spent the night of 24th/25th August, 2009 in this household? (Record two names of each person, young and old, starting with the head of the household.) An illustration of how to write the names is shown below. PATRICIA ODENG	Illustration 1 2 3 4 5 6 7 8 9 10	What is <NAME>'s relationship to the head of this household? 1=Head 2=Spouse 3=Son/Daughter 4=Grandchild 5=Brother/Sister 6=Father/Mother 7=Nephew/Niece 8=In Law 9=Grandparent 10=Other Relative 11=Non-relative 99=DK	What is <NAME>'s sex? 1=Male 2=Female	How old is <NAME>? (Record age in completed years using two digits. If under 1 year, record "0". If 95 years and above code 95)	Please insert line number of <NAME>'s biological mother ENTER "0" IF BIOLOGICAL MOTHER IS NOT IN HOUSE-HOLD	Is <NAME> a usual member of this household? 1=Yes 2=No	What is <NAME>'s tribe or nationality? For Kenyans, write tribe code. For non-Kenyans, write code for nationality. The code list is provided.	What is <NAME>'s religion? 1=Catholic 2=Protestant 3=Other Christian 4=Muslim 5=Hindu 6=Traditionalist 7=Other religion 8=No religion 9=DK	What is <NAME>'s marital status? 1=Never married 2=Married Monogamous 3=Married Polygamous 4=Widowed 5=Divorced 6=Separated 9=DK	Where was <NAME> born? Write district code, if in Kenya, or country code, if outside Kenya. The code list is provided.	Where was <NAME> living in August 2008? Write district code, if in Kenya, or country code, if outside Kenya. If aged under 1 year, write "0". The code list is provided.	When did <NAME> move to the current district? For respondents enumerated in their district of birth, code month and year of birth. If date of movement is not known, write "99" for month and "9999" for year.		Is <NAME>'s father alive? 1=Yes 2=No 9=DK	Is <NAME>'s mother alive? 1=Yes 2=No 9=DK									When was your last child born? If date of birth is not known code "99" for month and "9999" for year.	
												Month	Year			Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	Month	Year
	1																								
	2																								
	3																								
	4																								
	5																								
	6																								
	7																								
	8																								
	9																								
	0																								

315686000041

20009031

Line Number	B: Information Regarding Females Aged 12 Years and Above			C: Information Regarding Persons with Disability		D: Information Regarding Persons Aged 3 Years and Above			E: Labour Force Particulars (To be asked of all persons aged 5 years and above)			F: Information Regarding ICT (To be asked of persons aged 3 years & above)							G: Annual Live Births	H: Information About Deaths In the Household				
Illustration	(P-34)	(P-35)	(P-36)	(P-37)	(P-38)	(P-39)	(P-40)	(P-41)	(P-42)	(P-43)	(P-44)	(P-45)	(P-46)	(P-47)	(P-48)	(P-49)	(P-50)	(P-51)	(H-10)	(H-11)	(H-12)	(H-13)	(H-14)	(H-15)
	Particulars of Last Live Births					Education			Economic Activity	For those who worked or held a job (including those on leave/sick leave)		Was <NAME> able to get a service from the following items within the last one month?											
1	Was this last birth notified? 1=Yes 2=No 9=DK	Was this child male or female? 1=Male 2=Female 3=Male twins 4=Female twins 5=Male-female twins 6=Multiple births 9=DK	Is this child still alive? 1=Yes 2=No 3=One of the twins 4=Both twins 5=One of the multiples 5=Two of the multiples 7=All of the multiples 9=DK	What type of disability does <NAME> have? (List not more than three) 1. Visual 2. Hearing 3. Speech 4. Physical 5. Mental 6. Self care 7. Others 8. None	Because of the disability, does <NAME> have difficulties in engaging in any economic activity? 1=Yes 2=No 3=NA 9=DK	What is the school/ Learning institution attendance status of <NAME>? 1=At school/ Learning Institution 2=Left School/ Learning Institution 3=Never went to school/ Learning Institution 9=DK	What is the highest Std/Form/Level reached by <NAME>? The code list provided Write "97" if P-39 equals 3 or 9	What is the highest Std/Form/Level completed by <NAME>? The code list provided Write "97" if P-39 equals 3 or 9	What was <NAME> mainly doing during the last 7 days preceding the census night? The code list provided	Who was <NAME>'s main employer? The code list provided Code "99" for Not Applicable	How many hours did <NAME> work in the last 7 days preceding the census night? Code "99" for Not Applicable	1=Yes 2=No 9=DK Radio	1=Yes 2=No 9=DK TV Set	1=Yes 2=No 9=DK Mobile Phone	1=Yes 2=No 9=DK Landline	1=Yes 2=No 9=DK Computer	How often does <NAME> use internet (e.g. email, chatting, etc.)? 1. Daily 2. Weekly 3. Monthly 4. Yearly 5. Never 9. DK If '5' or '9' Skip to H-10	Where did <NAME> mainly use the internet? 1=Own house 2=A friend's house 3=Office/ Workplace 4=Cyber cafe 5=Community centre 6=Educational centre 7=Other 8=Mobile Phones 9=DK	How many live births occurred in this household between 24/08/2008 and 24/08/2009 (last 12 months)?	How many deaths occurred in this household between 24/08/2008 and 24/08/09 (last 12 months)? If '0' Skip to H-17	Name of the household member who died.	Was this death notified? 1=Yes 2=No 9=DK	How old was <NAME>'s at his/her death? In completed years Code "0" for less than 1 year Code "99" for DK	Sex 1=Male 2=Female If male skip to next name
2																								
3																								
4																								
5																								
6																								
7																								
8																								
9																								
10																								

1.
2.
3.
4.
5.

Remarks

Continuation page ____ of ____

H: Information About Deaths In the Household	I: Information Regarding Livestock				J: Housing Conditions and Amenities – To be Asked of the Household Head or Any Other Responsible Person										K: Ownership of Household Assets				L: Emigrants
(H-16)	(H-17)				(H-18)	(H-19)	(H-20)	(H-21)	(H-22)	(H-23)	(H-24)	(H-25)	(H-26)	(H-27)	(H-28)				(H-29)
For females who died at age 12 - 49 years	How many of each of the following livestock are currently owned by this household?				Dwelling Units	Habitable	Tenure Status of Main Dwelling Unit	Dominant Construction Material of Main Dwelling Unit			Main Source of Water	Main Mode of Human Waste Disposal	Main Type of Cooking Fuel	Main Type of Lighting Fuel	Did the Household own any of the following items? 1=Yes 2=No				Emigrants in the last 15 years (since 1995)
Did the death occur... 1=During pregnancy? 2=During delivery? 3=Within two months after delivery? 4=Other 9=DK	Livestock	Number	Livestock	Number	How many dwelling units does this household occupy?	How many habitable rooms do these units contain?	If owner occupied, state whether: 1=Purchased 2=Constructed 3=Inherited If rented/provided, state whether: 4=Government 5=Local Authority 6=Parastatal 7=Private Company 8=Individual 9=Faith based organization/NGO 10=Other form	Roof 1=Corrugated iron sheets 2=Tiles 3=Concrete 4=Asbestos Sheets 5=Grass 6=Makuti 7=Tin 8=Mud/Dung 9=Other (Specify)	Wall 1=Stone 2=Brick/Block 3=Mud/Wood 4=Mud/ Cement 5=Wood only 6=Corrugated Iron sheets 7=Grass/ Reads 8=Tin 9=Other (Specify)	Floor 1=Cement 2=Tiles 3=Wood 4=Earth 5=Other (Specify)	1=Pond 2=Dam 3=Lake 4=Stream/River 5=Protected Spring water 6=Unprotected Spring 7=Protected Well 8=Unprotected Well 9=Borehole 10=Piped into dwelling 11=Piped 12=Jabia 13=Rain/Harvested 14=Water Vendor 15=Other Specify)	1=Main Sewer 2=Septic tank 3=Cess pool 4=VIP Pit Latrine 5=Pit Latrine covered 6=Pit Latrine uncovered 7=Bucket Latrine 8=Bush 9=Other (Specify)	1=Electricity 2=Paraffin 3=LPG 4=Biogas 5=Firewood 6=Charcoal 7=Solar 8=Other (Specify)	1=Electricity 2=Pressure lamp 3=Lantern 4=Tin lamp 5=Gas Lamp 6=Fuel wood 7=Sofar 8=Other (Specify)	1. Radio	8. Car	How many members of this household have migrated to another country since 1995? If NONE write "0" and end the interview If NOT "0" fill the Emigrant Short Questionnaire
	1. Exotic cattle		7. Pigs												2.TV	9. Truck/Lorry/ tractor/bus			
	2. Indigenous cattle		8. Indigenous chicken												3. Mobile Phone	10. Refrigerator			
	3. Sheep		9. Chicken Commercial												4. Landline Telephone	11. Boat			
	4. Goat		10. Bee Hives												5. Computer	12. Animal Drawn cart			
	5. Camels		11. Other												6. Bicycle	13. Canoes			
	6. Donkeys														7. Motor Cycle	14. Tuk tuk			

20009049

CODE LIST FOR HIGHEST EDUCATION LEVEL REACHED AND COMPLETED FOR P-40 & P41

Not Stated/DK 99
Never Attended 97
PRE-PRIMARY
Pre Primary (ECD) 96
PRIMARY
Standard 1(Incomplete) 0
Standard 1 1
Standard 2 2
Standard 3 3
Standard 4 4
Standard 5 5
Standard 6 6
Standard 7 7
Standard 8 8
SECONDARY
Form 1 9
Form 2 10
Form 3 11
Form 4 12
Form 5 13
Form 6 14
TERTIARY-MIDDLE LEVEL COLLEGES
Not Completed/Attending Post Secondary Education 15
Completed Post Secondary Education 16
UNIVERSITY
Not Completed/ Attending Undergraduate 17
Completed Undergraduate 18
Not Completed/ Attending Masters/PhD Degree 19
Completed Masters/PhD Degree 20
NON-FORMAL EDUCATION
Not Completed/Attending Basic/Post Literacy 21
Completed Basic/Post Literacy 22
YOUTH POLYTECHNIC
Not Completed/Attending Youth Polytechnic 23
Completed Youth Polytechnic 24
OTHER EDUCATION
Attending Madrassa/Duksi 25
Completed Madrassa/Duksi 26

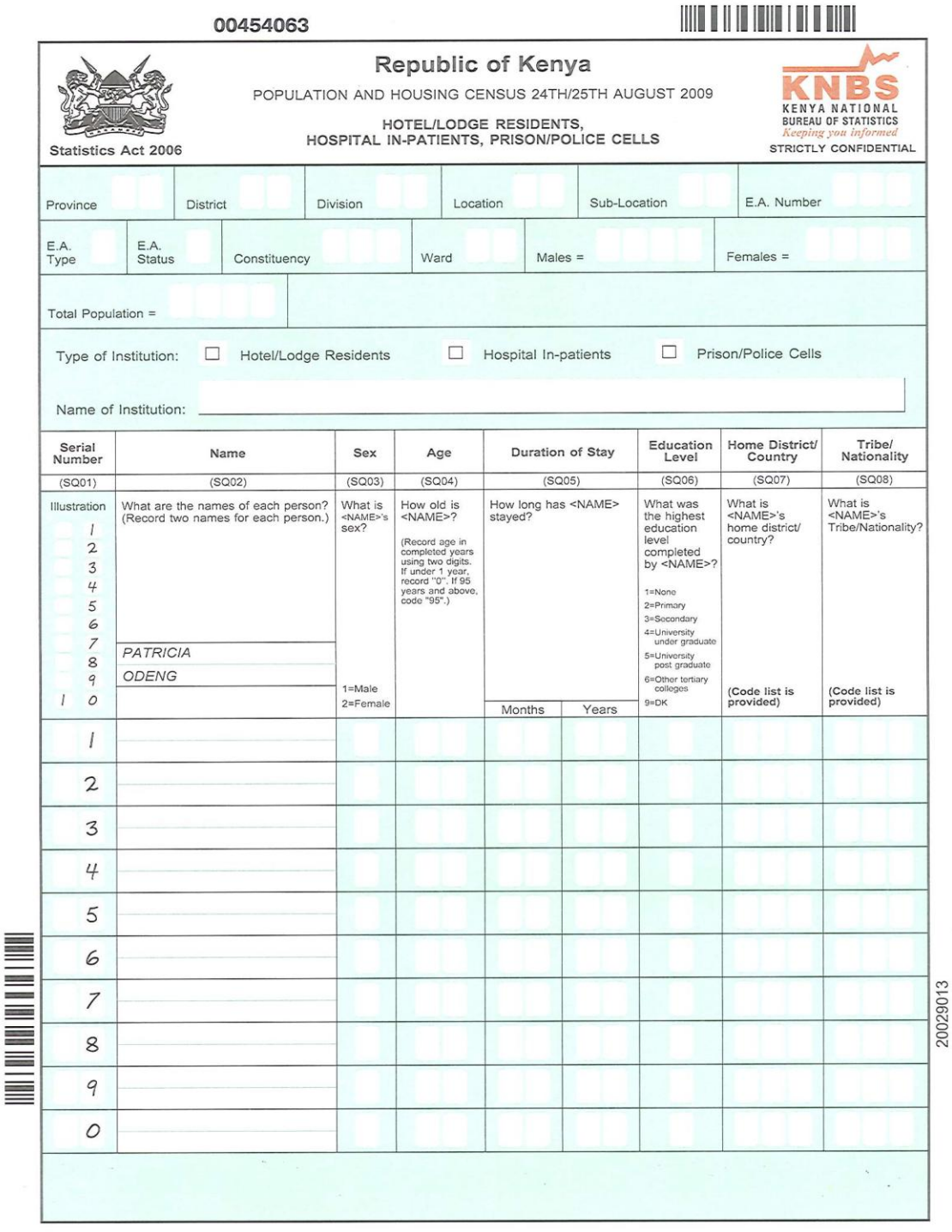
CODE LIST FOR P42-ECONOMIC ACTIVITY CODE

Worked For Pay 1
On Leave 2
Sick Leave 3
Worked On Own/Family Business 4
Worked On Own/Family Agricultural Holding 5
Apprentice/Intern 6
Volunteer 7
Seeking Work (Action Taken) 8
Seeking Work (No Action Taken) 9
No Work Available 10
Retired 11
Homemaker 12
Full Time Student 13
Incapacitated 14
Other (Specify) 15

CODE LIST FOR P43- MAIN EMPLOYER

Private Sector Enterprise 1
Local Authorities 2
Central Government 3
Teachers Service Commission (TSC) 4
State Owned Enterprise 5
International NGO 6
Local NGO/CBO 7
Faith Based Organization 8
Self Modern 9
Informal Sector 'Jua Kali' (Employed) 10
Self Employed - Informal 11
Small Scale Agriculture (Employed) 12
Self Small Scale Agriculture 13
Pastoralist Activities (Employed) 14
Self Pastoralist Activities 15
Individual/Private Household 16
Other (Specify) 17

Appendix 1(b): Hotel/Lodge Residents, Hospital In-Patients, Prison/Police Cells Questionnaires



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Republic of Kenya

POPULATION AND HOUSING CENSUS 24TH/25TH AUGUST 2009

HOTEL/LODGE RESIDENTS, HOSPITAL IN-PATIENTS, PRISON/POLICE CELLS

Statistics Act 2006

KNBS KENYA NATIONAL BUREAU OF STATISTICS *Keeping you informed*

STRICTLY CONFIDENTIAL

Province | District | Division | Location | Sub-Location | E.A. Number

E.A. Type | E.A. Status | Constituency | Ward | Males = | Females =

Total Population =

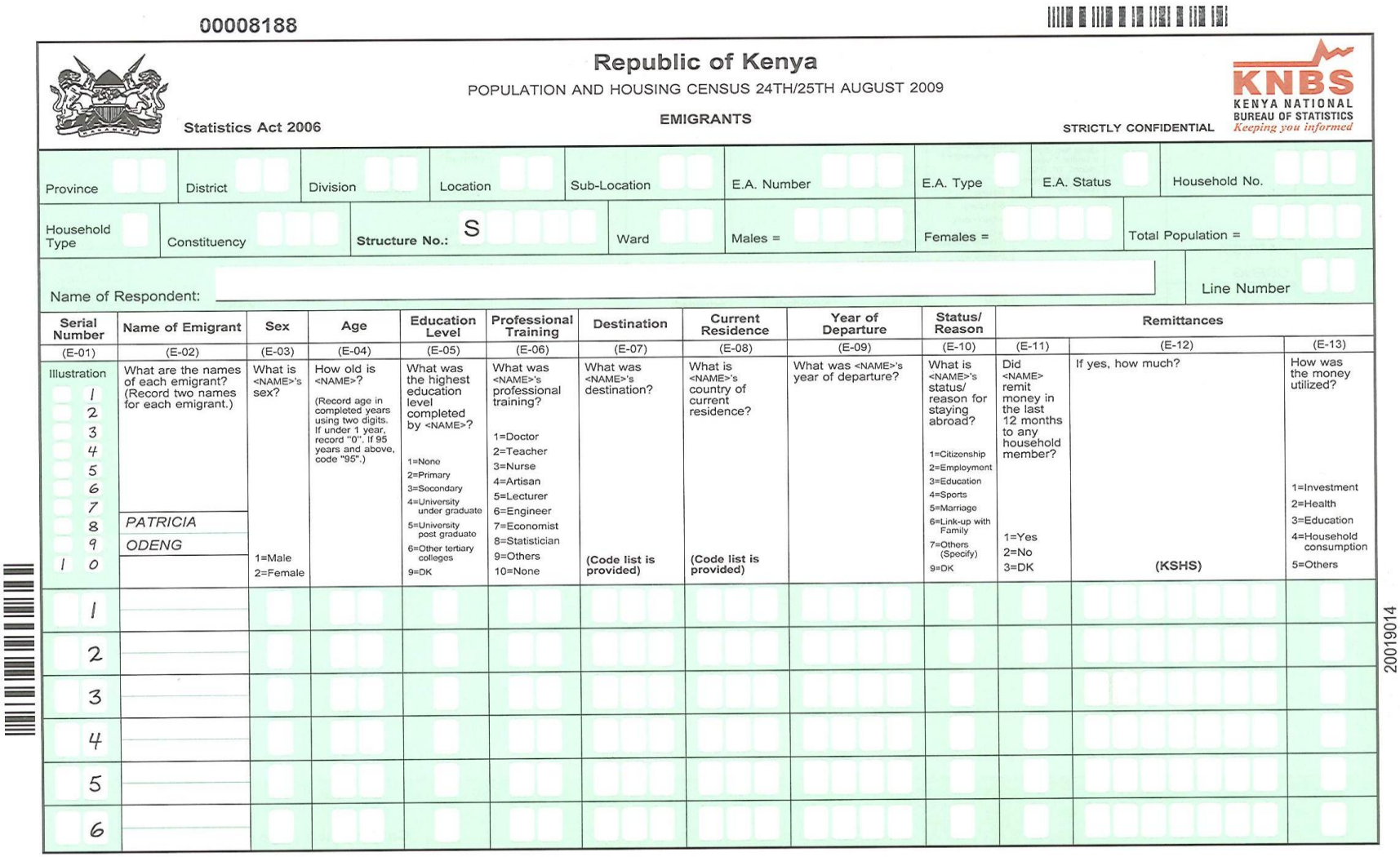
Type of Institution: ☐ Hotel/Lodge Residents ☐ Hospital In-patients ☐ Prison/Police Cells

Name of Institution:

Serial Number	Name	Sex	Age	Duration of Stay		Education Level	Home District/ Country	Tribe/ Nationality
(SQ01)	(SQ02)	(SQ03)	(SQ04)	(SQ05)		(SQ06)	(SQ07)	(SQ08)
Illustration	What are the names of each person? (Record two names for each person.)	What is <NAME>'s sex?	How old is <NAME>? (Record age in completed years using two digits. If under 1 year, record "0". If 95 years and above, code "95".)	How long has <NAME> stayed?		What was the highest education level completed by <NAME>? 1=None 2=Primary 3=Secondary 4=University under graduate 5=University post graduate 6=Other tertiary colleges 9=DK	What is <NAME>'s home district/ country? (Code list is provided)	What is <NAME>'s Tribe/Nationality? (Code list is provided)
		1=Male 2=Female		Months	Years			
1	PATRICIA ODENG							
2								
3								
4								
5								
6								
7								
8								
9								
10								

20029013

Appendix 1(c): Emigrants Questionnaires



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Republic of Kenya

POPULATION AND HOUSING CENSUS 24TH/25TH AUGUST 2009

Statistics Act 2006

EMIGRANTS

STRICTLY CONFIDENTIAL

KNBS KENYA NATIONAL BUREAU OF STATISTICS *Keeping you informed*

Province | District | Division | Location | Sub-Location | E.A. Number | E.A. Type | E.A. Status | Household No.

Household Type | Constituency | Structure No.: S | Ward | Males = | Females = | Total Population =

Name of Respondent: | Line Number

Serial Number	Name of Emigrant	Sex	Age	Education Level	Professional Training	Destination	Current Residence	Year of Departure	Status/ Reason	Remittances		
(E-01)	(E-02)	(E-03)	(E-04)	(E-05)	(E-06)	(E-07)	(E-08)	(E-09)	(E-10)	(E-11)	(E-12)	(E-13)
Illustration 1	What are the names of each emigrant? (Record two names for each emigrant.)	What is <NAME>'s sex? 1=Male 2=Female	How old is <NAME>? (Record age in completed years using two digits. If under 1 year, record "0". If 95 years and above, code "95".)	What was the highest education level completed by <NAME>? 1=None 2=Primary 3=Secondary 4=University under graduate 5=University post graduate 6=Other tertiary colleges 9=DK	What was <NAME>'s professional training? 1=Doctor 2=Teacher 3=Nurse 4=Artisan 5=Lecturer 6=Engineer 7=Economist 8=Statistician 9=Others 10=None	What was <NAME>'s destination? (Code list is provided)	What is <NAME>'s country of current residence? (Code list is provided)	What was <NAME>'s year of departure?	What is <NAME>'s status/ reason for staying abroad? 1=Citizenship 2=Employment 3=Education 4=Sports 5=Marriage 6=Link-up with Family 7=Others (Specify) 9=DK	Did <NAME> remit money in the last 12 months to any household member? 1=Yes 2=No 3=DK	If yes, how much? (KSHS)	How was the money utilized? 1=Investment 2=Health 3=Education 4=Household consumption 5=Others
1												
2	PATRICIA											
3	ODENG											
4												
5												
6												
7												
8												
9												
10												

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Appendix 1(d): Travellers and Persons on Transit Questionnaire

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Republic of Kenya

POPULATION AND HOUSING CENSUS 24TH/25TH AUGUST 2009

TRAVELLERS AND PERSONS ON TRANSIT

KNBS KENYA NATIONAL BUREAU OF STATISTICS *Keeping you informed*

Statistics Act 2006

STRICTLY CONFIDENTIAL

Province	District	Division	Location	Sub-Location	E.A. Number

E.A. Type	E.A. Status	Constituency	Ward	Males =	Females =

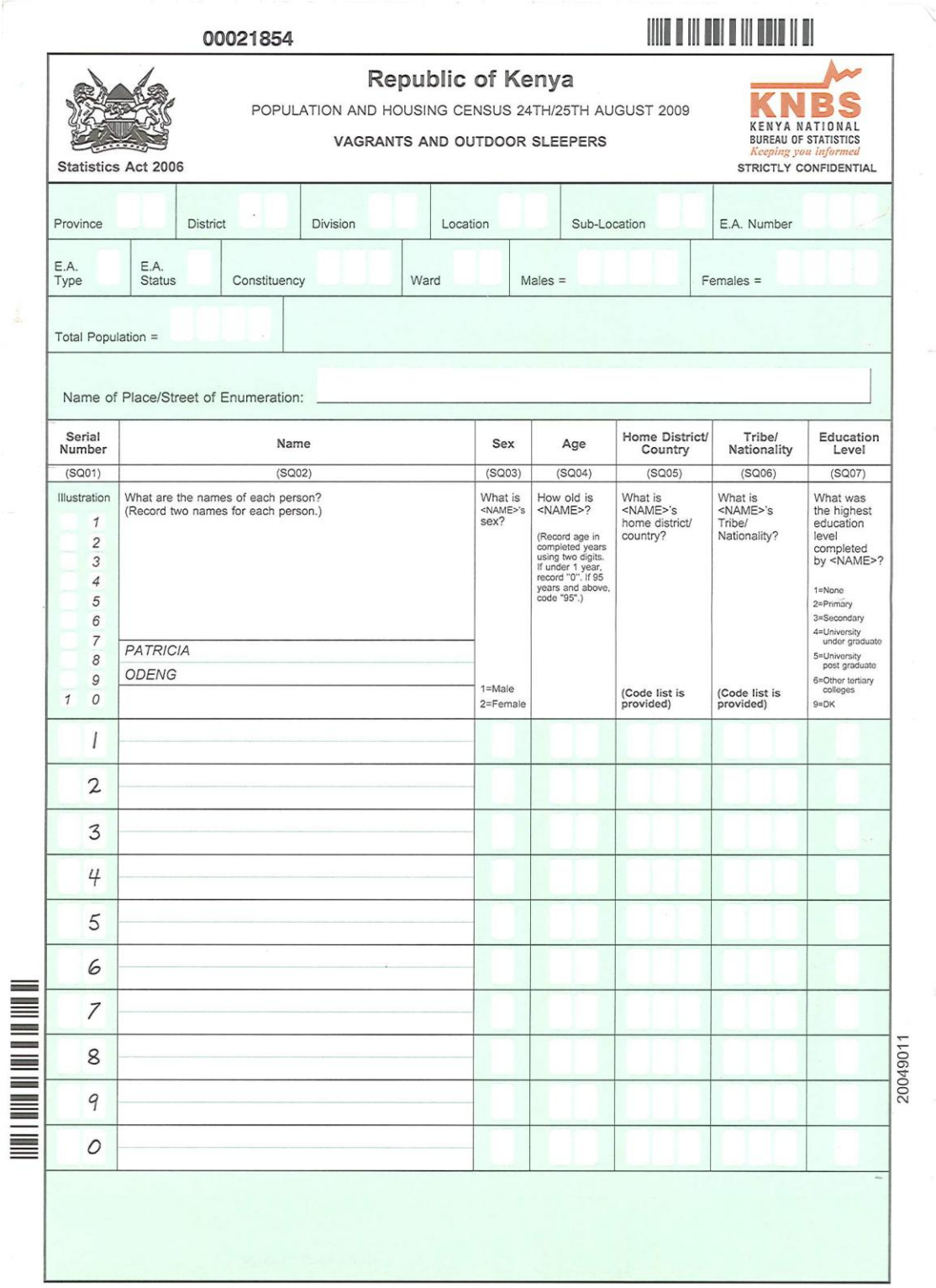
Total Population =

Name of Place/Street/Station/Airport of Enumeration:

Serial Number	Name	Sex	Age	Home District/ Country	Tribe/ Nationality
(SQ01)	(SQ02)	(SQ03)	(SQ04)	(SQ05)	(SQ06)
Illustration	What are the names of each traveller? (Record two names for each traveller.)	What is <NAME>'s sex?	How old is <NAME>? (Record age in completed years using two digits. If under 1 year, record "0". If 95 years and above, code "95".)	What is <NAME>'s home district/ country?	What is <NAME>'s Tribe/Nationality?
1		1=Male 2=Female		(Code list is provided)	(Code list is provided)
2					
3					
4					
5					
6					
7					
8	PATRICIA				
9	ODENG				
10					

20039012

Appendix 1(e): Vagrants and Outdoor Sleepers Questionnaire



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Republic of Kenya

POPULATION AND HOUSING CENSUS 24TH/25TH AUGUST 2009

VAGRANTS AND OUTDOOR SLEEPERS

KNBS KENYA NATIONAL BUREAU OF STATISTICS *Keeping you informed*

Statistics Act 2006

STRICTLY CONFIDENTIAL

Province | District | Division | Location | Sub-Location | E.A. Number

E.A. Type | E.A. Status | Constituency | Ward | Males = | Females =

Total Population =

Name of Place/Street of Enumeration:

Serial Number	Name	Sex	Age	Home District/ Country	Tribe/ Nationality	Education Level
(SQ01)	(SQ02)	(SQ03)	(SQ04)	(SQ05)	(SQ06)	(SQ07)
Illustration 1	What are the names of each person? (Record two names for each person.)	What is <NAME>'s sex? 1=Male 2=Female	How old is <NAME>? (Record age in completed years using two digits. If under 1 year, record "0". If 95 years and above, code "95".)	What is <NAME>'s home district/ country? (Code list is provided)	What is <NAME>'s Tribe/ Nationality? (Code list is provided)	What was the highest education level completed by <NAME>? 1=None 2=Primary 3=Secondary 4=University under graduate 5=University post graduate 6=Other tertiary colleges 9=DK
2	PATRICIA ODENG					
3						
4						
5						
6						
7						
8						
9						
10						

20049011

Appendix 1(f): Diplomatic Missions Questionnaire

Serial Number of Form: .....

REPUBLIC OF KENYA

POPULATION AND HOUSING CENSUS 24TH/25TH AUGUST 2009

QUESTIONNAIRE FOR

DIPLOMATIC MISSIONS

KNBS KENYA NATIONAL BUREAU OF STATISTICS *Keeping you informed*

STATISTICS ACT 2006 **STRICTLY CONFIDENTIAL**

Province ☐☐ District ☐☐ Division ☐☐

Location ☐☐ Sub-Location ☐☐ E. A. Number ☐☐

E.A. Type ☐ E.A. Status ☐ Household Type ☐

Constituency ☐☐☐ Ward ☐☐ Males ☐☐☐☐

Females ☐☐☐☐ Total Population ☐☐☐☐

Name of Hotel/Institution _____

Sno.	Name	Sex	Age	Duration of Stay		Education Level	Home District/ Nationality	Proffessional Training
(D01)		(D02)	(D03)	(D04)		(D05)	(D06)	(D07)
	What are the names of each person who spent the night of 24th/25th August, 2009 in this household ?	What is <NAME>'s sex ? 1=Male 2=Female	How old is <NAME>? (Record age in completed years using two digits.If under 1 year, record "00". If 95 years and above code 95)	How long has <NAME>'s stayed ?		What is the highest education level completed by <NAME> ?	What is <NAME>'s home district/ country?	What is <NAME>'s proffessional training ? 1=Doctor 2=Teacher 3=Nurse 4=Artisan 5=Lecturer 6=Engineer 7=Economis 8=Statistcia 9=Others 10=None
	PATRICIA ODENG			Months	Years			
1	.....	☐	☐☐	☐☐	☐☐	☐☐	☐☐☐	☐☐☐
2	.....	☐	☐☐	☐☐	☐☐	☐☐	☐☐☐	☐☐☐
3	.....	☐	☐☐	☐☐	☐☐	☐☐	☐☐☐	☐☐☐
4	.....	☐	☐☐	☐☐	☐☐	☐☐	☐☐☐	☐☐☐
5	.....	☐	☐☐	☐☐	☐☐	☐☐	☐☐☐	☐☐☐
6	.....	☐	☐☐	☐☐	☐☐	☐☐	☐☐☐	☐☐☐
7	.....	☐	☐☐	☐☐	☐☐	☐☐	☐☐☐	☐☐☐
8	.....	☐	☐☐	☐☐	☐☐	☐☐	☐☐☐	☐☐☐
9	.....	☐	☐☐	☐☐	☐☐	☐☐	☐☐☐	☐☐☐
10	.....	☐	☐☐	☐☐	☐☐	☐☐	☐☐☐	☐☐☐
11	.....	☐	☐☐	☐☐	☐☐	☐☐	☐☐☐	☐☐☐
12	.....	☐	☐☐	☐☐	☐☐	☐☐	☐☐☐	☐☐☐

Appendix 2: Computation Procedure for Relational Gompertz Method

Like the logit life table system, the relational Gompertz fertility model consists essentially of a standard schedule of fertility by age which is modified mathematically until it fits the observed distribution. The modification is made with three parameters, two of which determine the relative shape of age specific distribution, and the third, the level of fertility. The first of the shape parameters, alpha (a), controls the general location of the curve on the age scale, and the second, beta (b), the width of the distribution. The third parameter is the Total Fertility Rate. Further descriptions of the model may be found in the UN Manual X(1983, pp. 25-26), and in Newell (1988, pp. 175-178).

The model was used to estimate fertility from the data on current births (children ever born in the last 12 months and average parities of the intercensal hypothetical cohorts. The fitting procedure used was that devised by Zaba (1981) and described by Brass (1981); Brass' notation has been used. The steps of the calculations for the first of these applications were as follows:

The current age specific fertility rates, f(x), were cumulated (multiplying by 5), to the upper end of each age group, f (i). As the rates were based on births occurring during the previous 12 months, the women were, on average, half a year younger when the births occurred.

The cumulated fertilities at age x, f(x), were divided by those at age x+5, and the Gompertz transformations or "Gompits" (double negative logarithms) of these ratios calculated, z(x).

A set of standard values, e (x), were subtracted from the Gompits and the results plotted against another set of standard values, g (x). After the exclusion of the deviant points at the upper end of the distribution, a straight line was fitted by least squares. The slope of this line gives the beta parameter of the model, and the intercept, after a small modification, alpha.)The modification consists of subtracting 0.48 (beta-1) from the intercept. When beta is close to 1, this correction can be ignored.)

Similar calculations were carried out using the average parities in place of the cumulated current fertilities and the points plotted on the same graph. These points were not used in the computation of the parameters but can be used to throw light on the trends in fertility and the patterns of error in the data.

The Gompits of the average parities of the standard fertility distribution, Ys (i), were multiplied by beta and added to alpha; and "anti –Gompits"(double negative exponential) calculated .These values represented the model relative parities, and the proportion which each average parity would from of the total fertility , P (i)/F where F is the Total Fertility Rate.

Division of the reported average parities by these model relative parities gives the implied TFRs which were inspected for consistency, and those for the 20-24, 25-29 and 30-34 age groups were averaged to give the best estimate of the TFR.

Model ASFRs were then obtained by repeating step 5 with the model Gompits at ages 15, 20….etc, calculating the differences, and then multiplying them by the estimated TFR.

The use of the model with the intercensal hypothetical cohorts followed essentially by the same procedure except that only the average parities were used, and the parameters were obtained from the slope and the intercept of the line to the "P" points. The line need not necessarily be fitted by least squares, and the "group average" method can sometimes be used with advantage. Lotus spreadsheets were constructed to carry out these calculations.

Appendix 3: Estimated Fertility Rates With and Without North Eastern Province

	With North Eastern No adjustment	Without North Eastern			With North Eastern (Base population Adjusted)		
Age	Reported	Reported	P/F Ratio	Gompertz	Reported	P/F Ratio	Gompertz ASFR
15-19	0.073	0.075	0.0985	0.0827	0.075	0.1038	0.0888
20-24	0.216	0.218	0.2405	0.2262	0.218	0.2564	0.2373
25-29	0.214	0.214	0.2263	0.2401	0.216	0.2437	0.2489
30-34	0.175	0.174	0.1816	0.1931	0.177	0.1961	0.2102
35-39	0.123	0.122	0.1248	0.1263	0.126	0.1374	0.1434
40-44	0.060	0.059	0.0576	0.053	0.061	0.0638	0.0631
45-49	0.022	0.021	0.0175	0.0105	0.022	0.0201	0.0137
TFR	4.4203	4.4163	4.7339	4.6600	4.4807	5.1064	5.0273

Even if the base is adjusted, the estimated TFR using the P/F ratio or Gompertz relational model give implausible results. The national estimate of 4.8 was obtained from fitting estimates from time series estimates since 1969.

Appendix 4: Parity Progression Ratios for Kenya, 1989-2009

1989 PPRs	15-19	20-24	25-29	30-34	35-39	40-44	45-49
0 to1	0.163	0.657	0.858	0.904	0.920	0.921	0.922
1to 2	0.311	0.660	0.886	0.951	0.967	0.971	0.972
2 to 3	0.347	0.532	0.810	0.922	0.951	0.960	0.963
3 to 4	0.437	0.454	0.706	0.879	0.928	0.945	0.950
4 to 5		0.445	0.600	0.815	0.895	0.926	0.935
5 to 6			0.529	0.736	0.852	0.898	0.911
6 to 7			0.494	0.649	0.791	0.859	0.877
7 to 8					0.725	0.810	0.837
8 to 9					0.649	0.748	0.780
9 to 10					0.595	0.691	0.728
1999 PPRs	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**
0 to 1	0.204	0.668	0.852	0.943	0.960	0.963	0.965
1to 2	0.328	0.585	0.808	0.921	0.957	0.966	0.970
2 to 3	0.150	0.478	0.699	0.850	0.921	0.946	0.956
3 to 4	0.199	0.394	0.619	0.784	0.872	0.919	0.938
4 to 5		0.331	0.538	0.719	0.819	0.882	0.911
5 to 6		0.293	0.478	0.661	0.772	0.845	0.879
6 to 7		0.257	0.432	0.594	0.721	0.803	0.839
7 to 8		0.267	0.403	0.541	0.666	0.755	0.793
8 to 9			0.340	0.492	0.605	0.697	0.737
9 to 10			0.360	0.462	0.564	0.652	0.686
2009 PPRs	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**
0 to 1	0.159	0.631	0.854	0.936	0.961	0.968	0.971
1 to 2	0.301	0.584	0.777	0.894	0.939	0.955	0.962
2 to 3	0.277	0.469	0.656	0.786	0.864	0.903	0.929
3 to 4	0.391	0.430	0.588	0.727	0.799	0.845	0.883
4 to 5	0.000	0.407	0.506	0.667	0.753	0.797	0.828
5 to 6		0.480	0.478	0.617	0.716	0.767	0.788
6 to 7			0.450	0.544	0.651	0.716	0.735
7 to 8			0.487	0.508	0.591	0.657	0.677
8 to 9				0.391	0.457	0.523	0.555
9 to 10				0.349	0.366	0.413	0.434

Appendix 5: Average Parities and Age Specific Fertility Rates by Level of Education and Marital Status, 2009

	Never Married		Married		Widowed		Divorced/Separated	
Never attended	Average parities	ASFR	Average parities	ASFR	Average parities	ASFR	Average parities	ASFR
15 - 19	0.066	0.014	1.131	0.284	1.216	0.156	1.112	0.208
20 - 24	0.322	0.042	2.404	0.323	2.439	0.209	1.841	0.188
25 - 29	0.711	0.051	3.778	0.281	3.566	0.183	2.697	0.163
30 - 34	1.291	0.055	5.263	0.222	4.800	0.131	3.752	0.127
35 - 39	1.903	0.045	6.235	0.166	5.718	0.098	4.488	0.089
40 - 44	2.311	0.024	6.878	0.087	6.300	0.048	4.914	0.043
45 - 49	3.050	0.012	7.237	0.038	6.675	0.021	5.187	0.020
TFR		1.217		7.004		4.231		4.187
Primary								
15 - 19	0.109	0.044	0.984	0.352	0.904	0.173	1.174	0.356
20 - 24	0.680	0.122	2.072	0.343	2.687	0.251	1.894	0.240
25 - 29	1.267	0.095	3.149	0.270	3.461	0.183	2.551	0.163
30 - 34	1.899	0.078	4.340	0.210	4.406	0.134	3.207	0.110
35 - 39	2.463	0.061	5.349	0.150	5.113	0.086	3.822	0.080
40 - 44	2.809	0.028	6.203	0.075	5.772	0.038	4.305	0.039
45 - 49	3.194	0.013	6.690	0.024	6.218	0.013	4.622	0.014
TFR		2.202		7.125		4.388		5.011
Secondary+								
15 - 19	0.042	0.014	0.506	0.202	0.265	0.030	0.672	0.203
20 - 24	0.232	0.049	1.167	0.277	1.622	0.161	1.297	0.197
25 - 29	0.572	0.055	1.882	0.228	2.366	0.116	1.787	0.112
30 - 34	1.035	0.049	2.790	0.170	2.968	0.068	2.245	0.071
35 - 39	1.478	0.036	3.575	0.104	3.440	0.039	2.674	0.046
40 - 44	1.886	0.016	4.181	0.042	3.982	0.018	3.022	0.021
45 - 49	2.142	0.007	4.676	0.012	4.475	0.008	3.389	0.008
TFR		1.133		5.176		2.194		3.287

Appendix 6a: Crude Birth Rate, 1989-2009

Region	CBR		Absolute CBR values	CBR Percentage Change	Adjusted Crude Birth Rates 2009
	1989-99	1999-2009	1989-2009		
Kenya	**41.3**	**34.9**	**-6.4**	**-15.5**	**38.4**
Nairobi	**32.0**	**33.3**	**1.3**	**4.1**	**36.0**
Nairobi	32.0	33.3	1.3	4.1	36.0
Central	**33.0**	**27.8**	**-5.2**	**-15.8**	**29.6**
Kiambu	32.7	30.4	-2.4	-7.2	38.7
Kirinyaga	30.3	25.4	-4.9	-16.1	26.8
Murang'a	30.4	26.1	-4.3	-14.2	23.5
Nyandarua	39.4	29.9	-9.5	-24.1	35.8
Nyeri	29.4	24.4	-5.0	-17.0	36.8
Coast	**42.8**	**37.5**	**-5.3**	**-12.4**	**41.2**
Kilifi	46.6	38.6	-8.0	-17.2	47.0
Kwale	48.3	40.5	-7.8	-16.1	47.5
Lamu	36.9	34.6	-2.3	-6.2	33.0
Mombasa	35.1	34.8	-0.3	-0.9	37.1
Taita Taveta	36.1	30.7	-5.4	-14.9	33.0
Tana River	48.4	44.3	-4.1	-8.5	42.2
Eastern	**40.4**	**31.2**	**-9.2**	**-22.8**	**35.3**
Embu	32.8	27.7	-5.1	-15.5	32.8
Isiolo	43.8	36.9	-6.9	-15.8	42.1
Kitui	45.6	35.0	-10.6	-23.3	42.8
Makueni	41.6	29.7	-11.9	-28.6	36.2
Machakos	38.5	29.1	-9.4	-24.3	45.1
Marsabit	44.8	32.9	-11.9	-26.5	45.4
Meru	45.6	31.5	-14.1	-30.9	35.3
Tharaka	44.8	30.1	-14.7	-32.9	33.1
North Eastern	**48.6**	**24.7**	**-23.9**	**-49.2**	**43.8**
Garissa	47.7	28.2	-19.5	-40.9	51.7
Mandera	49.3	22.9	-26.4	-53.6	54.9
Wajir	47.7	24.5	-23.2	-48.7	52.2
Nyanza	**45.8**	**40.2**	**-5.6**	**-12.2**	**45.9**
Homa Bay	50.8	44.6	-6.2	-12.3	53.7
Kisii	42.8	36.7	-6.1	-14.3	44.4
Kisumu	43.5	40.0	-3.5	-8.0	45.1
Migori	50.5	43.2	-7.4	-14.6	51.5
Nyamira	43.4	35.4	-8.1	-18.5	56.5
Siaya	42.7	40.3	-2.4	-5.5	46.3
Rift Valley	**44.7**	**37.4**	**-7.3**	**-16.3**	**42.7**
Baringo	50.0	37.1	-12.9	-25.9	45.9
Bomet	48.8	37.7	-11.1	-22.7	46.2
Kajiado	40.9	39.8	-1.1	-2.7	63.2
Elgeyo Marakwet	47.5	37.7	-9.8	-20.6	43.8
Kericho	43.2	36.4	-6.8	-15.7	54.3
Laikipia	39.4	33.1	-6.3	-15.9	36.3
Nakuru	40.9	36.1	-4.8	-11.7	40.2
Nandi	44.3	36.3	-8.0	-18.0	43.0
Narok	51.1	48.4	-2.7	-5.2	51.3
Samburu	52.1	43.4	-8.7	-16.6	47.8
Trans Nzoia	45.1	39.4	-5.7	-12.6	44.0
Turkana	44.3	25.0	-19.3	-43.6	51.2
Uasin Gishu	42.2	35.8	-6.4	-15.2	42.4
West Pokot	54.7	44.2	-10.5	-19.2	44.0
Western	**45.0**	**38.9**	**-6.1**	**-13.6**	**43.1**
Bungoma	46.6	40.0	-6.6	-14.2	46.8
Busia	47.5	40.6	-7.0	-14.6	47.2
Kakamega	44.0	39.3	-4.7	-10.7	44.8
Vihiga	37.6	33.7	-3.9	-10.5	36.9

Appendix 6b: Trends in Total Fertility Rate (Unadjusted)

	TFR		Absolute TFR Values	TFR Percentage Change
Region	1989-99	2009	1999-2009	1999-2009
Kenya	**5.0**	**4.4**	**-0.6**	**-12.0**
Nairobi	**3.0**	**2.9**	**-0.1**	**-3.3**
Nairobi	3.0	2.9	-0.1	-3.3
Central	**3.8**	**3.3**	**-0.5**	**-13.2**
Kiambu	3.4	3.2	-0.2	-5.9
Kirinyaga	3.3	2.9	-0.4	-12.1
Murang'a	5.0	3.5	-1.5	-30.0
Nyandarua	3.4	4.1	0.7	20.6
Nyeri	3.8	3.0	-0.8	-21.1
Coast	**5.2**	**4.6**	**-0.6**	**-11.5**
Kilifi	6.0	5.2	-0.8	-13.3
Kwale	6.0	5.4	-0.6	-10.0
Lamu	4.7	4.9	0.2	4.3
Mombasa	3.4	3.3	-0.1	-2.9
Taita Taveta	4.7	4.3	-0.4	-8.5
Tana River	6.5	6.4	-0.1	-1.5
Eastern	**5.2**	**4.2**	**-1.0**	**-19.2**
Embu	3.7	3.5	-0.2	-5.4
Isiolo	6.0	5.2	-0.8	-13.3
Kitui	6.2	5.2	-1.0	-16.1
Makueni	5.8	4.4	-1.4	-24.1
Machakos	4.9	3.8	-1.1	-22.4
Marsabit	6.6	5.5	-1.1	-16.7
Meru	5.8	3.9	-1.9	-32.8
Tharaka	5.7	3.9	-1.8	-31.6
North Eastern	**7.0**	**4.5**	**-2.5**	**-35.7**
Garissa	6.4	4.4	-2.0	-31.3
Mandera	7.6	4.5	-3.1	-40.8
Wajir	7.1	4.5	-2.6	-36.6
Nyanza	**5.5**	**5.0**	**-0.5**	**-9.1**
Homa Bay	6.1	5.5	-0.6	-9.8
Kisii	4.8	4.4	-0.4	-8.3
Kisumu	5.0	4.7	-0.3	-6.0
Migori	5.9	6.0	0.1	1.7
Nyamira	4.7	4.2	-0.5	-10.6
Siaya	5.7	5.4	-0.3	-5.3
Rift Valley	**5.8**	**5.0**	**-0.8**	**-13.8**
Baringo	7.0	5.6	-1.4	-20.0
Bomet	6.6	5.0	-1.6	-24.2
Kajiado	4.9	4.5	-0.4	-8.2
Elgeyo Marakwet	6.7	5.3	-1.4	-20.9
Kericho	5.4	4.6	-0.8	-14.8
Laikipia	5.0	4.4	-0.6	-12.0
Nakuru	4.9	4.4	-0.5	-10.2
Nandi	6.0	4.9	-1.1	-18.3
Narok	7.2	7.0	-0.2	-2.8
Samburu	7.2	6.6	-0.6	-8.3
Trans Nzoia	6.1	5.4	-0.7	-11.5
Turkana	6.3	4.0	-2.3	-36.5
Uasin Gishu	5.2	4.3	-0.9	-17.3
West Pokot	7.5	6.7	-0.8	-10.7
Western	**6.0**	**5.4**	**-0.6**	**-10.0**
Bungoma	6.4	5.7	-0.7	-10.9
Busia	6.1	5.5	-0.6	-9.8
Kakamega	5.7	5.3	-0.4	-7.0
Vihiga	5.1	5.0	-0.1	-2.0

Appendix 7: Reported and Adjusted Total Fertility Rate, 2009

REGION	REPORTED TFR	ADJUSTED TFR	ABSOLUTE DIFFERENCE	PERCENTAGE DIFFERENCE
Kenya	**4.4**	**4.8**	**0.4**	**9.1**
Nairobi	**2.9**	**3.0**	**0.2**	**6.9**
Nairobi	2.9	3.0	0.2	6.9
Central	**3.3**	**3.4**	**0.2**	**6.1**
Nyandarua	4.1	3.7	-0.4	-9.8
Nyeri	3.0	2.9	-0.1	-3.3
Kirinyaga	2.9	2.7	-0.2	-6.9
Murang'a	3.5	3.0	-0.5	-14.3
Kiambu	3.2	3.1	-0.1	-3.1
Coast	**4.6**	**5.0**	**0.4**	**8.7**
Mombasa	3.3	3.3	0.0	0.0
Kwale	5.4	5.2	-0.2	-3.7
Kilifi	5.2	4.8	-0.4	-7.7
Tana River	6.4	6.4	0.0	0.0
Lamu	4.9	4.6	-0.3	-6.1
Taita Taveta	4.3	4.0	-0.3	-7.0
Eastern	**4.2**	**4.7**	**0.0**	**11.9**
Marsabit	5.5	5.7	0.2	3.6
Isiolo	5.2	5.2	0.0	0.0
Meru	3.9	4.1	0.2	5.1
Tharaka	3.9	3.8	-0.1	-2.6
Embu	3.5	3.4	-0.1	-2.9
Kitui	5.2	4.9	-0.3	-5.8
Machakos	3.8	3.6	-0.2	-5.3
Makueni	4.4	4.2	-0.2	-4.5
North Eastern	**4.5**	**6.8**	**2.3**	**62.2**
Garissa	4.4	6.4	2.0	61.4
Wajir	4.5	6.5	2.0	73.3
Mandera	4.5	7.3	2.8	80.0
Nyanza	**5.0**	**5.7**	**0.7**	**14.0.0**
Siaya	5.4	5.5	0.1	1.9
Kisumu	4.7	5.0	0.3	6.4
Migori	6.0	6.4	0.4	6.7
Homa Bay	5.5	6.1	0.6	10.9
Kisii	4.4	5.1	0.7	15.9
Nyamira	4.2	4.6	0.4	9.5
Rift Valley	**5.0**	**5.6**	**0.6**	**12.0**
Turkana	4.0	6.4	2.4	60.0
West Pokot	6.7	6.7	0.0	0.0
Samburu	6.6	5.8	-0.8	-12.1
Trans Nzoia	5.4	5.5	0.1	1.9
Baringo	5.6	6.3	0.7	12.5
Uasin Gishu	4.3	4.7	0.4	9.3
Elgeyo Marakwet	5.3	5.3	0.0	0.0
Nandi	4.9	4.9	0.0	0.0
Laikipia	4.4	3.9	-0.5	-11.4
Nakuru	4.4	4.4	0.0	0.0
Narok	7.0	6.3	-0.7	-10.0
Kajiado	4.5	4.4	-0.1	-2.2
Kericho	4.6	5.1	0.5	10.9
Bomet	5.0	5.5	0.5	10.0
Western	**5.4**	**5.9**	**0.5**	**9.3**
Kakamega	5.3	5.4	0.1	1.9
Vihiga	5.0	4.5	-0.5	-10
Bungoma	5.7	6.1	0.4	7.0
Busia	5.5	5.8	0.3	5.5

Appendix 8: Female Percent of Never Married, Married, Widowed, Divorced/ Separated by County, 2009.

	Never Married	Married Monogamous	Married polygamous	Widowed	Divorced/ Separated
Kenya	**37.68**	**45.89**	**7.31**	**6.14**	**2.97**
Rural	36.03	45.36	8.99	7.01	2.62
Urban	41.02	46.97	3.92	4.41	3.68
Nairobi	**44.30**	**46.96**	**2.14**	**2.74**	**3.86**
Nairobi	44.30	46.96	2.14	2.74	3.86
Central	**37.27**	**49.85**	**2.03**	**6.71**	**4.13**
Nyandarua	37.79	48.89	2.56	6.29	4.47
Nyeri	37.76	49.74	1.83	7.35	3.32
Kirinyaga	32.18	52.77	2.69	7.25	5.11
Muranga	34.60	51.30	2.05	8.63	3.42
Kiambu	40.15	48.41	1.71	5.27	4.46
COAST	**35.66**	**45.74**	**7.71**	**6.28**	**4.61**
Mombasa	38.39	49.38	3.50	4.16	4.57
Kwale	33.59	44.10	9.72	7.15	5.44
Kilifi	35.97	42.42	10.10	7.27	4.23
Tana River	27.56	47.58	16.19	5.60	3.08
Lamu	32.46	50.31	4.50	5.75	6.98
Taita Taveta	36.79	46.73	3.32	8.47	4.69
EASTERN	**37.23**	**48.15**	**5.23**	**6.18**	**3.22**
Marsabit	35.63	44.17	11.76	6.13	2.32
Isiolo	33.85	45.35	10.41	6.17	4.21
Meru	35.77	48.52	5.23	6.08	4.40
Tharaka	36.26	49.24	4.16	6.20	4.14
Embu	35.92	49.67	3.54	6.62	4.25
Kitui	39.40	45.28	6.87	5.83	2.63
Machakos	37.31	50.46	3.71	6.11	2.40
Makueni	39.10	48.03	4.14	6.56	2.17
N. EASTERN	**40.69**	**42.69**	**10.55**	**3.46**	**2.62**
Garissa	37.86	46.89	8.24	4.06	2.94
Wajir	40.36	43.45	10.08	3.58	2.53
Mandera	42.78	39.39	12.39	2.97	2.47
NYANZA	**33.67**	**43.92**	**11.07**	**10.15**	**1.20**
Siaya	31.05	40.55	11.79	15.33	1.27
Kisumu	35.18	43.06	9.32	11.12	1.32
Homabay	31.56	40.20	17.82	9.41	1.01
Migori	31.17	40.36	15.26	12.45	0.77
Kisii	39.10	48.03	4.14	6.56	2.17
Nyamira	36.40	50.77	5.53	5.93	1.37
RIF VALLEY	**39.41**	**44.41**	**8.98**	**4.63**	**2.58**
Turkana	44.76	33.04	14.23	5.25	2.72
West Pokot	35.01	36.38	23.41	3.53	1.67
Samburu	33.73	36.01	22.72	5.87	1.67
Trans Nzoia	37.54	47.09	7.12	5.10	3.14
Baringo	41.38	39.22	12.20	5.04	2.16
Uasin Gishu	43.41	46.11	4.38	3.75	2.36
Elgeyo Marakwet	41.27	44.84	6.05	4.96	2.87
Nandi	41.59	46.84	4.53	5.19	1.85
Laikipia	37.23	47.78	5.37	5.74	3.88
Nakuru	39.12	48.96	3.25	4.82	3.85
Narok	32.20	42.37	19.57	4.02	1.85
Kajiado	37.29	43.78	12.23	3.86	2.84
Kericho	39.97	48.33	5.29	4.61	1.80
Bomet	40.86	47.36	5.98	4.19	1.60
WESTERN	**35.02**	**44.74**	**10.10**	**7.51**	**2.63**
Kakamega	34.14	45.97	9.85	7.52	2.52
Vihiga	35.49	48.72	3.16	10.19	2.43
Bungoma	36.36	43.12	12.18	5.52	2.83
Busia	34.23	41.73	12.50	8.87	2.68

Appendix 9: Male Percent of Never Married, Married, Widowed, Divorced/ separated by County, 2009

	Male				
	Never Married	Married Monogamous	Married polygamous	Widowed	Divorced/ Separated
Kenya	**49.51**	**43.78**	**4.18**	**0.95**	**1.57**
Rural	51.44	40.86	4.97	1.07	1.67
Urban	45.85	49.35	2.69	0.74	1.37
Nairobi	**42.64**	**53.91**	**1.86**	**0.52**	**1.06**
Nairobi	42.64	53.91	1.86	0.52	1.06
Central	**46.31**	**48.65**	**1.41**	**1.23**	**2.40**
Nyandarua	49.41	45.80	1.78	1.01	1.99
Nyeri	47.49	47.52	1.33	1.40	2.27
Kirinyaga	42.59	51.25	1.54	1.24	3.38
Muranga	48.33	45.92	1.36	1.67	2.72
Kiambu	44.91	50.72	1.30	0.98	2.10
COAST	**48.34**	**44.38**	**4.36**	**1.02**	**1.90**
Mombasa	43.94	51.08	2.62	0.83	1.53
Kwale	49.80	41.24	5.32	1.20	2.44
Kilifi	51.98	39.89	5.51	0.93	1.69
Tana River	45.91	42.83	9.19	0.80	1.27
Lamu	47.02	45.79	2.82	1.08	3.30
Taita Taveta	51.55	41.62	2.23	1.77	2.83
EASTERN	**50.89**	**42.85**	**2.95**	**1.15**	**2.16**
Marsabit	57.05	35.66	5.98	0.53	0.79
Isiolo	50.32	40.81	5.96	0.99	1.92
Meru	46.13	47.14	3.13	1.10	2.49
Tharaka	46.85	46.22	2.59	1.32	3.03
Embu	47.70	46.25	2.05	1.18	2.83
Kitui	55.18	37.77	3.74	1.18	2.13
Machakos	51.18	43.70	2.05	1.20	1.86
Makueni	55.58	39.14	2.24	1.27	1.77
N. EASTERN	**59.14**	**33.08**	**6.41**	**0.63**	**0.74**
Garissa	56.97	36.47	5.02	0.66	0.87
Wajir	58.77	33.86	6.03	0.66	0.67
Mandera	60.71	30.48	7.51	0.59	0.70
NYANZA	**49.22**	**42.32**	**6.21**	**1.21**	**1.03**
Siaya	49.86	39.69	6.67	2.03	1.74
Kisumu	49.15	42.90	5.44	1.34	1.18
Homabay	49.68	39.12	9.62	0.79	0.79
Migori	51.10	38.54	8.31	1.19	0.86
Kisii	55.58	39.14	2.24	1.27	1.77
Nyamira	46.80	48.19	3.30	0.98	0.73
RIF VALLEY	**51.40**	**41.90**	**4.83**	**0.71**	**1.16**
Turkana	63.24	27.29	7.88	0.63	0.96
West Pokot	52.28	34.24	12.1	0.51	0.87
Samburu	59.04	29.59	10.52	0.44	0.42
Trans Nzoia	49.65	43.83	4.14	0.77	1.62
Baringo	55.82	35.52	6.42	0.99	1.24
Uasin Gishu	50.96	44.65	2.69	0.65	1.05
Elgeyo Marakwet	51.70	42.08	3.53	1.09	1.61
Nandi	50.65	44.43	2.71	0.92	1.29
Laikipia	48.36	45.54	3.14	1.03	1.93
Nakuru	48.06	47.37	2.25	0.82	1.49
Narok	49.18	40.53	9.12	0.38	0.79
Kajiado	47.34	45.48	5.61	0.51	1.07
Kericho	48.69	46.58	3.14	0.73	0.86
Bomet	51.61	43.93	3.26	0.53	0.67
WESTERN	**48.74**	**42.12**	**5.83**	**1.18**	**2.12**
Kakamega	47.46	43.47	5.72	1.18	2.17
Vihiga	49.63	42.57	2.07	2.40	3.33
Bungoma	49.57	41.45	6.77	0.65	1.57
Busia	49.45	39.93	7.25	1.25	2.11

Appendix 10: Estimates of First marriage Timing and Singulate Mean Age at Marriage (SMAM) for Females and Males, 2009

County	Proportion Ever Married in age group 15-19 (%)		Singulate Mean Age at marriage (SMAM)		Male – Female difference in SMAM
	Male	Female	Male	Female	
Kenya	**3.1**	**15.4**	**26.7**	**22.5**	**4.2**
Rural	3.1	15.9	26.9	21.9	5.0
Urban	3.1	14.2	26.9	23.2	3.7
Nairobi	2.6	12.7	26.8	23.7	3.1
Nyandarua	2.4	8.2	27.6	22.4	5.2
Nyeri	2.6	6.7	28.8	23.3	5.5
Kirinyaga	3.4	12.1	27.4	22.5	4.8
Murang'a	2.6	8.2	28.8	23.5	5.3
Kiambu	2.5	8.9	27.6	23.2	4.3
Mombasa	3.3	16.9	27.1	22.9	4.2
Kwale	3.3	23.5	26.5	21.1	5.4
Kilifi	3.3	19.2	26.8	21.9	4.9
Tana River	6.2	43.4	25.0	18.8	6.2
Lamu	3.3	22.2	26.6	21.3	5.3
Taita Taveta	2.1	12.1	28.9	22.7	6.2
Marsabit	2.8	18.6	29.0	21.1	7.9
Isiolo	3.0	23.5	27.0	21.0	6.0
Meru	3.4	13.6	27.2	22.9	4.3
Tharaka	2.4	8.0	27.6	23.4	4.2
Embu	2.6	8.9	28.1	23.3	4.8
Kitui	2.0	7.2	27.4	22.8	4.7
Machakos	1.9	7.3	28.1	23.3	4.8
Makueni	1.6	6.0	28.6	23.2	5.5
Garissa	3.7	19.5	27.1	21.4	5.6
Wajir	3.6	14.8	27.2	21.9	5.3
Mandera	3.1	13.0	27.2	21.9	5.3
Siaya	3.5	19.9	25.8	21.3	4.5
Kisumu	3.2	20.9	25.9	21.8	4.1
Migori	4.2	28.5	24.9	20.2	4.7
Homa Bay	3.5	25.2	25.5	20.5	5.0
Kisii	3.5	15.9	25.6	22.3	3.3
Nyamira	3.8	14.8	25.8	22.5	3.3
Turkana	4.1	11.8	29.4	24.0	5.4
West Pokot	4.2	23.0	25.1	20.5	4.6
Samburu	2.6	26.0	28.4	20.6	7.8
Trans Nzoia	2.9	16.7	26.0	22.0	4.0
Baringo	2.7	11.5	27.0	22.8	4.2
Uasin Gishu	2.8	11.2	27.1	23.6	3.5
Elgeyo-Marakwet	2.0	8.8	26.3	22.9	3.4
Nandi	2.2	12.9	27.1	23.0	4.1
Laikipia	2.5	12.9	27.4	22.0	5.4
Nakuru	2.8	13.2	26.7	22.6	4.2
Narok	3.7	31.3	25.2	20.1	5.1
Kajiado	3.0	19.9	26.6	22.1	4.5
Kericho	3.1	16.8	26.7	22.6	4.1
Bomet	2.7	17.5	26.9	22.6	4.4
Kakamega	4.2	17.9	25.3	21.6	3.7
Vihiga	3.6	11.3	27.1	22.9	4.2
Bungoma	3.4	16.4	25.6	21.7	3.9
Busia	3.6	19.6	25.0	21.2	3.7

Appendix 11: Registration Of Births, 2009

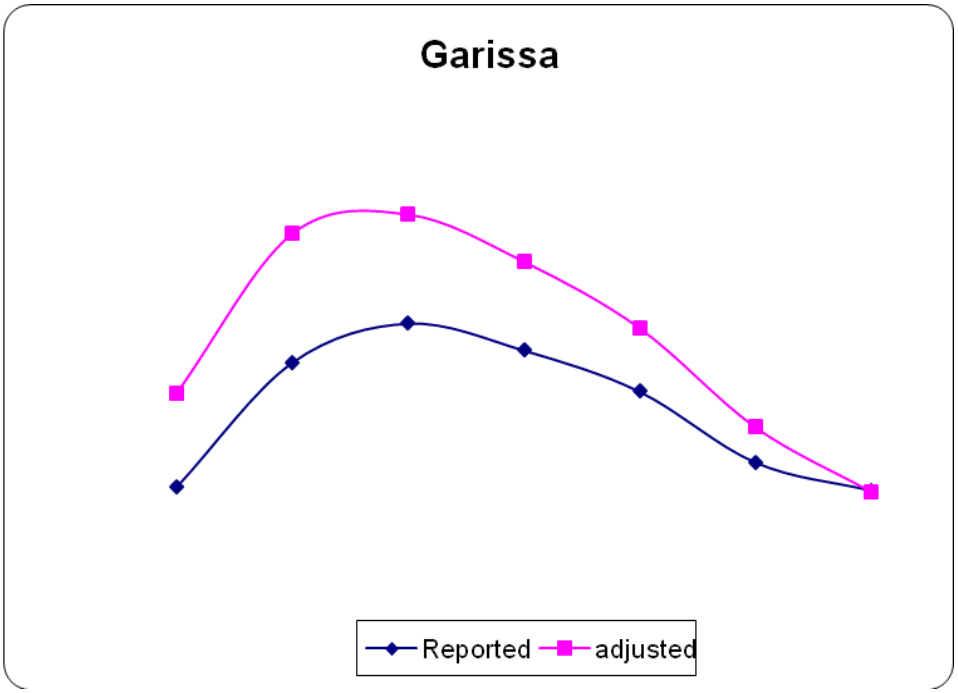
	Total	Yes	No	DK	Female	% Births Registered(YES)	% Births Registered(NO)	% Births Registered (DK)
Kenya								
Total	1,346,870	943,402	398,534	4,934	10,811,668	70.0	29.6	0.4
12-14	3,316	2,127	1,147	42	1,458,926	64.1	34.6	1.3
15 - 19	149,196	99,049	49,456	691	2,044,205	66.4	33.1	0.5
20 - 24	435,157	307,047	126,629	1,481	2,013,675	70.6	29.1	0.3
25 - 29	357,075	256,149	99,734	1,192	1,666,223	71.7	27.9	0.3
30 - 34	220,732	156,324	63,661	747	1,258,797	70.8	28.8	0.3
35 - 39	123,430	84,549	38,406	475	1,001,418	68.5	31.1	0.4
40 - 44	43,990	29,149	14,630	211	731,568	66.3	33.3	0.5
45 - 49	13,974	9,008	4,871	95	636,856	64.5	34.9	0.7
NAIROBI								
Total	104,630	87,394	16,888	348	1,054,343	83.5	16.1	0.3
12-14	109	88	20	1	74,387	80.7	18.3	0.9
15 - 19	7,336	5,601	1,699	36	153,900	76.3	23.2	0.5
20 - 24	36,916	30,111	6,697	108	265,062	81.6	18.1	0.3
25 - 29	33,883	28,758	5,015	110	227,269	84.9	14.8	0.3
30 - 34	17,200	14,953	2,195	52	141,139	86.9	12.8	0.3
35 - 39	7,053	6,073	957	23	94,658	86.1	13.6	0.3
40 - 44	1,720	1,468	236	16	57,069	85.3	13.7	0.9
45 - 49	413	342	69	2	40,859	82.8	16.7	0.5
CENTRAL								
Total	122,033	111,765	10,128	140	1,302,113	91.6	8.3	0.1
12-14	130	121	8	1	152,420	93.1	6.2	0.8
15 - 19	8,056	7,363	679	14	205,550	91.4	8.4	0.2
20 - 24	37,631	34,774	2,824	33	215,750	92.4	7.5	0.1
25 - 29	35,923	33,124	2,760	39	206,726	92.2	7.7	0.1
30 - 34	22,417	20,537	1,857	23	169,603	91.6	8.3	0.1
35 - 39	12,355	11,055	1,283	17	143,017	89.5	10.4	0.1
40 - 44	4,331	3,788	534	9	111,691	87.5	12.3	0.2
45 - 49	1,190	1,003	183	4	97,356	84.3	15.4	0.3
COAST								
Total	124,736	93,275	30,921	540	931,413	74.8	24.8	0.4
12-14	291	197	90	4	118,045	67.7	30.9	1.4
15 - 19	14,421	10,183	4,171	67	172,659	70.6	28.9	0.5
20 - 24	39,337	29,264	9,909	164	183,101	74.4	25.2	0.4
25 - 29	33,256	25,200	7,917	139	153,520	75.8	23.8	0.4
30 - 34	21,490	16,412	4,998	80	114,288	76.4	23.3	0.4
35 - 39	11,014	8,409	2,550	55	83,523	76.3	23.2	0.5
40 - 44	3,739	2,758	959	22	57,614	73.8	25.6	0.6
45 - 49	1,188	852	327	9	48,663	71.7	27.5	0.8
EASTERN								
Total	176,608	130,767	45,067	774	1,569,751	74	25.5	0.4
12-14	277	204	70	3	223,218	73.6	25.3	1.1
15 - 19	15,846	11,804	3,949	93	302,472	74.5	24.9	0.6
20 - 24	53,592	40,315	13,048	229	251,130	75.2	24.3	0.4
25 - 29	48,464	36,001	12,278	185	227,961	74.3	25.3	0.4
30 - 34	31,700	23,427	8,141	132	186,596	73.9	25.7	0.4
35 - 39	18,277	13,074	5,117	86	155,360	71.5	28.0	0.5
40 - 44	6,298	4,480	1,792	26	114,104	71.1	28.5	0.4
45 - 49	2,154	1,462	672	20	108,910	67.9	31.2	0.9

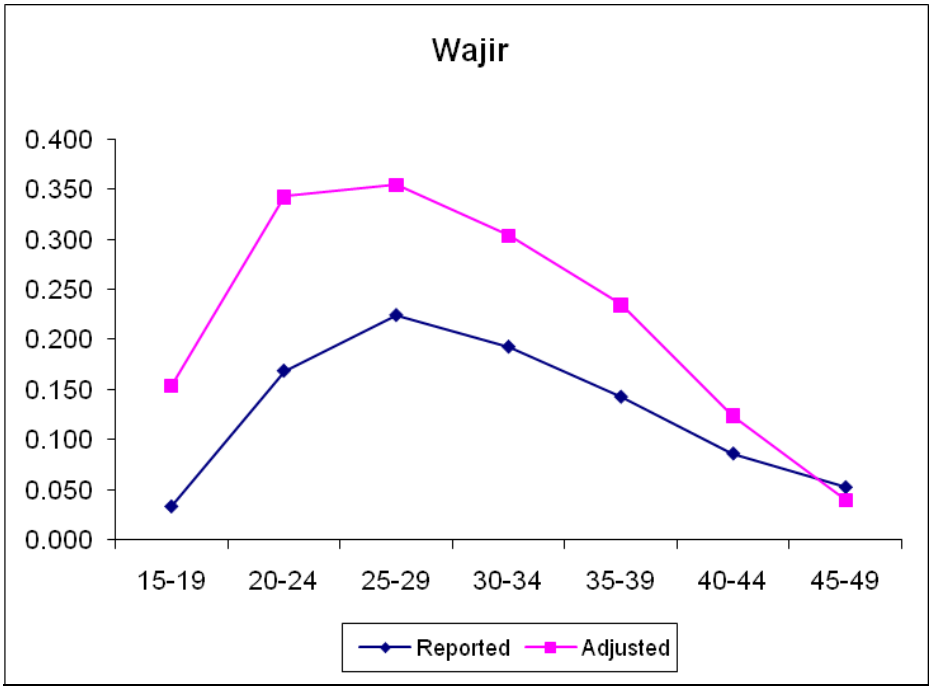
	Total	Yes	No	DK	Female	% Births Registered(YES)	% Births Registered(NO)	% Births Registered (DK)
NORTHEASTERN								
Total	57,180	26,379	30,525	276	554,480	46.1	53.4	0.5
12-14	138	57	78	3	105,064	41.3	56.5	2.2
15 - 19	3,991	1,943	2,034	14	118,294	48.7	51.0	0.4
20 - 24	12,221	6,137	6,019	65	75,275	50.2	49.3	0.5
25 - 29	15,620	7,358	8,184	78	69,256	47.1	52.4	0.5
30 - 34	12,319	5,505	6,762	52	63,795	44.7	54.9	0.4
35 - 39	8,158	3,449	4,667	42	55,537	42.3	57.2	0.5
40 - 44	3,496	1,467	2,014	15	42,675	42.0	57.6	0.4
45 - 49	1,237	463	767	7	24,584	37.4	62.0	0.6
NYANZA								
Total	218,632	136,536	81,146	950	1,504,380	62.5	37.1	0.4
12-14	1,131	681	435	15	217,534	60.2	38.5	1.3
15 - 19	37,489	22,774	14,519	196	313,611	60.7	38.7	0.5
20 - 24	77,441	48,593	28,541	307	293,921	62.7	36.9	0.4
25 - 29	51,860	33,194	18,484	182	214,962	64.0	35.6	0.4
30 - 34	28,702	17,964	10,613	125	153,699	62.6	37.0	0.4
35 - 39	14,935	9,093	5,766	76	123,249	60.9	38.6	0.5
40 - 44	5,327	3,152	2,145	30	95,614	59.2	40.3	0.6
45 - 49	1,747	1,085	643	19	91,790	62.1	36.8	1.1
RIFT VALLEY								
Total	374,448	255,358	117,903	1,187	2,732,513	68.2	31.5	0.3
12-14	842	552	279	11	391,280	65.6	33.1	1.3
15 - 19	40,410	26,693	13,560	157	532,660	66.1	33.6	0.4
20 - 24	121,851	84,124	37,391	336	521,501	69.0	30.7	0.3
25 - 29	97,277	67,660	29,328	289	412,984	69.6	30.1	0.3
30 - 34	59,774	40,814	18,785	175	304,646	68.3	31.4	0.3
35 - 39	36,474	24,158	12,189	127	246,945	66.2	33.4	0.3
40 - 44	13,341	8,547	4,729	65	171,890	64.1	35.4	0.5
45 - 49	4,479	2,810	1,642	27	150,607	62.7	36.7	0.6
WESTERN								
Total	168,603	101,928	65,956	719	1,162,675	60.5	39.1	0.4
12-14	398	227	167	4	176,978	57.0	42.0	1.0
15 - 19	21,647	12,688	8,845	114	245,059	58.6	40.9	0.5
20 - 24	56,168	33,729	22,200	239	207,935	60.1	39.5	0.4
25 - 29	40,792	24,854	15,768	170	153,545	60.9	38.7	0.4
30 - 34	27,130	16,712	10,310	108	125,031	61.6	38.0	0.4
35 - 39	15,164	9,238	5,877	49	99,129	60.9	38.8	0.3
40 - 44	5,738	3,489	2,221	28	80,911	60.8	38.7	0.5
45 - 49	1,566	991	568	7	74,087	63.3	36.3	0.4

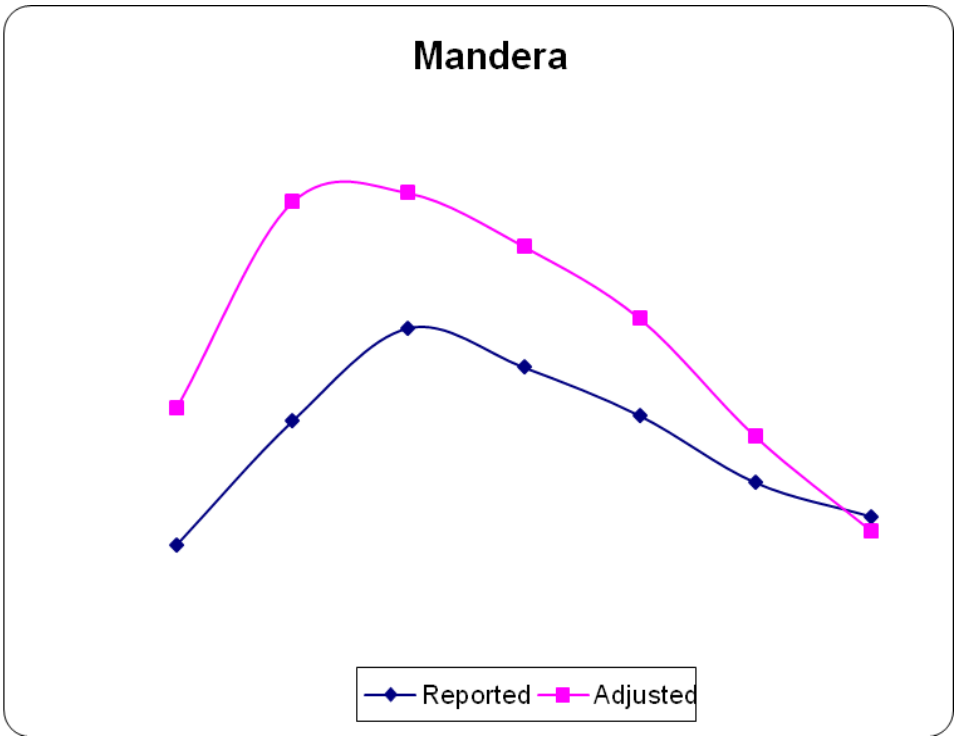
Appendix 12: Reported and Adjusted Total Fertility Rate for North Eastern Province, 2009

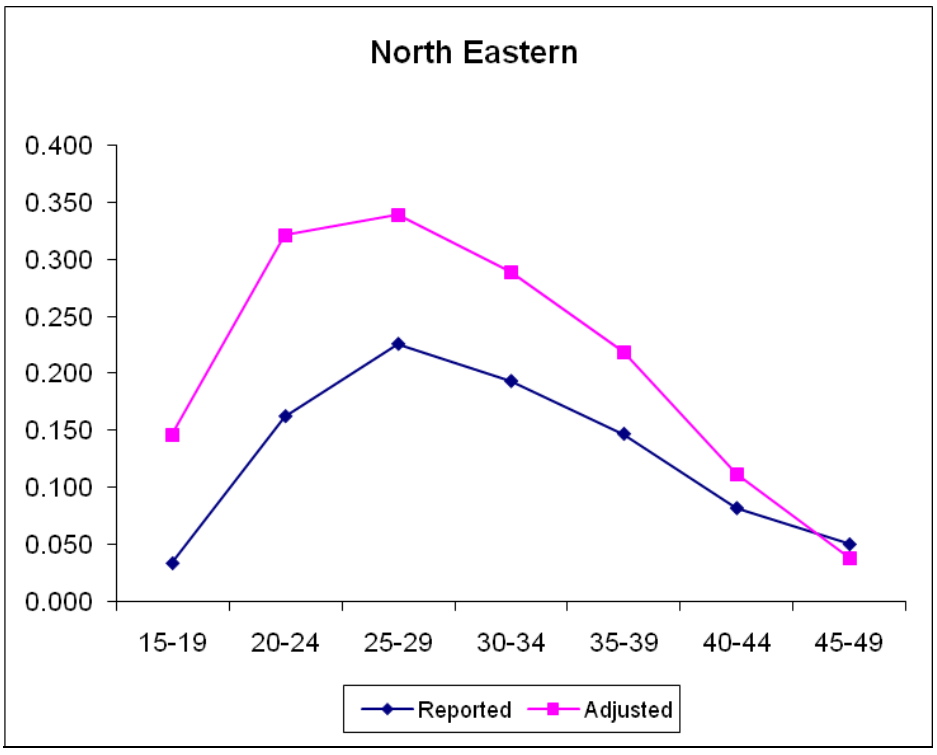
	Region			
	Garissa	Wajir	Mandera	North Eastern
Age				Age Specific Fertility Rate
15 - 19	0.111	0.117	0.146	0.131
20 - 24	0.285	0.290	0.322	0.300
25 - 29	0.306	0.311	0.339	0.321
30 - 34	0.260	0.264	0.289	0.272
35 - 39	0.196	0.198	0.219	0.204
40 - 44	0.090	0.093	0.112	0.099
45 - 49	0.031	0.032	0.039	0.035
Total Fertility Rate				
Adjusted 2009 Census	**6.4**	**6.5**	**7.3**	**6.8**
1989-99 intercensal	**6.4**	**7.1**	**7.6**	**7**
1979-89 intercensal	**7.5**	**7.5**	**7.9**	**7.6**

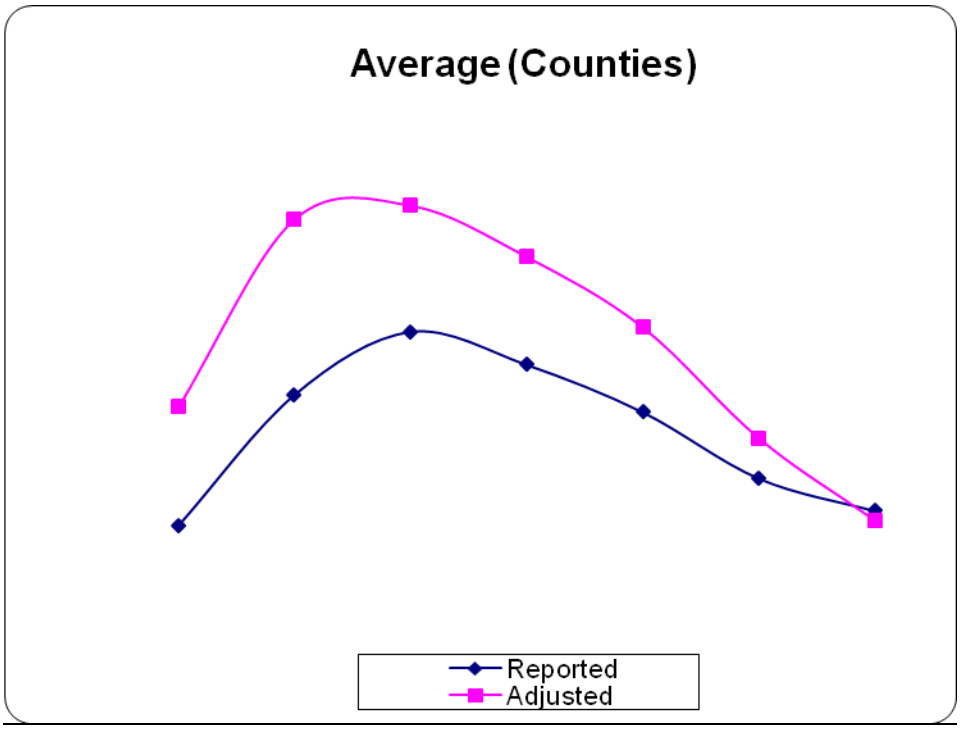
Appendix 13: Figures Showing Reported and Adjusted Age Specific Fertility Rates for Counties in North Eastern Province

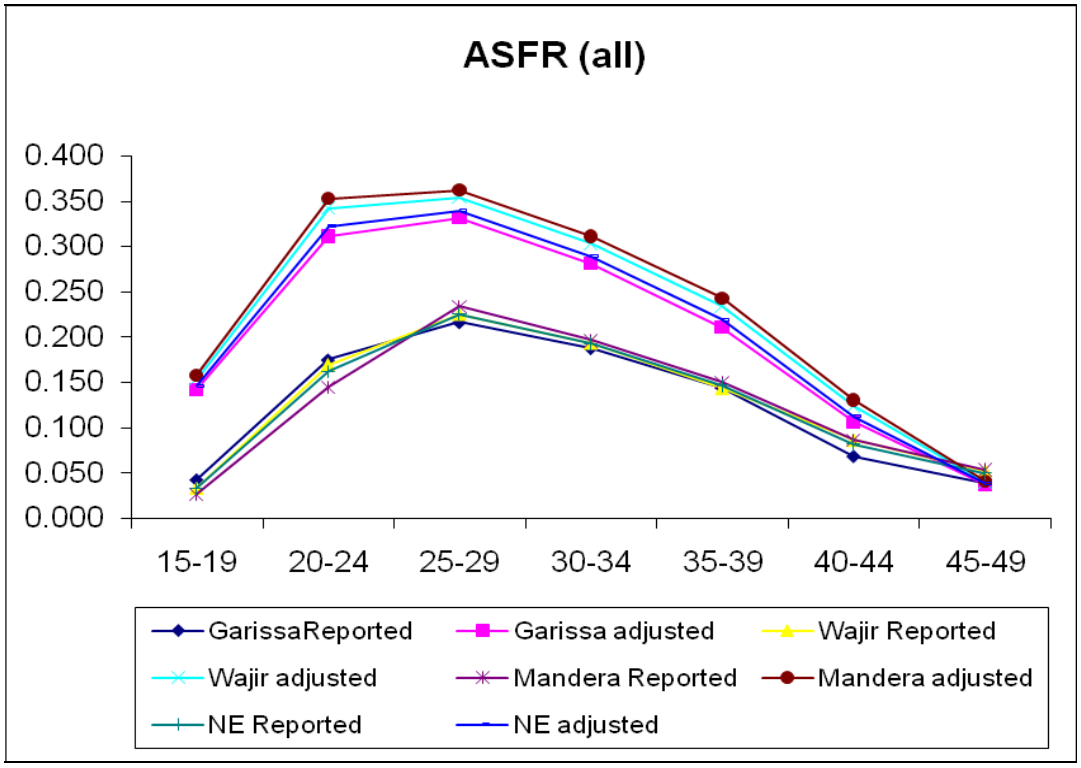





Mandera
Reported
Adjusted


North Eastern
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
15-19
20-24
25-29
30-34
35-39
40-44
45-49
Reported
Adjusted


Average (Counties)
Reported
Adjusted


ASFR (all)
0.400
0.350
0.300
0.250
0.200
0.150
0.100
0.050
0.000
15-19
20-24
25-29
30-34
35-39
40-44
45-49
GarissaReported
Garissa adjusted
Wajir Reported
Wajir adjusted
Mandera Reported
Mandera adjusted
NE Reported
NE adjusted

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