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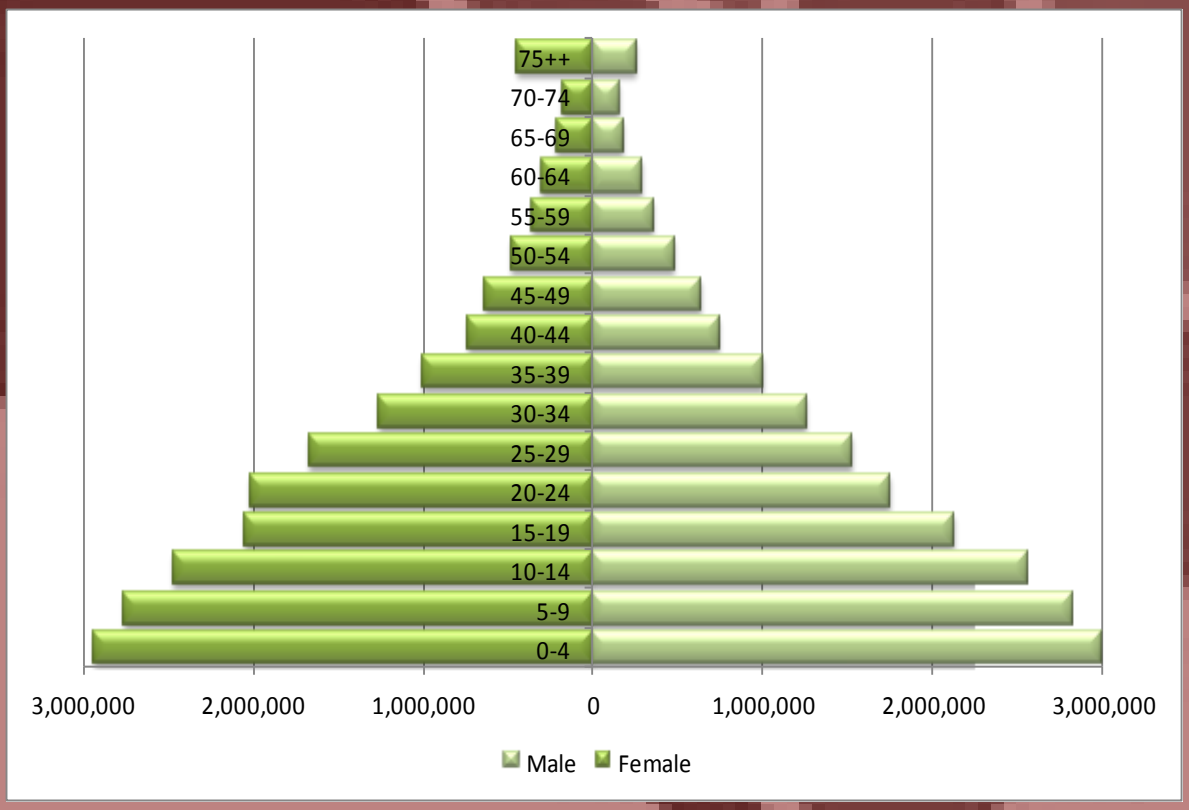
KNBS
KENYA NATIONAL BUREAU OF STATISTICS
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2009 Kenya Population and Housing Census

Analytical Report on Population Dynamics

Volume III

March 2012



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

KENYA CENSUS2009
Nipo! Natambulika!





2009 Kenya Population and Housing Census

"Counting Our People for Implementation of Vision 2030"

Volume III

Population Dynamics

March 2012

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Abbreviations

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
CDR	
DfID	Department for International Development
FGM	Female Genital Mutilation
FPE	Free Primary Education
GRR	Gross Reproductive Rate
HIV/AIDS	Human Immuno Deficiency Virus/ Acquired Immuno Deficiency Syndrome
ICPD	International Conference on Population and Development
ICT	Information, Communication and Technology
KDHS	Kenya Demographic and Health Surveys
KFI	Keying from Image
KNBS	Kenya National Bureau of Statistics
KPHC	Kenya Population and Housing Census
MAFB	Mean Age at First Birth
MCH/FP	Maternal Child Health/ Family Planning
MDGs	Millennium Development Goals
NACC	National AIDS Control Council
NCAPD	National Coordinating Agency for Population and Development
NCE	Net Census Error
NPPSD	National Population Policy for Sustainable Development
NRR	Net Reproductive Rate
OCR	Optical Character Recognition
P/F	Period Fertility
PMDF	Proportion of Maternal Deaths among Females Deaths
PPRs	Parity Progression Ratios
PRD	Preganancy Related Death
RUP	Rural-Urban Population Projection
SIDA	Swedish International Development Agency
SMAM	Singulate Mean Age at Marriage
TFR	Total Fertility Rate
UN	United Nations
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNSD	United Nations Statistics Division
US	United States
USAID	United States Agency for International Development

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 information on population dynamics of Kenya from of the 2009 Census data. Kenya's population dynamics has been dominated by the birth and death rates. However, the rate of change of birth rates depends on the population age sex structure. A total population of 38,610,097 was enumerated of which 19,192,378 were males and 19,417,719 were females. The 2009 population size was slightly over seven fold when compared to that of 1948. Kenya's population age structure has always been dominated by children; however, the proportion of children has gradually declined from 48.0 percent in

1969 to about 43.0 percent in 2009.The youth age 15-24 share has remained just at about one fifth while the persons in age 25-34 has increased from about 12.0 percent in 1969 to nearly 15.0 percent in 2009. The elderly (age 60 and above) constitute 5.0 percent of the total population. Although the proportion of elderly population is still low, the absolute size has increased tremendously. The growth rate of the elderly population has doubled in the last 40 years.

On average a Kenyan woman gives birth to about 5 children. There are indications that fertility rate in Kenya has been declining albeit slowly except in North Eastern Province. Approximately 54 out every 1000 children born die before reaching their first birthday while 78 out of every 1000 children born do not reach their fifth birth day. High mortality rates occur in North Eastern and Nyanza, provinces where infant mortality rate is still above 100 per 1000 live births. Adult mortality indicators show that about 35.0 percent of adult males age 15 do not reach the retirement age (60 years) while 31.0 percent of females age 15 do not reach retirement age.

The results show that currently the crude birth rate is about 38.4 per 1000 population while the crude death rate is 10.4 per 1000 population giving natural growth rate as 2.8 percent per annum. If the growth rate is unchanged, then the population will double in the next 24 years. With a youthful population, population will still continue to grow a high rate even if the birth and death rates decline. The implied growth rate has implications on the social and economic development of the country.

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

Population Dynamics of Kenya at a Glance

Enumerated Population	38,610,097
Approximate Over Count	1,091,863
Proportion Under Age 15 (Children)	42.9
Proportion age 15-24 (%) (Youth)	20.6
Proportion age 25-34 (%)	14.8
Proportion age 60 and above (%) (elderly)	5.0
No. of persons age 85 and over to No. of persons age (50-64) expressed per 100	10.0
No of persons age (15-64) to No age 65 and above	16.0
Proportion of population living in 50 % of land area (%)	90.0
Singulate Mean Age at Mariage (years)	26.7 (Males); 22.5 (Females)
Percent ever married in age group 15-19	3.2 (Males); 15.4 (Females)
Total Fertility Rate (TFR)	4.8
Crude Birth rate(CBR) (per 1000 population)	38.4
Crude Death rate (CDR) (per 1000 population)	10.4
Rate of natural increase per annum. (%)	3.0

Executive Summary

Demographic information is the backbone of all socio-economic planning in any country. The collection, analysis and dissemination of accurate demographic information enables policy makers plan for the future development of a country. Censuses are the prime sources for determining the components of population change particularly at the sub-national levels. This report presents the analysis and the results of the population dynamics of Kenya using the 2009 Kenya Population and Housing Census. The analysis and results are presented in 8 chapters.

Chapter 1 presents the general introduction providing the census background, objectives, general methodology of the analysis, definition of key terms and assessment of the data quality. Analysis of the coverage indicates that the census count may have been higher by nearly 1.1 million people, with net error higher for females compared to males. Districts in North Eastern Province and Turkana in the North Rift Valley appeared to have more persons enumerated than expected.

Information on age and sex is important in the analysis of any demographic data therefore all modern censuses collect information pertaining to the age and sex of the individuals. However, data often contain errors because some people do not know their actual age and others do not report their age accurately. It is critical to evaluate the reported age and sex composition. Various techniques have been developed for checking such inconsistencies. These include those that checks age and sex ratios, among others. The analysis indicated that on average, the sex ratios at national level do not reflect any serious irregularities in reporting, but North Eastern Province showed irregularities in reporting at all ages. While there has been some improvement in age reporting since 1979, analysis at regional level revealed that North Eastern Province reflects highly inaccurate reporting, followed by Nairobi Province. Western Province fell in the category of accurate reporting.

Chapter 2 describes the population size, growth, structure and distribution. A total population of 38,610,097 was enumerated of which 19,192,378 were males and 19,417,719 were females. The 2009 population size was slightly over seven fold compared to that of 1948. Kenya's population has always been dominated by children; however, the proportion of children has gradually declined from 48.0 percent in 1969 to about 43.0 percent in 2009.The youth age 15-24 years share, has remained just at about one fifth while the persons in age 25-34 have increased from about 12.0 percent in 1969 to nearly 15.0 percent in 2009. The elderly (age 60 years and above) constitute 5.0 percent of the total population.

The results revealed that population distribution is generally uneven. Nairobi County continues to have the largest share of the population followed by Kakamega, Kiambu and Nakuru. Nairobi and Mombasa (largest urban centres) have the highest population densities of 4515 and 4291persons per square kilometre, respectively. Vihiga County recorded the next highest density of 1045 persons per square kilometre. Isiolo, Marsabit and Tana River are the least sparsely populated areas. Currently, 68.0 percent of Kenya's population lives in slightly over one tenth (12.0 percent) of the land area. The population living in 50.0 percent of the total land area declined from about 92.0 percent in 1999, to about 90.0 percent in 2009. The urban population in Kenya increased from 5.4 million in 1999 to about 12 million in 2009. At the same time, the proportion of urban population to

the total population rose from 19.0 percent in 1999 to 31.3 percent in 2009. About 15.0 percent of the urban population lives in informal settlements and Nairobi, the capital city contributes the larger share of 62.0 percent.

Chapter 3 describes nuptiality patterns. Nuptiality which refers to the frequency of marriages between persons of opposite sexes, involves rights and obligations fixed by law or custom. It is a key determinant of fertility. In the context of the family, marriage represents the initial step in furthering group survival and family expansion. Marriage in Kenya is still nearly universal while divorce and separation is still low. One of the key indicators of marriage is the timing of first marriage. Two indicators are used namely:- percent married at ages 15-19 and singulate mean age at marriage (SMAM). The proportion married at age 15-19 captures the extent of very young marriages, while SMAM represents a summary indicator of the entire age distribution of first marriages. The proportion married in the age bracket 15-19 declined from about 19.0 percent in 1989 to about 15.0 percent in 2009 among females, while it increased from 2.0 percent to 3.0 percent among males. SMAM is about 26.7 years for males and 22.5 years for females indicating that in general young people are postponing entry into marriage in the recent past.

Chapter 4 describes fertility patterns. The total fertility rate is about 4.8 but there exists wide regional differentials. The observed lifetime fertility indicates that the average number of children ever born is declining for most of the regions except North Eastern Province.

Chapter 5 describes mortality patterns. Approximately 54 out every 1000 children born die before reaching their first birthday while 79 out of every 1000 children born do not reach their fifth birthday. High mortality rates occur in North Eastern and Nyanza provinces where infant mortality rate is still above 100 per 1000 live births. Adult mortality indicators show that about 35.0 percent of adult males age 15 do not reach the retirement age (60 years) while 31.0 percent of females age 15 do not reach retirement age. Indicators of mortality due to pregnancy related conditions show that nearly 495 women out of every 100,000 live births die every year.

Chapter 6 provides information on migration trends in Kenya. Analysis of lifetime in migration show that the patterns of migration are changing. Contrary to the usual trend, the 2009 Census data shows that even though Nairobi, Coast and Rift Valley still remain in-migration areas, the rate of change of migration inflow dropped considerably in Coast and Rift Valley while that of Nairobi slightly increased. The volume of female migration has increased in most regions. The reasons for changing migration patterns are still undetermined and therefore more studies are required to understand migration trends in Kenya.

Chapter 7 provides an overview of the future population structure in Kenya. Starting with a population of 38.5 million in 2010, it is projected that the population of Kenya will reach about 44.2 million by 2015, about 50.3 million by 2020, about 57.0 million by 2025, and about 63.9 million by 2030. These projections imply that resources must be put in place to provide services for the increasing large number of the youth expected to reach peak size in 2030. Similarly more adults are expected to survive hence the change in disease burdens.

Chapter 8 provides conclusions and recommendations. The estimated crude birth rate is about 38.4 per 1000 population while the crude death rate is 10.4 per 1000 population, giving natural growth rate as 3.0 percent per annum. If the growth rate is unchanged, then the population will double in the next 23 years. This is due to mortality decline and unchanging fertility levels in a number of Arid and Semi-Arid counties. Therefore efforts must be made to reduce the high fertility in the Arid and Semi-Arid parts of the country. There is need to focus interventions to reduce the high childhood and maternal mortality in areas where infant mortality is well above 100 per 1000 child births. These areas have equally high maternal mortality rates.

The analysis of the 2009 Census indicates that a number of errors occurred which may have produced an over count and perhaps distorted some of the estimates of population change. The data quality depends on fieldwork quality, which in turn depends on careful questionnaire design, thorough training, and continuous supervision. This should be the focus of future censuses.

Chapter 1-General Introduction

1.1 Census Background

A population and housing 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 bench-mark data on all population characteristics. The UN (1998) recommends that national population and housing censuses should be undertaken at regular intervals of ten years.

The 2009 KPHC was the fifth to be undertaken in Kenya since independence and the seventh since 1948. It was conducted for seven days from the night of 24th/25th August, to 31st August, 2009, with the night of 24th/25th August, as the reference night. Like the previous censuses, the 2009 Census was a de facto census though the questionnaire also allowed de jure enumeration. 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*".

1.1.1 Objectives of the 2009 Kenya Population and Housing Census

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, to assist the Government in the implementation, monitoring and evaluation of Kenya's Vision 2030, Millennium Development Goals and other programmes and policies. The specific objectives were to ascertain the following:-

1. Size, composition and spatial distribution of the population.
2. Levels of fertility, mortality and migration rates.
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.

1.2 Overview of Population Dynamics

The term population dynamics is the mechanisms by which population changes over time. Such change is the result of natural increase (the balance of births and deaths) and migration (the balance of persons moving in and out of the country or area concerned). It can be depicted symbolically by what is sometimes referred to by demographers as the "balancing equation" as shown below.

$$P_2 = P_1 + B - D + I - E -$$

where P_1 and P_2 are the population totals at times 1 and 2, B and D are the births and deaths which occurred between times 1 and 2, I are the immigrants who moved into and E are the emigrants who moved out of the country or area concerned between times 1 and 2.

Censuses are the prime sources of information on population size. Information on births on births and deaths is derived from civil registration; while that on immigrants and emigrants is derived from records maintained as people enter or leave the country. However, in practice, particularly in a number of developing countries both the civil registration and migration records are often incomplete. Therefore many developing countries such as Kenya have to rely primarily on population censuses (often supplemented by sample surveys) to determine the components of population change. Census data is also the ultimate source of information at the sub-national levels since survey data have not been designed to provide information at these levels. This monograph provides a review of the components of population change from information in the 2009 KPHC to provide a picture of the current situation and future prospects.

1.2.1. Relevance of Population Dynamics

Demographic information is the backbone of all socio-economic planning in any country. The collection, analysis and dissemination of accurate demographic information enable policy makers plan for the future development of a country. Planning (whether in the private or public sector) aims at meeting present and future demands of the population in order to improve citizens' standard of living. Examples of planning issues such as the future size of the labour market, unemployment, job creation, poverty and environmental degradation are intrinsically linked to demographic processes. The demographic processes are broadly determined by age -sex distribution, fertility, mortality and migration.

The future size of the population and its age and sex composition are determined partly by the levels of fertility in the population. Sustained high levels of fertility can increase various future socio-economic demands since high fertility fuels faster population growth. By the same token, declining fertility may reduce future demand for certain types of services.

Sustained fertility decline decreases the proportion and number of persons of school going age in the population thus, in turn, decreasing the cost of education provision. Fertility information in combination with other information can help in the assessment of present and future demands for schools and, in so doing, inform planning in the sector.

The level of fertility and teenage fertility in a population are among the most commonly used indicators of reproductive health. This information can be used as baseline information for monitoring the effectiveness of reproductive health programs.

Marital patterns (nuptiality) indirectly impact on some of the planning issues relating to population growth since these patterns are one of the direct determinants of fertility. Policies designed to have an effect on fertility levels are usually formulated within the framework of the direct determinants of fertility. Marital patterns may also have implications for social welfare support at the level of the household. Information on marital patterns together with other socio-economic variables such as those contained in the Census can be used in assessing the need for such support.

Mortality is the demographic study of death in human populations. The level of mortality is one of the indicators of the well-being and health status of a population. It is also an

indicator of the level of human development hence its inclusion in the construction of human development indices. The multidimensional approach to poverty recognizes that the level of mortality is an indicator of poverty in a population.

Migration usually refers to a process of moving from one administrative area to another with the intention of staying in the new area. Migration has two broad components: international and internal migration. The former involves movement across international boundaries, and the latter involves movement across administrative boundaries within a country. Migration has socio-economic consequences for the state, community and individuals at the sending and receiving areas. An important consideration in respect of the consequences of migration in planning, is the volume of the "*net flows*" (balance between "*inflows and outflows*": immigration and emigration in the case of international migration; and in-migration and out-migration in the case of internal migration).

Migration is one of the components of population growth that affects the size and composition of the population at the national and sub-national levels. This component is usually less important than the other demographic components (fertility and mortality) at the national level in Kenya. However at the sub-national level, it is an important determinant of population growth. The size and distribution of the labour market are partly determined by net migration. Some areas in the country are characterized by inflows of people from neighbouring areas for employment-related reasons. These inflows can compound problems of unemployment (if any) in the receiving areas. Policy makers should be able to gauge and monitor the volume of such movements so that appropriate policies can be put in place to cope with the resultant growth in the labour force.

Rural-urban migration accelerates the growth of urban areas. Increased urbanization encroaches on the natural environment. Squatter settlements at the fringes of urban centres arising from rural-urban migration may deplete non-renewable resources and accelerate environmental degradation. The Census migration information can provide a baseline for gauging and monitoring rural-urban migration and inform environmental policies aimed at preventing undesirable consequences of migration. Migration often leads to increased demand for housing and education as well as health, sanitation, water, electricity, safety and security services at the point of destination. Migration may exacerbate pressure on available infrastructure and social services, especially in urban areas.

Finally, population dynamics provide insights into the magnitude of future demands in various sectors. Population dynamics, however, require population parameters as inputs, which include the age-sex composition of the population and fertility, mortality and migration rates.

1.3 Methodology

1.3.1 Data Collection Procedures

The 2009 KPHC, 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 of identification were defined to cover populations in conventional households, institutions, on transit and even those with no fixed abode (out-door 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 hotels, travellers and out-door sleepers were strictly enumerated on the census night using the short forms.

1.3.2 Types of Data Collected

The 2009 KPHC collected information on demographic and socio-economic indicators for the whole country by administrative and political units. The census also collected information on the size and distribution of the population, fertility, mortality, school attendance and educational attainment, disability status, use and access to Information, Communication and Technology (ICT), estimated Kenyans in the Diaspora, housing conditions and access to social amenities. New modules included in the 2009 KPHC were Disability; ICT, deaths in the household, number of livestock owned and information on emigrants.

1.3.3 Data Capture Methodology

During the 2009 KPHC, data capture was done using the Optical Character Recognition (OCR) process commonly referred to as the scanning method just like the 1999 KPHC. This mode of data capture was quite effective despite a few technological hitches which were resolved with the help of the US 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.

1.3.4 Measurement

Age – Sex Distribution

Information on the age-sex distribution is intrinsically linked to all aspects of the life cycle including; childhood, education, marriage, childbearing, entry into the labour market, retirement, ageing, morbidity and mortality. The following questions in the 2009 KPHC provide information on the age-sex distribution of the population.

- What is (the person's) date of birth?
- Is (the person) male or female?

Fertility

Fertility refers to the reproductive performance of a population. Several indicators are used to measure this performance. These indicators can be grouped into two: lifetime fertility and current fertility. Lifetime fertility is measured by number of children ever born (CEB) by women in each reproductive age group. Current fertility is measured by the count of births at a given time relative to the population. It is measured by age specific fertility rates (ASFR) or its summary measure, the total fertility rate (TFR). The total fertility rate is a hypothetical measure defined as the number of live births a woman would have if she survived to age of 50 experienced the current fertility rate in each reproductive age group.

In the 2009 KPHC, estimates of fertility (lifetime and current) were obtained from:

- Questions on children ever born alive by all females aged 12 and above, sub-divided by the sex of the children, and into those still living with the mother, those living elsewhere, and those who had died (columns P-24 to P-27);
- Particulars of the woman's last live birth (columns P-32 to P-33): date of the birth, sex of the child, and whether the child was still alive; and
- Age and sex distribution of the population (column P-11 and P-12).

Nuptiality

Nuptiality refers to the frequency of marriages between persons of opposite sexes which involve rights and obligations fixed by law or custom. Nuptiality also includes the dissolution of such marriages. In the context of the family, marriage represents the initial step in furthering group survival and family expansion. Direct information on nuptiality was collected in the 2009 KPHC through the following question.

- What is the (person's) present marital status?

Mortality

There are several indices (measures) of mortality. The most commonly used measures include infant mortality rate, mortality in the first five years of life (under five mortality rate), life expectancy at specific ages and maternal mortality rate (maternal deaths per 100 000 live births). Questions on mortality in the 2009 Census can be classified into two: direct and indirect. Indirect questions on childhood and adult mortality provide information about mortality levels and trends in the population. The direct questions can also be used to estimate the levels of adult and maternal mortality, but only for the reference period for which the questions were asked

Indirect Methods for Estimating Mortality

The indirect methods on mortality can be classified broadly into two categories: childhood and adult mortality questions. The following were the childhood mortality questions.

- How many children, if any, has (the person) ever had that were born alive?
- How many of these were boys?
- How many of these were girls?

If (the person) has ever given live birth:

- If boys: how many boys are still alive? How many are dead?
- If girls: how many girls are still alive? How many are dead?

Indices of childhood mortality can be computed by sex on the basis of these questions.

The adult mortality questions were:

- Is (the person's) own biological mother is still alive?
- Is (the person's) own biological father is still alive?

These indirect questions are referred to as "orphanhood questions" for estimating adult male and adult female mortality, respectively. Brass, who developed the orphanhood questions, cautions about reliability of the orphanhood information pertaining to younger persons (especially those under 15 years) and recommends that this part of the information should not be used for estimation purposes (Brass 1971) as it is likely to be biased by the "adoption effect" (Blacker 1977; Hill & Trussel 1977; Timaeus 1991; Udjo 1997).

Direct Questions on Mortality

The following questions were used to elicit information on deaths in the 12 months prior to the census.

- Has any member of this household died in the past 12 months?
  Of those deceased:
  - What was the month and year of death?
  - What was the sex of the deceased?
  - What was the age in completed years, of the deceased at death?
    If the deceased was a woman under 50 years, did she die while pregnant, during childbirth or within six weeks after delivery?

1.3.5 Data Evaluation

1.3.5.1 Enumerated Population

This section compares the distributions of enumerated census population and projections of the population. The projection is adjusted, first to represent a population for the same reference date as the Census and then produce measures of implied net census error. Table 1.1 shows the results of the comparison. The data indicates that the Census count may have been higher by nearly 1.1 million people with net error higher for females compared to males. Figures 1.1a to 1.2b illustrate the results.

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Table 1.1: Interpolated Population Compared to Census Population and Implied Net Census Error (NCE), by Age and Sex, 2009

	Both Sexes				Male				Female			
Item or	Interpolated	Census	Implied NCE		Interpolated	Census	Implied NCE		Interpolated	Census	Implied NCE	
age	Population	Population	Number	Percent	Population	Population	Number	Percent	Population	Population	Number	Percent
All ages	37,309,747	38,401,610	1,091,863	2.9	18,579,670	19,055,520	475,850	2.6	18,730,077	19,346,090	616,013	3.3
Under 10	11,338,969	11,485,100	146,131	1.3	5,741,829	5,806,460	64,631	1.1	5,597,140	5,678,640	81,500	1.5
10+	25,970,778	26,916,510	945,732	3.6	12,837,841	13,249,060	411,219	3.2	13,132,937	13,667,450	534,513	4.1
0	1,235,024	1,186,740	-48,284	-3.9	618,945	599,170	-19,775	-3.2	616,079	587,570	-28,509	-4.6
1-4	4,757,904	4,708,630	-49,274	-1	2,401,710	2,379,850	-21,860	-0.9	2,356,194	2,328,780	-27,414	-1.2
0-4	5,992,927	5,895,370	-97,557	-1.6	3,020,654	2,979,020	-41,634	-1.4	2,972,273	2,916,350	-55,923	-1.9
5-9	5,346,042	5,589,730	243,688	4.6	2,721,175	2,827,440	106,265	3.9	2,624,867	2,762,290	137,423	5.2
10-14	4,732,994	5,028,130	295,136	6.2	2,421,349	2,563,680	142,331	5.9	2,311,645	2,464,450	152,805	6.6
15-19	4,211,366	4,155,550	-55,816	-1.3	2,104,618	2,116,960	12,342	0.6	2,106,748	2,038,590	-68,158	-3.2
20-24	3,760,845	3,748,950	-11,895	-0.3	1,764,768	1,742,320	-22,448	-1.3	1,996,077	2,006,630	10,553	0.5
25-29	3,137,825	3,174,440	36,615	1.2	1,489,241	1,504,720	15,479	1	1,648,584	1,669,720	21,136	1.3
30-34	2,422,351	2,502,550	80,199	3.3	1,220,870	1,239,770	18,900	1.5	1,201,481	1,262,780	61,299	5.1
35-39	1,943,619	1,987,250	43,631	2.2	983,885	991,230	7,345	0.7	959,734	996,020	36,286	3.8
40-44	1,476,081	1,468,590	-7,491	-0.5	737,491	731,370	-6,121	-0.8	738,590	737,220	-1,370	-0.2
45-49	1,170,941	1,260,420	89,479	7.6	586,739	627,650	40,911	7	584,202	632,770	48,568	8.3
50-54	910,273	955,320	45,047	4.9	458,451	478,470	20,019	4.4	451,822	476,850	25,028	5.5
55-59	714,997	711,750	-3,247	-0.5	357,237	358,800	1,563	0.4	357,760	352,950	-4,810	-1.3
60-64	542,677	593,730	51,053	9.4	265,139	294,120	28,981	10.9	277,538	299,610	22,072	8
65-69	422,022	393,240	-28,782	-6.8	203,046	183,290	-19,756	-9.7	218,976	209,950	-9,026	-4.1
70-74	319,447	335,040	15,593	4.9	150,589	158,360	7,771	5.2	168,858	176,680	7,822	4.6
75+	205,340	601,550	396,210	193	94,418	258,320	163,902	173.6	110,922	343,230	232,308	209.4

Figure 1.1a: Reported and Interpolated Population Males, 2009

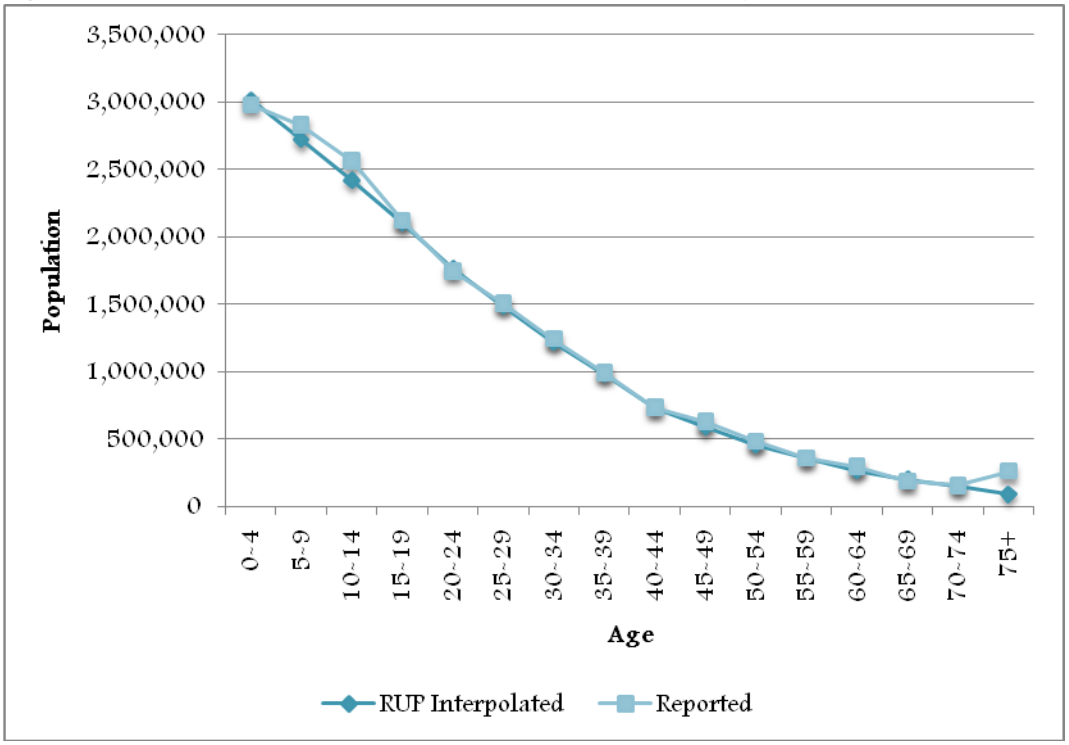


Figure 1.1b: Reported and Interpolated Population Females, 2009

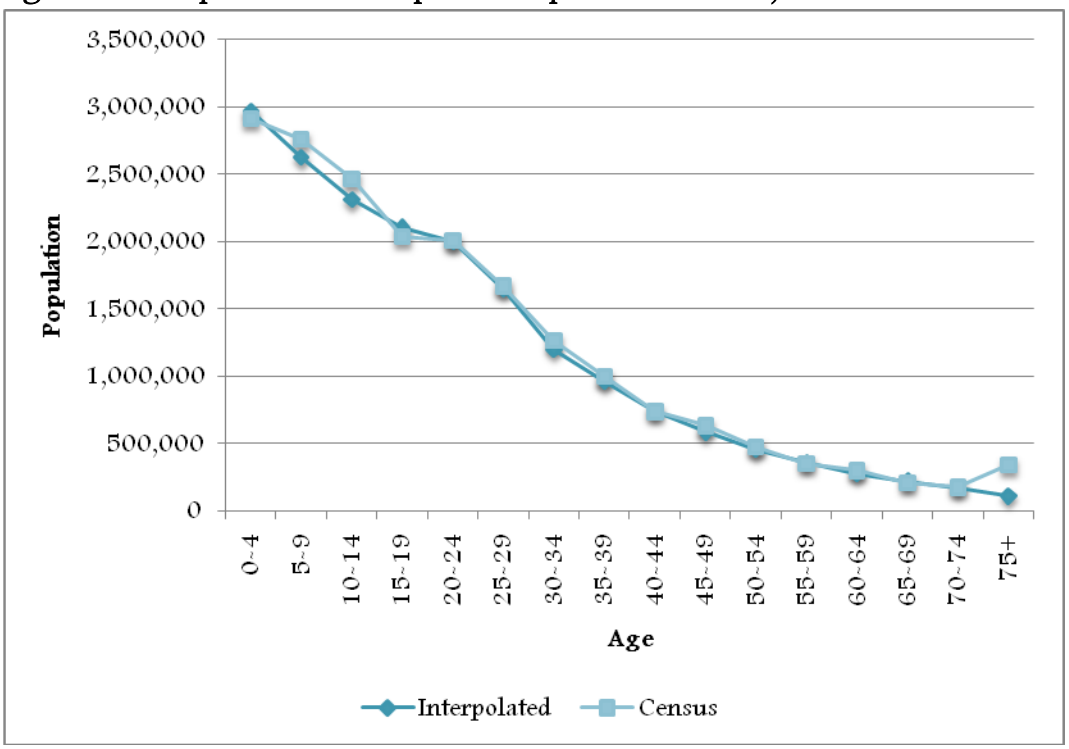


Figure 1.2a: Implied Percent Net Census Over-count by Age and Sex, 2009

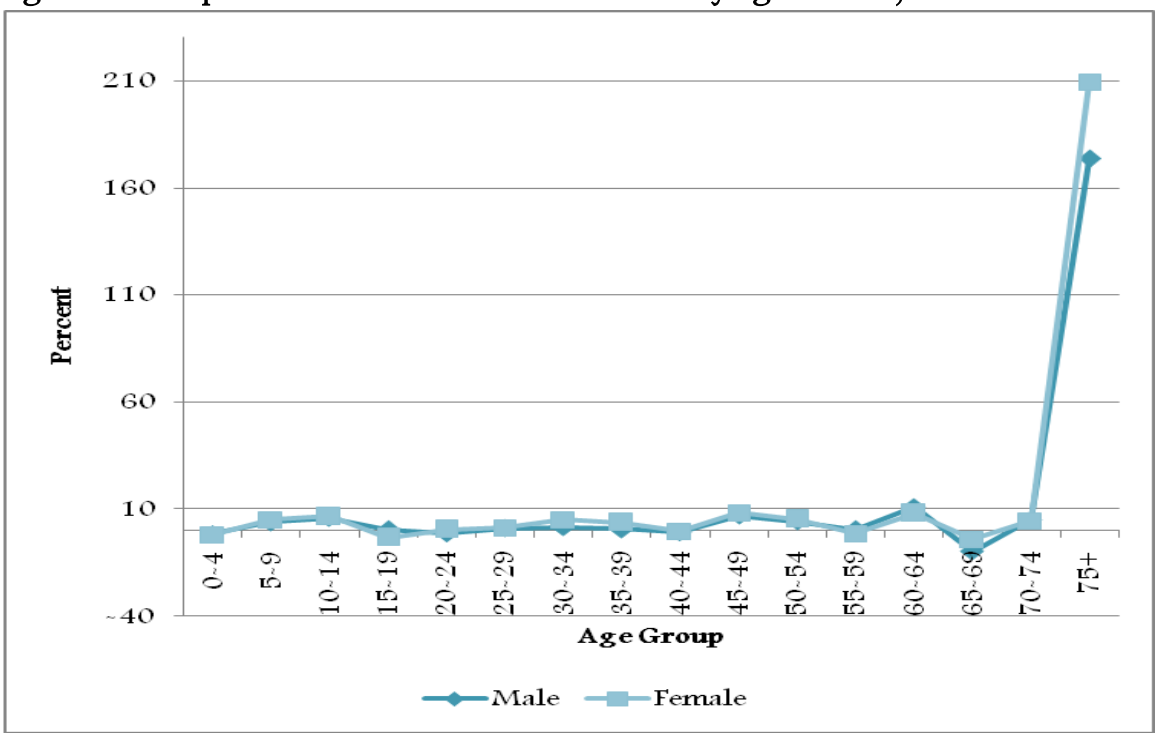
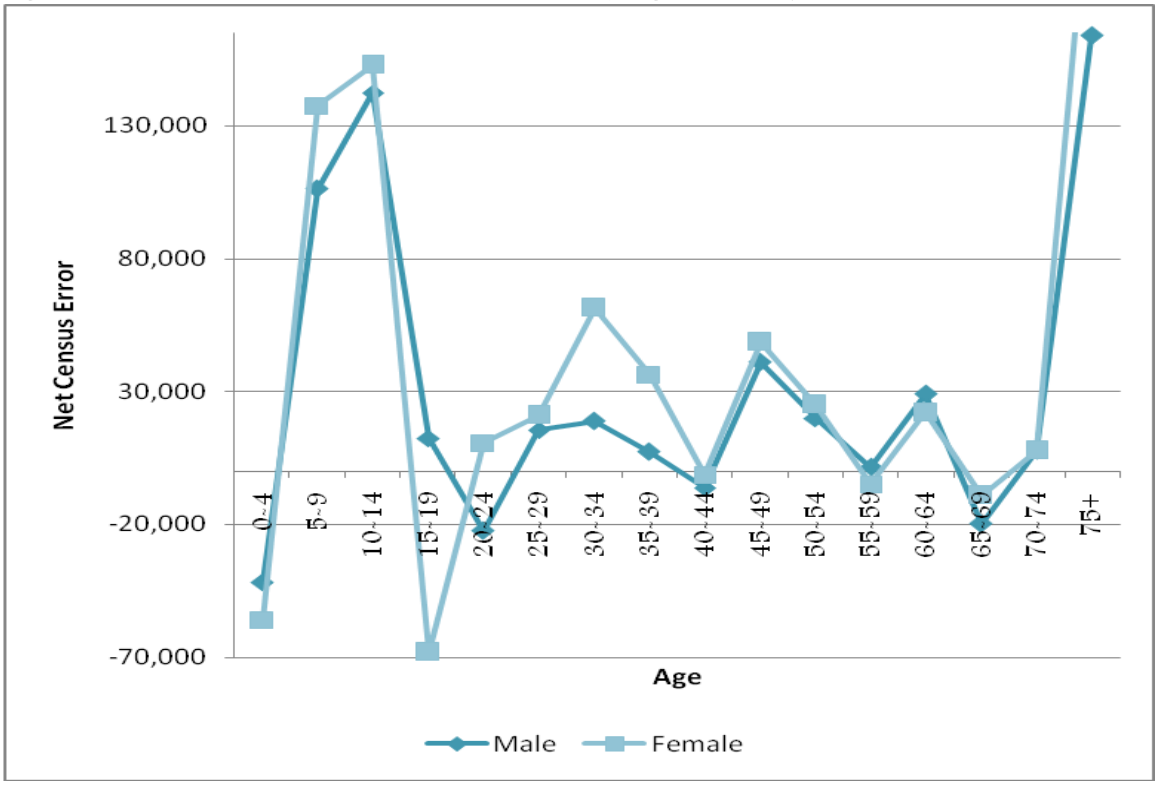


Figure 1.2b: Implied Net Census Over-count by Age and Sex, 2009



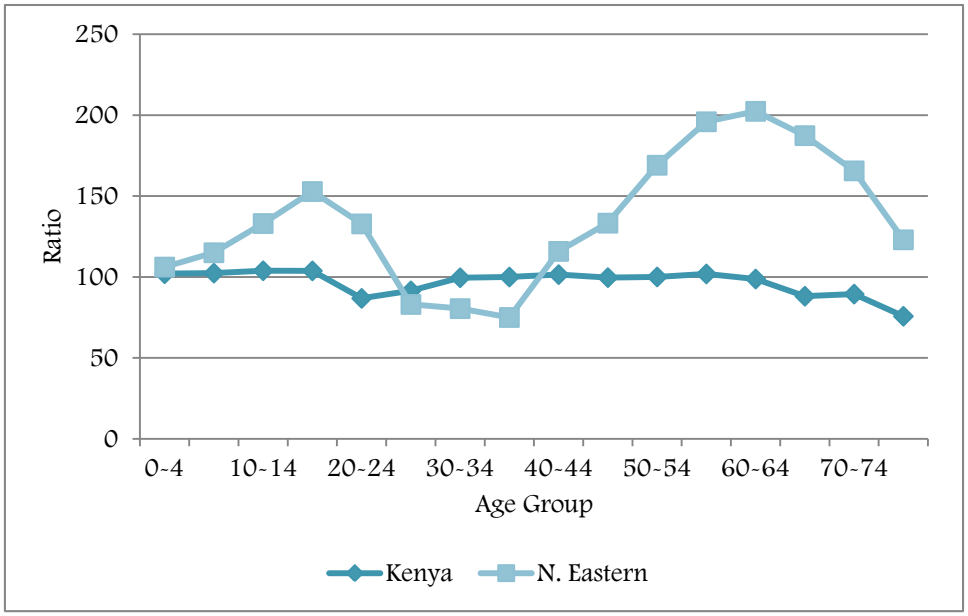
1.3.5.2 Age Reporting

All modern censuses collect information on age and sex of the population. However, the data often contain errors because some people do not know their true age while others do not report their age accurately. It is critical to evaluate the reported age and sex composition. Various techniques have been developed checking for such inconsistencies.

1.3.5.2.1 Sex Ratios

Sex ratios are an analytical tool and are easily calculated by dividing the male population in a given age group by the female population in the same age group. The larger the abrupt departure of this ratio from values close to 100, the larger the possibility of errors in the data. All populations have more male than female births, so the sex ratio at the early ages is expected to be slightly over 100. However, since mortality is usually higher for males than females, the sex ratio is reduced continuously up to the oldest ages. Otherwise sex ratios below 100 denote under-coverage while those above 100 would imply double counting. Figure 1.3 depicts sex ratios for Kenya and North Eastern Province. While it is evident that on average, the sex ratios at national level do not reflect any serious irregularities in reporting, the opposite is true for North Eastern province. The reporting in this province indicates irregularities at all ages with a maximum sex ratio of 202 for those aged 60-64.

Figure 1.3: Sex Ratios by Age, Kenya and North Eastern Province, 2009



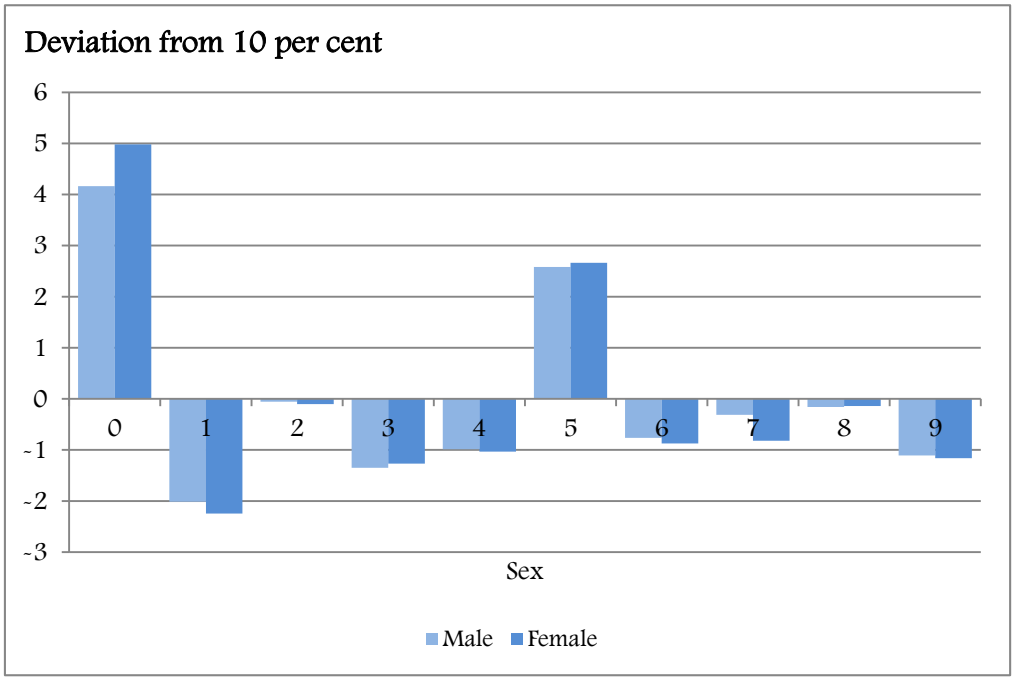
1.3.5.2.2 Content Errors

Population data in developing countries are often subject to age misreporting. Irregularities in the age distribution may be as a result of a respondent's incorrect age declaration or an interviewer estimating the age of a respondent who does not know his or her age. The principal approaches for evaluating age misreporting are digit preference and age ratios.

1.3.5.2.3 Digit Preference

Digit preference or age heaping is a common error that occurs in age reporting. It is the result of deliberate mis-statement or ignorance of age on the part of the respondent. Irregularities in reporting of age can be detected by using various indices which detect digit preference at the terminal digits. By means of such indices, several methods have been developed to detect irregularities in reporting age. To quantify the magnitude of digit preference, the Myer's Index was used.This index assesses digit preference in all the 10 terminal digits (0-9). Every one of the ten terminal digits takes 10.0 percent out of a 100. In an ideal situation where there is no digit preference, the terminal digit will score a total of 10.0 percent. A deviation from 10.0 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 with those digits. Figure 1.4 shows the extent of digit preference, for the 2009 KPHC data.

Figure 1.4: Digit Preference by Sex, Myer's Index, Kenya, 2009

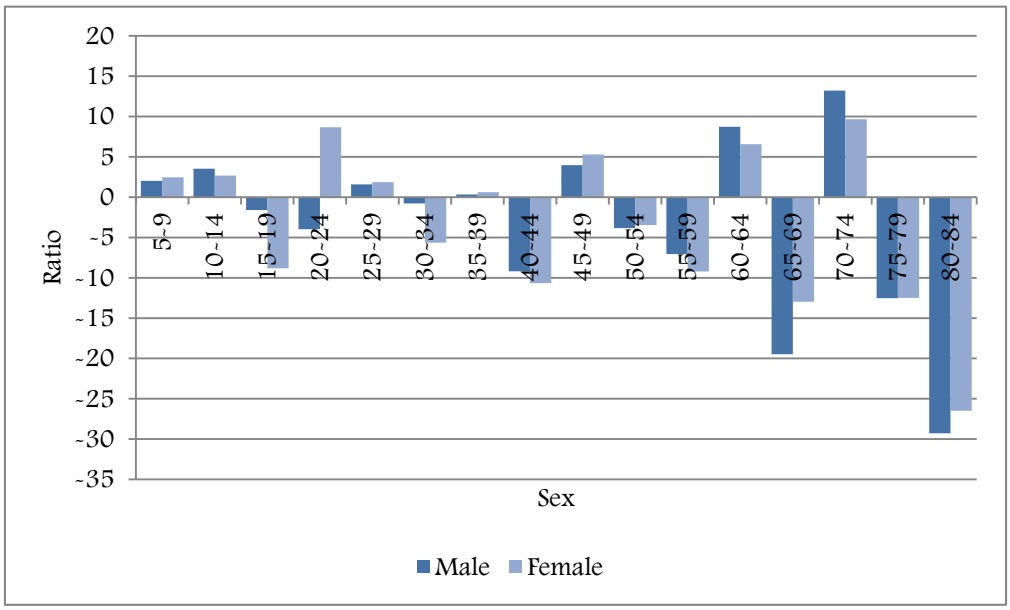


Terminal digits (0 and 5) were highly preferred with 0 having the highest preference, more so by females. Most people avoided reporting age ending with digit 1 followed by digit 9 and thus shifted their ages to end with the most likely terminal adjacent digit 0.

1.3.5.2.4 Age Ratios

Age ratios for 5-year age groups provide an alternative for detecting possible age misreporting. In a population where there is no age misreporting, age ratios are expected to be similar throughout the age distribution, and all of them should be close to a value of 100. Large departures from 100 indicate higher chance of errors in the data. Figure 1.5 shows age ratios by sex.

Figure 1.5 Age Ratios by Age Group and Sex, Kenya, 2009



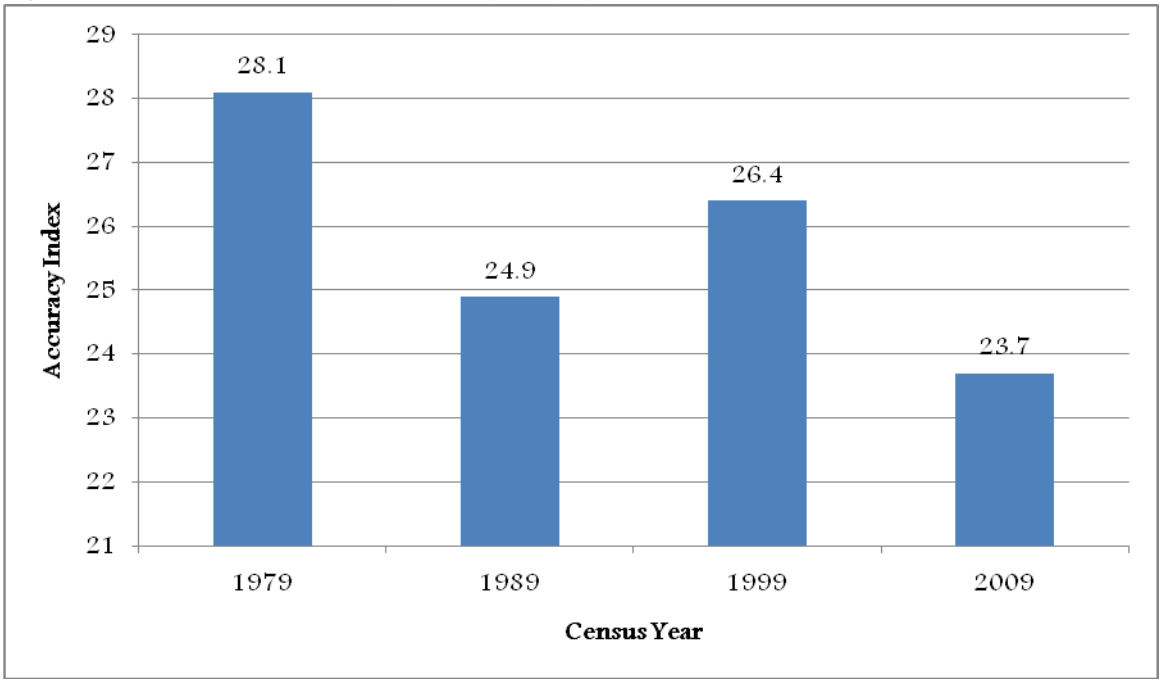
The age-sex ratios in Figure 1.5 show fluctuations for both sexes but most prominent in older ages (among ages 65 and above). Such fluctuations cannot be fully explained by demographic factors and were, therefore, attributed to the quality of the age-reporting arising from differential age shifting by sex.

1.3.5.2.5 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 KPHC 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.

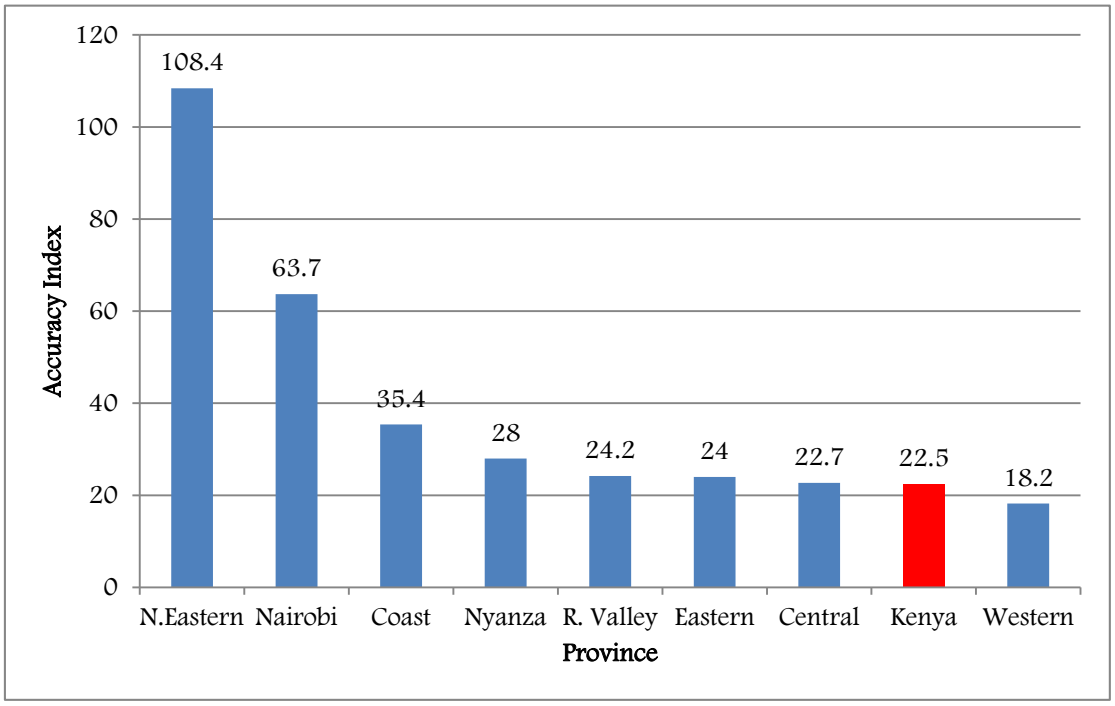
Figure 1.6: Trends in Accuracy Index, Kenya, 1979-2009



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

A closer scrutiny of the Accuracy Index from the 2009 KPHC reveals regional differentials by province. Accuracy Indices by province are as indicated in Figure 1.7.

Figure 1.7: Accuracy Index by Province, 2009



North Eastern Province reflects an index of 108.4 - denoting 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.

Fertility

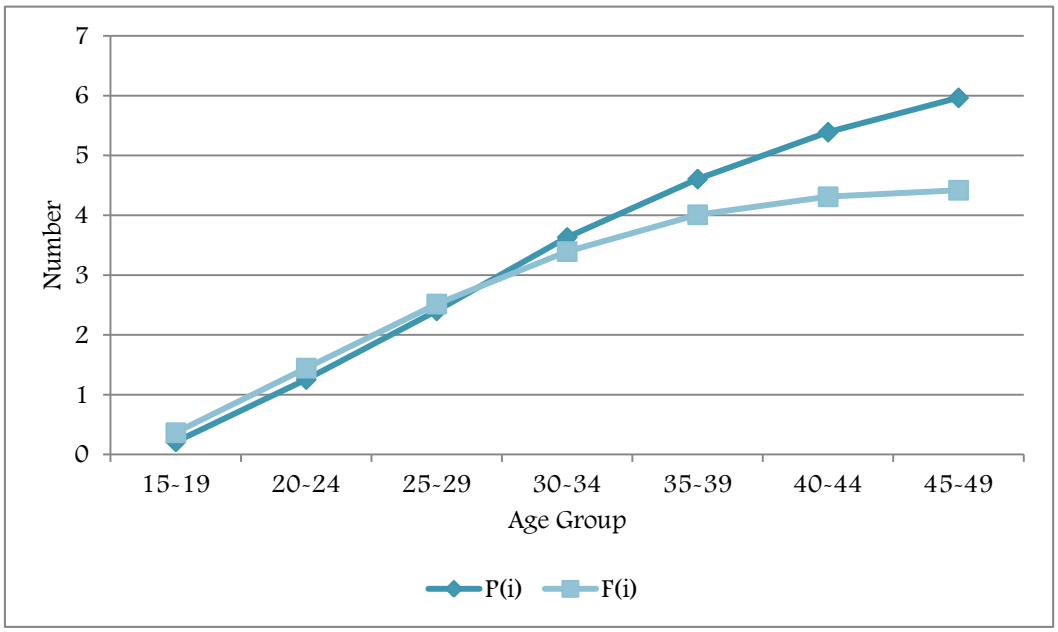
The typical method for detecting omissions at young ages among older cohorts consists in inspecting "increments in mean parity across age groups" (Chidambaram, 1980, p.20). The other method for evaluating the quality of fertility data is the Period Fertility (P/F) method (originally developed by Brass) which detects underreporting 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 therefore is incapable of distinguishing birth displacement and omissions. The general idea is to compare P/F cumulated to age X to parity (P) of the same age. If fertility is constant, the ratio P/F should be close to one (for 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 underreporting of births in the covered period (because of displacements or omissions). However, a ratio greater than 1 may also be consistent with a fertility decline (Cleland et al. 1994, p.8). Table 1.2 shows the P/F ratios computed based on reported age specific birth rates and average children ever born. The data clearly shows underreporting of births in the covered period.

Table 1.2: Trussell P/F Ratio Technique

	Reported ASFR	Average CEB	Cumulative fertility		P/F
Age	f(i)	P(i)	Phi(i)	F(i)	ratio
15-19	0.073	0.211	0.365	0.155	1.365
20-24	0.216	1.254	1.445	0.992	1.264
25-29	0.214	2.403	2.517	2.099	1.145
30-34	0.175	3.631	3.394	3.064	1.185
35-39	0.123	4.607	4.010	3.784	1.217
40-44	0.060	5.391	4.311	4.187	1.287
45-49	0.022	5.965	4.420	4.395	1.357
TFR	4.4203				

Figure 1.8: Reported Average Children Ever Born and Cumulative Fertility, 2009



Mortality

Neither the direct nor the indirect method is immune to data errors. The most important errors that could bias the result of both the direct and the indirect methods are omission of live births or deaths and misreporting of dates.

The results of the direct method are usually affected by under-reporting of infant deaths and wrong dating of births and age at death. In the case of infant mortality, unreported deaths relative to reported deaths are likely to exceed unreported births relative to all births leading to a systematic downward bias in infant mortality estimates. Unreported deaths are especially likely when the infant lives only a very short period. Unreported death will be more likely for births outside of hospitals; both because risks are higher and reporting systems are weaker. Non-hospital births are more common in rural areas. It is possible that the deaths of some children who are not yet one year old may be reported as deaths above the age of one year, but it is also possible that some children who have died after their first birthday may still be reported as infant deaths. If either of these errors is more frequent than the other, the number of infant deaths is accordingly under-reported or over-reported.

Kenya does not have complete vital registration data that can be used to assess estimates of mortality. The only available external source to verify the quality of data comes from the demographic and health surveys. Figures 1.9a and 1.9b show comparison of central age specific death rates between projected deaths rates based on the matched mortality derived from the 2008/09 mortality and reported deaths in the last 12 months prior to the census (non adjusted and adjusted for age not stated). The patterns are similar with early child hood death rates quite close but there are indications of underreporting at old ages.

Figure 1.9a: Age Specific Death Rates for Projected, Census Unadjusted for Age not Stated and Census Adjusted (Males)

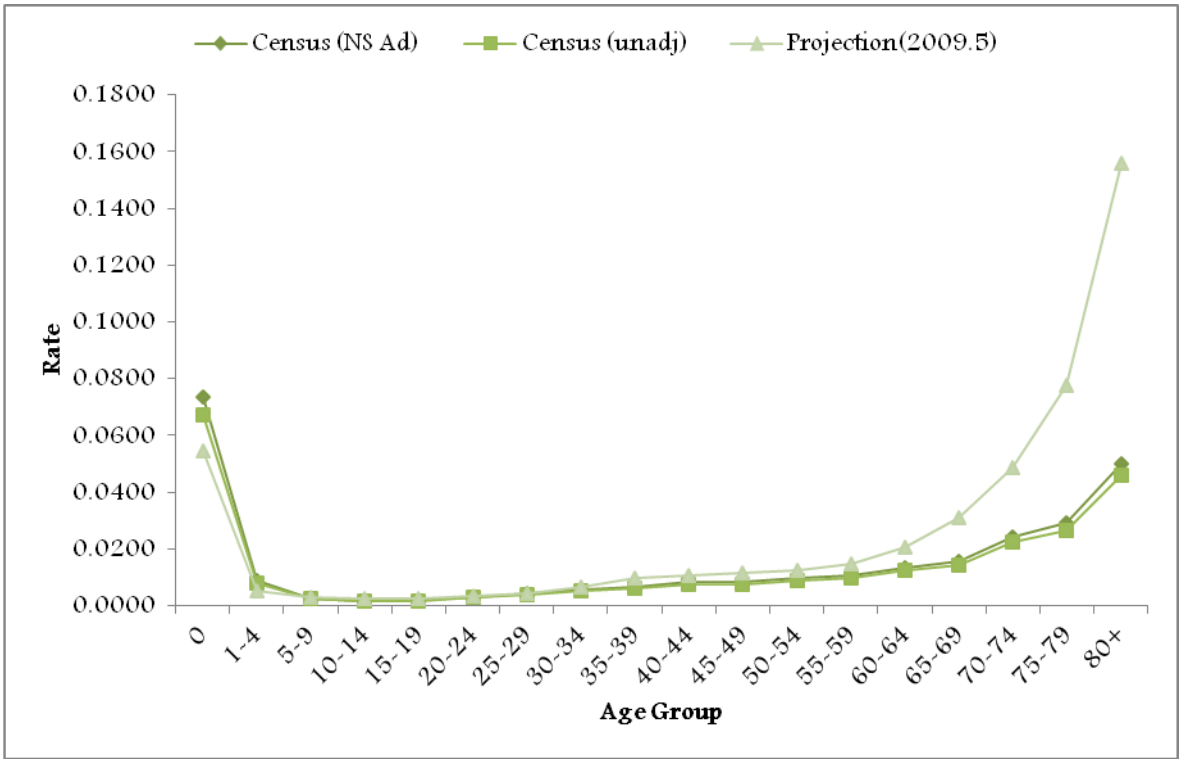
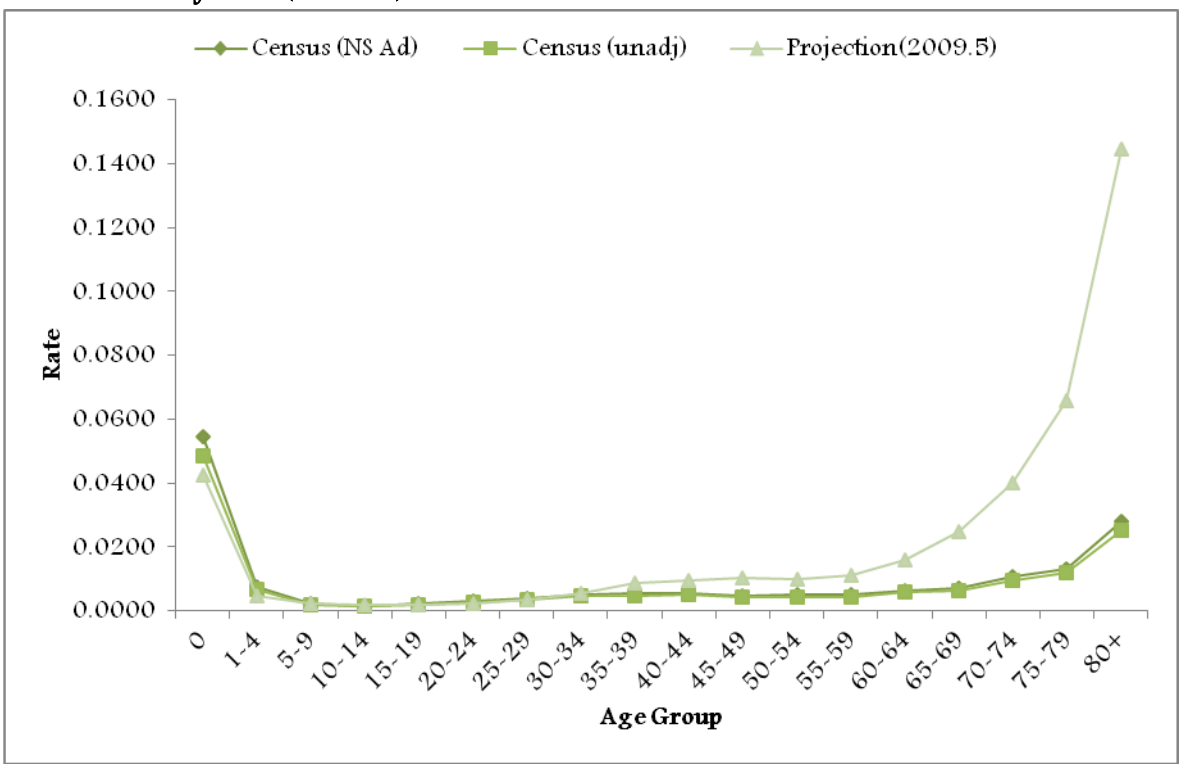


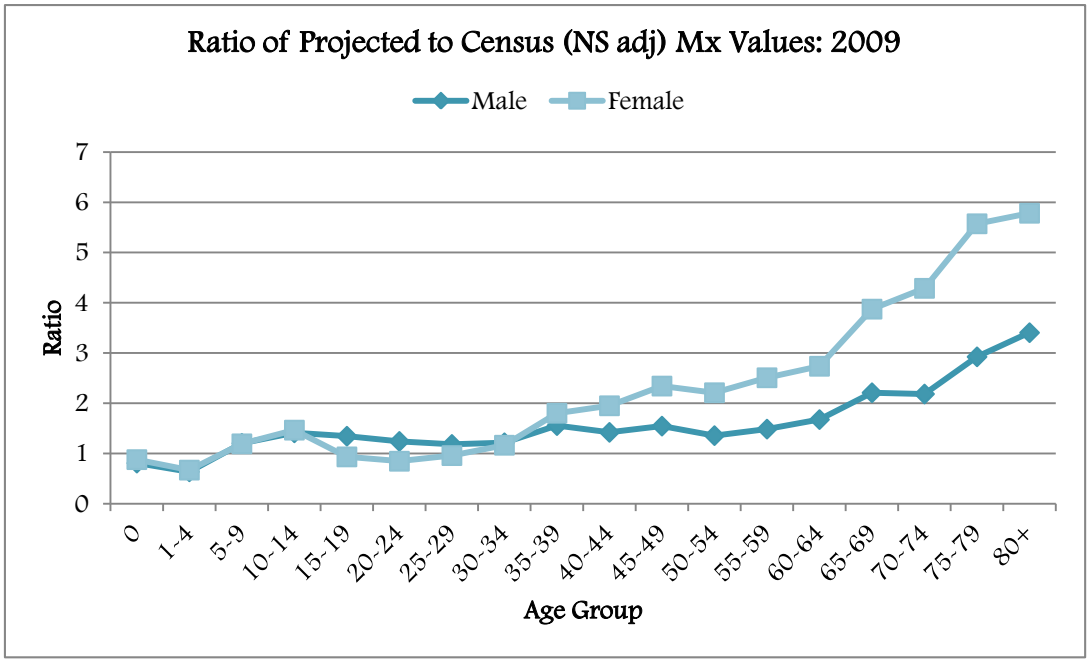
Figure 1.9b: Age Specific Death Rates for Projected, Census Unadjusted for Age not Stated and Census Adjusted (Females)



Figures 1.10 show the ratios of the projected to reported rates by sex. Ratios below 1 are indication of over reporting while ratios above 1 show underreporting. For both sexes, there was slight underreporting for both sexes while at ages 15-30, female death rates were

under reported. At ages 35 and above there was more severe underreporting of female deaths to male deaths.

Figure 1.10: Ratios of Projected to Census Age Specific Death Rates for Projected by Sex



Figures 1.11 and 1.12 show the central death rates for both the projected and adjusted reported deaths. Male death rates are slightly higher than female death rates at all ages but the large differences occur in adulthood.

Figure 1.11: Age Specific Death Rates Adjusted for Age Not Stated by Sex

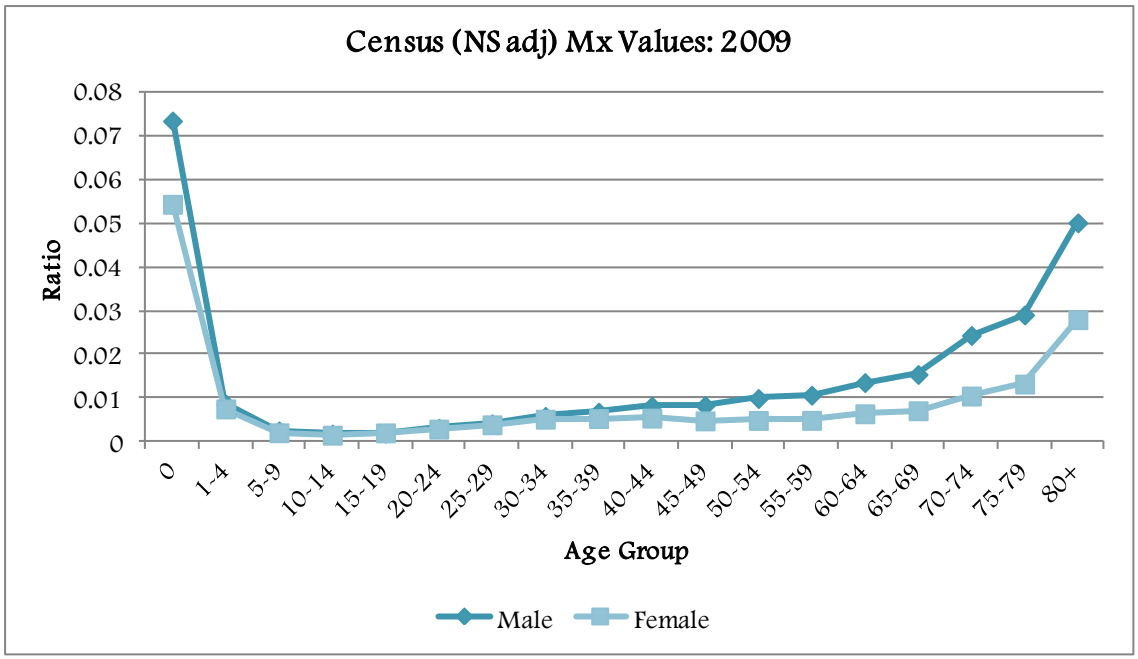
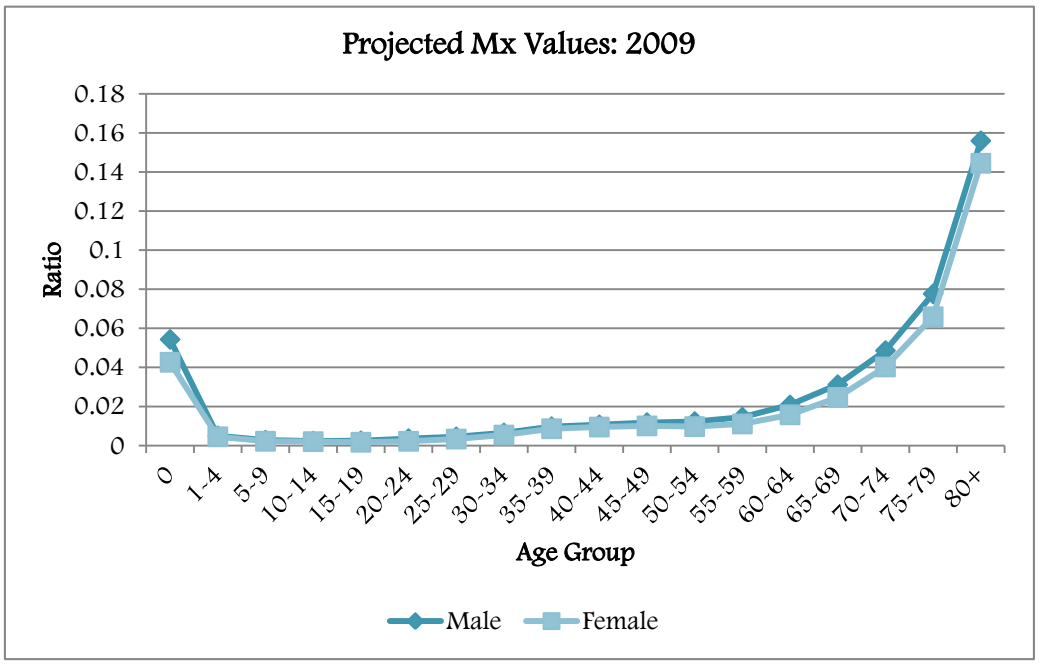


Figure 1.12: Projected Age Specific Death Rates by Sex



Since adult deaths appear under reported, an alternative method is to compare adult death rates with death rates obtained from the 2008/09 DHS sibling history data. Adult deaths in the households in the last 12 months prior to census appear to have been under reported. The underreporting was more severe for females than males (see figures 1.13a and 1.13b)

Figure 1.13a: Comparison of Age Specific Death Rates from Various Sources (Females)

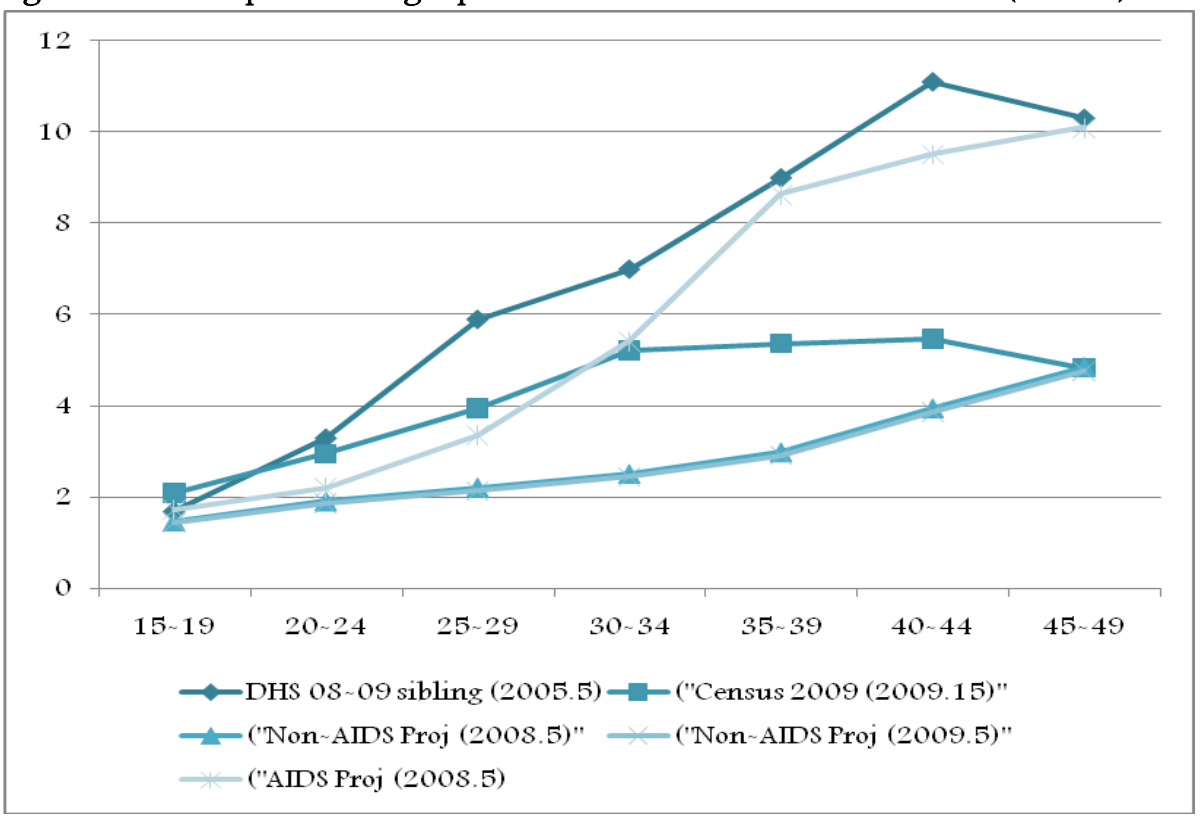
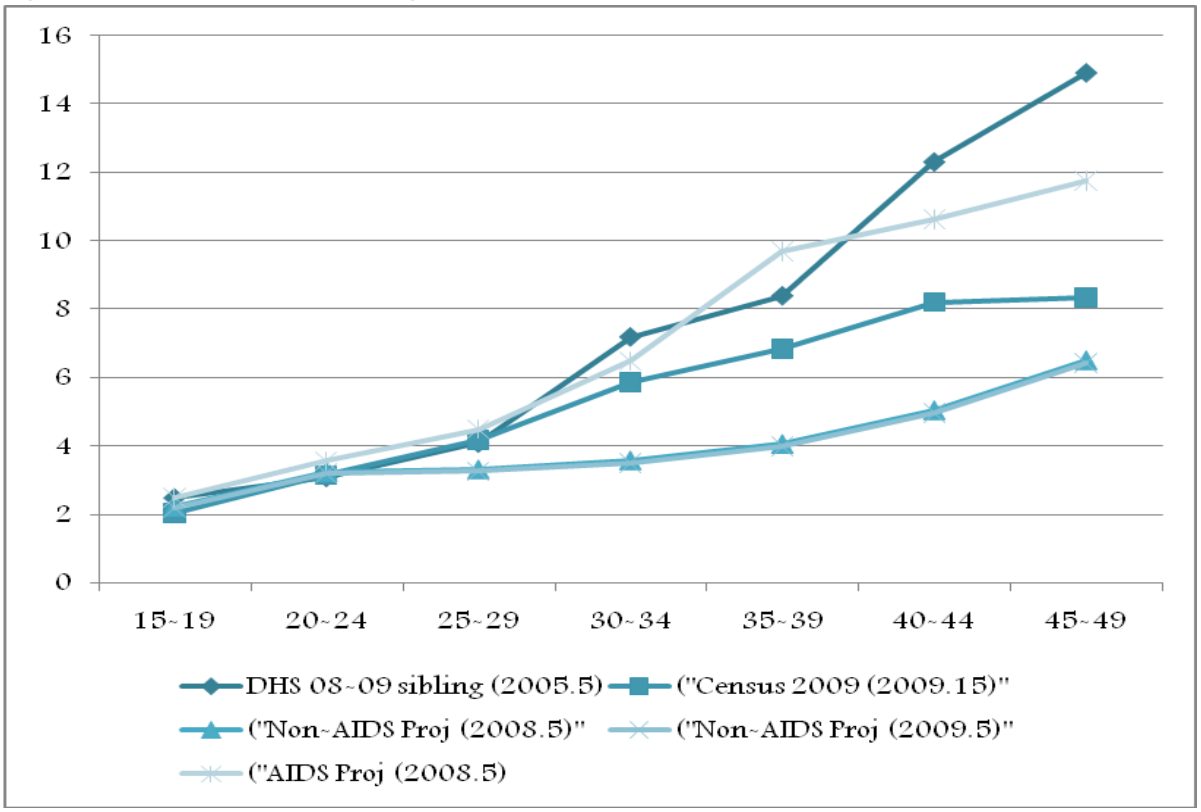


Figure 1.13b: Comparison of Age Specific Death Rates from Various Sources (Males)



The assessment of the data indicates that other than over enumeration there is need to correct for the observed underreporting and/or omission of the demographic events when estimating fertility and mortality indicators.

Chapter 2-Population Size, Growth, Structure and Distribution

2.1 Introduction

The 2009 KPHC questionnaire on column P00 listed all persons who spent the night of August 24th/25th in the household and collected information on age and sex of each person. This chapter describes the size and distribution of persons enumerated in the census night.

2.2 Population Size and Growth

A total population of 38,610,097 was enumerated of which 19,192,378 were males and 19,417,719 were females. Table 2.1 shows some of the indicators of population size and growth since 1948. The 2009 population size was slightly over seven fold when compared to that of 1948. The current population is projected to increase by nearly 1 million annually and is expected to double by the year 2030. The growth rate rose steadily from about 2.5 percent per annum in 1948 to 3.8 percent per annum in the 1980s – a pace described as one of the fastest ever recorded in history.

Table 2.1: Trends in Population Size and Growth, 1948-2009

	Census Year						
	1948	1962	1969	1979	1989	1999	2009
Population (millions)	5.4	8.6	10.9	15.3	21.4	28.7	38.6
Annual growth rate (% p.a.)	2.5	3.0	3.3	3.8	3.3	2.9	3.0
Doubling times (Years)	27.7	23.1	21.0	18.2	21.0	23.9	23.1
Absolute increase per annum ('000)	135	258	360	581	792	850	992
Size relative to 1948 (1948=100)	100	159	202	283	396	532	715

Table 2.2 shows the distribution of the population and growth rate by County. The intercensal growth rate was estimated using the exponential method. It should be noted that Garissa, Wajir, Mandera and Turkana have abnormal growth rates which are implausible. The same factor was also noticed in the 1989 Census and may be attributed to over enumeration in the recent census and under enumeration in the 1979 Census. Other than counties with abnormal growth rates, high growth rates of over 5.0 percent per annum are in Marsabit, West Pokot, and Samburu. The case of Samburu may be due to over enumeration in 2009 or under enumeration in 1999. The county with plausible high growth rate of above 5.0 percent is Kajiado because of migration and spill of persons living in Nairobi. Counties that recorded low growth rates are Nyeri, under 1.0 percent; Vihiga, 1.1 percent; Makueni, 1.4 percent; Kirinyaga, 1.5 percent and Siaya, 1.7 percent. Low growth rates for Nyeri and Kirinyaga may be attributed to reduced birth rates coupled with migration while low growth rates in Vihiga and Siaya may be largely due to heavy out migration.

Table 2.2: Trends in Distribution of Population Size and Intercensal Growth Rate by County, 1999-2009

County	Enumerated Population 1999	Enumerated Population 2009	Percent Change	Annual Intercensal Growth Rate
NAIROBI	2,082,191	3,138,369	50.7	4.1
NYANDARUA	468,458	596,268	27.3	2.4
NYERI	647,887	693,558	7.1	0.7
KIRINYAGA	454,090	528,054	16.3	1.5
MURANG'A	907,446	942,581	3.9	0.4
KIAMBU	1,204,009	1,623,282	34.8	• 3.0
MOMBASA	643,060	939,370	46.1	3.8
KWALE	490,973	649,931	32.4	2.8
KILIFI	815,994	1,109,735	36.0	3.1
TANA RIVER	178,609	240,075	34.4	3.0
LAMU	71,215	101,539	42.6	3.6
TAITA TAVETA	241,942	284,657	17.7	1.6
MARSABIT	172,481	291,166	68.8	5.2
ISIOLO	98,971	143,294	44.8	3.7
MERU	1,096,325	1,356,301	23.7	2.1
THARAKA	303,932	365,330	20.2	1.8
EMBU	443,409	516,212	16.4	1.5
KITUI	810,779	1,012,709	24.9	2.2
MACHAKOS	895,816	1,098,584	22.6	2.0
MAKUENI	766,111	884,527	15.5	1.4
GARISSA	262,694	623,060	137.2	8.6
WAJIR	309,268	661,941	114.0	7.6
MANDERA	246,063	1,025,756	316.9	14.3
SIAYA	712,305	842,304	18.3	1.7
KISUMU	788,539	968,909	22.9	2.1
HOMA BAY	745,040	917,170	23.1	2.1
MIGORI	656,935	963,794	46.7	3.8
KISII	943,202	1,152,282	22.2	2.0
NYAMIRA	495,620	598,252	20.7	1.9
TURKANA	389,319	855,399	119.7	7.9
WEST POKOT	305,583	512,690	67.8	5.2
SAMBURU	135,565	223,947	65.2	5.0
TRANS NZOIA	568,498	818,757	44.0	3.7
BARINGO	400,571	555,561	38.7	3.3
UASIN NGISHU	613,386	894,179	45.8	3.8
ELGEYO MARAKWET	282,793	369,998	30.8	2.7
NANDI	568,998	752,965	32.3	2.8
LAIKIPIA	316,791	399,227	26.0	2.3
NAKURU	1,176,233	1,603,325	36.3	3.1
NAROK	529,711	850,920	60.6	4.7
KAJIADO	395,905	687,312	73.6	5.5
KERICHO	461,651	590,690	28.0	2.5
BOMET	689,512	891,835	29.3	2.6
KAKAMEGA	1,289,233	1,660,651	28.8	2.5
VIHIGA	496,588	554,622	11.7	1.1
BUNGOMA	1,005,094	1,375,063	36.8	3.1
BUSIA	548,163	743,946	35.7	3.1

2.3 Age-Sex Structure

A population age and sex structure is a map of demographic history. Knowledge of age structure is essential for analysis of the key determinants of population change – fertility, mortality and migration. Table 2.3 shows the trends in percentage distribution of the population since 1969. Kenya's population has always been dominated by children; however, the proportion of children has gradually declined from 48.0 percent in 1969 to about 43.0 percent in 2009. In the recent past, the youth (population age 15-24) share has remained just at about one fifth while persons in age 25-34 has increased from about 12.0 percent in 1969 to nearly 15.0 percent in 2009. As a result of high birth rates in the last 2 decades and declining mortality in the early part of 1980s, the population in age group 35-39 has been increasing. The proportion of the elderly has remained at just 5.0 percent since 1969.

Table 2.3: Trends in Percentage Distribution of Population by Age 1969-2009

	1969		1979		1989		1999		2009	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
0-4	2,104,482	19.2	2,843,406	18.5	3,801,079	17.7	4,534,902	15.8	5,939,306	15.4
5-9	1,809,958	16.5	2,491,840	16.3	3,470,208	16.2	3,963,136	13.8	5,597,716	14.5
10-14	1,378,515	12.6	2,074,771	13.5	2,990,744	13.9	4,038,635	14.1	5,034,855	13.0
15-19	1,104,999	10.1	1,741,845	11.4	2,379,466	11.1	3,403,178	11.9	4,169,543	10.8
20-24	878,111	8.0	1,327,404	8.7	1,903,300	8.9	2,832,918	9.9	3,775,103	9.8
25-29	760,839	7.0	1,055,712	6.9	1,629,914	7.6	2,259,503	7.9	3,201,226	8.3
30-34	580,189	5.3	818,076	5.3	1,159,612	5.4	1,685,922	5.9	2,519,506	6.5
35-39	516,955	4.7	615,594	4.0	918,984	4.3	1,419,012	4.9	2,008,632	5.2
40-44	395,872	3.6	535,182	3.5	732,167	3.4	1,033,491	3.6	1,476,169	3.8
45-49	336,360	3.1	440,879	2.9	574,441	2.7	838,828	2.9	1,272,745	3.3
50-54	271,528	2.5	373,930	2.4	476,514	2.2	684,806	2.4	956,206	2.5
55-59	216,904	2.0	275,311	1.8	360,196	1.7	460,016	1.6	711,953	1.8
60-64	196,974	1.8	217,228	1.4	318,457	1.5	409,228	1.4	593,778	1.5
65+	391,009	3.6	486,398	3.2	708,409	3.3	932,582	3.3	1,332,273	3.5
Not stated	-	-	29,485	0.2	25,283	0.1	190,443	0.7	21,086	0.1
Total	**10,944,664**		**15,329,040**		**21,450,763**		**28,688,599**		**38,610,097**	

2.3.1 Population Pyramid

Population pyramid is a graphic representation of the age-sex structure. Figures 2.1a-2.1c below show the population pyramids for Kenya, Nairobi and Western provinces, respectively. Kenya's population is still youthful similar to the age structure of Western Province. Nairobi, with lowest birth rates and due to high youth migration shows completely different pattern. The population age- sex structure has not changed much since 1969 owing to continued high birth rates.

Figure 2.1a Population Pyramid Kenya, 2009

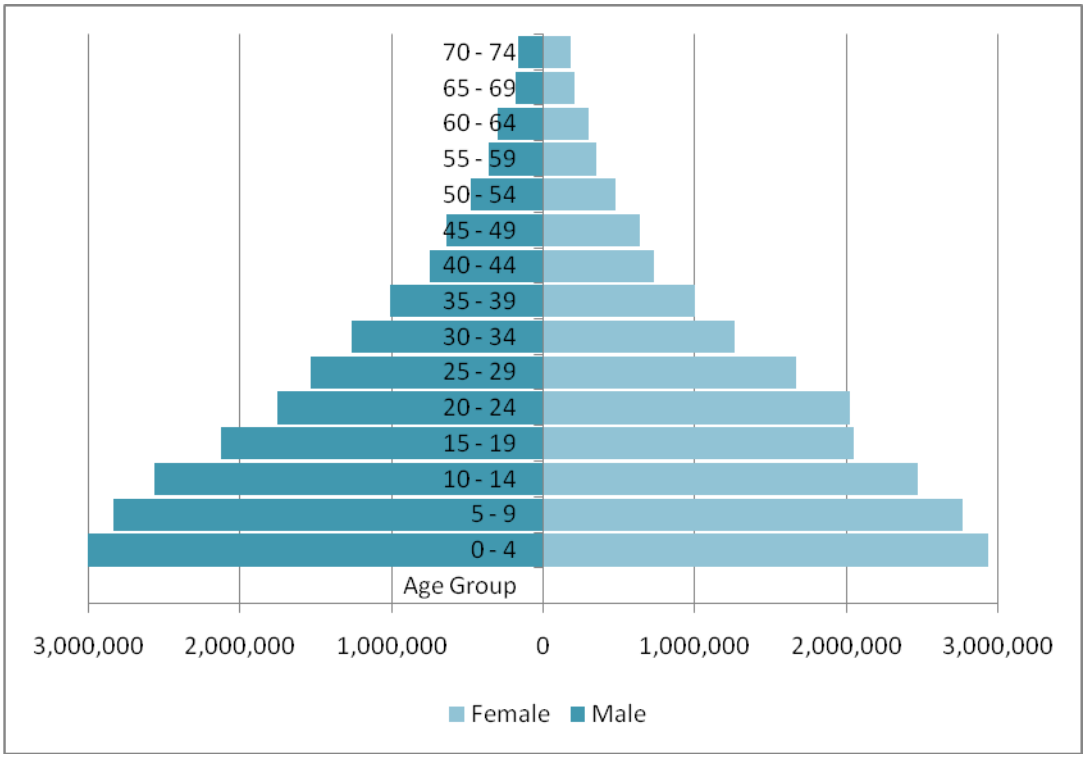


Figure 2.1b: Population Pyramid Nairobi, 2009

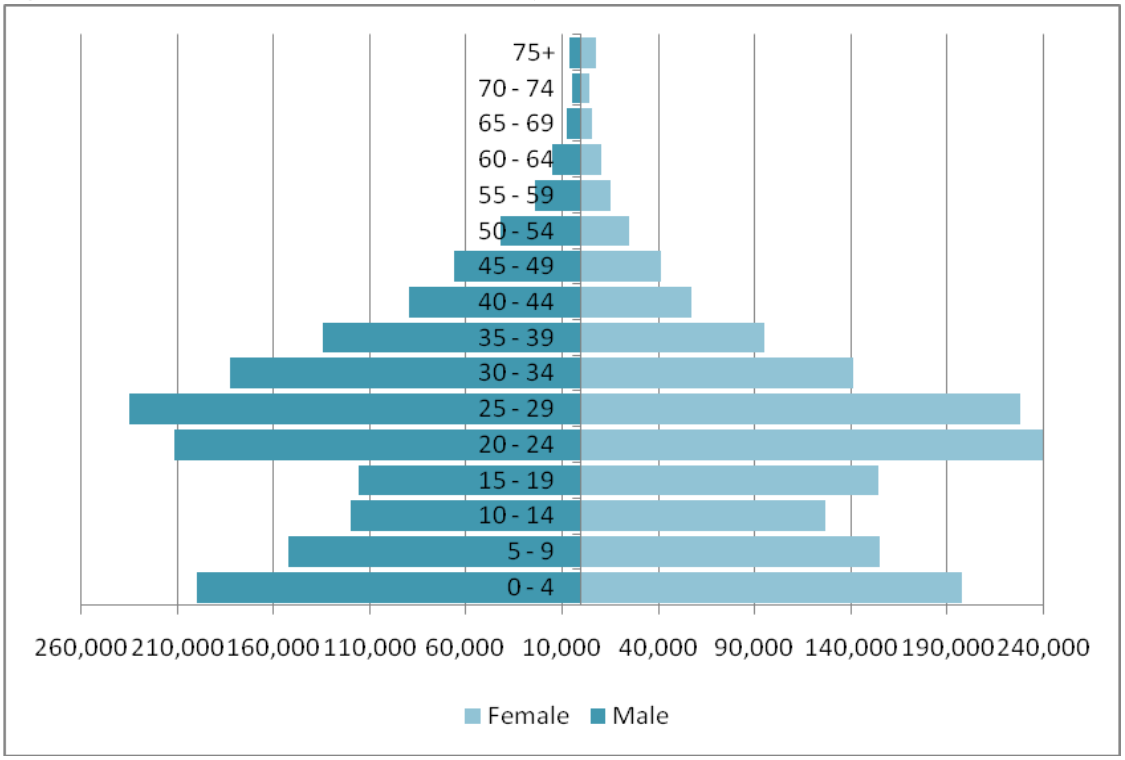
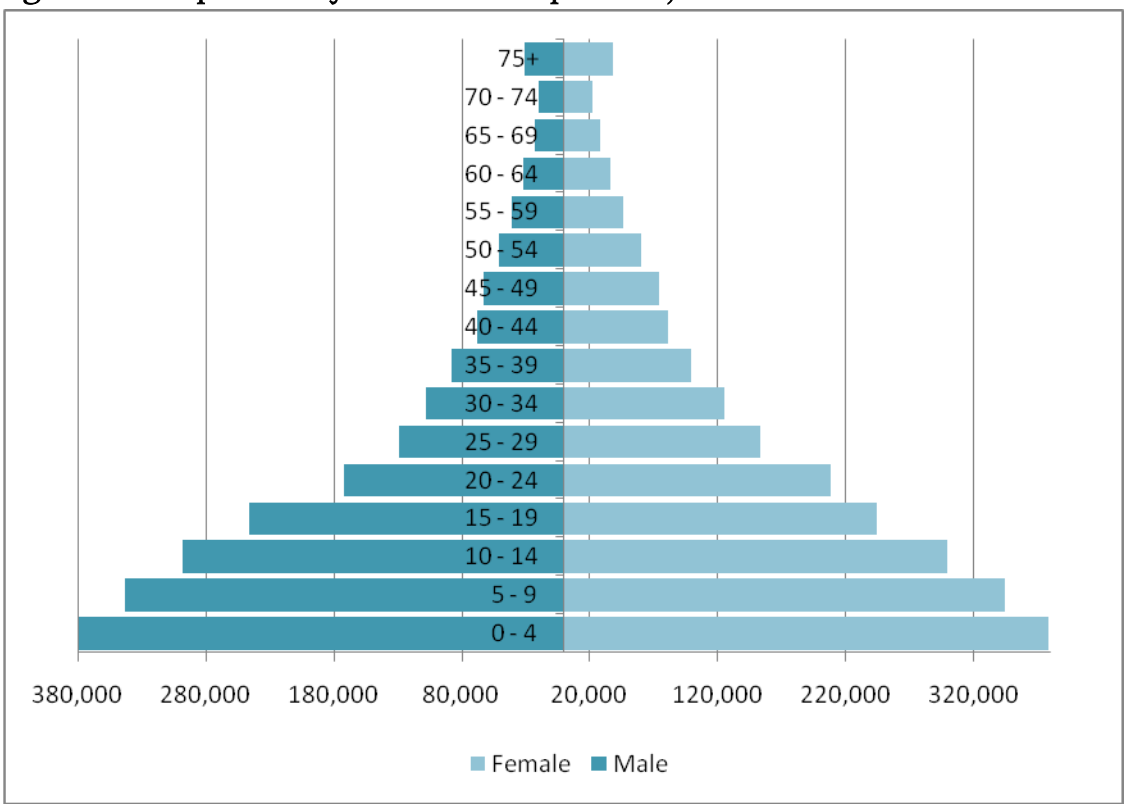


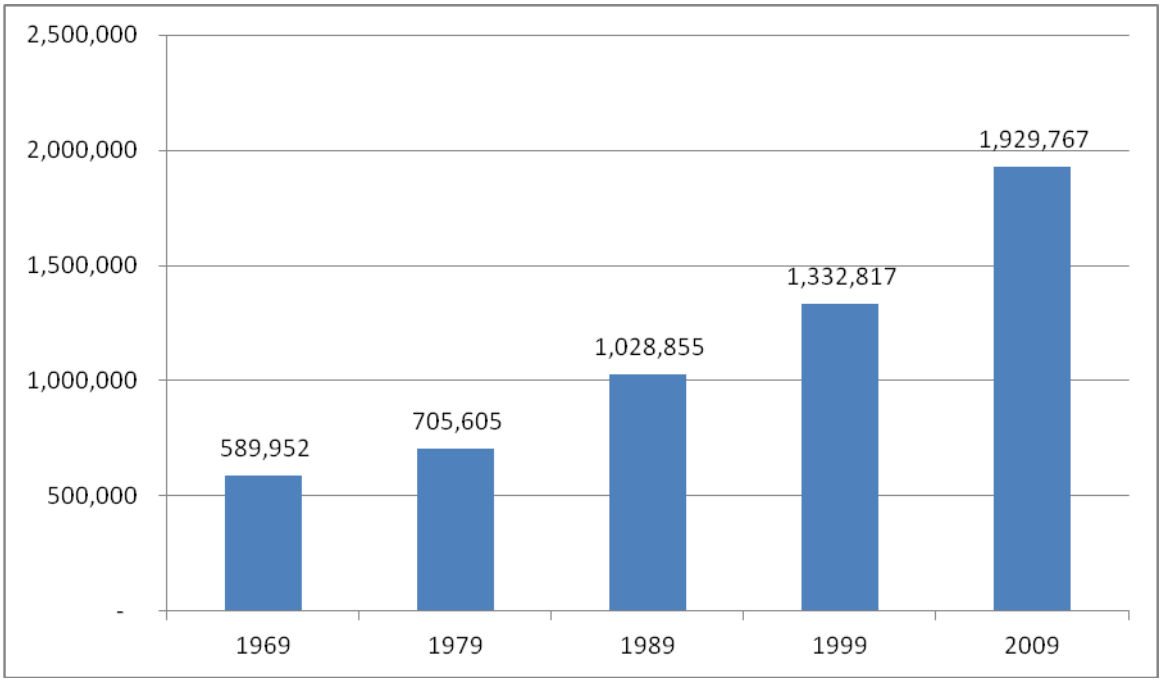
Figure 2.1c: Population Pyramid Western province, 2009



2.3.2 Elderly Population

Figure 2.2 shows the trends in the population age 60 and above since 1969. Although the proportion of elderly population is still low, the absolute size has increased tremendously. The growth rate of the elderly population has more than tripled in the last 40 years. For example, between 1969 and 1979 the growth rate of the elderly population was about 1.8 percent per annum; while between 1999 and 2009 the growth increased to about 3.7 percent per annum.

Figure 2.2 Trends in Population Aged 60 and Above, 1969-2009



2.3.3 Old Age Dependency

The proportion of the population who are 60 and above has some implications on the socio-economic status of a country. Two indicators are useful for describing the extent to which older persons in a population depend on the working population. These indicators are: potential support ratio and parent support ratio.

Parent support ratio is the number of persons aged 85 and above to number of persons aged 50-64 expressed per 100 persons. This measure is commonly used to assess the demands on families to provide support to the oldest members of the society. Parent support ratio is only a rough indicator of changes expected in the family support system. Globally, the ratio rose from about 2 persons aged 85 and above per 100 persons aged 50-64 in 1950 to about 4.5 in 2007. In Kenya there are about 9.9 persons aged 85 and above per 100 persons aged 50-64. The ratio varies from a low of 3.8 in Nairobi to a high of 14.4 in Nandi. This implies that it is in Nandi where persons aged 50-64 are more likely to support their own parents.

Potential support ratio is the alternative way of expressing old age dependency. It is stated as the number of persons in the working age 15-64 per person aged 65 and above.

Worldwide this ratio has dropped from 11.6 in 1950 to about 8.7 in 2007. Table 2.4 shows potential support ratio by County based on the 2009 KPHC. In Kenya, there are about 16 persons aged 15-64 per person aged 65 and over. The ratio varies from a low of 8.2 in Vihiga and Murang'a to a high of 61 in Nairobi. A low ratio indicates high dependency burden and vice versa. The high ratio in Nairobi is simply because Nairobi has fewer elderly persons as most of pensions and retires move back to their rural homes.

Table 2.4: Indicators of Old age Dependency by County, 2009

County	Parent support ratio	Potential support ratio
KENYA	**9.9**	**15.5**
NAIROBI	3.8	61.1
NYANDARUA	10.6	11.9
NYERI	12.9	9.2
KIRINYAGA	13.6	11.5
MURANG'A	12.7	8.2
KIAMBU	9.6	17.3
MOMBASA	4.8	39.3
KWALE	8.2	14.8
KILIFI	9.7	14.1
TANA RIVER	10.6	15.9
LAMU	8.6	15.9
TAITA TAVETA	9.2	11.3
MARSABIT	12.3	11.8
ISIOLO	9.4	14.3
MERU	11.2	12.8
THARAKA	12.5	10.5
EMBU	12.7	11.1
KITUI	14.6	9.2
MACHAKOS	12.4	11.3
MAKUENI	13.5	10.0
GARISSA	10.1	21.3
WAJIR	7.3	21.0
MANDERA	6.9	23.9
SIAYA	8.3	9.4
KISUMU	6.8	16.5
HOMA BAY	7.8	17.1
MIGORI	8.9	13.1
KISII	8.7	15.2
NYAMIRA	8.3	15.1
TURKANA	7.6	22.3
WEST POKOT	13.4	16.9
SAMBURU	11.2	15.6
TRANS NZOIA	8.1	18.3
BARINGO	11.4	14.6
UASIN GISHU	12.9	19.8
ELGEYO-MARAKWET	13.3	12.5
NANDI	14.4	14.3
LAIKIPIA	10.8	13.5
NAKURU	9.9	18.6
NAROK	11.9	19.2
KAJIADO	9.6	25.1
KERICHO	10.6	18.6
BOMET	12.9	16.2
KAKAMEGA	8.0	13.8
VIHIGA	9.0	8.2
BUNGOMA	8.0	16.1
BUSIA	7.9	13.2

2.3.4 Age Structural Changes

Age structural changes in a population are of great interest because people's social and economic behaviour vary at different stages of life. Changes in a country's age structure can also have a significant influence on its socio-economic development. As a country undergoes demographic transition, its age structure also changes. There are four typical phases that have been observed in history. The first being the "child-rich" phase, often characterized by accelerated increase in the number of children following the onset of (child) mortality decline. The second phase is characterized by "expansion of young adult population" due to the continued decline of mortality and the onset of fertility decline. The third phase – expansion of middle-aged population – starts when the cohorts enlarged by mortality decline and increases in the number of births that reach middle ages. The final phase is the expansion of the old age population. These fluctuations produce rapid shifts in the nature and magnitude of demands and needs of particular age groups and are relevant for public policy domains and market sector considerations.

2.4 Population Distribution

Table 2.5 shows the population distribution by County. Population distribution is generally uneven. Nairobi County continues to have the largest share of the population followed by Kakamega, Kiambu and Nakuru. While the share of Nairobi increased, other counties share declined marginally.

Nairobi and Mombasa have the highest population densities of 4515 and 4291 respectively. Vihiga County recorded the next highest density of 1045 persons per square kilometre. The other densely populated counties are Kisii (875), Nyamira (665), Busia (656) and Kiambu (638), respectively. Isiolo, Tana River and Marsabit are the least populated areas. The pattern of population distribution generally reflects uneven regional distribution of agricultural potential; uneven distribution of employment opportunities and the low or high cultural propensity to move. The densely populated counties of Mombasa and Nairobi reflect the employment opportunities while Vihiga, Kisii, Nyamira, Busia and their environs have reliable rainfall with fertile soils. The sparsely populated counties are those in Arid and Semi-Arid areas with unreliable rainfall.

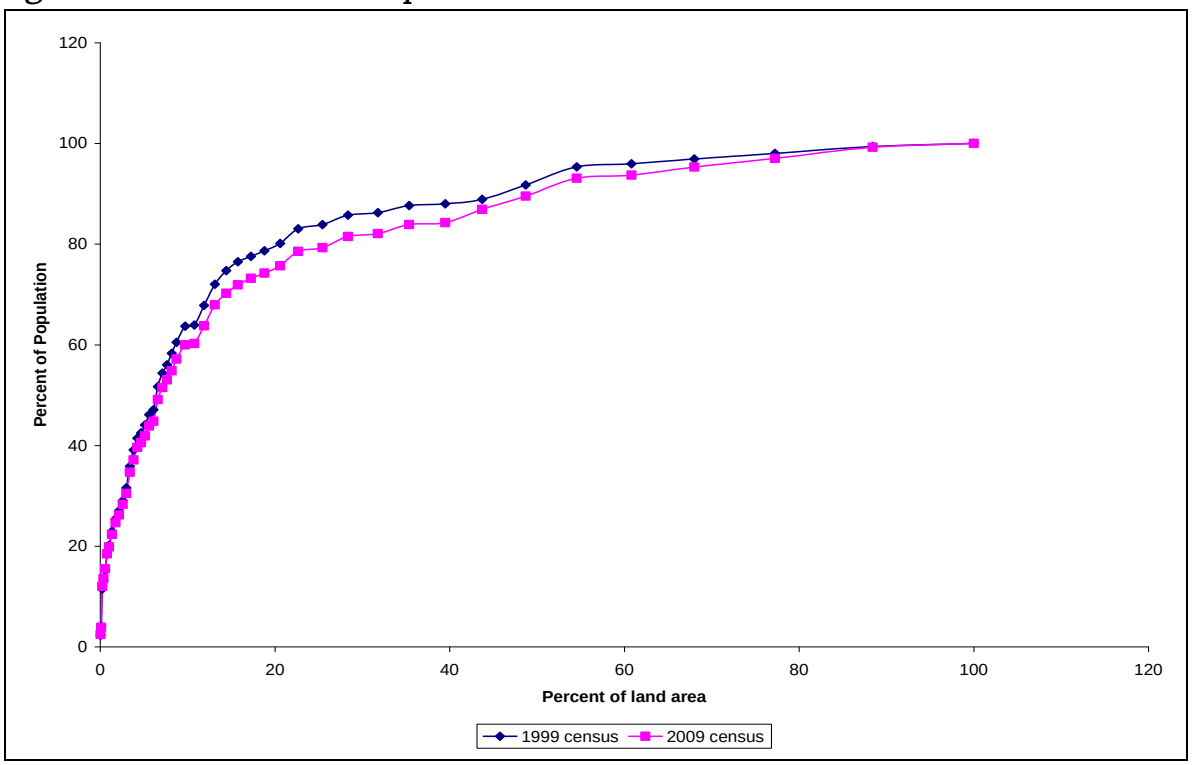
Table 2.5: Population Distribution dnd Densities by County, 1999-2009

County	Area in square km	Population		Percent Share of the total		Population Density		Change in Density 1999-2009 (%)
		1999	2009	1999	2009	1999	2009	
NAIROBI	695.1	2,082,191	3,138,369	7.4	8.1	2996	4515	50.7
NYANDARUA	3,245.3	468,458	596,268	1.67	1.5	144	184	27.3
NYERI	3,337.1	647,887	693,558	2.3	1.8	194	208	7.0
KIRINYAGA	1,479.1	454,090	528,054	1.6	1.4	307	357	16.3
MURANG'A	2,558.8	907,446	942,581	3.2	2.4	355	368	3.9
KIAMBU	2,543.4	1,204,009	1,623,282	4.3	4.2	473	638	34.8
MOMBASA	218.9	643,060	939,370	2.3	2.4	2938	4291	46.1
KWALE	8,270.2	490,973	649,931	1.8	1.7	59	79	32.4
KILIFI	12,609.7	815,994	1,109,735	2.9	2.9	65	88	36.0
TANA RIVER	38,436.9	178,609	240,075	0.6	0.6	5	6	34.4
LAMU	6,273.1	71,215	101,539	0.3	0.3	11	16	42.6
TAITA TAVETA	17,084.0	241,942	284,657	0.9	0.7	14	17	17.7
MARSABIT	70,961.2	172,481	291,166	0.6	0.8	2	4	68.8
ISIOLO	25,336.1	98,971	143,294	0.4	0.4	4	6	44.8
MERU	6,936.2	1,096,325	1,356,301	4.0	3.5	158	196	23.7
THARAKA	2,638.8	303,932	365,330	1.1	1.0	115	138	20.2
EMBU	2,818.0	443,409	516,212	1.6	1.3	157	183	16.4
KITUI	30,496.5	810,779	1,012,709	2.9	2.6	27	33	24.9
MACHAKOS	6,208.2	895,816	1,098,584	3.2	2.9	144	177	22.6
MAKUENI	8,008.8	766,111	884,527	2.7	2.3	96	110	15.5
GARISSA	44,175.0	262,694	623,060	0.9	1.6	6	14	137.2
WAJIR	56,585.8	309,268	661,941	1.1	1.7	5	12	114.0
MANDERA	25,991.5	246,063	1,025,756	0.9	2.7	9	39	316.9
SIAYA	2,530.4	712,305	842,304	2.5	2.2	281	333	18.3
KISUMU	2,085.9	788,539	968,909	2.8	2.5	378	465	22.9
HOMA BAY	3,183.3	745,040	917,170	2.7	2.4	234	288	23.1
MIGORI	2,596.4	656,935	963,794	2.3	2.5	253	371	46.7
KISII	1,317.5	943,202	1,152,282	3.4	3.0	716	875	22.2
NYAMIRA	899.3	495,620	598,252	1.8	1.6	551	665	20.7
TURKANA	68,680.3	389,319	855,399	1.4	2.2	6	12	119.7
WEST POKOT	9,169.4	305,583	512,690	1.1	1.3	33	56	67.8
SAMBURU	21,022.2	135,565	223,947	0.5	0.6	6	11	65.2
TRANS NZOIA	2,495.5	568,498	818,757	2.0	2.1	228	328	44.0
BARINGO	11,015.3	400,571	555,561	1.4	1.4	36	50	38.7
UASIN GISHU	3,345.2	613,386	894,179	2.2	2.3	183	267	45.8
ELGEYO MARAKWET	3,029.8	282,793	369,998	1.0	1.0	93	122	30.8
NANDI	2,884.2	568,998	752,965	2.0	2.0	197	261	32.3
LAIKIPIA	9,461.9	316,791	399,227	1.1	1.0	33	42	26
NAKURU	7,495.1	1,176,233	1,603,325	4.2	4.2	157	214	36.3
NAROK	17,933.1	529,711	850,920	1.9	2.2	30	47	60.6
KAJIADO	21,901.0	395,905	687,312	1.4	1.8	18	31	73.6
KERICHO	2,479.0	461,651	590,690	1.6	1.5	186	238	28
BOMET	2,471.3	689,512	891,835	2.5	2.3	279	361	29.3
KAKAMEGA	3,051.2	1,289,233	1,660,651	4.6	4.3	423	544	28.8
VIHIGA	530.9	496,588	554,622	1.8	1.4	935	1045	11.7
BUNGOMA	35,828.0	1,005,094	1,375,063	3.6	3.6	28	38	36.8
BUSIA	1,134.4	548,163	743,946	2.0	1.9	483	656	35.7

Figure 2.3 shows the Lorenz curve for population distribution in Kenya from the 1999 and 2009 KPHC. The Counties were ranked in descending order of density and the percentage compositions by area cumulated. The curves for both censuses are very close together indicating the unchanging unevenness in population distribution. Computation of the index of concentration shows that about 68.0 percent of Kenya's population lives in slightly under one tenth (12.0 percent) of the land area. The population living in 50.0 percent of

the total land area declined from about 92.0 percent in 1999 to about 90.0 percent in 2009.

Figure 2.3: Lorenz Curve of Population Distribution 1999-2009



2.5 Urbanization

Estimating the level of urbanization in any country is difficult. There is no internationally accepted standard for identifying urban areas. The United Nations argues that "given the variety of situations in the countries of the world, it is not possible or desirable to adopt uniform criteria to distinguish urban areas from rural areas. There are three different perspectives which are often utilized to contextualize the definition: politico-administrative context; human settlements perspective and statistical perspective. Each of these perspectives has different spatial units of analysis. A common denominator of the three mentioned urban perceptions is that none of them explicitly accounts for population density. A fourth designation of "urban" based on population density is thus examined for the sake of discussion in this study and contrasted with the three above-mentioned urban perspectives.

The urban population in Kenya increased from 5.4 million in 1999 to about 12.0 million in 2009. At the same time, the proportion of urban population to the total population rose from 19.0 percent in 1999 to 31.3 percent in 2009. Nairobi has the largest share of the total urban population in the country, followed by Rift valley. The two contribute about 46.0 percent to the total urban population. The least urbanized provinces are Western and North Eastern Provinces respectively. Table 2.6 shows urban population by Province.

Table 2.6: Urban Population by Province, 2009

Province	Total population	Rural population	Urban population	Percent of urban population in province	Percent of total urban population
KENYA	**38,412,088**	**26,388,518**	**12,023,570**		
Nairobi	3,109,861	-	3,109,861	100.0	25.9
Central	4,370,124	2,868,781	1,501,343	34.4	12.5
Coast	3,291,225	1,869,714	1,421,511	43.2	11.8
Eastern	5,640,797	4,448,772	1,192,025	21.1	9.9
North Eastern	2,301,837	1,893,246	408,591	17.8	3.4
Nyanza	5,421,889	4,086,898	1,334,991	24.6	11.1
Rift Valley	9,955,646	7,599,156	2,356,490	23.7	19.6
Western	4,320,709	3,621,951	698,758	16.2	5.8

2.5.1 Trends in urbanization

Table 2.7 shows urbanization trends in Kenya since 1948. Kenya has had a short period of urbanization except for the pre-colonial days in the coastal parts of the country, as a result of trade between East Africa, India, and Arabia. Development of urban centres in Kenya can be attributed to the British administration during the colonial period, where urban centres were created as administrative centres as well as market and commercial centres. The Kenya-Uganda railway coupled with large scale European commercial cash crop farming in the White Highlands provided an opportunity for development of inland urban centres that were established along the rail line as well as trunk roads. Thus at the time of Kenya's first population census in 1948, there were 17 urban centres with an aggregate population of 285,000 as shown In Table 2.7. The urban population was proportionately small and the majority were non-Africans. After independence, the number of urban centres as well as population living in urban centres grew rapidly. The current number of urban centres now was 5-fold the number at independence, while the population has increased by about 16 times The proportion of people living in urban centres increased to 15.0 percent in 1979 and to 31.3 percent in 2009.

Table 2.7: Urbanisation Trends in Kenya, 1948-2009

Year	Total Population	No. of Urban Centres	Urban Population*	Percent of Urban to Total Population	Intercensal Growth Rate (%)
1948	5,407,599	17	285,000	5.3	-
1962	8,636,263	34	747,651	8.7	6.3
1969	10,956,501	47	1,076,908	9.8	7.1
1979	15,327,061	91	2,315,696	15.1	7.7
1989	21,448,774	139	3,878,697	18.1	5.2
1999	28,159,922	180	5,429,790	19.3	3.4
2009	38,412,088	230	12,023,570	31.3	8.3

* See the 1999 Analytical Report on Migration and Urbanisation (Kenya 2004) for the 1999 urban population

Table 2.8 shows the trends in population in urban centres by category since 1962. The urban population has been disproportionately concentrated in Nairobi and Mombasa. However, population of small and medium-size urban centres have shown an upward trend over the

years. In 2009, these urban centres were 207 in number with a total population of about 4.3 million and contributed nearly 36.0 percent to the total urban population.

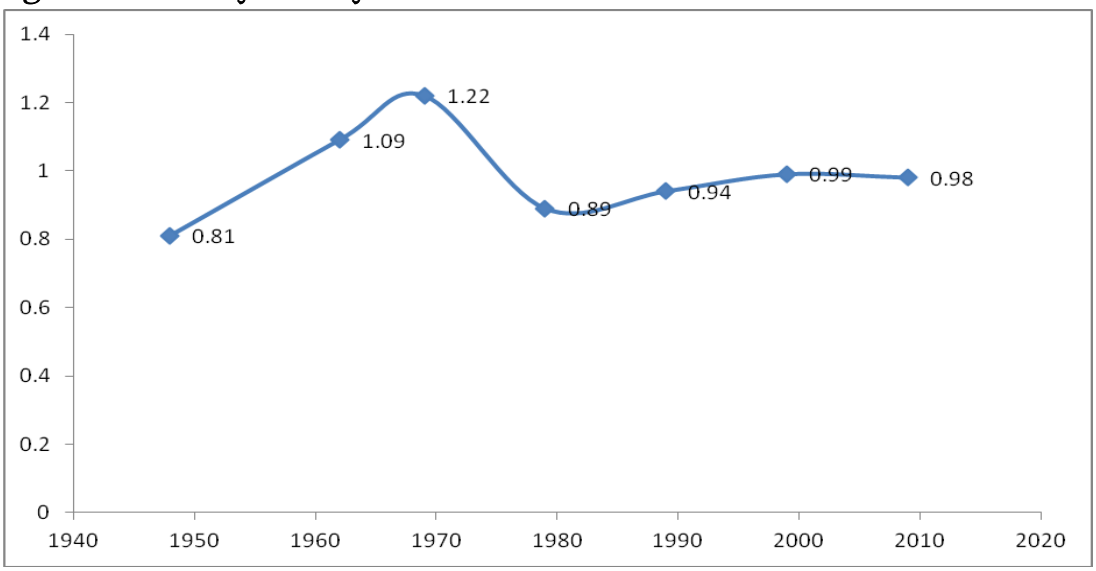
Table 2.8: Urban Populations by Size and Category of Urban Centres, 1962-2009

Year	Category of urban centres by population size							
	1 million and over		100,000-999,999		10,000-99,999		2,000-9,999	
	No of centres	Total population	No of centres	Total population	No of centres	Total population	No of centres	Total population
1962	0	-	2	523,075	5	105,712	27	118,864
1969	0	-	2	756,359	9	79,267	36	153,282
1979	0	-	6	1,321,566	24	717,855	64	276,275
1989	1	1,324,570	5	1,046,588	40	1,080,726	93	426,813
1999	1	2,083,509	4	1,214,927	62	1,508,180	113	623,174
2009	1	3,109,861	22	4,617,114	97	3,665,486	110	631,109

2.5.2 Urban Primacy

Urban primacy occurs when the largest city in a country dominates the urban hierarchy in terms of its population size. The 11-city primacy index as shown in Figure2.4 which is the ratio of the population of the largest city in the country to the combined population of the next 10 cities in population rank, shows that the index is generally low. Nairobi continues to dominate the urban hierarchy, particularly after independence but recently, the growth of medium-size urban centres has stabilized the primacy index.

Figure 2.4: 11-City Primacy Index



Notes: Primacy index - less than 1 is "low"; 1-2.9 is "medium"; 3 and above "high" (UNECA, 1989).

2.5.3 Urban Settlements

The 2009 KPHC also captured the population living in informal settlements particularly in the urban centres. Urban informal settlement is a settlement characterized by at least two of the following: inadequate access to safe water; inadequate access to sanitation and other infrastructure; poor structural quality of housing; overcrowding; and insecure residential status. Table 2.9 shows the distribution of Kenya's population by the kind of settlements by Province. About 15.0 percent of the urban population lives in informal settlements and

Nairobi, the capital city contributes the larger share of 62.0 percent. Other than Nairobi, other provinces with higher population living in informal settlements are Coast, Nyanza and Rift Valley provinces, respectively. Western and North Eastern provinces contribution is very minimal.

Among the provinces, Nairobi has more than one-third of its population living in informal settlements, constituting 36.2 percent of its population. Coast and Nyanza provinces follow at 20.3 percent and 14.0 percent, respectively.

Table 2.9 Urban Formal and Informal Settlements Population by Province, 2009

Province	Total urban population	Formal settlements population	Informal settlements population	Share of population in informal settlement to total population in province (%)	Proportion of total informal settlements population (%)
KENYA	**12,023,570**	**10,221,871**	**1,801,699**		
Nairobi	3,109,861	1,985,402	1,124,459	36.2	62.4
Central	1,501,343	1,477,343	24,000	1.6	1.3
Coast	1,421,511	1,132,461	289,050	20.3	16.0
Eastern	1,192,025	1,168,376	23,649	2.0	1.3
North Eastern	408,591	405,046	3,545	0.9	0.2
Nyanza	1,334,991	1,147,824	187,167	14.0	10.4
Rift Valley	2,356,490	2,218,012	138,478	5.9	7.7
Western	698,758	687,407	11,351	1.6	0.6

Table 2.10 shows the ranking of urban centres by the share of the population living in informal settlements. Nearly all persons living in informal settlements live only in nine urban centres. About 8 out of every 10 persons living in the informal settlements live in the first three major urban centres of Kenya (Nairobi, Mombasa and Kisumu).

Table 2.10: Formal and Informal Settlements Population by Urban Centres, 2009

Urban centre	Urban	Formal settlements		Informal settlements		% share of total informal settlements population
	population	Population	% share in urban centre	Population	% share in urban centre	
KENYA	**12,023,570**	**10,221,871**		**1,801,699**		
Nairobi	3,109,861	1,985,402	63.8	1,124,459	36.2	62.4
Mombasa	925,137	707,269	76.5	217,868	23.5	12.1
Kisumu	383,444	203,536	53.1	179,908	46.9	10.0
Eldoret	312,351	239,653	76.7	72,698	23.3	4.0
Thika	149,289	132,945	89.1	16,344	10.9	0.9
Nakuru	367,183	351,688	95.8	15,495	4.2	0.9
Naivasha	170,551	159,623	93.6	10,928	6.4	0.6
Machakos	150,467	145,899	97.0	4,568	3.0	0.3
Kikuyu	264,714	264,349	99.9	365	0.1	0

Chapter 3-Nuptiality

3.1 Introduction

Nuptiality refers to the frequency of marriages between persons of opposite sexes which involve rights and obligations fixed by law or custom. The study of nuptiality also includes the dissolution of such unions. In the context of the family, marriage represents the initial step in furthering group survival and family expansion. The National Population Policy for Sustainable Development of 2000 defined the family as the basic unit of society. Family formation patterns are thus key determinants of population change.

There are variations in entering matrimony not only between men and women but also cultural traditions and religious customs. In modern times, marriage patterns are influenced by ability of couples to have an economic basis for supporting their households in addition to the cultural traditions and religious customs. Fertility patterns in Africa and Kenya in particular are still determined by nuptial patterns.

3.2 Prevalence of Marriage

This section describes the prevalence of marriage in Kenya. The most commonly used indicator of marriage is proportions ever married by age. The proportion ever married by age 50 is used to determine the universality of marriage. Tables 3.1a, 3.1b and 3.1c shows the distribution of the female population aged 12 and above by marital status for the country and by rural urban residence. Marriage in Kenya among women is still nearly universal. The proportion never married gradually declines from about 97.4 percent among the 12-14 year olds to 5.1 percent among the 50-54 year olds. Older women are still more likely to be engaged in polygamous marriages than the younger ones. Generally divorce and separation is still low.

Table 3.1a: Percent distribution of women aged 12 and above by Marital Status, 2009

	Never Married	Married Monogamous	Married Polygamous	Widowed	Divorced	Separated	Number
12-14	97.4	1.6	0.9	0.1	0.0	0.1	1,458,927
15-19	84.6	13.2	1.4	0.1	0.2	0.4	2,044,206
20-24	41.4	51.5	4.2	0.5	0.8	1.6	2,013,675
25-29	20.5	67.6	6.6	1.4	1.3	2.6	1,666,223
30-34	12.2	70.4	9.2	3.2	1.8	3.2	1,258,795
35-39	9.1	69.3	11.0	5.3	2.0	3.3	1,001,419
40-44	7.7	65.7	12.9	8.2	2.3	3.2	731,572
45-49	6.4	63.8	13.9	10.9	2.2	2.9	636,856
50-54	5.1	58.7	15.9	15.9	2.1	2.3	477,469
55-59	4.5	55.6	16.0	20.0	1.9	2.0	352,405
60-64	3.9	49.5	16.2	27.0	1.8	1.5	298,501
65+	7.3	36.6	13.8	40.0	1.4	0.9	728,725

As shown in Tables 3.1a, 3.1b and 3.1c, the marriage patterns are similar. However, never married is higher in urban areas than rural, especially among the older age groups. Similarly, prevalence of polygamous marriage is lower in urban areas while divorce and separation is higher in the urban areas.

Table 3.1b: Percent Distribution of Women Aged 12 and Above by Marital Status (Rural), 2009

	Never Married	Married Monogamous	Married Polygamous	Widowed	Divorced	Separated	Number
12-14	97.3	1.6	0.9	0.1	0.0	0.1	1,074,963
15 - 19	84.1	13.5	1.6	0.1	0.2	0.4	1,408,081
20 - 24	36.6	54.4	5.6	0.6	0.8	1.8	1,173,277
25 - 29	15.6	69.9	8.9	1.7	1.3	2.7	958,016
30 - 34	9.1	71.2	11.7	3.5	1.6	2.9	784,102
35 - 39	6.9	69.6	13.6	5.5	1.6	2.8	657,835
40 - 44	6.0	65.7	15.5	8.5	1.8	2.5	503,371
45 - 49	5.0	63.8	16.2	11.0	1.7	2.3	455,811
50 - 54	4.0	58.4	18.2	16.0	1.7	1.8	356,096
55 - 59	3.5	55.3	18.0	20.1	1.5	1.6	271,567
60 - 64	3.2	49.0	17.9	27.1	1.5	1.3	235,784
65+	6.7	36.2	14.9	40.1	1.2	0.8	586,987

Table 3.1c: Percent Distribution of Women Aged 12 and Above by Marital Status (Urban), 2009

	Never Married	Married Monogamous	Married Polygamous	Widowed	Divorced	Separated	Number
12-14	97.5	1.6	0.7	0.1	0.1	0.1	383,964
15 - 19	85.8	12.7	0.9	0.1	0.2	0.3	636,125
20 - 24	48.1	47.4	2.2	0.3	0.7	1.3	840,398
25 - 29	27.2	64.3	3.5	1.0	1.4	2.5	708,207
30 - 34	17.4	68.9	5.1	2.7	2.2	3.7	474,693
35 - 39	13.3	68.7	6.0	4.8	2.8	4.4	343,584
40 - 44	11.7	65.7	7.1	7.7	3.3	4.5	228,201
45 - 49	10.0	63.8	7.9	10.5	3.4	4.3	181,045
50 - 54	8.4	59.4	9.2	15.7	3.5	3.8	121,373
55 - 59	7.6	56.7	9.5	19.7	3.2	3.3	80,838
60 - 64	6.5	51.3	9.8	26.8	3.0	2.5	62,717
65+	9.9	37.9	9.2	39.5	2.1	1.4	141,738

Tables 3.2a, 3.2b and 3.2c show the distribution for males aged 12 and above by marital status. Although males enter into marriage later than females, after age 40 smaller proportions of men remain single or (never married) compared to women. The patterns are similar by place of residence.

Table 3.2a: Percent Distribution of Men Aged 12 and Above by Marital Status, 2009

	Never Married	Married Monogamous	Married Polygamous	Widowed	Divorced	Separated	Number
12-14	97.5	1.5	0.9	0.1	0.0	0.0	1,532,395
15 - 19	96.9	2.3	0.7	0.1	0.0	0.1	2,116,516
20 - 24	79.6	19.0	0.8	0.1	0.2	0.4	1,733,980
25 - 29	41.7	54.8	1.7	0.2	0.5	1.2	1,506,622
30 - 34	18.2	75.5	3.3	0.4	0.8	1.8	1,238,688
35 - 39	9.8	81.5	4.9	0.7	1.0	2.1	990,582
40 - 44	6.6	81.8	7.2	1.2	1.1	2.1	735,356
45 - 49	4.9	81.3	8.8	1.6	1.1	2.1	628,803
50 - 54	4.0	79.5	11.3	2.3	1.2	1.9	474,225
55 - 59	3.4	78.4	12.3	2.9	1.2	1.8	357,186
60 - 64	3.3	75.6	14.5	3.9	1.1	1.6	293,614
65+	8.1	64.2	18.0	7.5	1.0	1.3	600,661

Table 3.2b: Percent distribution of Men aged 12 and above by Marital Status (Rural)

	Never Married	Married Monogamous	Married Polygamous	Widowed	Divorced	Separated	Number
12-14	97.5	1.4	0.9	0.1	0.0	0.0	1,158,515
15 - 19	96.9	2.2	0.7	0.1	0	0.1	1,553,818
20 - 24	79.1	19.2	0.9	0.1	0.2	0.5	1,055,938
25 - 29	41.2	54.5	2.2	0.2	0.5	1.4	820,416
30 - 34	18.8	73.5	4.1	0.5	0.9	2.2	694,289
35 - 39	10.5	79.2	6.1	0.8	1.0	2.5	577,958
40 - 44	7.1	79.5	8.6	1.3	1.2	2.4	451,048
45 - 49	5.1	79.3	10.2	1.7	1.2	2.4	403,978
50 - 54	4.0	77.6	12.7	2.3	1.2	2.1	321,722
55 - 59	3.4	76.9	13.6	3.0	1.2	1.9	258,337
60 - 64	3.2	74.4	15.7	3.9	1.1	1.7	223,413
65+	7.6	63.6	19.3	7.4	0.9	1.3	483,308

Table 3.2c: Percent Distribution of Men Aged 12 and Above by Marital Status (Urban)

	Never Married	Married Monogamous	Married Polygamous	Widowed	Divorced	Separated	Number
12-14	97.4	1.6	0.8	0.1	0.0	0.1	373,880
15 - 19	96.9	2.3	0.6	0.1	0.0	0.1	562,698
20 - 24	80.3	18.6	0.5	0.1	0.1	0.3	678,042
25 - 29	42.3	55.3	1.0	0.1	0.4	0.9	686,206
30 - 34	17.6	77.9	2.1	0.3	0.7	1.3	544,399
35 - 39	9.0	84.8	3.3	0.6	0.8	1.5	412,624
40 - 44	6.0	85.5	4.9	1.1	0.9	1.6	284,308
45 - 49	4.6	84.9	6.4	1.6	1.0	1.6	224,825
50 - 54	3.8	83.5	8.1	2.1	1.0	1.4	152,503
55 - 59	3.5	82.2	8.9	2.8	1.1	1.5	98,849
60 - 64	3.7	79.4	10.5	3.9	1.2	1.4	70,201
65+	10.4	66.8	12.5	7.9	1.2	1.2	117,353

Although females enter marriage earlier, by age 35 the proportion of males married exceeds that of women. The data shows that the patterns are nearly the same across the years for males and females and that there is near universal marriage in Kenya.

3.3 Levels and Trends in Timing of First Marriages

Two indicators are used in analysis of timing of first marriages namely, percent married at ages 15-19 and singulate mean age at marriage (SMAM). The proportion married at age 15-19 captures the extent of very young marriages while SMAM represents a summary indicator of the entire age distribution of first marriages. Table 3.3 shows the trends in proportion married in age group 15-19 and the SMAM for the country. There was a slight increase in the proportion of males married in the age group 15-19. However the proportion still remains low compared to females. On the other hand females are increasingly postponing entry into marriage given the proportion married in the age group and SMAM.

Table 3.3: Trends in Timing of Marriages for Age Group 15-19 by Sex, 1989-2009

	1989		1999		2009	
	Male	Female	Male	Female	Male	Female
Percent ever married (age 15-19)	2.1	18.8	2.9	18.8	3.2	15.4
SMAM (Years)	26.0	21.6	26.5	22.3	26.7	22.5

Indicators of marriage timing for the counties are presented in Appendix 2. Table 3.4 shows the counties categorized according to the proportion of women ever married in age group 15-19. Only 10 Counties have below 10.0 percent of the women in the age group 15-19 ever married. The unique case is Tana River where at least 4 out of every 10 women in age group 15-19 have been in a marital union. The shift to late marriage pattern is mainly in Central and South Eastern parts of Kenya with the exception of Elgeyo Marakwet which is in the North Rift Valley.

Table 3.4: Distribution of Proportion of Women Ever Married in Age Group 15-19 by County

Fewer than 10 Percent	10-19.9 Percent	20-39.9 Percent	40 and above Percent
NYANDARUA	NAIROBI	KWALE	
NYERI	MOMBASA	WEST POKOT	
MURANG'A	KILIFI	SAMBURU	TANA RIVER
KIAMBU	TAITA TAVETA	NAROK	
THARAKA	MARSABIT	KISUMU	
EMBU	MERU	MIGORI	
KITUI	GARISSA	HOMA BAY	
MACHAKOS	WAJIR	LAMU	
MAKUENI	MANDERA		
ELGEYO-MARAKWET	SIAYA		
	KISII		
	NYAMIRA		
	TURKANA		
	TRANS NZOIA		
	BARINGO		
	UASIN GISHU		
	NANDI		
	LAIKIPIA		
	NAKURU		
	KAJIADO		
	KERICHO		
	BOMET		
	KAKAMEGA		
	VIHIGA		
	BUNGOMA		
	BUSIA		

Information on the SMAM at County level is shown in the Appendix 2. Among men who ever marry, the average for all the counties is around 27. 0 years while women's average is about 22.5 years. Early age at marriage among men is prevalent in Migori at 24.9 years, followed by Busia at 25.0 years. The oldest age at first marriage among men is in Turkana at 29.4 years, Taita Taveta, Nyeri, Murang'a and Marsabit, each at 29. 0 years. Among the females, the lowest is in Tana River at 18.8 years followed by Narok at 20.1 years while the highest again is Turkana at 24.0 years and Nairobi 24.0. Tables 3.5 and 3.6 show the indicators for marriage timing by sex across the counties. Tana River, Narok and Homa Bay are the counties with both indicators showing early entry into marriage patterns among women. However, late marriage patterns are mixed. It is only Tharaka that is consistent in the indicators.

Table 3.5: Indicators of Marriage Timing by Sex

FEMALES							
	Early Marriage Counties				Late Marriage Counties		
County	Percent Ever Married (15-19)	County	SMAM	County	Percent Ever Married (15-19)	County	SMAM
TANA RIVER	43.4	TANA RIVER	18.8	MAKUENI	6.0	TURKANA	24.0
NAROK	31.3	NAROK	20.1	NYERI	6.7	NAIROBI	23.7
HOMABAY	28.5	HOMABAY	20.2	KITUI	7.2	UASIN GISHU	23.6
SAMBURU	26.0	MIGORI	20.5	MACHAKOS	7.3	MURANG'A	23.5
MIGORI	25.2	WEST POKOT	20.5	THARAKA	8.0	THARAKA	23.4

MALES							
	Early Marriage Counties				Late Marriage Counties		
County	Percent Ever married (15-19)	County	SMAM	County	Percent Ever married (15-19)	County	SMAM
TANA RIVER	6.2	HOMABAY	24.9	MAKUENI	1.6	TURKANA	29.4
HOMABAY	4.2	BUSIA	25.0	MACHAKOS	1.9	MARSABIT	29.0
WEST POKOT	4.2	TANA RIVER	25.0	ELGEYO-M	2.0	TAITATAVETA	29.0
KAKAMEGA	4.2	WEST POKOT	25.1	KITUI	2.0	NYERI	29.0
TURKANA	4.1	NAROK	25.2	TAITATAVETA	2.1	MURANG'A	28.8

3.3.1 Male – Female Differences

A notable feature of marriage in sub-Saharan Africa is the age difference between men and women. The age differences between marital partners are due to a variety of social-demographic factors and norms in societies. These include; prevalence of polygamy, bride wealth, migration and level of education. High costs of bride wealth imply increases in the age of men at first marriage because their families must find sufficient wealth to pay for their sons marriages.

Table 3.6: Male Female Differences in SMAM

MALE- FEMALE DIFFERENCE IN SMAM			
Counties with Largest Difference		Counties with Smallest Difference	
MARSABIT	7.9	NAIROBI	3.1
SAMBURU	7.8	NYAMIRA	3.3
TANA RIVER	6.2	KISII	3.3
TAITA TAVETA	6.2	ELGEYO-MARAKWET	3.4
ISIOLO	6.0	UASIN GISHU	3.5

In this monograph, the age difference is measured by the male – female differences in SMAM. The male-female difference averages at 4.76 years with the least difference in Nairobi of about 3 years followed by Nyamira and Kisii. The largest difference is observed in Marsabit and Samburu at nearly 8 years.

Chapter 4-Fertility

4.1 Introduction

The first component of population change is fertility, which governs the process by which new entrants from the natural process create population change. Fertility refers to the reproductive performance of a population. Several indicators are used to measure this performance. These indicators can be grouped into two: lifetime fertility and current fertility. Lifetime fertility is measured by CEB by women in each reproductive age group. Current fertility is measured by the count of births at a given time relative to the female population in the age group,(often referred to as ASFR). A summary measure of age specific fertility rate is the total fertility rate which is defined as the number of live births a woman would have if she survived to age 50 and experienced the current fertility rate in each reproductive age group.

4.2 Trends in Current Fertility

Population growth rate in Kenya has been largely driven by levels of fertility. The rapid rise in fertility levels in Kenya in the early periods of 1970s reached its peak in the late 1970s, when Total Fertility Rate (TFR) reached a high of 8.1. This rate was one of the highest in the world. The high fertility was followed by rapid decline in the 1980s reaching a TFR of 4.7 in 1998. The rate of fertility decline was about 0.34 births per annum between 1989 and 1993, and 0.14 births per annum between 1993 and 1998 (Blacker, 2002). The most important source of decline being the timing and spacing of births (Brass and Jolly, 1993).

Figures 4.1, 4.2, 4.3, 4.4 and 4.5 summarize the changes in the reported ASFR from surveys and current and past censuses. Figure 3.1 shows the trends in TFR indicating that the apparent rapid decline has slowed.

Figure 4.1: Trends in TFR from Various Sources

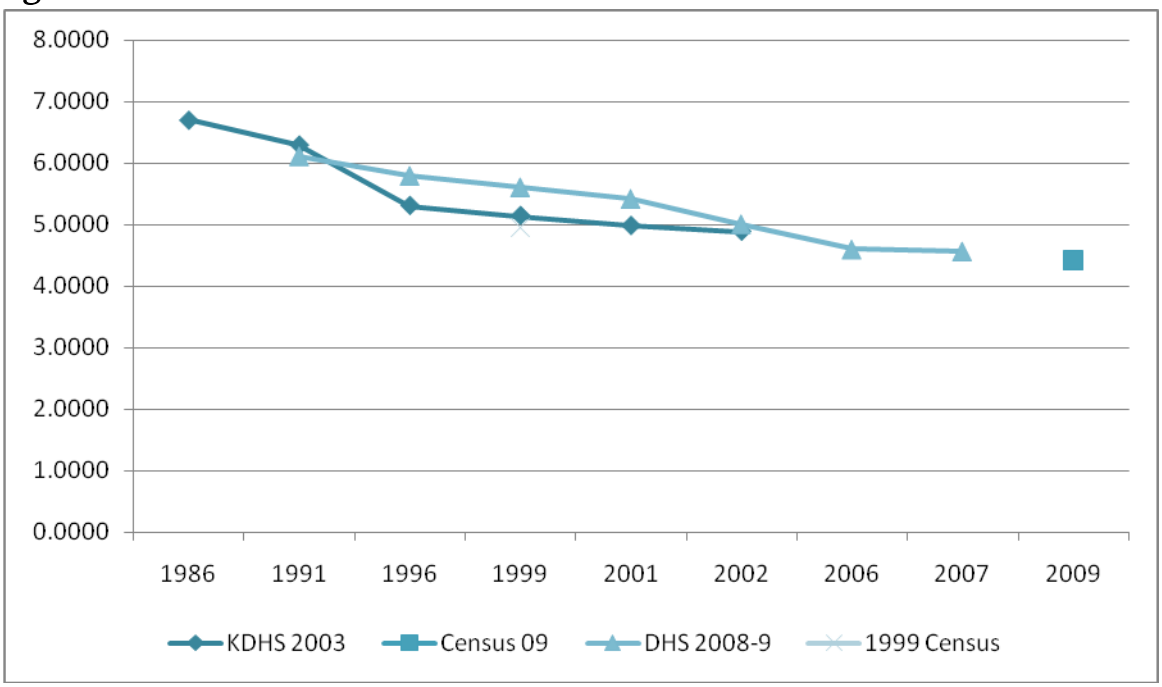


Figure 4.2 shows trends in fertility rate among the youngest age groups (15-19 and 20-24). The upper curves in the figure show trends for the age group 20-24 while the lower curves are the fertility levels among women in the age group 15-19. Among younger women (age 15-24) fertility decline is more evident among women in age group 20-24 than in teenage (age 15-19). The trends for the age group 25-29 are shown in Figure 3.3 The decline is similar as in age group 20-24 but with smaller magnitude. The most consistent rapid change is however among age group 30-34. It should be noted that fertility rates in age group 45-49 has been almost constant since 1980s as shown in Figure 4.5. The main changes in fertility in Kenya occurred among women in the age group 20-35 with rapid declines occurring in age group 35-39.

Figure 4.2: Trends in Age Specific Fertility Rate (ASFR) for Women Aged 15-19 and 20-24

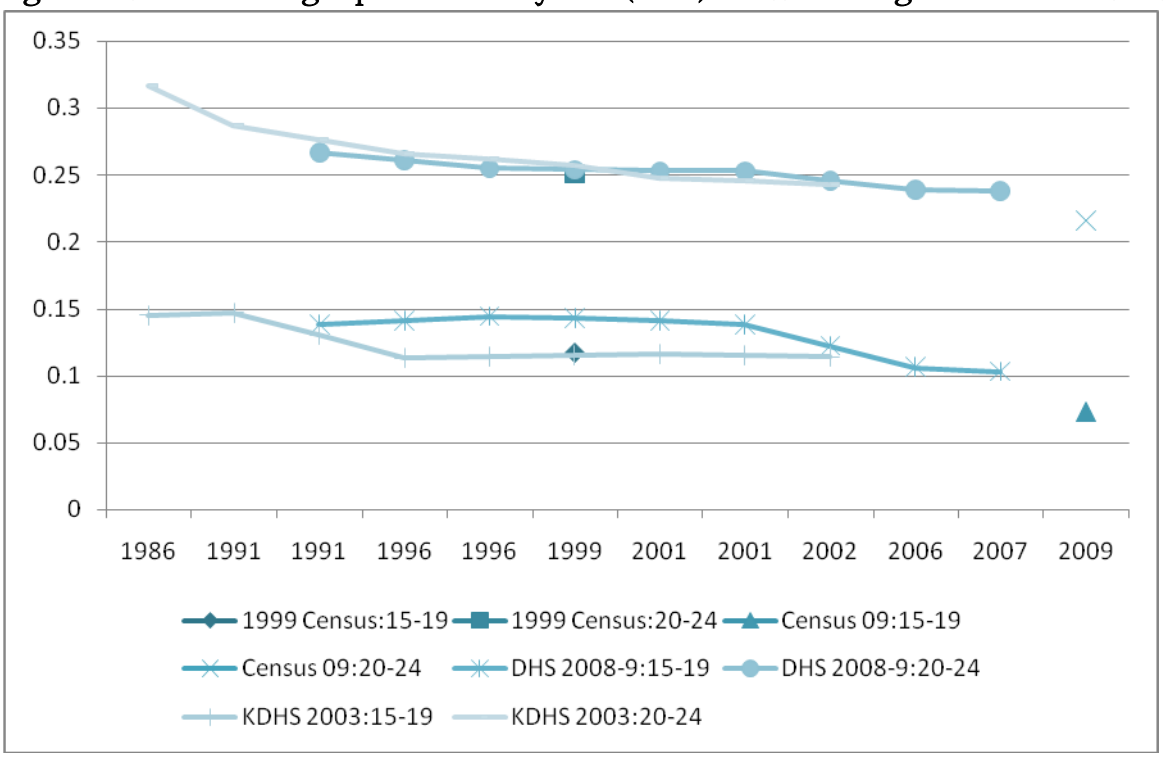


Figure 4.3: Trends in Age Specific Fertility Rate (ASFR) for Age Group 25-29

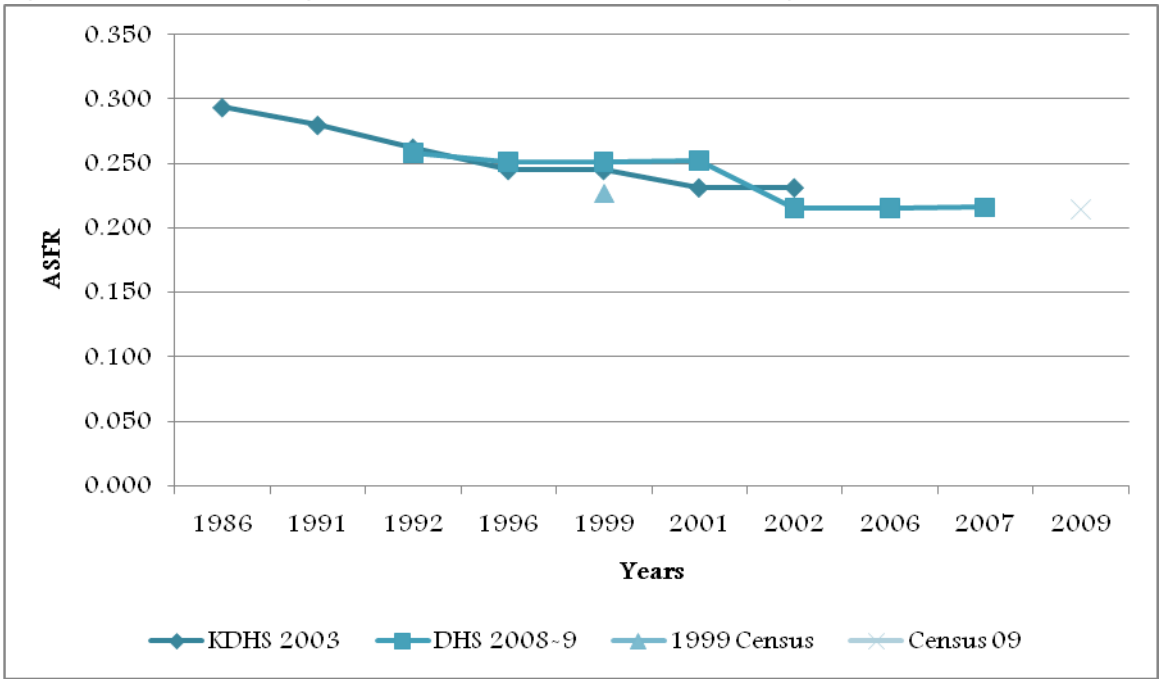


Figure 4.4: Trends Age Specific Fertility Rate (ASFR) for Age Group 30-34

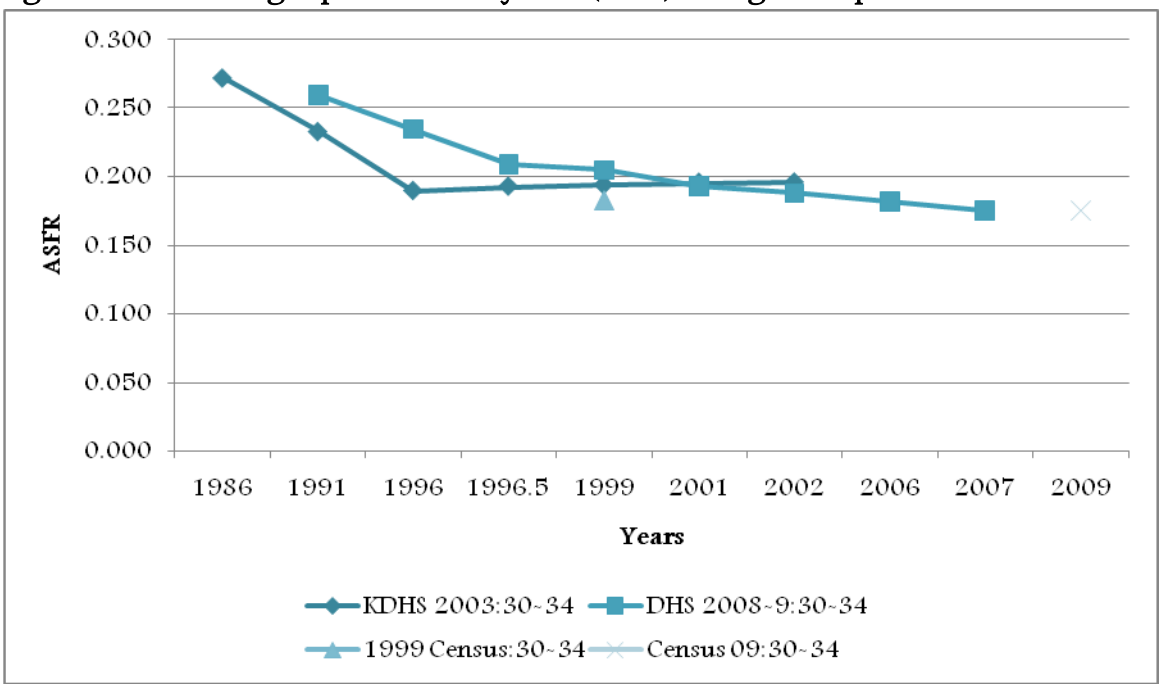


Figure 4.5: Trends in Age Specific Fertility Rate (ASFR) Among Women Age 35 and Above

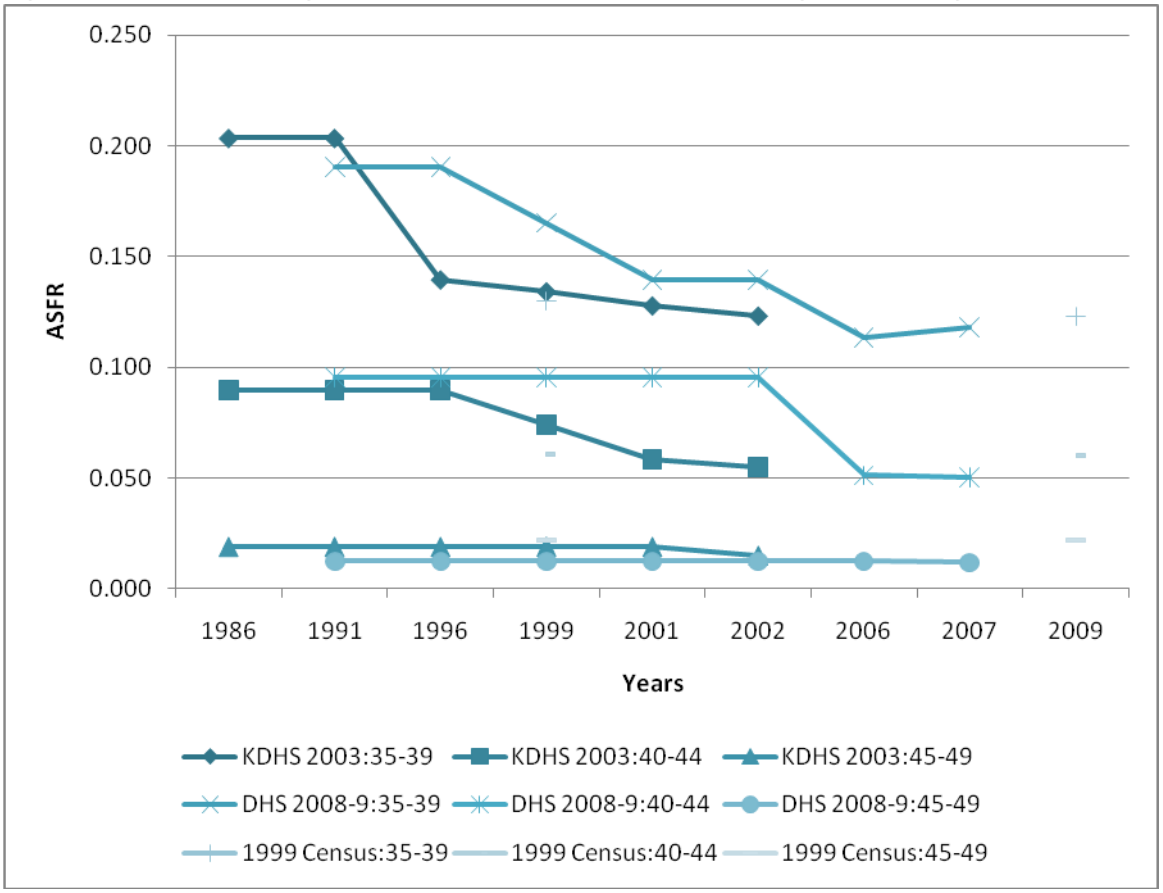


Table 4.1 shows differentials in current fertility by province. The rates have been adjusted for underreporting and omission. Fertility rates are higher in rural than in urban areas. The lowest fertility rates are in Nairobi and Central provinces while highest fertility rates are in North Eastern Province. Nairobi and Central provinces had rapid declines in fertility in the 1980s which slowed in the recent past. The largest decline in the last decade however occurred in Eastern Province. North Eastern Province appears to be still at lower levels of fertility transition.

Table 4.1: Age Specific Fertility Rates (ASFR) by Province (adjusted)

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

Table 4.2 shows the distribution of counties by fertility levels. Low fertility is observed in the major urban centres (Nairobi and Mombasa) and the central parts of Kenya. Pockets of high and unchanging fertility rates are in the ASAL areas. However, the observed high

fertility in Migori is surprising. Thus the slow decline in fertility in Kenya is caused by the unchanging high fertility in the arid and semi-arid parts of Northern Kenya (Counties in North Rift Valley and North Eastern Kenya) where use of contraception is still extremely low[1]. Secondly, the central parts of Kenya (Nairobi, Central and lower Eastern Provinces) had rapid fertility decline which may have slowed down.

Table 4.2: Distribution of Counties by level of Total Fertility Rates (adjusted)

	Level of TFR				
	Under4	4.00-4.99	5.00-5.99	6.00-6.99	7 and above
COUNTY	NAIROBI	NYANDARUA	ISIOLO	KWALE	MARSABIT
	KIRINYAGA	NYERI	MACHAKOS	KILIFI	GARISSA
	MURANG'A	LAMU	MAKUENI	TANARIVER	WAJIR
	KIAMBU	TAITATAVETA	KISUMU	KITUI	MANDERA
	MOMBASA	MERU	TRANSNZOIA	SIAYA	MIGORI
		THARAKA	KAKAMEGA	HOMABAY	TURKANA
		EMBU	VIHIGA	NYAMIRA	SAMBURU
		UASINGISHU		WESTPOKOT	NAROK
		LAIKIPIA		BARINGO	KAJIADO
		NAKURU		ELGEYO/Marakwet	
		NANDI		KERICHO	
		KISII		BOMET	
				BUNGOMA	
				BUSIA	

4.3 Lifetime Fertility

The simplest fertility measures that may be estimated from data on children ever born are parity distributions of women in different age groups. Parity in this context is synonymous with number of children ever born. The parity distribution consists simply of the proportion distribution of women in any age group by number of children ever born. Table 4.3 shows the parity distribution of women of reproductive age since 1989.

[1] According to the 2008/9 Kenya Demographic and Health Survey, contraceptive prevalence among married women in North Eastern Province is just 4 %

Table 4.3: Trends in Distribution of Women of Reproductive Age by Parity, 1989-2009

Age group	Year	Total	0	1	2	3	4	5	6	7	8	9	10+	NS
15-19	1989	100	50.0	11.2	3.3	1.0	0.6	0.2	0.0	0.0	0.0	0.0	0.0	33.7
	1999	100	79.6	13.7	5.7	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	-
	2009	100	77.3	10.3	3.2	0.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	8.0
20-24	1989	100	19.7	22.4	20.3	12.6	5.8	3.4	1.2	0.0	0.0	0.0	0.0	14.5
	1999	100	33.2	27.7	20.4	11.3	4.9	1.7	0.5	0.1	0.0	0.0	0.0	-
	2009	100	35.3	25.3	18.8	9.5	4.2	1.5	1.4	0.0	0.0	0.0	0.0	3.9
25-29	1989	100	6.9	9.8	14.5	18.1	17.4	12.3	7.0	6.8	0.0	0.0	0.0	7.3
	1999	100	14.8	16.3	20.7	18.3	13.8	8.4	4.4	2.0	0.9	0.3	0.2	-
	2009	100	14.0	18.6	22.3	17.5	12.4	6.6	3.3	1.4	1.3	0.0	0.0	2.6
30-34	1989	100	4.1	4.4	6.7	9.6	12.9	15	14.7	15.9	11.2	0.0	0.0	5.6
	1999	100	5.7	7.4	13.1	16.0	16.2	14.1	11.2	7.5	4.5	2.3	2.0	-
	2009	100	6.1	9.8	17.5	17.6	15.6	12.0	8.8	5.2	3.2	1.4	0.7	2.3
35-39	1989	100	3.3	3.0	4.3	6.1	8.2	10.4	12.5	13.0	12.1	9.0	13.0	5.0
	1999	100	4.0	4.1	7.3	10.8	13.3	13.8	13.0	11.2	8.8	5.9	7.6	-
	2009	100	3.6	5.8	12.1	15.4	15.1	13.1	11.5	8.8	6.9	3.7	2.1	1.9
40-44	1989	100	3.2	2.7	3.6	4.7	6.0	7.7	9.5	11.0	11.8	9.0	13	5.0
	1999	100	3.7	3.3	5.0	7.1	9.5	11.1	11.9	11.9	11.1	8.9	16.6	-
	2009	100	3.0	4.3	8.8	12.7	14.1	12.9	12.0	10.4	9.5	6.1	4.3	1.9
45-49	1989	100	3.3	2.6	3.3	4.3	5.3	6.9	8.6	10.0	11.3	10.9	28.7	4.9
	1999	100	3.5	2.9	4.1	5.6	7.5	9.2	10.8	11.7	11.7	10.3	22.6	-
	2009	100	2.7	3.6	6.6	10.0	12.9	13.2	13.0	11.7	10.9	7.7	5.9	1.7

Among the teenagers age 15-19, the proportion with no children has been increasing overtime indicating that younger women are postponing entry into motherhood. The proportion of childlessness among older women has remained at about 3.0 percent among women in the age group 45-49, indicating that sterility may be affecting fewer women. Among women who have completed or nearly completing childbearing, the modal number of children ever born has been declining. For example, among women in the age group 45-49, the modal number of children ever born declined from 8 in 1989 to 6 in 2009. The data do indicate that fertility has been declining across all age cohorts.

4.3.1 Average Parities

The average number of children ever born to women in different age groups provides a convenient summary of fertility in a population. These averages are calculated by dividing the total number of children born to women in an age group by the total number of women in the same age group, with appropriate allowance for women for whom number of children ever born is not stated. Table 4.4a provides the trends in average parities obtained from KPHC while Table 4.4b shows the average parities including information from past surveys. Trends indicate that average parities are declining, an indication that fertility levels have been declining overtime.

Table 4.4a: Trends in Average Parities (Censuses), 1969-2009

	1969	1979	1989	1999	2009
15-19	0.366	0.321	0.273	0.280	0.210
20-24	1.939	1.899	1.610	1.350	1.250
25-29	3.764	3.743	3.357	2.610	2.400
30-34	5.267	5.523	5.049	4.150	3.630
35-39	6.186	6.632	6.247	5.390	4.610
40-44	6.637	7.197	7.093	6.380	5.390
45-49	6.891	7.353	7.440	6.950	5.970

Table 4.4b: Trends in Average Parities (Censuses and Surveys)

	1962	1969	1979	KFS 1977/78	1989	1988/9 DHS
15-19	0.357	0.355	0.321	0.345	0.265	0.280
20-24	1.652	1.882	1.853	1.843	1.560	1.580
25-29	3.009	3.652	3.652	3.741	3.252	3.470
30-34	4.204	5.112	5.388	5.576	4.891	5.010
35-39	5.072	6.002	6.470	6.828	6.052	6.480
40-44	5.608	6.441	7.021	7.551	6.871	7.360
45-49	5.902	6.687	7.173	7.898	7.207	7.630

	1993 DHS	1998 DHS	1999	2003 DHS	2008/9 DHS	2009
15-19	0.200	0.210	0.283	0.229	0.206	0.211
20-24	1.360	1.280	1.352	1.170	1.298	1.254
25-29	3.130	2.700	2.611	2.543	2.483	2.403
30-34	4.530	4.030	4.147	3.775	3.606	3.631
35-39	6.130	5.320	5.386	4.886	4.691	4.607
40-44	6.950	6.370	6.384	5.636	5.095	5.391
45-49	7.870	6.940	6.947	6.455	6.022	5.965

Chapter 5-Mortality

5.1 Introduction

The second component of population change is mortality. Mortality is the demographic study of death in human populations. The level of mortality is one of the indicators of the well-being and health status of a population. It is also an indicator of the level of human development hence its inclusion in the construction of human development indices. The multidimensional approach to poverty recognizes that the level of mortality is an indicator of poverty in a population. This chapter presents both reported death rates and adjusted death rates. The adjustment was necessary due to the indicated omissions and age misreporting indicated in the Chapter 1.

5.2 Reported Estimates of Mortality

Direct questions on mortality were obtained from the 2009 KPHC responses to questions on sections H-11, H-12, H-14 and H-15 respectively. Respondents were asked whether any death had occurred in the household in the one year period before the census date that is between 24/08/2008 and 24/08/2009 including the, name, age and the sex of the dead member. Questions on recent deaths in households have not been as widely used in censuses and this was the first time in a Kenyan census that information was sought on deaths in the household. Early experiences revealed that there used to be severe underreporting of deaths. Recent deaths provide information on age patterns of mortality. Table 5.1 shows the distribution of deaths reported in households by age. A total of 263,564 deaths were reported out of which 27.0 percent were under the age of one year. About 10.0 percent of the total did not report the age at death.

Table 5.1: Percent Distribution of Reported Deaths in Household by Age and Sex

Age	Total	Male	female
0	26.8	27.6	25.9
1-4	13.1	12.6	13.9
5-9	4.5	4.4	4.6
10-14	2.9	2.8	3.0
15-19	2.9	2.6	3.4
20-24	3.9	3.4	4.7
25-29	4.4	3.9	5.2
30-34	4.8	4.5	5.2
35-39	4.2	4.2	4.2
40-44	3.5	3.7	3.1
45-49	2.9	3.2	2.4
50-54	2.4	2.9	1.9
55-59	1.9	2.3	1.4
60-64	2.0	2.4	1.5
65-69	1.5	1.7	1.2
70-74	2.0	2.4	1.5
75-79	1.5	1.8	1.2
80-84	1.6	1.7	1.4
85+	3.3	3.1	3.5
Not Stated	9.7	8.7	10.8
Number of Deaths	263,564	150,024	113,540

5.3 Childhood Mortality

Table 5.2 shows the age patterns of childhood mortality derived from direct questions on deaths in the last 12 months prior to the census, by sex. About two thirds of deaths occur under age 1 showing that most deaths occur before the first birthday. The distribution of deaths by age at provincial level is shown in Table 5.3.

Table 5.2: Percent Distribution of Reported Childhood Deaths by Age and Sex in the Last 12 Months Prior to Census

	Kenya			Rural			Urban		
Age	Total	Male	Female	Total	Male	Female	Total	Male	Female
0	67.1	68.7	65.1	65.1	66.6	63.0	71.3	72.7	69.4
1	12.7	12.2	13.5	13.1	12.5	13.9	12.0	11.4	12.8
2	9.6	9.1	10.4	10.4	9.9	11.2	8.1	7.6	8.7
3	6.4	6.1	6.8	7.0	6.6	7.4	5.3	5.0	5.6
4	4.1	3.9	4.3	4.4	4.3	4.6	3.4	3.2	3.6
Number of deaths (0-4 years)	105,384	60,254	45,130	70,889	40,135	30,754	34,495	20,119	14,376

The proportion without age varied from a low of 6.0 percent in Central to nearly 15.0 percent in Rift Valley. Non-reporting of age has implications in the estimation of level and patterns of age at death. Of the reported total deaths about 27.0 percent occurred below the age of 1, while nearly 4 out of every 10 deaths occur below the age of 5. The proportion of infant deaths to the total deaths ranges from about 21.0 percent in Central and Eastern provinces to a high of 40.0 percent in Nairobi. The proportion of under-five deaths to the total deaths ranges from 27.0 percent in Central Province to slightly over 50.0 percent in Nairobi. Thus in Nairobi, slightly over half of all deaths occur in childhood. Central and Eastern provinces depict different age patterns of mortality with low mortality and perhaps change to higher adult mortality. In Nairobi, the observed patterns may due to fewer elderly persons resident. The proportion of infant deaths to under-five deaths ranges from 57.0 percent in Western to 76.0 percent in Central Province. The high ratio of infant to under-five mortality indicates that most childhood deaths may be due to obstetric complications.

Table 5.3: Distribution of Deaths in the last 12 Months by Age (Provinces), 2009

	Total Number of Deaths	No of Deaths Under 5 years	No of Deaths Under 1 year	Age Not Stated (NS)	NS (%)	Proportion of Deaths under 1 year to Total deaths (%)	Proportion of Deaths under 5 years to total (%)	Proportion of Deaths under 1 year to deaths under 5 years (%)
KENYA	263,564	105,384	70,739	25,443	9.7	26.8	40.0	67.1
RURAL	188,110	70,889	46,136	19,610	10.4	24.5	37.7	65.1
URBAN	75454	34,495	24,603	5833	7.7	32.6	45.7	71.3
NAIROBI	18,108	9,610	7,213	1,224	6.8	39.8	53.1	75.1
CENTRAL	25,621	6,977	5,297	1,341	5.2	20.7	27.2	75.9
COAST	17,907	7,942	5,664	1,792	10.0	31.6	44.4	71.3
EASTERN	34,183	9,729	7,075	3,781	11.1	20.7	28.5	72.7
NORTH EASTERN	17,915	6,878	4,374	1,856	10.4	24.4	38.4	63.6
NYANZA	53,620	24,400	14,942	3,781	7.1	27.9	45.5	61.2
RIFT VALLEY	67,032	26,981	18,859	9,736	14.5	28.1	40.3	69.9
WESTERN	29,178	12,867	7,315	1,932	6.6	25.1	44.1	56.9

5.3.1 Levels of Childhood Mortality

Table 5.4a shows the adjusted levels of childhood mortality by sex at national level. Approximately 54 out every 1000 children born die before reaching their first birthday while 79 out of every 1000 children born do not reach their fifth birthday. Estimates from the most recent demographic and health survey are slightly lower at all levels. Most child hood deaths accounting for 69.0 percent occur within the first year of life.

Table 5.4a: Adjusted Early Childhood Mortality Rates

	2009 Census	2008/9 KDHS
Infant Mortality Rate	**%**	**%**
Males	60.2	-
Females	48.1	-
Both sexes	54.3	52.0
Child Mortality Rate		
Males	26.4	-
Females	21.9	-
Both sexes	24.2	23.0
Under 5 Mortality Rate		
Males	86.7	-
Females	70.0	-
Both sexes	79.1	74.0
Ratio of Infant Mortality Rate to Under 5 Mortality Rate (Both Sexes) (%)	**69.0**	**70.0**

Table 5.4b shows the indicators of childhood mortality by province. High mortality rates occur in North Eastern and Nyanza provinces where infant mortality rate is still above 100 per 1000 live births. Evidence of female advantage exist everywhere except in Coast Province, where there is male advantage during infancy. The ratio of infant mortality to under-five mortality indicates that childhood mortality is more pronounced during infancy in low mortality provinces. However, Western Province appears unique in that mortality during infancy accounts for slightly more than half of the under-five mortality rate.

Table 5.4b: Adjusted Early Childhood Mortality Rates

	Male			Female			Male -Female Ratio			Males	Females
	$^1q_0$	$^4q_1$	$^5q_0$	$^1q_0$	$^4q_1$	$^5q_0$	$^1q_0$	$^4q_1$	$^5q_0$	$^1q_0$ / $^5q_0$	$^1q_0$ / $^5q_0$
KENYA	**60**	**26**	**87**	**48**	**22**	**70**	**1.2510**	**1.2095**	**1.2380**	**0.69**	**0.69**
NAIROBI	52	12	63	39	10	49	1.3275	1.1465	1.2901	0.82	0.79
CENTRAL	52	12	64	40	11	51	1.2886	1.1193	1.2524	0.81	0.79
COAST	69	31	100	70	17	51	0.9813	1.8696	1.1512	0.69	0.81
EASTERN	52	11	63	42	8	50	1.2447	1.3615	1.2633	0.83	0.84
NORTH EASTERN	123	40	163	98	34	132	1.2530	1.1563	1.2279	0.76	0.74
NYANZA	113	58	172	89	50	139	1.2702	1.1751	1.2361	0.66	0.64
RIFT VALLEY	60	15	75	47	13	59	1.2820	1.1620	1.2566	0.80	0.79
WESTERN	73	55	128	59	48	107	1.2440	1.1533	1.2034	0.57	0.55

5.4 Adult Mortality

Table 5.5 shows the age specific mortality rates for men and women between ages 15-49 for reported, adjusted and mortality rates for women and men age 15-49 based on the survivorship of sisters and brothers of women respondents, for the period 0-6 years prior to the 2008-9 Kenya Demographic and Health Survey (KDHS). Although the age patterns

seem similar, men have slightly lower mortality between ages 25 and 40, the prime age at childbearing, thereafter males have higher mortality.

Table 5.5: Age Specific Mortality Rates for Men and Women Age 15-49

	2009 Census				2008/9 DHS	
	Reported		Adjusted		Sibling History	
	MEN	WOMEN	MEN	WOMEN	MEN	WOMEN
15-19	2.09	2.03	2.92	1.85	2.50	1.70
20-24	2.95	3.15	2.48	3.02	3.10	3.30
25-29	3.94	4.17	3.46	5.58	4.10	5.90
30-34	5.22	5.86	4.78	10.66	7.20	7.00
35-39	5.37	6.83	7.67	13.82	8.40	9.00
40-44	5.47	8.2	12.24	10.97	12.30	11.10
45-49	4.83	8.34	13.17	10.09	14.90	10.30

A better way to show mortality levels is by estimating the probability of dying by age. Figure 5.1shows the probabilities of dying between ages 5 and 75 by sex. It further shows that the female advantage is more pronounced after age 40, while male mortality is lower only between ages 25 and 40.

Figure 5.1: Probability of Dying by Age and Sex

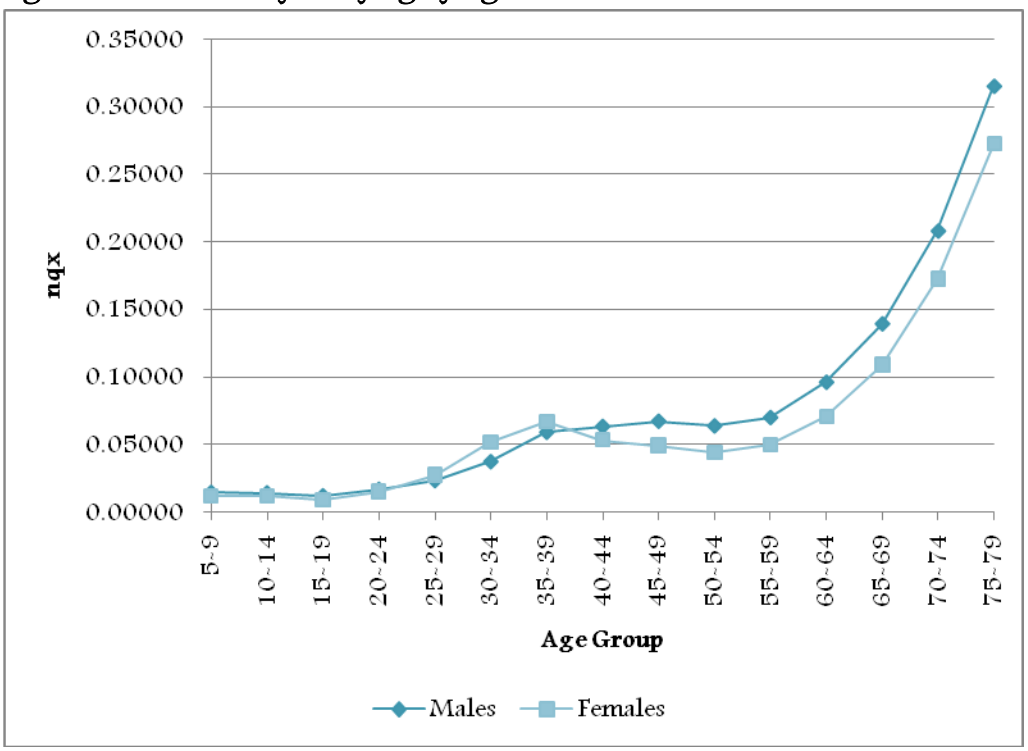


Table 5.6 shows an abridged life table for Kenya containing estimated central death rates, probability of dying by age and life expectancy. Estimates of adult mortality are summarized by the probability of dying between exact ages 15 and 60 (45q15). It can be interpreted as the probability that someone who had survived childhood would die before old age if he or she went through life subject to the age-specific death rates of the year in question. One limitation of the measure is that it is heavily influenced by death rates in the upper part of the 45-year age range. This reduces its sensitivity to trends in death rates in early adulthood. The estimated probability of dying between age 45 and 60 (45q15) is approximately 0.348 for males and 0.313 for females.

Table 5.6 Abridged Life Tables for Kenya

	Both sexes			Male			Female		
Age, x	nMx	nqx	ex	nMx	nqx	ex	nMx	nqx	ex
0	0.057	0.054	59.2	0.0632	0.0602	57.8	0.0501	0.0481	60.7
1	0.006	0.024	61.6	0.0067	0.0264	60.5	0.0055	0.0219	62.7
5	0.003	0.013	59.1	0.0030	0.0148	58.1	0.0023	0.0116	60.1
10	0.003	0.013	54.8	0.0029	0.0145	53.9	0.0024	0.0120	55.8
15	0.002	0.011	50.5	0.0025	0.0123	49.7	0.0018	0.0092	51.4
20	0.003	0.016	46.1	0.0035	0.0171	45.3	0.0030	0.0150	46.9
25	0.005	0.026	41.8	0.0048	0.0236	41.0	0.0056	0.0275	42.6
30	0.009	0.045	37.8	0.0077	0.0376	36.9	0.0107	0.0519	38.7
35	0.013	0.063	34.5	0.0122	0.0594	33.3	0.0138	0.0668	35.7
40	0.012	0.059	31.6	0.0132	0.0637	30.2	0.0110	0.0534	33.0
45	0.012	0.058	28.4	0.0140	0.0676	27.1	0.0101	0.0492	29.8
50	0.011	0.054	25.0	0.0133	0.0641	23.9	0.0090	0.0440	26.2
55	0.012	0.060	21.3	0.0146	0.0704	20.4	0.0102	0.0499	22.3
60	0.017	0.084	17.5	0.0203	0.0965	16.7	0.0146	0.0706	18.3
65	0.026	0.124	13.9	0.0300	0.1397	13.2	0.0231	0.1090	14.5
70	0.042	0.190	10.5	0.0466	0.2085	10.0	0.0378	0.1727	11.0
75	0.069	0.293	7.4	0.0750	0.3158	7.0	0.0631	0.2725	7.7
80	0.228	1.000	4.4	0.2495	1.0000	4.0	0.2128	1.0000	4.7

5.5 Overall Mortality Levels

The overall mortality patterns can be summarized using the life expectancies by age. The life expectancy at birth for males and females are 57.8 years and 60.7 years, respectively. This is a marked improvement from 1999 KPHC when life expectancies had declined as a result of increased mortality at all ages. The life expectancy for a male who has reached age 20 is about 45.3 years while males who have reached retirement age (age 60) are expected to live an average of 16.7 years. Similarly, a female age 20 expects to live for an average of 46.9 years while an elderly woman age of 60 expects to live on average 18.3 years. When the age specific deaths are multiplied by the population at each age and summed we obtain the crude death rates. The estimated crude death rate for 2009 is 10.4 per 1000 population.

5.6 Maternal Mortality

In the 2010 round of censuses, the United Nations Statistical Division (UNSD) encouraged many developing countries to include questions on pregnancy related deaths as a way of helping improve on the quantity and quality of data needed in estimation of maternal mortality[2] in the world. Using information on recent deaths in household for deceased

[2] **Principal definitions and measures of maternal mortality**

Pregnancy-related death is *the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the cause of death*. This is a time-of-death definition.

Maternal death is *the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes*. This definition requires cause-of-death information in order to exclude incidental causes.

Maternal mortality ratio (MMR): number of maternal deaths during a given time period per 100,000 **live births** during the same time period.

Maternal mortality rate: number of maternal deaths in a given time period per 100,000 **women of reproductive age**, or woman-years of risk exposure, in the same time period

Lifetime risk of maternal death: the probability of maternal death across a woman's reproductive life, usually expressed in terms of odds.

females (column H-15), subsequent questions were asked in column H-16 on whether the female deaths were pregnancy related (i.e. during pregnancy, during delivery or within two months after delivery). This information was meant to provide data necessary for the estimation of maternal mortality in the country.

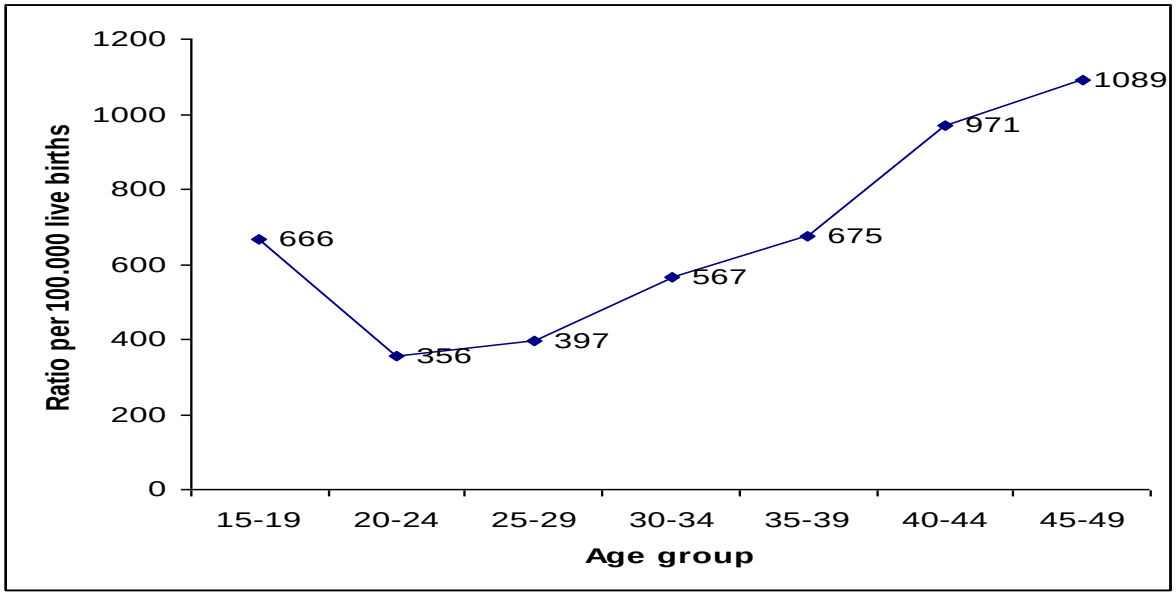
Table 5.7 shows the reported number of female deaths and pregnancy related deaths in the year preceding the 2009 KPHC A total of about 32,021 women of reproductive age were reported to have died out of which 6,632 died of pregnancy related causes. This indicates that out of the total number of women of reproductive age who had died, 21.0 percent was as a result of pregnancy related causes. The maternal mortality rate is about 0.708. When this rate is divided by the general fertility rate (number of births per women of reproductive age), we obtain maternal mortality ratio. During the year preceding the census, there were a total of 1,339,100 births giving a general fertility rate of about 0.143. The maternal mortality ratio is about 495 deaths per 100,000 live births. Figure 5.2 shows the approximate ratios by age of the women for the period 2008-2009. Maternal mortality risk is higher among older and younger women.

Table 5.7: Distribution of the Reported Number of Women and Women Dead due to Pregnancy Related Causes in the 1 Year Preceding the Census, 2009

Age group	No. of Women	Total Number of female deaths	No deaths due to pregnancy related Causes (PRD)	Percent of deaths that are pregnancy related (Col. 3 divided by col.) 2	Reported Pregnancy related death rates per 1000	Number of births in last 12 months
15..19	2,044,207	3,813	994	26.1	0.486	148,910
20..24	2,013,676	5,318	1,548	29.1	0.769	429,800
25..29	1,666,223	5,873	1,418	24.1	0.851	357,320
30..34	1,258,802	5,881	1,251	21.3	0.994	222,280
35..39	1,001,419	4,813	833	17.3	0.832	123,090
40..44	731,565	3,575	427	11.9	0.584	43,520
45..49	636,856	2,748	152	5.5	0.239	14,180
Total	**9,352,748**	**32,021**	**6,623**	**20.7**	**0.708**	**1,339,100**
General fertility rate = 0.143						
Reported Maternal Mortality ratio (per 100,000 live births) 495						

Proportion of maternal deaths among female deaths (PMDF): maternal deaths as a proportion of all female deaths of reproductive age, usually defined as 15–49, in a given time period.

Figure 5.2: Reported Maternal Mortality Ratio by Age of Women (Ratios are per 100,000 Live Births), 2008-2009



The results from the census data shows some indication of declining childhood mortality however the estimates are higher compared to those derived from other sources. The data utilized to obtain the levels of mortality here pertain to all deaths reported in the household, which is different from the previous sources of estimates, where information was only obtained from mothers who still alive. The use of deaths in the last 12 months should in future, incorporate the relationship between the individual reported dead to a member of the household for proper identification. The way the question was asked risks the problem of double counting particularly in areas with higher rates of movement and migrants in urban areas. Surveys should also be done to improve the ways in which mortality data is collected so that the census questions are fine tuned.

Chapter 6-Migration

6.1: Introduction

Migration usually refers to a process of moving from one administrative area to another with the intention of staying in the new area. Migration, besides fertility and mortality, is the third key component of population change. However, migration is a complex phenomenon compared with the other two, mainly because migration must be defined in both spatial and temporal dimensions. The complexity of migration arises from the number of parameters that must be taken into account when describing population movement. These include: type of change of boundary (internal vs. international); direction of the move (rural-rural, rural –urban etc); distance covered; timing and duration of stay (long term verses short term); and periodicity (repetitiveness). Different combinations of such parameters lead to different types of moves. In this module, only the following components are considered, namely; movements across internal administrative boundaries; movements from rural to urban areas and movements across international boundaries.

6.2 Internal Migration

This section of the chapter presents brief information on internal migration between the regions focusing first on recent migration. Recent migration refers to the reports from the population on person's age 1 year and above who was resident in another region but enumerated in a different region. Nairobi had the highest number of recent in-migrants, followed by Rift Valley and then Central. North Eastern had the lowest number of recent in-migrants followed by Western. It should be noted that the volume of female migration is increasing contrary to past trends. Nairobi province has the highest number of recent out-migrants (153,655), followed by Eastern (146,021), Rift Valley (133,945), Central (109,998), Nyanza (107,220), and Western (104,907) in that order. North Eastern has the least number of recent out-migrants (14,340), followed by Coast (42,008). In Central, Nyanza, and Western provinces, majority of the recent out-migrants were female.

Table 6.1: Distribution of Recent Migrants by Sex and County, 2009

Region	Total			Male			Female		
	In	Out	Net	In	Out	Net	In	Out	Net
NAIROBI	247,688	153,655	94,033	113,324	76,842	36,482	134,364	76,813	57,551
CENTRAL	135,114	109,998	25,116	67,491	52,156	15,335	67,623	57,842	9,781
Nyandarua	26,357	23,057	3,300	12,892	10,918	1,974	13,465	12,139	1,326
Nyeri	24,838	33,451	-8,613	13,268	15,970	-2,702	11,570	17,481	-5,911
Kirinyaga	9,979	11,595	-1,616	4,904	5,592	-688	5,075	6,003	-928
Murang'a	65,971	32,095	33,876	32,820	14,410	18,410	33,151	17,685	15,466
Kiambu	95,710	97,541	-1,831	45,934	47,593	-1,659	49,776	49,948	-172
COAST	67,849	42,008	25,841	34,536	22,036	12,500	33,313	19,972	13,341
Mombasa	71,036	39,678	31,358	33,674	20,085	13,589	37,362	19,593	17,769
Kwale	9,216	14,664	-5,448	4,822	7,182	-2,360	4,394	7,482	-3,088
Kilifi	17,792	20,489	-2,697	8,618	9,929	-1,311	9,174	10,560	-1,386
Tana River	4,911	4,519	392	2,898	2,595	303	2,013	1,924	89
Lamu	5,373	3,231	2,142	3,364	1,723	1,641	2,009	1,508	501
Taita Taveta	9,238	9,144	94	4,867	4,229	638	4,371	4,915	-544
EASTERN	51,427	146,021	-94,594	28,374	69,196	-40,822	23,053	76,825	-53,772
Marsabit	3,181	6,695	-3,514	2,120	4,172	-2,052	1,061	2,523	-1,462
Isiolo	4,734	5,803	-1,069	2,937	3,555	-618	1,797	2,248	-451
Meru	14,117	13,044	1,073	7,926	6,291	1,635	6,191	6,753	-562
Tharaka/Nithi	4,633	14,552	-9,919	2,417	6,721	-4,304	2,216	7,831	-5,615
Embu	8,526	14,688	-6,162	4,485	6,844	-2,359	4,041	7,844	-3,803
Kitui	5,218	46,002	-40,784	2,754	22,253	-19,499	2,464	23,749	-21,285
Machakos	31,321	41,485	-10,164	16,582	19,135	-2,553	14,739	22,350	-7,611
Makueni	7,930	31,985	-24,055	4,159	15,231	-11,072	3,771	16,754	-12,983
NORTH EASTERN	7,627	14,340	-6,713	4,944	8,432	-3,488	2,683	5,908	-3,225
Garissa	5,688	7,811	-2,123	3,418	4,604	-1,186	2,270	3,207	-937
Wajir	2,142	4,092	-1,950	1,472	2,387	-915	670	1,705	-1,035
Mandera	1,020	3,660	-2,640	720	2,107	-1,387	300	1,553	-1,253
NYANZA	65,577	107,220	-41,643	32,196	53,174	-20,978	33,381	54,046	-20,665
Siaya	24,622	31,922	-7,300	11,430	14,103	-2,673	13,192	17,819	-4,627
Kisumu	40,683	35,299	5,384	18,718	16,624	2,094	21,965	18,675	3,290
Migori	15,232	18,655	-3,423	6,683	8,576	-1,893	8,549	10,079	-1,530
Homa Bay	21,333	26,075	-4,742	9,579	11,787	-2,208	11,754	14,288	-2,534
Kisii	13,407	146,885	-133,478	6,747	70,742	-63,995	6,660	76,143	-69,483
Nyamira	116,446	14,530	101,916	55,093	7,396	47,697	61,353	7,134	54,219
RIFT VALLEY	192,110	133,945	58,165	99,628	70,212	29,416	92,482	63,733	28,749
Turkana	4,070	4,694	-624	2,311	2,906	-595	1,759	1,788	-29
West Pokot	2,193	3,487	-1,294	1,284	1,955	-671	909	1,532	-623
Samburu	3,722	4,365	-643	2,507	2,791	-284	1,215	1,574	-359
Trans Nzoia	22,624	21,361	1,263	11,018	10,518	500	11,606	10,843	763
Baringo	5,763	10,951	-5,188	3,121	5,598	-2,477	2,642	5,353	-2,711
Uasin Gishu	47,733	27,440	20,293	24,387	13,742	10,645	23,346	13,698	9,648
Elkeyo/Marakwet	4,715	9,476	-4,761	2,607	4,529	-1,922	2,108	4,947	-2,839
Nandi	13,881	15,958	-2,077	7,143	7,722	-579	6,738	8,236	-1,498
Laikipia	20,053	18,195	1,858	10,160	9,901	259	9,893	8,294	1,599
Nakuru	78,356	67,245	11,111	40,704	34,497	6,207	37,652	32,748	4,904
Narok	19,685	11,618	8,067	10,793	6,280	4,513	8,892	5,338	3,554
Kajiado	47,136	13,483	33,653	23,178	7,697	15,481	23,958	5,786	18,172
Kericho	14,974	13,640	1,334	7,625	6,678	947	7,349	6,962	387
Buret	9,685	14,514	-4,829	4,847	7,457	-2,610	4,838	7,057	-2,219
WESTERN	44,704	104,907	-60,203	21,194	49,637	-28,443	23,510	55,270	-31,760
Kakamega	28,253	49,134	-20,881	12,932	22,633	-9,701	15,321	26,501	-11,180
Vihiga	8,684	26,958	-18,274	3,917	12,450	-8,533	4,767	14,508	-9,741
Bungoma	17,750	30,192	-12,442	8,439	14,568	-6,129	9,311	15,624	-6,313
Busia	13,271	21,877	-8,606	6,040	10,120	-4,080	7,231	11,757	-4,526

Subtracting recent out-migrants from recent in-migrants gives the net effect of recent population movements. Regions that experience positive recent net migration have the immediate burden of providing various social amenities required by the new population.

Nearly all provinces experienced positive recent net-migration with Nairobi having the highest number of recent net migrants followed by Rift Valley.

Lifetime Migration

A person whose place of enumeration differed from his or her county of birth is considered as a lifetime migrant. However, it has a limitation that the intermediate movements cannot be determined as shown

The trend of lifetime out-migration in 2009 was similar to those observed for the period 1979-1999. It could, therefore be inferred that the underlying reasons for out-migration had remained the same during the 1979-1989, 1989-1999 and 1999-2009 intercensal periods. It should be noted that despite the fact that Nairobi and Rift Valley provinces patterns of migration may be changing, the observed out-migration levels for Nairobi and Rift Valley provinces (areas known for not being lifetime out-migration) have shifted with data indicating that migrants had reversed their decisions to migrate.

6.3 Migration by Rural and Urban Areas

One of the largest sources of urbanization in Kenya is rural to urban migration. Table 6.2 shows the distribution of migrants by province. In Central and Coast provinces, the direction of flow was from rural to urban areas. In the other provinces, other than Nairobi (that is wholly urban) migration was predominantly within the rural areas i.e. rural to rural.

Table 6.2: Percent Distribution of Recent Migrants by Age and Sex, Residence and Province, 2009

		Male					Female				
		0-14	15-24	25-59	60+	Total	0-14	15-24	25-59	60+	Total
Central	Rural	65.6	12.9	20.4	1.1	46.6	66.8	15.0	17.0	1.3	44.4
	Urban	44.4	21.9	32.9	0.9	53.4	43.3	30.3	25.1	1.3	55.6
Coast	Rural	76.4	9.3	13.4	0.9	40.5	81.2	8.4	9.2	1.2	37.4
	Urban	50.6	21.6	26.6	1.2	59.5	49.3	27.4	21.3	2.1	62.6
Eastern	Rural	77.6	11.1	13.0	0.8	66.9	83.6	7.8	7.7	0.8	65.8
	Urban	50.6	18.2	30.3	0.8	33.1	53.1	24.1	21.4	1.3	34.2
North Eastern	Rural	82.4	7.8	8.9	1.0	73.7	86.3	5.4	7.4	0.9	74.8
	Urban	64.9	13.2	20.7	1.2	26.3	73.4	14.1	11.3	1.3	25.2
Nyanza	Rural	78.4	9.1	12.0	0.5	66.4	74.7	14.6	10.1	0.6	65.9
	Urban	59.1	18.3	22.1	0.5	33.6	57.2	26.1	15.9	0.8	34.1
Rift Valley	Rural	72.5	11.9	14.7	0.9	62.3	75.9	11.9	11.0	1.2	60.6
	Urban	46.7	25.0	27.4	0.9	37.7	47.5	30.3	20.9	1.3	39.4
Western	Rural	82.3	7.4	9.9	0.5	77.4	77.8	12.0	9.6	0.6	77.5
	Urban	60.0	17.3	22.1	0.5	22.6	58.7	24.1	16.6	0.7	22.5

Nairobi Province omitted as it is entirely Urban

6.4 International Migration

6.4.1 Foreign Born Population

The number of foreign born population in a country can be considered as the first indicator of international migration. It typically represents the segment of the enumerated population born in a different country, currently living in Kenya. There are two groups namely: voluntary immigrants and forced immigrants (refugees).

The 2009 KPHC enumerated 357,468 persons who had been born outside Kenya. About 84.0 percent of the foreign born population came from within Africa. This is followed by Asia, 10.0 percent; Europe, 4.0 percent; America, 1.6 percent; with Australia and Caribbean having less than 1.0 percent. The female immigrants were slightly more than the males (179,432 females versus 178,036 males). Out of the 298,258 persons born within Africa, about 60.0 percent are from the East African region (Tanzania, Uganda, Rwanda, Burundi, Ethiopia, Sudan and Somalia).

Out of the immigrants from the African region, majority are from the East African Region. Tanzania and Uganda contributed the largest share of immigrants because the three countries have had a close historical relationship for many years. Tanzania contributed the majority of immigrants, at 41.4 percent; followed by Uganda at 35.7 percent; Sudan, at 19.4 percent; Rwanda, at 2.4 percent and Burundi, at 1.1 percent.

Of the 357,468 immigrants in Kenya, Nairobi had the highest proportion (36.0 per cent), followed by North Eastern, about 29.0 per cent; Rift Valley, about 16.0 per cent and Nyanza, about 6 per cent. Eastern Province had the least proportion of immigrants.

6.4.2 Stock of Refugee Population

Table 6.3 shows the distribution of the refugee population by country of birth. A total of 193, 681 persons enumerated in Kenya claimed they were refuges. Of the refugees enumerated, the male population was slightly higher. Slightly over 50.0 percent of the enumerated refugees came from Somalia, followed by Sudan at 4.0 percent.

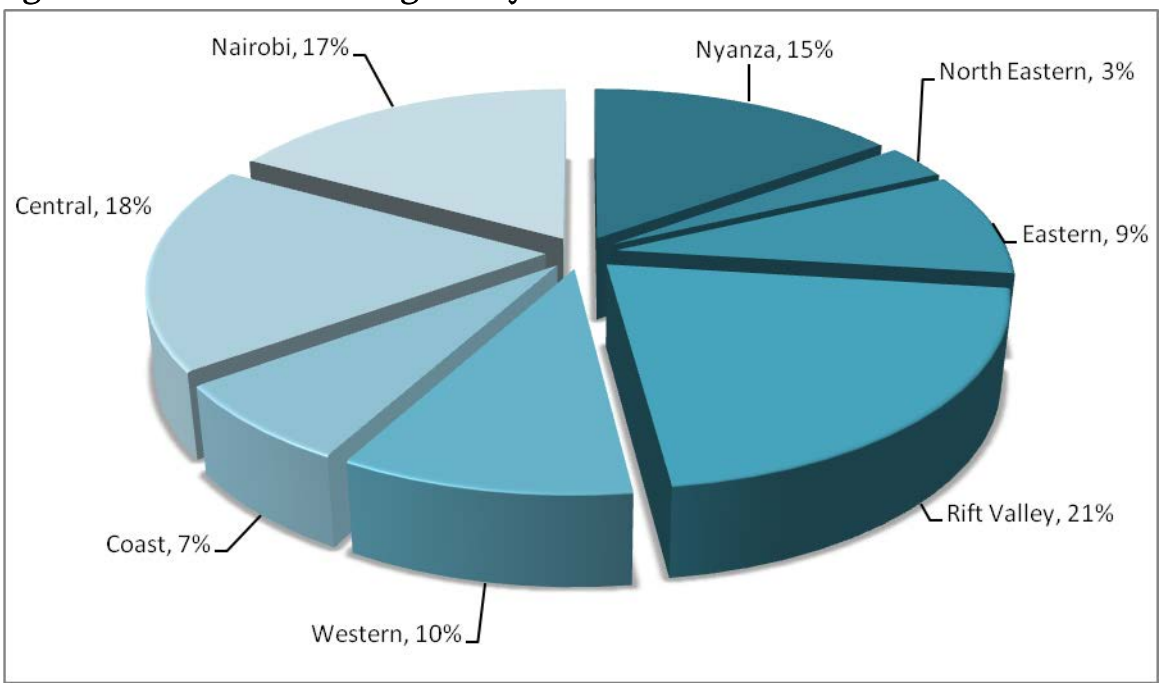
Table 6.3: Distribution of Immigrants by Country Of Origin

	Country of Origin									
	Somalia	Sudan	Ethiopia	Uganda	DRC	Eritrea	Rwanda	Burundi	Other African Countries	Total
Total	103,345	7,657	3,832	405	706	32	238	236	77,230	193,681
Male	53,452	4,523	2,186	221	400	20	119	125	40,085	101,131
Female	49,893	3,134	1,646	184	306	12	119	111	37,145	92,550
sex ratio	107	144	133	120	131	167	100	113	108	109

6.4.3 Emigration

The 2009 KPHC for the first time tried to obtain information on emigration from Kenya. The households reported that about 160,351 Kenyans had moved and continued to stay in other countries in the last 15 years prior to the Census. Rift Valley Province has the largest share of the emigrants followed by Central and Nairobi provinces respectively. Figure 6 shows the distribution of the emigrants by province.

Figure 6.1: Distribution of Emigrants by Province



Chapter 7-Population Projections

7.1 Introduction

This section summarizes the projected population for the county to the year 2030 based on the existing trends in current and past population change. The construction of population projections involved three major steps namely:

- Adjustment of the base population is normally affected by either under or over enumeration and age misreporting;
- Assessment of the future course of mortality and
- Assessment of the future fertility.

Since international migration is negligible (see monograph on migration), it was assumed that in the next 20-30 years migration into or out of the country would remain low. The rural-urban population projection (RUP) program by the US Census Bureau was used for projecting the population at national as well as sub national levels.

7.2 Fertility Projections

In order to project fertility trends, four historical estimates of fertility – the 1999 and 2009 censuses, and the 2003 and 2008/09 Kenya Demographic and Health Survey (KDHS) estimates – together with the 2009 KPHC estimates were used as inputs. The Total Fertility Rate (TFR) was, assumed to decline from 4.7 in 2010 to 4.6 in 2015, then to 4.4 in 2020, then to 4.3 in 2025, and eventual reach 4.1 in 2030. These assumptions are based on current trends where fertility has been observed to decline slowly due to unchanging or lowly declining level of fertility in the Northern parts of Kenya while in Central and Nairobi Provinces, the decline is nearly stalling. The major change in fertility in Kenya can only occur if there is a substantial decline in fertility in Western Kenya (Nyanza, Western and Rift valley). Further declines in Central Province may be unlikely in the near future.

7.3 Mortality Projections

Mortality projections are based on projecting future expectation of life at birth for males and females. Expectation of life at birth was assumed to increase from 58.5 for males and 61.6 for females in 2010 to 65.3 and69.5 in 2030 respectively. This was based on the fact that both the 2008/09 KDHS and the 2009 KPHC had shown improvement in infant and child mortality. Despite these improvements mortality levels are still extremely high in most counties in Nyanza, North Eastern and Western Province.

7.3.1 Adjustment due to HIV

Non-AIDS Mortality

The 2008/09 KDHS infant and child mortality estimates were used to subtract the estimated AIDS-only mortality from the KDHS mortality estimates (which include AIDS), to obtain non-AIDS central death rates for 2004, the reference year of the estimates. The resultant values of non-AIDS death rates together with expectation of life at birth were projected to 2030.

Similarly, the 2008/09 DHS infant and child mortality estimates were used in projecting mortality at provincial level. Since the KDHS report does not provide mortality estimates by sex at provincial level, the infant and child mortality estimates had to be split by sex. The process involved estimation of sex ratio at birth using national estimates of infant and child mortality, and splitting the provincial estimates using the implied sex ratio.

The estimated infant and child mortality values for each province by sex using this process were used to estimate the non-AIDS age-specific mortality rates. This was achieved by subtracting the estimated AIDS-only mortality from the KDHS mortality estimates (which include AIDS), to obtain non-AIDS central death rates for 2004, the reference year of the estimates. Once more, the resultant values of non-AIDS central death rates together with expectation of life at birth were projected to 2030 for each province.

AIDS-Only Mortality

The AIDS-only age-specific mortality rates for 2010 to 2014 from the National AIDS Control Council (NACC) Spectrum file (updated since March 2011 workshop in Johannesburg) were used as the input. To project these values to 2030, an adjusted exponential average growth rate based on change in mortality between 2009 and 2014 for each specific 5-year age group was used. The adjusted exponential growth rate took into account the two adjacent age groups, thereby mitigating wide fluctuations in rates that might be present if only one age group was utilized. This is akin to taking a three-year moving average. The result was a continued decline in AIDS-only mortality in future years. By 2030, these computations indicate that there will be minimal impact of HIV/AIDS on the Kenyan population. The AIDS-only age-specific mortality values were then combined with the non-AIDS mortality rates to produce a set of mortality rates that include AIDS.

In order to obtain the AIDS-only age-specific mortality values for each province, the ratio of the provincial HIV prevalence to the national HIV prevalence as measured in the 2008/2009 DHS was used. This ratio was then applied as an adjustment factor by multiplying this factor by the national-level age-specific mortality rates to obtain AIDS-only age-specific mortality rates for each province from 2010 to 2030. Similar to the national projection, the AIDS-only age-specific mortality values for the provinces were combined with the non-AIDS mortality rates to produce a set of mortality rates that include AIDS for each province.

7.4 Migration Projections

Migration flows fluctuate strongly and may depend on a large range of factors, including business cycles in both the sending and receiving areas, family connections, cost of migration, destination's reputation, attitudes to immigrants, etc. Migration is strongly influenced by policies. This contrasts with mortality and fertility where the impact of policy is much less evident. Migration regulations and practices are difficult to foresee, which makes migration, possibly, the most difficult demographic component to predict.

7.4.1 International Migration

International migration is the most difficult growth component to assess because data are inadequate. Previous censuses in Kenya have recorded very low volumes of this type of migration – hence an insignificant factor in population change. The 2009 KPHC also

recorded a low rate (less than 1.0 percent) of international migration. At national level, the projections assumed that net international migration is negligible. However, it should be noted that this can change very fast depending on the global social, economic and political trends.

7.4.2 Internal Migration

The average of the net migration rates in the last three KPHC(1989, 1999 and 2009) were used to represent internal migration at the provincial level. It was assumed that these averages would remain constant for the entire projection period.

7.5 National Population Projections

The projection results under the above set of assumptions are shown in Table 7.1. Starting with a population of 38.5 million in 2010 as the base, Kenya's population by 2015 is expected to reach 44.2 million, 50.3 million by 2020, 57.0 million by 2025, and 63.9 million by 2030.

Table 7.1 Projected Population by Sex, Kenya, 2010-2030

Year	2010	2011	2012	2013	2014
Male	19,047,448	19,583,833	20,137,201	20,707,136	21,289,752
Female	19,426,445	19,961,285	20,514,543	21,085,427	21,671,435
Total	**38,473,893**	**39,545,118**	**40,651,744**	**41,792,563**	**42,961,187**

Year	2015	2020	2025	2030
Male	21,886,677	24,996,431	28,270,071	31,667,814
Female	22,269,900	25,322,822	28,728,823	32,191,733
Total	**44,156,577**	**50,319,253**	**56,998,894**	**63,859,547**

7.5.1 Provincial Population Projections

Once all the provincial population projections had been generated, the next challenge was to ensure that the projections were both internally consistent and consistent with the national projection. This implies that provincial level population projections, when summed to obtain the population for the whole country, may produce some inconsistent trends. To avoid this, it has been suggested to first make a population projection for the whole country to serve as a control total for the sum of the regions. Projection results for all provinces are shown in Table 7.2. All provinces are projected to grow, none of them experiencing population decline at any point. Provincial rankings by population size will not change - Rift Valley will remain the largest province and North Eastern the smallest. The share of the provinces are expected to remain same in near future however, the share of Nairobi is expected to reach that of Nyanza by 2015.

Table 7.2 Population Projections by Age, Sex and Province, 2010-2030

Province	2010	2011	2012	2013	2014
Kenya	**38,473,893**	**39,545,118**	**40,651,744**	**41,792,563**	**42,961,187**
Nairobi	3,144,918	3,351,315	3,563,473	3,781,394	4,004,400
Central	4,484,395	4,571,584	4,662,000	4,755,353	4,850,713
Coast	3,396,107	3,521,404	3,650,276	3,782,461	3,916,101
Eastern	5,797,560	5,850,787	5,906,242	5,963,877	6,023,246
N. Eastern	1,438,971	1,464,212	1,490,193	1,516,887	1,544,270
Nyanza	5,558,465	5,685,335	5,815,582	5,949,091	6,085,121
R. Valley	10,219,673	10,597,153	10,987,981	11,391,538	11,806,601
Western	4,433,804	4,503,328	4,575,997	4,651,962	4,730,735

Province	2015	2020	2025	2030
Kenya	**44,156,577**	**50,319,253**	**56,998,894**	**63,859,547**
Nairobi	4,232,087	5,433,002	6,723,898	8,105,962
Central	4,947,415	5,442,238	5,945,053	6,456,803
Coast	4,054,921	4,770,767	5,520,138	6,295,125
Eastern	6,083,707	6,393,367	6,703,338	7,002,050
N. Eastern	1,572,238	1,720,446	1,886,892	2,067,855
Nyanza	6,222,651	6,919,161	7,617,128	8,309,550
R. Valley	12,231,928	14,399,840	16,894,299	19,401,865
Western	4,811,630	5,240,432	5,708,148	6,220,337

7.5.2 County Population Projections

Results for the county population projections are presented in Table 3.3 and in Appendix 6. The County population projections were carried out using the constant ratio share method. This is because data on migration trends and patterns are not known. Secondly, is difficult to project trends in migration at this level because of uncertainties in the likely migration rates. To account for any changes in the proportionate shares over the years, the averages of the 1989, 1999 and 2009 proportionate shares of the county populations to their respective provincial populations were computed. Based on their shares, county population projections were generated out of the projected provincial populations. This is based on the assumptions that shares are not likely to change significantly.

The projections depict that the population of the 10 largest counties between 2010 and 2030 will vary greatly as shown in Table 7.3. Ranked by their population sizes, Nairobi County will continue to be the most populous throughout the projection period. However, none of the next nine most populous counties will maintain its rank in the 20-year projection period. Among the counties whose ranks are expected to improve include: Nakuru (from 5 to 2); Kiambu (from 4 to 3); Mombasa (from 14 to 7); and Uasin Gishu (from 16 to 9). On the other hand, ranks of some of them will decline for example; Kakamega (from 2 to 4); Bungoma (from 3 to 5); Meru (from 6 to 10); Machakos (from 9 to 21); and Kitui (from 10 to 24).

Table 7.3 Projected Population of the First Ten Most Populous Counties, 2010 and 2030

Rank	County	Population 2010	County	Population 2030
1	Nairobi	3,144,918	Nairobi	8,105,962
2	Kakamega	1,698,576	Nakuru	3,108,708
3	Bungoma	1,668,532	Kiambu	2,390,661
4	Kiambu	1,660,366	Kakamega	2,382,995
5	Nakuru	1,637,474	Bungoma	2,340,842
6	Meru	1,387,275	Kilifi	2,100,553
7	Kisii	1,176,791	Mombasa	1,777,973
8	Kilifi	1,133,208	Kisii	1,759,220
9	Machakos	1,123,672	Uasin Gishu	1,733,368
10	Kitui	1,035,831	Meru	1,675,867

Chapter 8-Conclusions and Recommendations

8.1 Introduction

This volume summarizes components of population change in Kenya derived from the 2009 KPHC. The term population dynamics is the mechanisms by which population changes over time. Such change is the result of natural increase (the balance of births and deaths) and migration (the balance of persons moving in and out of the country or area concerned). The rate of change in birth and death rates is also dependent on the population structure.

8.2 Conclusions

8.2.1 Coverage

The data indicates that the Census count may have been higher by nearly 1.1 million people with net error higher for females compared to males. This could be due to over count in 2009 and or undercount in the previous censuses. However, analysis of data from counties in North Eastern Province indicates that these counties had abnormal growth rates, an indication that there could have been an over count or some of the people enumerated in the counties may have been illegal migrants who failed to disclose their identities. The problem of enumeration in this province dates back to 1989 with fluctuating growth rates.

8.2.2 Age Accuracy

All modern censuses collect information on age and sex of the population. However, the data often contain errors because some people do not know their actual age and others do not report their age accurately.The sex ratios at national level do not reflect any serious irregularities in reporting. The opposite is true for North Eastern Province.

There has been some improvement in the Accuracy Index since 1979. The 2009 KPHC had the best Accuracy Index followed by the 1989 KPHC, with the 1979 KPHC recording the worst at 28.1. A closer scrutiny of the Accuracy Index from the 2009 Census reveals regional differentials by province. North Eastern Province reflects an index of 108 - denoting highly inaccurate reporting, followed by Nairobi Province with an index of 64. Only Western Province – with an index of 18 – fell in the category of accurate reporting.

8.2.3 Growth and structure

The 2009 population size was slightly over seven fold in comparison to that of 1948. The current population increases by nearly 1.0 million people every year.

The intercensal growth rate was estimated using the exponential method. It should be noted that Garissa, Wajir, Mandera and Turkana have abnormal growth rates which are implausible. The same factor was also noticed in the 1989 KPHC and may be attributed to over enumeration in the recent censuses and under enumeration in 1979. Other than counties with abnormal growth rates, high growth rates of over 5.0 percent per annum were in Marsabit, West Pokot, and Samburu. This high growth may be due to over enumeration in 2009 or under enumeration in 1999. The county with plausible high growth rate of above 5.0 percent is Kajiado because of in migration particulary from Nairobi. The most remarkable are also counties with very low growth rates such as Nyeri

(under 1.0 percent), Vihiga (1.1 percent) Makueni (1.4 percent) Kirinyaga (1.5 percent) and Siaya (1.7 percent).

Kenya's population has always been dominated by children; however, the proportion of children has gradually declined from 48.0 percent in 1969 to about 43.0 percent in 2009. In the recent past, the youth (population aged 15-24) share has remained just at about one fifth while the persons in age 25-34 has increased from about 12.0 percent in 1969 to nearly 15.0 percent in 2009. The proportion of the elderly has remained at just 5.0 percent since 1969.

The urban population in Kenya increased from 5.4 million in 1999 to about 12.0 million people in 2009. At the same time, the proportion of urban population to the total population rose from 19 percent in 1999 to 31.3 percent in 2009. About 15.0 percent of the urban population lives in informal settlements and Nairobi, the capital city contributes the larger share of 62.0 percent.

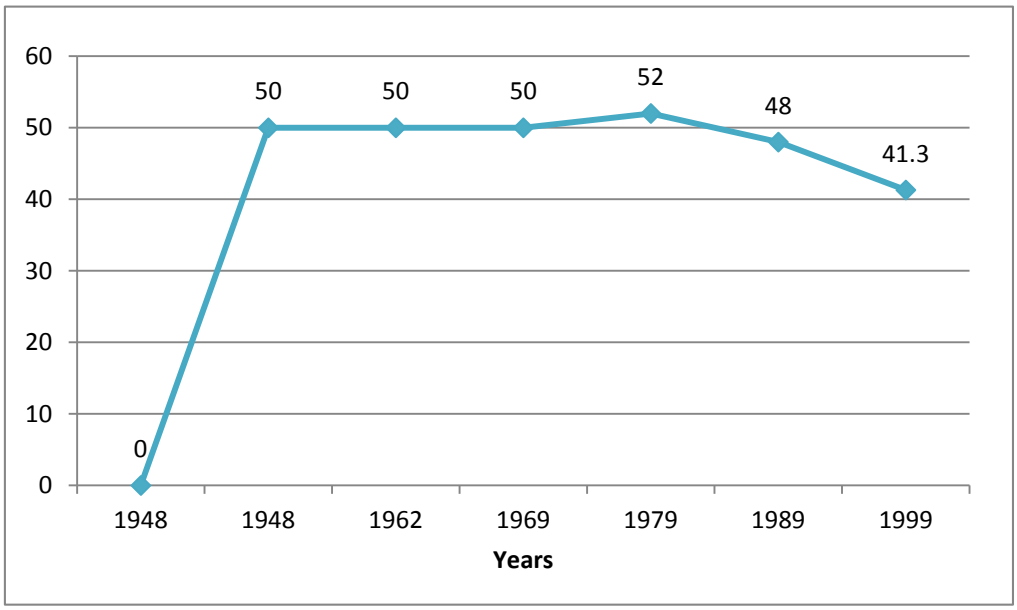
8.2.4 Nuptiality

The first component of population change is fertility which governs the process by which new entrants from the natural process create population change. Fertility levels are largely defined by nuptiality patterns. Marriage in Kenya is still nearly universal. The proportion never married gradually declined from about 97.0 percent among the 12-14 year olds to slightly over 6 percent among the 50-54 year olds. Older women are still more likely to be engaged in polygamous marriages. Generally divorce and separation is still low. Although males enter into marriage earlier, by age 35, the proportion of males married exceeds that of women. The data shows that the patterns are nearly the same across the years for males and females. In general entry into marriage is gradually changing. There is a shift to late marriage pattern in Central and South Eastern parts of Kenya.

8.2.5 Fertility

Among the teenagers age 15-19, the proportion with no children has been increasing overtime indicating that younger women are postponing entry into motherhood. The proportion childless among older women has remained at about 3.0 percent among women in the age group 45-49. The birth rate in the country is still too high at about 38 births per 1000 population. On average, a woman in Kenya is expected to give birth to about 5 children at the current age specific birth rates. There are indications of slow decline in fertility levels because of unchanging and high fertility in the Northern parts of the country, while areas that experienced rapid declines such as Nairobi and Central parts of the country is beginning to stall. Figure 8.1 shows trends in crude birth rates since 1948.

Figure 8.1: Trends in Crude Birth Rates (CBR), 1948-2009

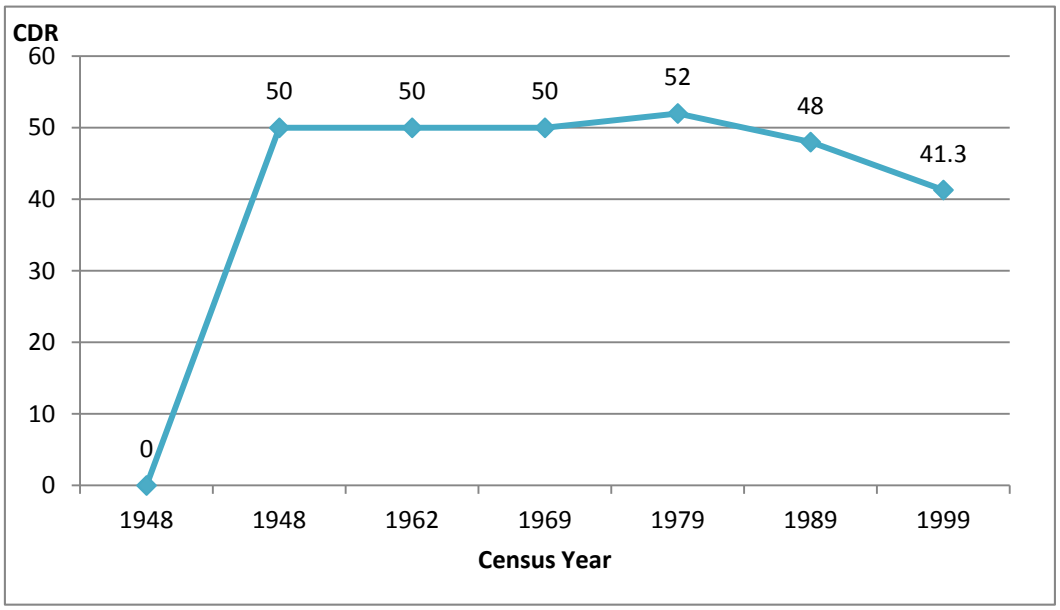


8. 2.6 Mortality

The results from the Census data show some indication of declining childhood mortality. However the estimates are higher compared to those derived from other sources. The data utilized to obtain the levels of mortality here pertain to all deaths reported in the household which is different from the previous sources of estimates where information was only obtained from mothers who were still alive. The use of deaths in the last 12 months should in future incorporate the relationship between the individual reported dead to a member of the household for proper identification. The way the question was asked risks the problem of double counting particularly in areas with higher rates of movement and migrants in urban areas. Surveys should also be done to improve the ways in which mortality data is collected so that the census questions are fine tuned.

Figure 8.2 summarizes the trends of crude death rates since 1948. The rapid decline in death rates in 1960s and 1970s stalled in the 1990s during the period of high mortality due to HIV and AIDS. However, from the recent censuses there appears a reversal of decline in the general mortality.

Figure 8.2: Trends in Crude Death Rates



Approximately 54 out every 1000 children born die before reaching their first birthday while 78 out of every 1000 children born do not reach their fifth birthday. High mortality rates occur in North Eastern and Nyanza provinces where infant mortality rate is still above 100 per 1000 live births. Evidence of female advantage exists in areas where childhood mortality is still high. However, in Coast Province, some counties show male advantage. In such areas there could be undercount of females or discrimination of female children. The ratio of infant mortality to under-five mortality indicates that childhood mortality is more pronounced during infancy in low mortality provinces.

There are indications that adult mortality may be declining as well. The estimated probability of dying between age 15 and 60 ($^{45}q_{15}$) is approximately 0.348 for males and 0.313 for females respectively. This implies that out of every 1000 males age 15; approximately 54.0 percent will reach not age 60 (retirement age). The summary index shows the proportion of adults who die prematurely. The proportions were between 45.0 percent and 50.0 percent for men and women in 1950s. This proportion however declined to between 27.0 percent for men and 22.0 percent for women in 1980s. The emergence of HIV and AIDS however undermined the achievements observed in the early 1980s and mortality increased in the 1990s substantially.

The overall mortality patterns can be summarized using the life expectancies by age. The life expectancy at birth for males and females are 59.2 years and 60.7 years respectively. This is marked improvement for 1999 KPHC when life expectancies had declined as a result of increased mortality at all ages. The life expectancy for a male who has reached age 20 is about 45.3 years while a male who has reached retirement age (age 60) is expected to live an average of 16.7 years. Similarly, a female of age 20 expects to live for an average of 46.9 years, while an elderly woman aged60 expects to live on average 18.3 years. Despite improvements in adult mortality in the recent past, the level has not reached the projected survival changes in the 1980s.

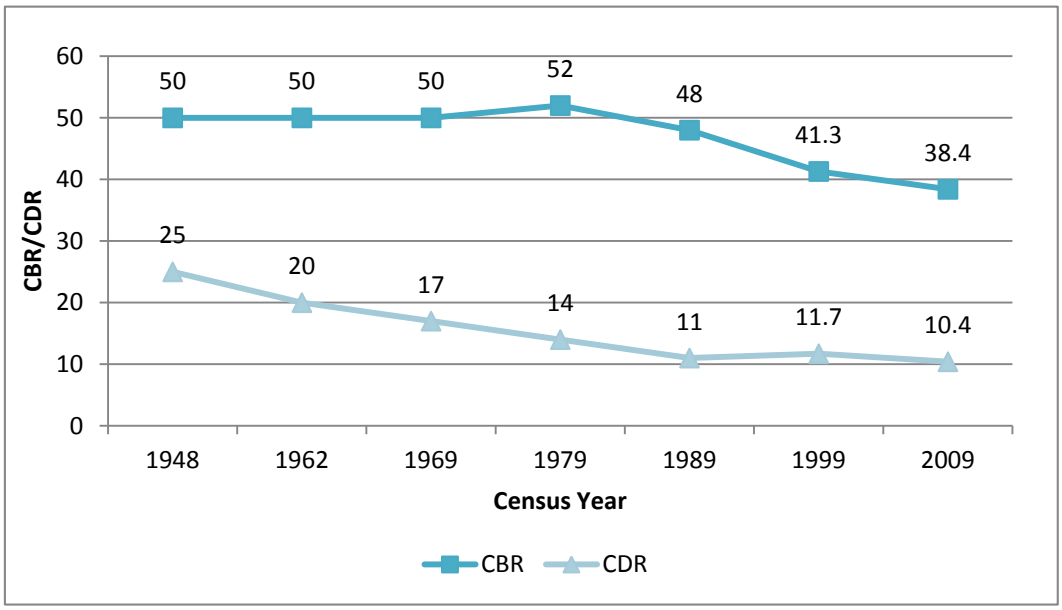
In the 2010 round of censuses, the United Statistics Statistical Division (UNSD) encouraged many developing countries to include questions on pregnancy related deaths as a way of helping improve on the quantity and quality of data needed in the estimation of maternal mortality. Estimates from the previous demographic and health surveys indicate that maternal mortality in Kenya ranges between 333 and 643 maternal deaths for every 100,000 live births in the last decade (KNBS, and ICF Macro, 2010). The adjusted maternal mortality rate is about 611 per 100,000 live births with wide .regional variations

8.2.7 Rate of Natural Increase

Combining the rate of change in mortality levels and fertility level provides an overall picture of the rate of natural growth. Figure 8.3 shows the trends in the crude birth and crude death rates since 1948.

The estimated crude birth rate is about 38.4 per 1000 population while the crude death rate is 10.4 per 1000 population. This gives natural growth rate as 2.8 percent per annum. The rate of change of 2.8 percent per annum stems from the rapid decline in mortality in the last 5 years coupled with slow decline in fertility levels. If the growth rate is unchanged, then the population will double in the next 24 years (by about 2033).

Figure 8.3: Trends in Crude Birth and Crude Death Rates.



8.2.8 Migration

Unlike fertility and mortality, migration data in the country is still rare and the only source of information remains the censuses. It is therefore difficult to corroborate migration data.

The first aspect of migration information is the lifetime internal migration. The ultimate impact of lifetime migration levels on the population of an area can be ascertained by assessing the net population flows of lifetime migrants. While the traditional patterns have remained the same, the 2009 KPHC indicated some new tends. For example, lifetime net migration losers in Kenya have been Central, Nyanza, Eastern, North Eastern and Western provinces, respectively. However, Eastern Province registered -760,915 net migrants, the highest in the year 2009, followed by Western (-738,652), Nyanza (-697,720) and Central (-477,958). This means that Central, Nyanza, Eastern, North Eastern and Western

provinces are out-migration areas, whereas, Nairobi, Coast and Rift Valley provinces are in-migration areas.

The analysis of trends in lifetime net migration depicted that there has been a dramatic shift in the trends of migration in the country. In 1989 and 1999, Nairobi, Rift Valley and Coast provinces have been in-migration areas while Nyanza, Western, Central, Eastern and North Eastern provinces are always areas of net out-migration. Contrary to the usual trend, the 2009 KPHC data shows that even though Nairobi, Coast and Rift Valley provinces still remain in-migration areas, the magnitude of migration inflow dropped considerably.

In Central Province, majority of lifetime migrants are females on the contrary males who are the majority of the lifetime net migrants in: Eastern, North Eastern, Nyanza and Western. Nairobi,

During the 1999 census, Nairobi, Central, Coast, Nyanza and Rift Valley recorded net gains in recent migration, while Eastern, North Eastern and Western recorded net losses. Nyanza Province, which had a net gain of recent migrants (28,492) according to the 1999 Census, recorded a net loss of recent migrants (-41,643) in the year 2009. Further, Eastern Province that recorded a net loss of recent migrants in 1999, had double net loss of recent migrants in the year 2009, (-42,603 and -94,594, respectively).

Rift Valley still remains one of the most favoured in-migration areas in the country. Nairobi which is the capital city has the most training and employment opportunities remain the most preferred province of destination

8.2.8.1 Immigration

According to the 2009 KPHC, there were 357,486 immigrants in Kenya. This represents just less than 1.0 percent (0.93 percent) of the total Kenyan population. Of these immigrants, the majority were from Africa (84.0 percent), followed by Asia (10.3 percent), Europe (4.0 percent) and America (1.6 percent); with immigrants from Australia and Caribbean making up less than 1.0 percent. Female immigrants are slightly more than male immigrants (179,432 versus 178,036).

8.2.8.2 Refugees

Kenya still hosts a number of refugees from Somalia, Sudan, Ethiopia, Uganda, Democratic Republic of Congo, Rwanda, Burundi and Eritrea, among others. Majority of these refugees are from Somalia (53.4 percent). Of the total refugee population from Somalia, 52.9 percent were male, while 53.9 percent were female. Sudan is the second major source of refugees contributing about 4.0 percent of the total refugee population.

8.3 Recommendations

The analysis of the 2009 Kenya Population and Housing Census indicates that a number of errors occurred which may have produced an over count and perhaps distorted some of the estimates of population change. The data quality depends on fieldwork quality, which in turn depends on careful questionnaire design, thorough training, and continuous supervision. The following are some of key recommendations for future censuses:

- The number of questions in future population and housing censuses should be reduced considerably and perhaps limited to demographic information with limited developmental questions.

- Core questions utilized in censuses should be tested before hand to ensure their utility. For example some questions were asked but not used during analysis. In particular questions used to estimate mortality need to be reviewed given the problems observed in the data analysis. The use of questions on deaths in the recent past which was abandoned in the 1960s should be reviewed so that there will be no double counting. Surveys should also be done to improve the ways in which mortality data is collected so that the census questions are fine tuned. Similarly, the migration questions may lead to under estimation of true urban – rural migration. Testing of reliable core questions should not be done at the pilot stage but early enough to study potential problems and utilities.

- While there are indications of mortality decline to levels observed in the late 1980s, fertility levels are unchanging. Fertility may have declined in some areas while the levels may not be changing in a number of Arid and Semi-Arid counties. As a result the rate of natural increase is about 2.8 percent per annum well above the anticipated 2.5 percent per annum in the National Population Policy for Sustainable Development (NPPSD) of 2000. Therefore efforts must be made to reduce the high fertility in the Arid and Semi-Arid parts of the country.

- There is need to focus interventions to reduce the high childhood and maternal mortality in areas where infant mortality is well above 100 per 1000 child births. These areas have equally very high maternal mortality rates.

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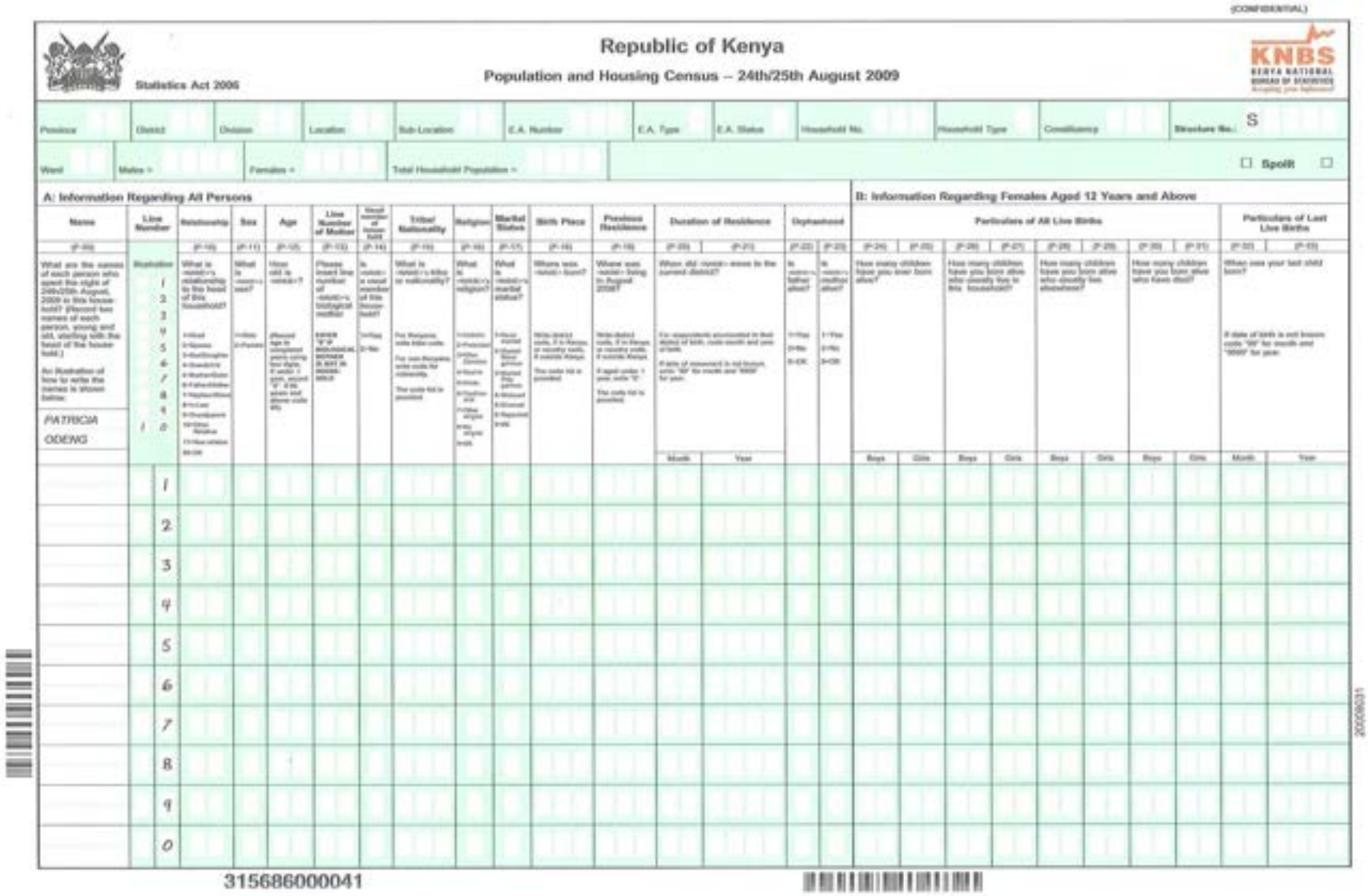
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Appendices

Appendix 1(a): Main Census Questionnaire



Republic of Kenya

Statistics Act 2006

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

KNBS KENYA NATIONAL BUREAU OF STATISTICS

(CONFIDENTIAL)

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 ☐

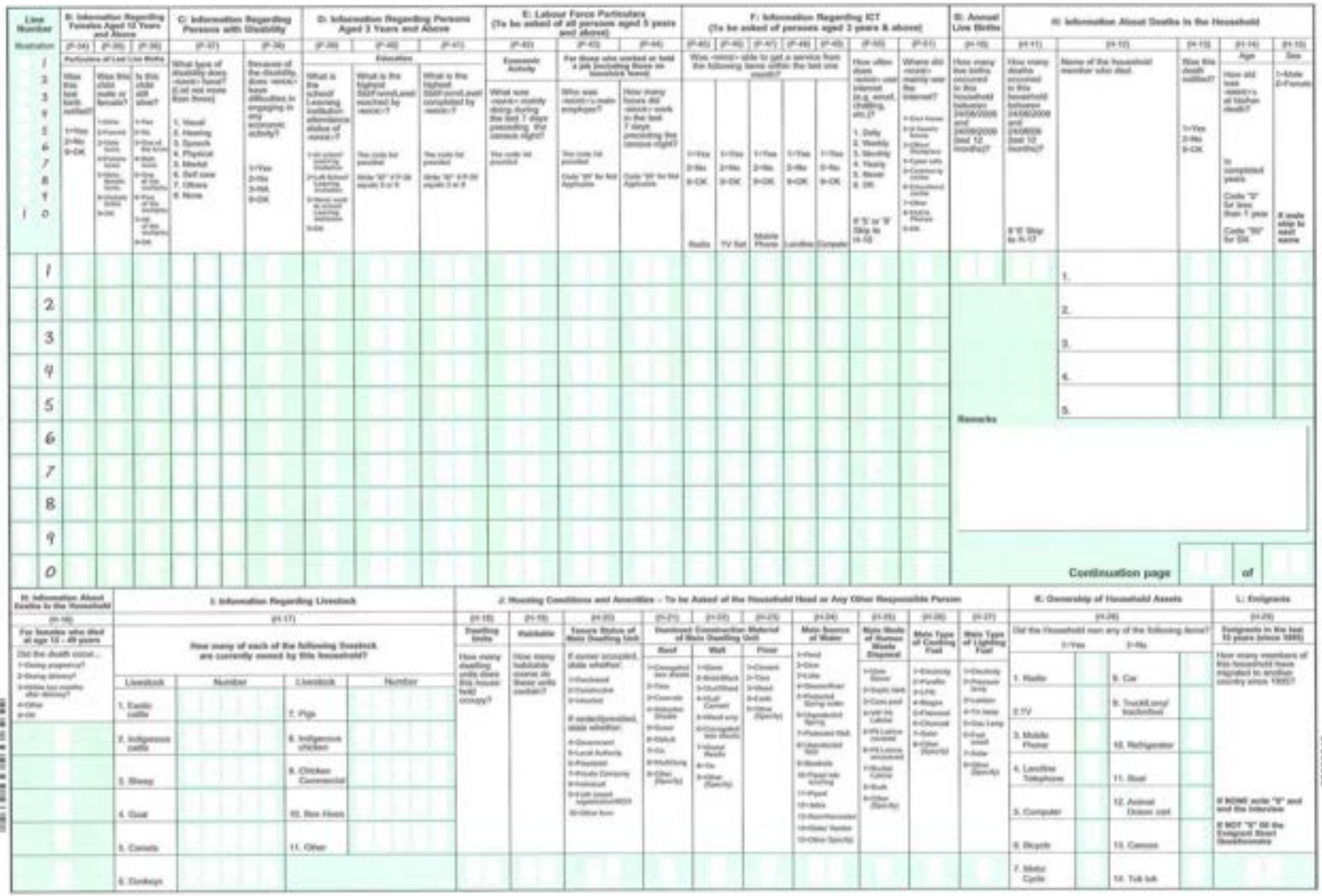
A: Information Regarding All Persons

B: Information Regarding Females Aged 12 Years and Above

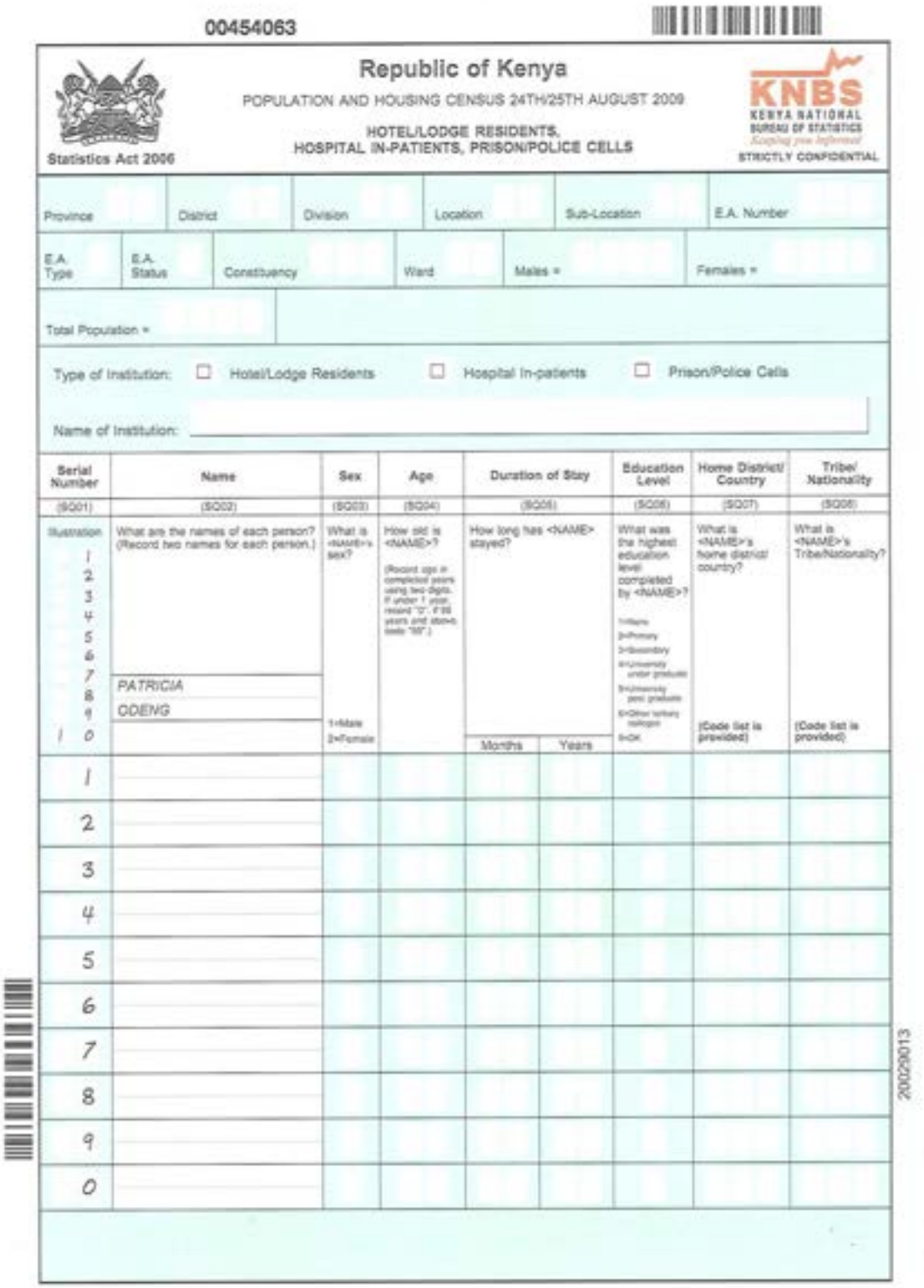
Name	Line Number	Relationship	Sex	Age	Line Number of Mother	Usual member of household	Tribal Nationality	Religion	Marital Status	Birth Place	Previous Residence	Duration of Residence		Orphanhood		Particulars of All Live Births								Particulars of Last Live Births	
(P.09)		(P.10)	(P.11)	(P.12)	(P.13)	(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 ODEWO	Illustration 1 2 3 4 5 6 7 8 9 10	What is <name>'s relationship to the head of this household?	What is <name>'s sex?	How old is <name>?	Please record the number of <name>'s biological mother	Is <name> a usual member of this household?	What is <name>'s tribe or nationality?	What is <name>'s religion?	What is <name>'s marital status?	Where was <name> born?	Where was <name> living in August 2008?	When did <name> move to the current district?		Is <name>'s father alive?	Is <name>'s mother alive?	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?		When was your last child born?	
												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
Was this live birth verified?
Was this child male or female?
Is this child still alive?
What type of disability does <name> have? (List not more than three)
Because of the disability, does <name> have difficulties in engaging in any economic activity?
What is the highest SS/F/Nov/Level attended by <name>?
What is the highest SS/F/Nov/Level completed by <name>?
What was <name> mainly doing during the last 7 days preceding the census night?
Who was <name>'s main employer?
How many hours did <name> work in the last 7 days preceding the census night?
Was <name> able to get a service from the following items within the last one month?
Radio
TV Set
Mobile Phone
Landline
Computer
How often does <name> use internet (e.g. email, chatting, etc.)?
Where did <name> mainly use the internet?
How many live births occured in this household between 24/08/2009 and 24/08/2009 (last 12 months)?
How many deaths occured in this household between 24/08/2009 and 24/08/2009 (last 12 months)?
Name of the household member who died.
Was this death verified?
How old was <name> at his/her death?
Age
Sex
Remarks
Continuation page
of
I: Information Regarding Livestock
How many of each of the following livestock are currently owned by this household?
Livestock
Number
1. Exotic cattle
2. Indigenous cattle
3. Sheep
4. Goat
5. Camels
6. Donkeys
7. Pigs
8. Indigenous chicken
9. Chicken Commercial
10. Bee Hives
11. Other
J: Housing Conditions and Amenities – To be Asked of the Household Head or Any Other Responsible Person
Dwelling Units
Households
Tenure Status of Main Dwelling Unit
Dominant Construction Material of Main Dwelling Unit
Roof
Wall
Floor
Main Source of Water
Main Mode of Human Waste Disposal
Main Type of Cooking Fuel
Main Type of Lighting Fuel
How many dwelling units does this household occupy?
How many households coame do these units contain?
If owner occupied, state whether
If rented/provided, state whether
K: Ownership of Household Assets
Did the Household own any of the following items?
1. Radio
2. TV
3. Mobile Phone
4. Landline Telephone
5. Computer
6. Bicycle
7. Motor Cycle
8. Car
9. Truck/Lorry/ tractor/boat
10. Refrigerator
11. Boat
12. Animal Drawn cart
13. Canoes
14. Tuk tuk
L: Emigrants
Emigrants in the last 12 years (since 1999)
How many members of this household have migrated to another country since 1999?
If NONE write "0" and end the interview
If NOT "0" fill the Emigrant Short Questionnaire

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



00454063

Republic of Kenya

POPULATION AND HOUSING CENSUS 24TH/25TH AUGUST 2009

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

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 =

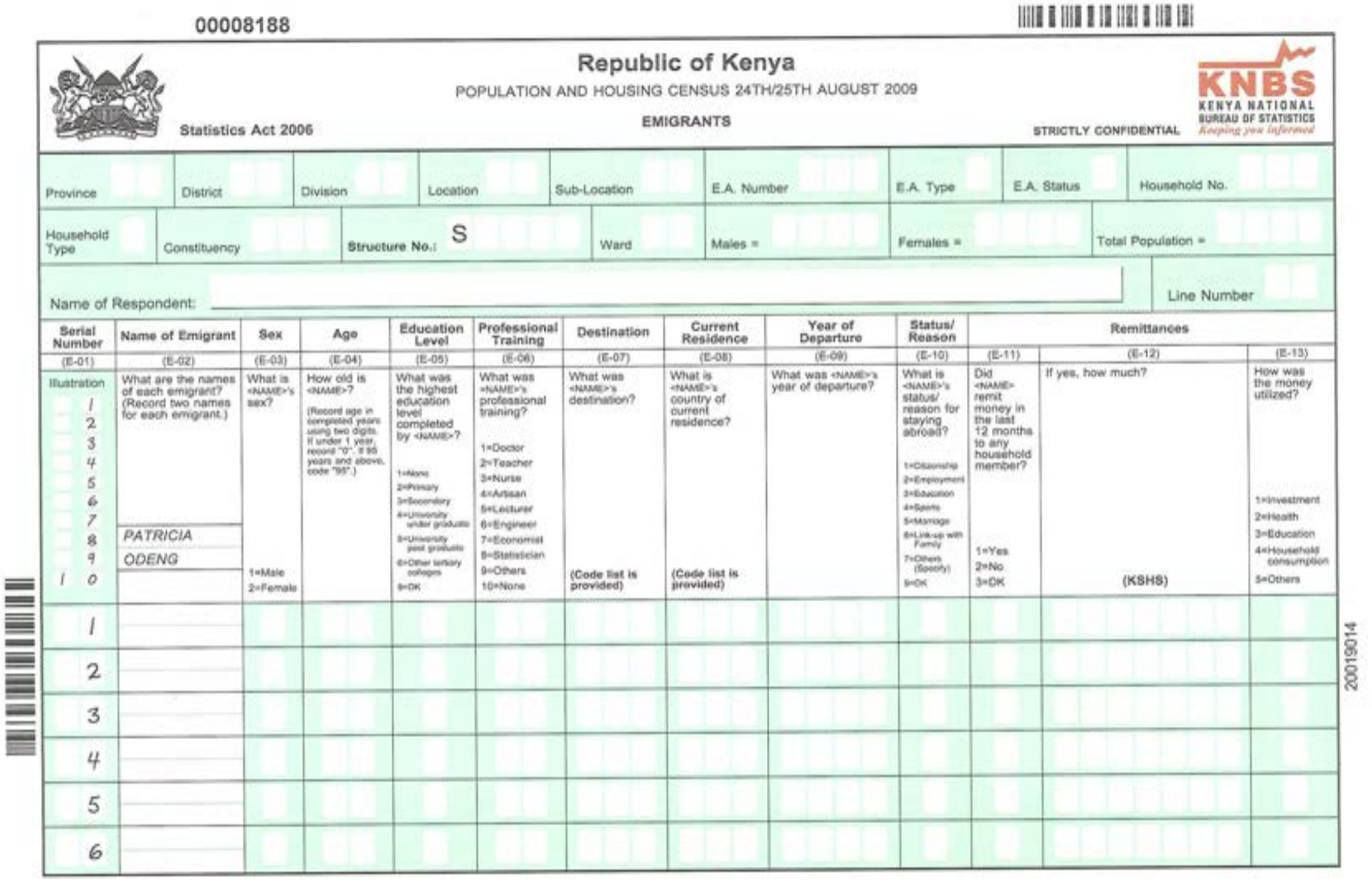
Type of Institution: ☐ Hotel/Lodge Residents ☐ Hospital In-patients ☐ Prison/Police Cells

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? 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'.)	How long has <NAME> stayed? Months	Years	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								
2								
3								
4								
5								
6								
7								
8								
9								
10	PATRICIA OCIENG							

20020013

Appendix 1(c): Emigrants Questionnaire



00008188

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.

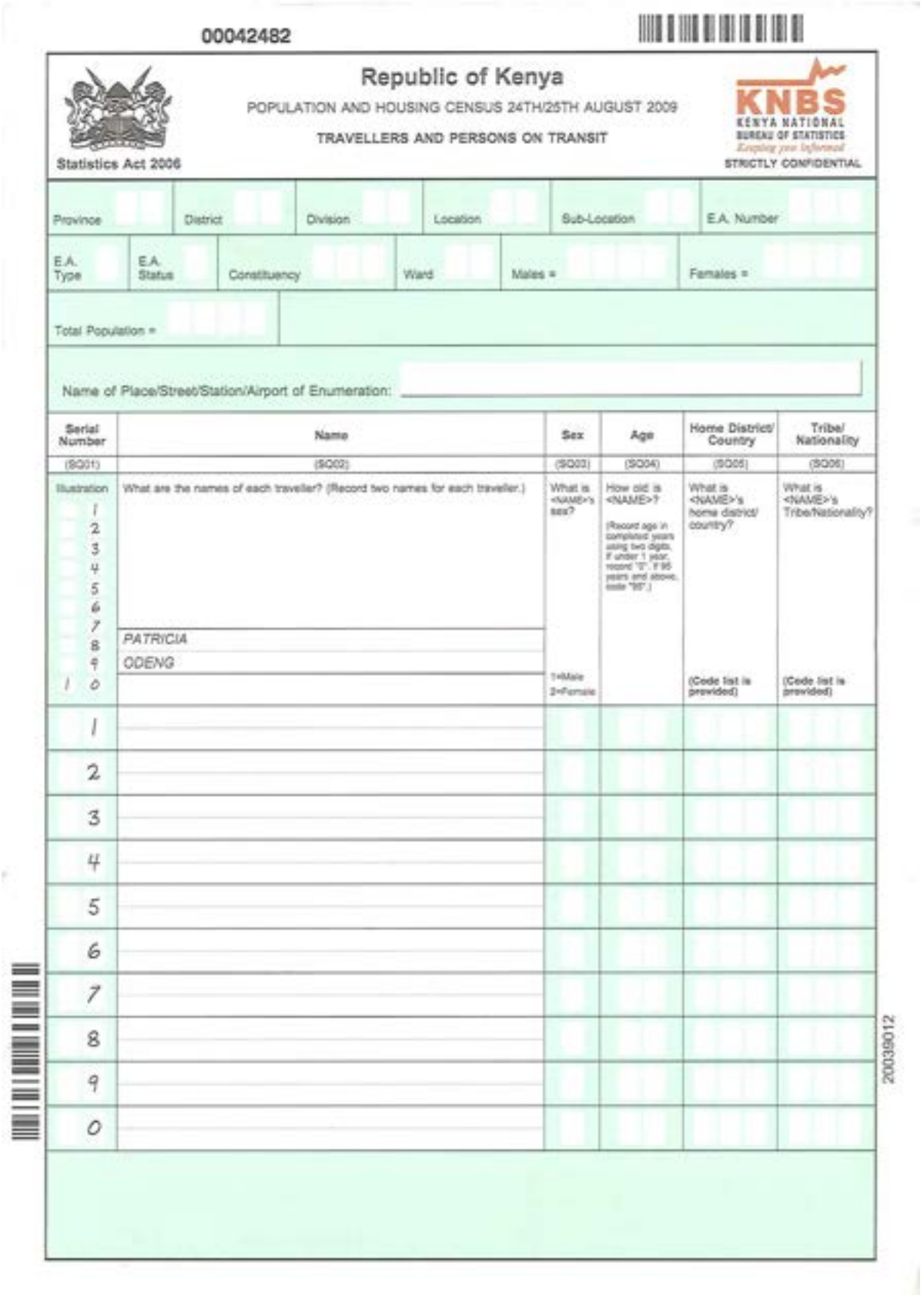
Household Type | Constituency | Structure No.: S | Ward | Males = | Females = | Total Population =

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	PATRICIA											
2	ODENG											
3												
4												
5												
6												
7												
8												
9												
10												

20019014

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



00042482

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 =

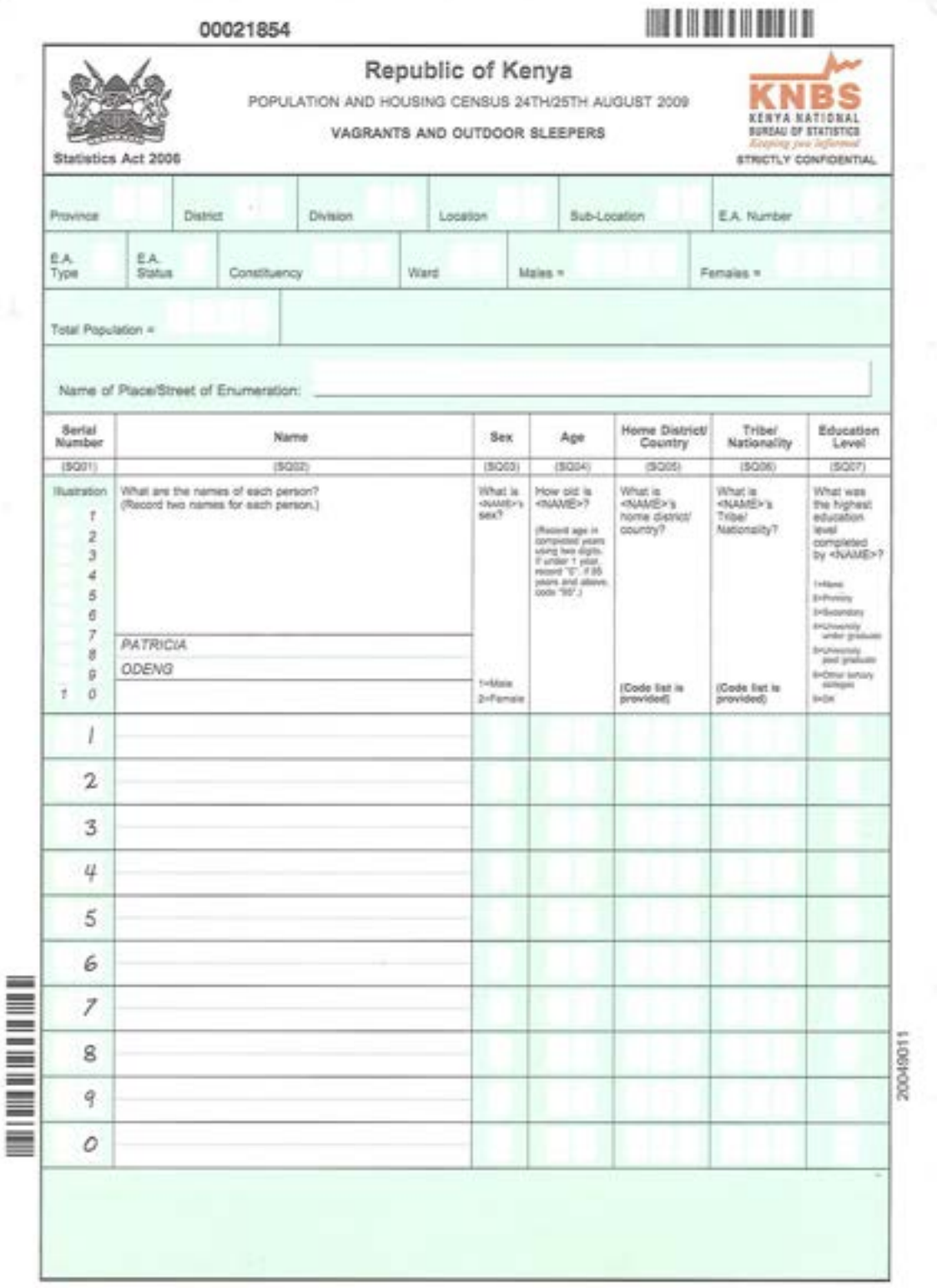
Total Population =

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					
2					
3					
4					
5					
6					
7					
8	PATRICIA				
9	ODENG				
10		1=Male 2=Female		(Code list is provided)	(Code list is provided)
1					
2					
3					
4					
5					
6					
7					
8					
9					
0					

20039012

Appendix 1(e): Vagrants and Outdoor Sleepers Questionnaire



00021854

Republic of Kenya

POPULATION AND HOUSING CENSUS 24TH/25TH AUGUST 2009

VAGRANTS AND OUTDOOR SLEEPERS

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 =

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	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".)	What is <NAME>'s home district/ country?	What is <NAME>'s Tribe/ Nationality?	What was the highest education level completed by <NAME>?
1	PATRICIA ODENG	1=Male 2=Female		(Code list is provided)	(Code list is provided)	1=None 2=Primary 3=Secondary 4=University under graduate 5=University post graduate 6=Other tertiary colleges 9=DK
10						
1						
2						
3						
4						
5						
6						
7						
8						
9						
0						

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 ? PATRICIA ODENG	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 ? Months	Years	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
1	.....							
2	.....							
3	.....							
4	.....							
5	.....							
6	.....							
7	.....							
8	.....							
9	.....							
10	.....							
11	.....							
12	.....							

Appendix 2: Indicators of First Marriage Timing by County, 2009

	Proportion Ever Married In Age Group 15-19 (%)		Singulate Mean Age At Marriage (SMAM)		Male – Female Difference in SMAM
County	Male	Female	Male	Female	
KENYA	**3.1**	**15.4**	**26.72**	**22.49**	**4.23**
RURAL	3.1	15.9	26.87	21.91	4.96
URBAN	3.1	14.2	26.86	23.20	3.66
NAIROBI	2.6	12.7	26.83	23.69	3.14
NYANDARUA	2.4	8.2	27.57	22.41	5.16
NYERI	2.6	6.7	28.84	23.34	5.50
KIRINYAGA	3.4	12.1	27.38	22.54	4.84
MURANG'A	2.6	8.2	28.76	23.47	5.29
KIAMBU	2.5	8.9	27.55	23.22	4.33
MOMBASA	3.3	16.9	27.07	22.90	4.17
KWALE	3.3	23.5	26.45	21.08	5.37
KILIFI	3.3	19.2	26.82	21.89	4.93
TANA RIVER	6.2	43.4	24.97	18.75	6.22
LAMU	3.3	22.2	26.59	21.25	5.34
TAITA TAVETA	2.1	12.1	28.93	22.72	6.21
MARSABIT	2.8	18.6	28.96	21.10	7.86
ISIOLO	3.0	23.5	27.00	21.02	5.98
MERU	3.4	13.6	27.15	22.87	4.28
THARAKA	2.4	8.0	27.61	23.41	4.20
EMBU	2.6	8.9	28.12	23.30	4.82
KITUI	2.0	7.2	27.44	22.78	4.66
MACHAKOS	1.9	7.3	28.13	23.31	4.82
MAKUENI	1.6	6.0	28.64	23.18	5.46
GARISSA	3.7	19.5	27.05	21.44	5.61
WAJIR	3.6	14.8	27.16	21.85	5.31
MANDERA	3.1	13.0	27.16	21.85	5.31
SIAYA	3.5	19.9	25.75	21.27	4.48
KISUMU	3.2	20.9	25.93	21.80	4.13
MIGORI	4.2	28.5	24.9.0	20.21	4.69
HOMA BAY	3.5	25.2	25.48	20.48	5.00
KISII	3.5	15.9	25.59	22.31	3.28
NYAMIRA	3.8	14.8	25.78	22.51	3.27
TURKANA	4.1	11.8	29.39	23.96	5.43
WEST POKOT	4.2	23.0	25.10	20.50	4.60
SAMBURU	2.6	26.0	28.43	20.61	7.82
TRANS NZOIA	2.9	16.7	25.95	21.97	3.98
BARINGO	2.7	11.5	27.02	22.84	4.18
UASIN GISHU	2.8	11.2	27.09	23.57	3.52
ELGEYO-MARAKWET	2.0	8.8	26.29	22.90	3.39
NANDI	2.2	12.9	27.08	23.02	4.06
LAIKIPIA	2.5	12.9	27.44	22.02	5.42
NAKURU	2.8	13.2	26.74	22.55	4.19
NAROK	3.7	31.3	25.18	20.05	5.13
KAJIADO	3.0	19.9	26.62	22.14	4.48
KERICHO	3.1	16.8	26.70	22.64	4.06
BOMET	2.7	17.5	26.94	22.56	4.38
KAKAMEGA	4.2	17.9	25.30	21.59	3.71
VIHIGA	3.6	11.3	27.08	22.91	4.17
BUNGOMA	3.4	16.4	25.59	21.70	3.89
BUSIA	3.6	19.6	24.96	21.22	3.74

Appendix 3: Distribution of Reported Household Deaths in the Last 12 Months Prior to Census

COUNTY	Total Deaths	Deaths Under 5 Years	Deaths Under 1 Year	Age Not Stated (NS)	Percent Age NS
Nairobi	18,108	9,610	7,213	1,224	6.8
Nyandarua	3,575	1,096	833	140	3.9
Nyeri	4,515	862	644	193	4.3
Kirinyaga	3,218	982	689	260	8.1
Murang'a	6,058	1,239	918	371	6.1
Kiambu	8,255	2,798	2,213	377	4.6
Mombasa	4,827	2,570	1,892	318	6.6
Kwale	3,369	1,458	984	278	8.3
Kilifi	5,480	2,270	1,646	689	12.6
Tana River	1,730	895	606	260	15.0
Lamu	632	274	180	70	11.1
Taita Taveta	1,869	475	356	177	9.5
Marsabit	1,731	497	328	315	18.2
Isiolo	772	301	219	86	11.1
Meru	7,719	2,066	1,469	1,145	14.8
Tharaka	2,047	672	430	231	11.3
Embu	2,766	805	586	243	8.8
Kitui	6,235	2,014	1,449	728	11.7
Machakos	7,210	1,762	1,332	629	8.7
Makueni	5,703	1,612	1,262	404	7.1
Garissa	3,947	1,804	1,156	691	17.5
Wajir	4,123	1,686	1,097	437	10.6
Mandera	9,845	3,388	2,121	728	7.4
Siaya	12,168	5,408	3,179	912	7.5
Kisumu	10,191	4,818	3,093	587	5.8
Homa Bay	10,112	4,849	2,964	678	6.7
Migori	9,500	5,119	3,152	645	6.8
Kisii	7,968	3,089	1,858	702	8.8
Nyamira	3,681	1,117	696	257	7.0
Turkana	10,222	3,041	1,831	3,666	35.9
West Pokot	5,318	2,578	1,772	1,060	19.9
Samburu	1,858	590	433	597	32.1
Trans Nzoia	5,053	2,265	1,429	360	7.1
Baringo	3,620	1,508	1,132	472	13.0
Uasin Gishu	5,137	2,042	1,429	343	6.7
Elgeyo Marakwet	1,737	637	483	134	7.7
Nandi	4,019	1,429	977	246	6.1
Laikipia	2,450	733	531	274	11.2
Nakuru	11,131	4,758	3,443	779	7.0
Narok	4,733	2,461	1,737	686	14.5
Kajiado	3,373	1,452	1,095	419	12.4
Kericho	3,602	1,565	1,117	266	7.4
Bomet	4,779	1,922	1,450	434	9.1
Kakamega	10,818	4,756	2,776	633	5.9
Vihiga	4,490	1,150	675	328	7.3
Bungoma	8,180	4,106	2,220	507	6.2
Busia	5,690	2,855	1,644	464	8.2

Appendix 4: Life Tables by Sex and Province, 2008/2009

NAIROBI

Age	Male				Female			
(x)	nMx	nqx	l(x)	e(x)	nMx	nqx	l(x)	e(x)
0	0.0538	0.0515	100,000	61.93	0.0401	0.0388	100,000	62.81
1	0.0029	0.0116	94,847	64.29	0.0025	0.0101	96,118	64.34
5	0.0022	0.0110	93,748	61.02	0.0020	0.0097	95,147	60.98
10	0.0020	0.0099	92,718	56.67	0.0022	0.0109	94,220	56.56
15	0.0022	0.0111	91,804	52.21	0.0017	0.0084	93,189	52.16
20	0.0032	0.0160	90,785	47.77	0.0029	0.0143	92,408	47.58
25	0.0040	0.0199	89,329	43.50	0.0054	0.0268	91,091	43.23
30	0.0058	0.0285	87,549	39.34	0.0105	0.0510	88,654	39.35
35	0.0086	0.0421	85,052	35.42	0.0136	0.0658	84,131	36.33
40	0.0095	0.0463	81,475	31.86	0.0108	0.0526	78,595	33.71
45	0.0106	0.0517	77,706	28.29	0.0101	0.0492	74,458	30.45
50	0.0116	0.0563	73,689	24.69	0.0090	0.0441	70,795	26.89
55	0.0139	0.0672	69,541	21.02	0.0103	0.0502	67,676	23.02
60	0.0205	0.0973	64,869	17.35	0.0149	0.0717	64,280	19.10
65	0.0312	0.1447	58,556	13.95	0.0235	0.1111	59,671	15.38
70	0.0491	0.2185	50,080	10.89	0.0391	0.1781	53,041	11.99
75	0.0795	0.3315	39,136	8.24	0.0654	0.2810	43,596	9.05
80	0.1644	1.0000	26,163	6.08	0.1513	1.0000	31,346	6.61

CENTRAL

AGE	Male				Female			
(x)	nMx	nqx	l(x)	e(x)	nMx	nqx	l(x)	e(x)
0	0.0540	0.0518	100,000	60.84	0.0416	0.0402	100,000	61.57
1	0.0031	0.0122	94,823	63.15	0.0027	0.0109	95,983	63.14
5	0.0024	0.0118	93,662	59.92	0.0021	0.0104	94,941	59.82
10	0.0021	0.0104	92,554	55.61	0.0023	0.0114	93,953	55.42
15	0.0023	0.0115	91,587	51.17	0.0019	0.0093	92,886	51.03
20	0.0035	0.0171	90,534	46.73	0.0032	0.0159	92,025	46.49
25	0.0047	0.0230	88,982	42.50	0.0059	0.0292	90,560	42.20
30	0.0064	0.0317	86,935	38.45	0.0112	0.0543	87,912	38.39
35	0.0090	0.0439	84,183	34.62	0.0140	0.0677	83,137	35.46
40	0.0098	0.0477	80,483	31.10	0.0106	0.0514	77,512	32.85
45	0.0110	0.0534	76,642	27.53	0.0101	0.0492	73,526	29.49
50	0.0120	0.0584	72,548	23.94	0.0092	0.0450	69,911	25.89
55	0.0141	0.0681	68,311	20.27	0.0109	0.0532	66,764	21.99
60	0.0205	0.0975	63,657	16.57	0.0147	0.0707	63,215	18.08
65	0.0311	0.1442	57,447	13.09	0.0237	0.1117	58,748	14.27
70	0.0486	0.2166	49,165	9.88	0.0394	0.1792	52,184	10.75
75	0.0764	0.3209	38,516	6.92	0.0640	0.2759	42,832	7.55
80	0.2498	1.0000	26,158	4.00	0.2234	1.0000	31,017	4.48

COAST

Age	Male				Female			
(x)	nMx	nqx	l(x)	e(x)	nMx	nqx	l(x)	e(x)
0	0.0725	0.0687	100,000	56.38	0.0416	0.0402	100,000	61.57
1	0.0079	0.031	93,129	59.52	0.0027	0.0109	95,983	63.14
5	0.0037	0.0182	90,246	57.37	0.0021	0.0104	94,941	59.82
10	0.0028	0.0138	88,605	53.39	0.0023	0.0114	93,953	55.42
15	0.0028	0.0138	87,384	49.10	0.0019	0.0093	92,886	51.03
20	0.0044	0.0215	86,179	44.75	0.0032	0.0159	92,025	46.49
25	0.0056	0.0275	84,324	40.68	0.0059	0.0292	90,560	42.20
30	0.0079	0.0387	82,003	36.76	0.0112	0.0543	87,912	38.39
35	0.0106	0.0515	78,827	33.14	0.0140	0.0677	83,137	35.46
40	0.0109	0.0530	74,771	29.80	0.0106	0.0514	77,512	32.85
45	0.0125	0.0605	70,811	26.33	0.0101	0.0492	73,526	29.49
50	0.0136	0.0658	66,525	22.87	0.0092	0.0450	69,911	25.89
55	0.0185	0.0885	62,149	19.30	0.0109	0.0532	66,764	21.99
60	0.0219	0.1040	56,651	15.93	0.0147	0.0707	63,215	18.08
65	0.0344	0.1584	50,759	12.49	0.0237	0.1117	58,748	14.27
70	0.0487	0.2170	42,719	9.37	0.0394	0.1792	52,184	10.75
75	0.0868	0.3565	33,448	6.27	0.0640	0.2759	42,832	7.55
80	0.2973	1.0000	21,525	3.36	0.2234	1.0000	31,017	4.48

EASTERN

Age	Male				Female			
(x)	nMx	nqx	l(x)	e(x)	nMx	nqx	l(x)	e(x)
0	0.0544	0.0521	100,000	62.44	0.0433	0.0418	100,000	67.18
1	0.0027	0.0108	94,791	64.86	0.0020	0.0079	95,815	69.10
5	0.0023	0.0114	93,766	61.55	0.0015	0.0074	95,055	65.65
10	0.0023	0.0113	92,694	57.23	0.0015	0.0074	94,353	61.11
15	0.0024	0.0119	91,648	52.86	0.0016	0.0080	93,654	56.55
20	0.0031	0.0153	90,558	48.46	0.0020	0.0102	92,907	51.99
25	0.0037	0.0185	89,175	44.18	0.0029	0.0146	91,963	47.49
30	0.0050	0.0245	87,525	39.96	0.0048	0.0237	90,619	43.16
35	0.0070	0.0345	85,378	35.90	0.0060	0.0297	88,471	39.15
40	0.0083	0.0406	82,431	32.10	0.0054	0.0266	85,847	35.27
45	0.0089	0.0436	79,081	28.35	0.0062	0.0304	83,567	31.16
50	0.0099	0.0483	75,635	24.53	0.0068	0.0337	81,026	27.06
55	0.0123	0.0598	71,985	20.65	0.0082	0.0403	78,297	22.92
60	0.0195	0.0929	67,677	16.80	0.0125	0.0605	75,140	18.78
65	0.0277	0.1297	61,389	13.27	0.0206	0.0978	70,592	14.83
70	0.0454	0.2040	53,428	9.87	0.0336	0.1548	63,685	11.16
75	0.0724	0.3065	42,530	6.76	0.0564	0.2471	53,823	7.75
80	0.2745	1.0000	29,494	3.64	0.2236	1.0000	40,522	4.47

NORTH EASTERN

Age	Male				Female			
(x)	nMx	nqx	l(x)	e(x)	nMx	nqx	l(x)	e(x)
0	0.1339	0.1229	100,000	48.63	0.1048	0.0981	100,000	53.22
1	0.0102	0.0397	87,712	54.40	0.0088	0.0343	90,193	57.97
5	0.0044	0.0217	84,233	52.59	0.0035	0.0173	87,098	55.98
10	0.0043	0.0215	82,405	48.70	0.0033	0.0164	85,595	51.92
15	0.0032	0.0159	80,633	44.72	0.0023	0.0114	84,195	47.75
20	0.0045	0.0222	79,354	40.40	0.0041	0.0204	83,232	43.27
25	0.0073	0.0358	77,590	36.26	0.0075	0.0369	81,535	39.12
30	0.0122	0.0590	74,814	32.51	0.0140	0.0676	78,529	35.52
35	0.0199	0.0946	70,400	29.39	0.0176	0.0841	73,223	32.91
40	0.0208	0.0989	63,741	27.20	0.0143	0.0690	67,065	30.70
45	0.0205	0.0976	57,440	24.91	0.0127	0.0613	62,438	27.80
50	0.0181	0.0866	51,833	22.34	0.0118	0.0575	58,609	24.45
55	0.0176	0.0844	47,346	19.22	0.0129	0.0623	55,241	20.79
60	0.0242	0.1141	43,350	15.76	0.0189	0.0904	51,798	17.00
65	0.0332	0.1533	38,406	12.47	0.0271	0.1268	47,118	13.44
70	0.0514	0.2279	32,518	9.27	0.0453	0.2034	41,142	10.03
75	0.0839	0.3468	25,107	6.27	0.0735	0.3105	32,772	6.95
80	0.3058	1.0000	16,400	3.27	0.2525	1.0000	22,597	3.96

NYANZA

Age	Male				Female			
(x)	nMx	nqx	l(x)	e(x)	nMx	nqx	l(x)	e(x)
0	0.1226	0.1133	100,000	49.20	0.0950	0.0892	100,000	53.8
1	0.0152	0.0584	88,667	54.45	0.0129	0.0497	91,081	58.04
5	0.0034	0.0168	83,487	53.75	0.0024	0.0117	86,551	57.01
10	0.0039	0.0193	82,082	49.62	0.0029	0.0145	85,539	52.65
15	0.0027	0.0135	80,495	45.55	0.0019	0.0096	84,295	48.39
20	0.0038	0.0187	79,409	41.14	0.0036	0.0177	83,484	43.84
25	0.0064	0.0314	77,922	36.88	0.0074	0.0362	82,005	39.58
30	0.0118	0.0573	75,477	32.99	0.0147	0.0708	79,036	35.98
35	0.0206	0.0981	71,153	29.84	0.0192	0.0918	73,441	33.53
40	0.0211	0.1000	64,175	27.82	0.0145	0.0698	66,701	31.66
45	0.0215	0.1022	57,756	25.63	0.0129	0.0625	62,045	28.85
50	0.0171	0.0821	51,856	23.26	0.0102	0.0499	58,168	25.61
55	0.0168	0.0807	47,599	20.12	0.0112	0.0543	55,268	21.82
60	0.0216	0.1026	43,757	16.67	0.0153	0.0737	52,269	17.93
65	0.0314	0.1457	39,267	13.29	0.0241	0.1138	48,418	14.15
70	0.0476	0.2125	33,546	10.13	0.0404	0.1835	42,910	10.65
75	0.0759	0.3190	26,416	7.19	0.0714	0.3030	35,036	7.48
80	0.2282	1.0000	17,989	4.38	0.2152	1.0000	24,419	4.65

RIFT VALLEY

Age	Male				Female			
(x)	nMx	nqx	l(x)	e(x)	nMx	nqx	l(x)	e(x)
0	0.0516	0.0495	100,000	57.22	0.0400	0.0387	100,000	61.28
1	0.0035	0.0137	95,045	59.20	0.0030	0.0118	96,127	62.75
5	0.0032	0.0156	93,741	56.00	0.0023	0.0113	94,990	59.48
10	0.0036	0.0178	92,276	51.85	0.0027	0.0133	93,918	55.13
15	0.0025	0.0122	90,635	47.74	0.0018	0.0090	92,672	50.84
20	0.0035	0.0171	89,527	43.30	0.0032	0.0160	91,837	46.28
25	0.0058	0.0283	87,996	39.01	0.0066	0.0323	90,371	41.99
30	0.0106	0.0516	85,502	35.08	0.0133	0.0642	87,454	38.31
35	0.0182	0.0872	81,091	31.85	0.0174	0.0831	81,838	35.76
40	0.0189	0.0902	74,022	29.65	0.0132	0.0638	75,034	33.78
45	0.0193	0.0919	67,346	27.34	0.0118	0.0572	70,250	30.91
50	0.0155	0.0747	61,158	24.86	0.0094	0.0459	66,231	27.63
55	0.0155	0.0745	56,593	21.66	0.0102	0.0495	63,189	23.84
60	0.0200	0.0954	52,378	18.20	0.0140	0.0678	60,062	19.95
65	0.0286	0.1335	47,380	14.86	0.0216	0.1025	55,989	16.22
70	0.0437	0.1968	41,055	11.76	0.0355	0.1629	50,252	12.79
75	0.0703	0.2988	32,976	9.03	0.0590	0.2569	42,063	9.79
80	0.1468	1.0000	23,121	6.81	0.1367	1.0000	31,256	7.31

WESTERN

Age	Male				Female			
(x)	nMx	nqx	l(x)	e(x)	nMx	nqx	l(x)	e(x)
0	0.0632	0.0602	100,000	55.72	0.0498	0.0479	100,000	57.20
1	0.0131	0.0508	93,980	58.27	0.0113	0.0439	95,214	59.06
5	0.0042	0.0207	89,207	57.31	0.0037	0.0185	91,038	57.71
10	0.0029	0.0145	87,361	53.47	0.0031	0.0154	89,352	53.75
15	0.0033	0.0163	86,091	49.22	0.0028	0.0137	87,977	49.55
20	0.0047	0.0233	84,686	45.00	0.0040	0.0198	86,776	45.2
25	0.0055	0.0273	82,711	41.01	0.0066	0.0323	85,058	41.06
30	0.0073	0.0357	80,451	37.09	0.0114	0.0555	82,313	37.35
35	0.0101	0.0493	77,579	33.37	0.0146	0.0702	77,743	34.40
40	0.0114	0.0552	73,758	29.97	0.0122	0.0592	72,282	31.81
45	0.0129	0.0624	69,687	26.58	0.0117	0.0568	68,000	28.65
50	0.0143	0.0690	65,340	23.18	0.0112	0.0543	64,135	25.23
55	0.0175	0.0836	60,829	19.71	0.0133	0.0645	60,654	21.53
60	0.0248	0.1168	55,744	16.28	0.0191	0.0912	56,739	17.84
65	0.0368	0.1685	49,235	13.11	0.0295	0.1372	51,564	14.38
70	0.0570	0.2494	40,941	10.26	0.0472	0.2113	44,488	11.27
75	0.0891	0.3644	30,730	7.83	0.0753	0.3170	35,090	8.63
80	0.1698	1.0000	19,533	5.89	0.1546	1.0000	23,966	6.47

Appendix 5: Distribution of Life Time In-Migrants, and Life Time Out Migrants

	Lifetime Total			Lifetime male			Lifetime Female		
	In	Out	Net	In	Out	Net	In	Out	Net
NAIROBI	2,054,393	307,947	1,746,446	1,062,920	151,434	911,486	991,473	156,513	834,960
CENTRAL	600,009	1,077,967	-477,958	297,459	517,320	-219,861	302,550	560,647	-258,097
Nyandarua	199,856	164,037	35,819	91,481	76,224	15,257	108,375	87,813	20,562
Nyeri	109,728	353,000	-243,272	49,626	166,980	-117,354	60,102	186,020	-125,918
Kirinyaga	54,800	93,853	-39,053	24,682	41,565	-16,883	30,118	52,288	-22,170
Murang'a	136,616	427,539	-290,923	61,168	211,453	-150,285	75,448	216,086	-140,638
Kiambu	520,686	461,215	59,471	257,385	213,645	43,740	263,301	247,570	15,731
COAST	475,703	179,973	295,730	253,618	90,173	163,445	222,085	89,800	132,285
Mombasa	517,527	121,301	396,226	273,835	59,493	214,342	243,692	61,808	181,884
Kwale	63,105	105,362	-42,257	31,591	54,745	-23,154	31,514	50,617	-19,103
Kilifi	115,573	139,409	-23,836	56,856	74,353	-17,497	58,717	65,056	-6,339
Tana River	28,223	32,969	-4,746	14,990	17,256	-2,266	13,233	15,713	-2,480
Lamu	31,210	24,026	7,184	17,616	11,237	6,379	13,594	12,789	805
Taita Taveta	45,116	81,957	-36,841	24,090	38,125	-14,035	21,026	43,832	-22,806
EASTERN	224,405	985,320	-760,915	115,989	504,329	-388,340	108,416	480,991	-372,575
Marsabit	16,932	38,848	-21,916	9,647	22,018	-12,371	7,285	16,830	-9,545
Isiolo	28,597	33,764	-5,167	14,916	17,345	-2,429	13,681	16,419	-2,738
Meru	80,523	87,542	-7,019	41,744	40,776	968	38,779	46,766	-7,987
Tharaka/Nithi	21,741	107,129	-85,388	9,011	49,074	-40,063	12,730	58,055	-45,325
Embu	56,557	101,225	-44,668	25,902	46,497	-20,595	30,655	54,728	-24,073
Kitui	37,918	263,723	-225,805	16,907	143,079	-126,172	21,011	120,644	-99,633
Machakos	161,412	382,632	-221,220	79,740	186,947	-107,207	81,672	195,685	-114,013
Makueni	89,703	239,435	-149,732	40,109	120,096	-79,987	49,594	119,339	-69,745
NORTH EASTERN	35,904	104,069	-68,165	21,112	55,759	-34,647	14,792	48,310	-33,518
Garissa	29,968	45,700	-15,732	16,832	24,097	-7,265	13,136	21,603	-8,467
Wajir	10,641	36,929	-26,288	6,388	19,667	-13,279	4,253	17,262	-13,009
Mandera	10,932	37,077	-26,145	6,211	20,295	-14,084	4,721	16,782	-12,061
NYANZA	235,530	933,250	-697,720	108,292	500,624	-392,332	127,238	432,626	-305,388
Siaya	112,332	365,408	-253,076	42,996	167,820	-124,824	69,336	197,588	-128,252
Kisumu	244,450	261,126	-16,676	101,828	111,818	-9,990	142,622	149,308	-6,686
Migori	130,597	131,600	-1,003	45,512	55,798	-10,286	85,085	75,802	9,283
Homa Bay	142,199	244,904	-102,705	40,991	104,917	-63,926	101,208	139,987	-38,779
Kisii	60,962	413,185	-352,223	21,720	213,242	-191,522	39,242	199,943	-160,701
Nyamira	156,458	128,495	27,963	69,772	61,497	8,275	86,686	66,998	19,688
RIFT VALLEY	1,323,147	621,913	701,234	663,019	307,861	355,158	660,128	314,052	346,076
Turkana	20,146	41,622	-21,476	10,851	23,981	-13,130	9,295	17,641	-8,346
West Pokot	15,534	33,239	-17,705	7,653	16,707	-9,054	7,881	16,532	-8,651

	Lifetime Total			Lifetime male			Lifetime Female		
	In	Out	Net	In	Out	Net	In	Out	Net
Samburu	12,039	35,264	-23,225	6,732	18,773	-12,041	5,307	16,491	-11,184
Trans Nzoia	245,151	126,418	118,733	115,610	58,469	57,141	129,541	67,949	61,592
Baringo	33,719	102,055	-68,336	16,315	50,337	-34,022	17,404	51,718	-34,314
Uasin Gishu	340,309	131,648	208,661	166,540	61,184	105,356	173,769	70,464	103,305
Elkeyo/Marakwet	31,472	83,030	-51,558	14,715	39,087	-24,372	16,757	43,943	-27,186
Nandi	123,573	135,563	-11,990	57,917	63,248	-5,331	65,656	72,315	-6,659
Laikipia	159,017	84,519	74,498	76,378	40,653	35,725	82,639	43,866	38,773
Nakuru	589,323	288,469	300,854	292,002	136,405	155,597	297,321	152,064	145,257
Narok	144,887	57,502	87,385	74,131	28,292	45,839	70,756	29,210	41,546
Kajiado	255,503	43,499	212,004	129,619	22,969	106,650	125,884	20,530	105,354
Kericho	100,895	126,136	-25,241	50,890	60,295	-9,405	50,005	65,841	-15,836
Bomet	65,541	146,911	-81,370	30,771	73,421	-42,650	34,770	73,490	-38,720
WESTERN	221,657	960,309	-738,652	95,238	486,571	-391,333	126,419	473,738	-347,319
Kakamega	208,999	436,782	-227,783	79,741	207,404	-127,663	129,258	229,378	-100,120
Vihiga	45,927	358,803	-312,876	15,724	171,127	-155,403	30,203	187,676	-157,473
Bungoma	132,208	249,921	-117,713	53,347	116,597	-63,250	78,861	133,324	-54,463
Busia	85,711	165,991	-80,280	34,165	79,125	-44,960	51,546	86,866	-35,320

Appendix 6: Population Projections by County, 2010-2030

Province	2010	2011	2012	2013	2014	2015	2020	2025	2030
Kenya	**38,473,893**	**39,545,118**	**40,651,744**	**41,792,563**	**42,961,187**	**44,156,577**	**50,319,253**	**56,998,894**	**63,859,547**
Nairobi	**3,144,918**	**3,351,315**	**3,563,473**	**3,781,394**	**4,004,400**	**4,232,087**	**5,433,002**	**6,723,898**	**8,105,962**
Central	**4,484,395**	**4,571,584**	**4,662,000**	**4,755,353**	**4,850,713**	**4,947,415**	**5,442,238**	**5,945,053**	**6,456,803**
Nyeri	709,595	723,392	737,704	752,469	767,560	782,864	861,162	940,725	1,021,706
Nyandarua	610,017	621,875	634,172	646,876	659,848	673,000	740,314	808,712	878,321
Kiambu	1,660,366	1,692,651	1,726,128	1,760,692	1,795,999	1,831,800	2,015,014	2,201,180	2,390,661
Murang'a	964,170	982,921	1,002,354	1,022,427	1,042,929	1,063,721	1,170,109	1,278,221	1,388,250
Kirinyaga	540,247	550,745	561,642	572,889	584,377	596,030	655,639	716,215	777,865
Coast	**3,396,107**	**3,521,404**	**3,650,276**	**3,782,461**	**3,916,101**	**4,054,921**	**4,770,767**	**5,520,138**	**6,295,125**
Mombasa	959,187	994,575	1,030,973	1,068,307	1,106,444	1,145,259	1,347,440	1,559,091	1,777,973
Kwale	663,906	688,398	713,591	739,435	765,831	792,698	932,641	1,079,131	1,230,636
Kilifi	1,133,208	1,175,021	1,218,024	1,262,127	1,307,185	1,353,042	1,591,901	1,841,958	2,100,553
Tana River	245,301	254,348	263,654	273,205	282,958	292,885	344,595	398,714	454,693
Lamu	103,716	107,546	111,484	115,520	119,641	123,842	145,698	168,588	192,257
Taita Tateva	290,789	301,516	312,550	323,867	334,042	347,195	408,492	472,656	539,013
Eastern	**5,797,560**	**5,850,787**	**5,906,242**	**5,963,877**	**6,023,246**	**6,083,707**	**6,393,367**	**6,703,338**	**7,002,050**
Marsabit	297,817	300,589	303,474	306,471	309,557	312,698	328,774	344,855	360,348
Isiolo	146,567	147,928	149,345	150,817	152,332	153,875	161,773	169,674	177,286
Meru	1,387,275	1,400,032	1,413,323	1,427,135	1,441,361	1,455,849	1,530,043	1,604,305	1,675,867
Tharaka	373,672	377,099	380,669	384,379	388,202	392,094	412,033	431,994	451,229
Embu	528,000	532,852	537,906	543,158	548,569	554,079	582,297	610,543	637,763
Kitui	1,035,831	1,045,268	1,055,104	1,065,329	1,075,866	1,086,599	1,141,592	1,196,663	1,249,741
Machakos	1,123,672	1,134,005	1,144,770	1,155,957	1,167,480	1,179,215	1,239,309	1,299,458	1,357,421
Makueni	904,725	913,015	921,652	930,630	939,879	949,298	997,546	1,045,847	1,092,395
N. Eastern	**1,438,971**	**1,464,212**	**1,490,193**	**1,516,887**	**1,544,270**	**1,572,238**	**1,720,446**	**1,886,892**	**2,067,855**
Garissa	387,995	394,804	401,806	409,007	416,389	423,931	463,891	508,772	557,565
Wajir	412,210	419,438	426,883	434,524	442,371	450,385	492,839	540,522	592,360

Province	2010	2011	2012	2013	2014	2015	2020	2025	2030
Mandera	638,766	649,970	661,504	673,356	685,510	697,922	763,716	837,598	917,930
Nyanza	**5,558,465**	**5,685,335**	**5,815,582**	**5,949,091**	**6,085,121**	**6,222,651**	**6,919,161**	**7,617,128**	**8,309,550**
Siaya	860,216	879,853	900,009	920,671	941,724	963,007	1,070,797	1,178,811	1,285,971
Kisumu	989,514	1,012,102	1,035,287	1,059,053	1,083,268	1,107,755	1,231,745	1,355,998	1,479,262
Homa Bay	984,293	1,006,756	1,029,823	1,053,465	1,077,554	1,101,901	1,225,243	1,348,840	1,471,455
Migori	936,675	958,055	980,002	1,002,499	1,025,422	1,048,602	1,165,974	1,283,587	1,400,270
Kisii	1,176,791	1,203,648	1,231,223	1,259,489	1,288,290	1,317,407	1,464,861	1,612,630	1,759,220
Nyamira	610,976	624,921	639,238	653,914	668,863	683,979	760,541	837,262	913,372
R. Valley	**10,219,673**	**10,597,153**	**10,987,981**	**11,391,538**	**11,806,601**	**12,231,928**	**14,399,840**	**16,894,299**	**19,401,865**
Turkana	873,575	905,842	939,247	973,742	1,009,225	1,045,579	1,238,136	1,444,117	1,658,462
West Pokot	523,709	543,054	563,087	583,767	605,033	626,832	742,267	865,754	994,258
Samburu	228,762	237,212	245,962	254,997	264,284	273,804	324,230	378,173	434,302
Trans Nzoia	836,332	867,219	899,200	932,223	966,197	1,001,005	1,185,347	1,382,548	1,587,755
Baringo	567,516	588,478	610,182	632,588	655,641	679,256	804,346	938,163	1,077,412
Uasin Gishu	913,027	946,757	981,669	1,017,723	1,054,805	1,092,803	1,294,058	1,509,347	1,733,368
Elgeyo Marakwet	377,942	391,900	406,355	421,282	436,631	452,360	535,665	624,778	717,519
Nandi	769,022	797,427	826,838	857,207	888,435	920,445	1,089,953	1,271,285	1,459,976
Laikipia	407,658	422,718	438,309	454,412	470,965	487,934	577,791	673,915	773,938
Nakuru	1,637,474	1,697,951	1,760,571	1,825,229	1,891,739	1,959,880	2,320,819	2,706,920	3,108,708
Narok	868,770	900,860	934,085	968,390	1,003,672	1,039,837	1,231,331	1,436,181	1,649,345
Kajiado	701,919	727,849	754,693	782,409	810,918	840,127	994,853	1,160,358	1,332,589
Kericho	774,423	803,025	832,641	863,222	894,673	926,903	1,012,877	1,280,208	1,470,225
Bomet	739,544	766,861	795,142	824,347	854,383	885,163	1,048,167	1,222,552	1,404,008
Western	**4,433,804**	**4,503,328**	**4,575,997**	**4,651,962**	**4,730,735**	**4,811,630**	**5,240,432**	**5,708,148**	**6,220,337**
Kakamega	1,698,576	1,725,211	1,753,050	1,782,152	1,812,330	1,843,320	2,007,597	2,186,771	2,382,995
Vihiga	567,387	576,283	585,582	595,301	605,379	615,734	670,601	730,460	796,001
Bungoma	1,668,532	1,694,695	1,722,043	1,750,634	1,780,280	1,810,717	1,972,085	2,148,098	2,340,842
Busia	499,309	507,139	515,322	523,875	532,746	541,859	590,149	642,819	700,499

Appendix 7: Codes for Highest Education Level Reached and Completed for P40 & 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

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