



2010 POPULATION & HOUSING CENSUS

NATIONAL ANALYTICAL REPORT



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FOREWORD

The utility of statistics for policy formulation, decision-making, and the monitoring and evaluation of socio-economic development programs and projects has long been recognized in Ghana. There has also been significant growth in the types of statistics required to plan and monitor socio-economic development in the country, including indicators to track progress of several major initiatives including the Millennium Development Goals (MDGs) and the Ghana Shared Growth and Development Agenda.

The Ghana Statistical Service (GSS) is committed to ensuring that up-to-date socioeconomic data are available for planning and decision-making, as well as for monitoring and evaluating development programmes at all levels. To achieve this objective, GSS has over the years produced statistical data through censuses, sample surveys and administrative sources. The 2010 Population and Housing Census (PHC) is the fifth census to be undertaken in Ghana since independence in 1957. The immediate objective of the 2010 Census was to ensure the availability of demographic, housing and socio-economic bench-mark data at the national, regional, district and locality levels for planning.

The 2010 Census gathered information from each individual present in Ghana on 26th September, 2010; the Census also collected data on all living quarters in Ghana as at 26th September, 2010. Beyond providing benchmark data for planning, detailed analysis of the census will enhance our understanding of the effectiveness of the various interventions initiated by Government and its collaborators to improve the lives of Ghanaians.

To facilitate the fullest utilisation of the Census, GSS has prepared the National Demographic Analysis report, which contains detailed analysis of the various topics covered in the 2010 PHC, including those like disability, ICT and agriculture, not covered in previous censuses. Some sections of the report compare data from the 2010 PHC to those from earlier censuses, so as to elucidate how the characteristics of the population have changed over time.



**Prof. Francis Dodoo
GSS Board Chairman**

ACKNOWLEDGEMENT

The commitment and valuable contributions of many institutions and individuals has made it possible for the Ghana Statistical Service (GSS) to successfully implement the 2010 Population and Housing Census (PHC), including the preparation this report, which is the first in the series of comprehensive reports to be generated from the 2010 Census data.

Among the objectives of the 2010 PHC Data Analysis and Dissemination programme was the need to build the capacity of professional staff with analytical and report writing skills for future assignments. For this reason, selected senior professional staff of GSS and relevant Ministries, Departments and Agencies (MDAs) were paired with experienced researchers, mainly from the University of Ghana, to prepare the report. For the first time in the history of census report writing in GSS, a conference report writing style was adopted in order to accelerate the preparation of the report. Our profound appreciation goes to the consultants and staff writers who contributed to the various chapters of the report, and also the support staff, particularly, the data processing staff, who provided the needed tables. The dedication of the Editors and the Chief Editor to the report review process is greatly appreciated.

We cannot forget the tireless effort of the Chief Technical Advisor, Dr. Ismail Sulaiman of the UNFPA, for his support from the planning stage of the census, through the data collection and processing, to the preparation of this report. We are indeed very grateful to him for his guidance and kind support. We also wish to acknowledge the contribution of Ms. Rebecca Appiah, the Census Management Advisor, for the key role she played in the development of the census instruments, training of field staff and the monitoring of field activities. She also reviewed various chapters of this report and we would like to take this opportunity to acknowledge her enormous contributions towards the success of the 2010 Census. The tireless effort of the Acting Census Coordinator, Mr. David Yenukwa Kombat, the Acting Deputy Government Statistician (Operations), Mr. Kofi Agyeman-Duah, , and the Project Secretary, Ms. Hannah Frempong Konadu, who devoted time to ensure that the many editorial changes were faithfully effected, is duly acknowledged.

GSS is particularly grateful to the Government of Ghana for providing the needed funds and logistics for the conduct of the Census. We are also grateful to the GSS Board members for their encouragement, direction and keen interest in ensuring that the census project was brought to a successful conclusion. Our deep appreciation goes to the United Nations Population Fund (UNFPA) for providing technical assistance, equipment and other materials to support various phases of the census. We would like to particularly mention UNFPA's support for the census cartographic work and the trial census without which the implementation of the main census would not have been possible.

We are again very grateful to the UK Department for International Development (UK-DFID), United Nations Development Programme (UNDP), the European Union (EU), the World Bank and United Nations Children's Fund (UNICEF) for their generous contributions towards the census programme. The cooperation and contribution of the Danish International Development Agency (DANIDA) and the Canadian International Development Agency (CIDA) for the census data analysis project is also highly appreciated.

The Post Enumeration Survey (PES) indicates that the 2010 PHC was successful in terms of coverage and content and this is attributed to the hard work of the field personnel and the cooperation of the people of Ghana. It is our sincere hope that this report will be used for informed planning and decision making.

A handwritten signature in black ink, appearing to read "Nyarko".

Dr. Philomena Nyarko
Acting Government Statistician

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ACRONYMS

AGI:	Association of Ghanaian Industries
AIDS:	Acquired Immune Deficiency Syndrome
ASCII:	American Standard Code for Information Interchange
CEB:	Children Ever Born
CIDA:	Canadian International Development Agency
CS:	Children Surviving
CEDAW:	Convention on Elimination of All forms of Discrimination
CERSGIS:	Centre for Remote Sensing and Geographic Information Survey
CHIPS:	Community Health Planning Services
CWIQ:	Core Welfare Indicator Questionnaire
DANIDA:	Danish International Development Agency
DFID:	Department for International Development
ECOWAS:	Economic Community of West African States
EMIS:	Education Management Information System
EA:	Enumeration Area
EU:	European Union
fCUBE:	Free Compulsory Universal Basic Education
GETFund:	Ghana Education Trust Fund
GREDA:	Ghana Real Estate Developers Association
GDP:	Gross Domestic product
GSS:	Ghana Statistical Service
GSDP:	Ghana Statistics Development Plan
GPS:	Global Positioning System
GPRTU:	Ghana Private Road Transport Union
GES:	Ghana Education Service
GDHS:	Ghana Demography Health Survey
HIV:	Human Immune Virus
ISCO:	International Standard Classification of Occupation
ISIC:	International Standard Classification of Industry
ICU:	International Communication Union
ICT:	Information Communication Technology
ISSER:	Institute of Statistical Social and Economic Research
JSS:	Junior Secondary School
JHS:	Junior High School
SSS:	Senior Secondary School
SHS:	Senior High School
LEAP:	Livelihood Empowerment Against Poverty Programme

LESDEP	Local Enterprise and Skills Development
LISGIS	Liberia Institute of Statistics and Geo-Information Services
MMDAs	Metropolitan, Municipal and District Assemblies
MDGs	Millennium Development Goals
MER	Migration Effectiveness Ratio
MOE	Ministry of Education
MICS	Multiple Indicator Cluster Survey
MOFA	Ministry of Food and Agriculture
MOTI	Ministry of Trade and Industry
NCA	National Communication Authority
NCPEC	National Census Publicity and Evaluation Committee
NCTAC	National Census Technical Advisory Committee
NIPORT	National Institute of Population Research and Training
NHIS	National Health Insurance Scheme
ICT4AD	National ICT for Accelerated Development Policy
NDPC	National Development Planning Commission
NGOs	Non-governmental Organisations
OIC	Opportunities Industrialisation Centre
PHC	Population and Housing Census
PPP	Public-Private Partnerships
PNDC	Provisional National Defence Council
PAS	Population Analysis Spreadsheet
PES	Post Enumeration Survey
PWDs	Persons with disabilities
PASEX	Population Analysis System
SADA	Savanna Accelerated Development Authority
SAP	Structural Adjustment Programme
SMAM	Singulate Mean Age at Marriage
UNICEF	United Nations International Children's Education Fund
UN	United Nations
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
WHO	World Health Organization
WC	Water Closet
ZIMSTAT	Zimbabwe National Statistics Agency

CHAPTER ONE

INTRODUCTION¹

1.1 Introduction

The 2010 Population and Housing Census (PHC) is the eleventh overall and the fifth post-independence national census. The first census in the country, conducted in 1891, was under the auspices of the then British Administration. Censuses were then carried out every ten years thereafter in 1901, 1911, 1921 and 1931 when the Second World War disrupted the series, hence there was no census in 1941 (Bureau of Statistics, 1964; Engmann, 1985). After the war, a census was conducted in 1948, and that was the last to be organized by the then British Administration. The earlier censuses were conducted in the same years as censuses in the United Kingdom (Bureau of Statistics, 1964).

After independence in 1957, Ghana adopted the United Nations' recommendation to conduct censuses in years ending in 'zero' or close to 'zero'. Thus, the first post-independence census was conducted in 1960 and the second in 1970. There was no census in 1980 due to political instability, breaking the decennial census taking in the country. A census was eventually conducted in 1984, and then in 2000, breaking the expected decennial census taking in the country and presenting unusual intervals between the censuses – 14 years between 1970 and 1984 and 16 years between 1984 and 2000. The 2010 census has restored the decennial process of census taking.

There have been variations in the land area and the content of censuses in the country. The 1891 census covered the then Gold Coast colony which consisted of parts of the present Western, Central, Eastern, Greater Accra and Southern Volta Regions. The 1901 and the 1911 censuses covered the then Ashanti Territory and the Northern Territories. The present area of Ghana was covered in a census for the first time in 1921 when after the First World War (1914-1918), the German Territory of Togo was divided into two and the western half put under the administration of the colonial Government of the Gold Coast (Engmann, 1985, Awusabo-Asare, 1990). Thus, in terms of area, data from censuses are comparable from 1921.

The type and methods of data collected in censuses have also varied over the years. The pre-independent censuses collected minimal data for planning purposes. The scope and character of census changed considerably with the 1960 post-independence census. For the first time, data were collected on basic demographic, geographic and socio-economic issues including education and occupation. The processes and the concepts used for the 1960 data collection were the same for the 1970 and the 1984 censuses. The approach and the content of census data was changed in the 2000 census to cover population and housing, hence a population and housing census. The concepts for the 2000 census were repeated in 2010. In addition, five new modules were included in the 2010 PHC, namely disability, emigration, information and communication technologies (ICT), maternal mortality and agriculture.

¹This chapter was prepared by Emmanuel O. Tawiah, Samuel N.A. Cudjoe, John K. Anarfi and Clara K. Fayorsey

1.2 Uses of Census Data

Census data are used for policy-making, planning and administration, research, business, electoral boundary delimitation and sampling frame for surveys (United Nations, 2008). For instance, Section 47 (5) of the 1992 Constitution stipulates that “the Electoral Commission shall review the division of Ghana into constituencies at intervals of not less than seven years, or within twelve months after the publication of the enumeration figures after the holding of a census of the population of Ghana, whichever is earlier and may, as a result, alter the constituencies” (Republic of Ghana, 1992:45). This then mandates the Electoral Commission to use census data as part of the political process. Institutions such as the Electoral Commission, National Health Insurance Authority and the National Identification Authority use census data to guide their activities. The decentralisation policy pursued in the country also demands the use of census data at the lowest administrative level possible. The 1970, 1984 and 2000 censuses were used as sampling frames for national surveys including the Ghana Demographic and Health Surveys and the Ghana Living Standard Surveys as well as surveys conducted by other organizations and individual researchers. Furthermore, students, researchers, the media and other data users depend on census data for their work. Thus, it is imperative that a national census is organized every ten years for the data to be used for national planning and development.

1.3 Contents of the 2010 National Demographic Analysis Report

The book is in 16 Chapters and provides detailed information on the nature and characteristics of the population of Ghana from the 2010 PHC. The first chapter gives a brief history of census taking in the country and a background to the chapters. A census involves stages of pre-enumeration activities, the census enumeration itself and post-enumeration activities. Chapter Two focuses on these three phases of census taking and stresses the importance of planning in facilitating the collection and processing of accurate and reliable data on the demographic and socio-economic characteristics of the population. The Chapter ends with the lessons learnt. For any census data to be used for the purpose for which they have been collected, they should be reliable. Therefore, census data are expected to be assessed for reliability, especially age-sex data which forms the basis for planning, research and the population projection. In Chapter Three, the age-sex data from the 2010 Census is evaluated for reliability using various techniques. Chapter Four is devoted to the analyses of population size, composition and age-sex structure and changes which have occurred since the 1960 census. Changes in population characteristics such as size, age-sex structure and distribution have implications for planning and policy.

Household size, structure and composition of the population are examined in Chapter Five. The study of the characteristics of households in any population provides information on living arrangements which have implications for housing and the use of space. Chapter Six focuses on marriage and marital characteristics of persons aged 12 years and above. This is important as marriage generally marks the beginning of family formation. It discusses the onset of marriage, the proportions never and ever married (currently married, separated, divorced and widowed) as well as systems of marriage in Ghana.

Education and literacy play critical roles in the socio-economic development of any country. Through education, people acquire knowledge, skills, values and attitudes relevant for development. Recognizing the importance of education for individuals and countries, the United Nations devoted the Millennium Development Goal 2 to the achievement of universal

primary education by 2015. Chapter Seven provides a descriptive analysis of education and literacy from the census. Proportions of the population with basic education have stagnated at 90 percent over the last two decades and this presents a challenge as to whether Ghana can achieve the education MDG in 2015.

Fertility and mortality are the two components of natural population change. Chapter Nine is devoted to levels, patterns, trends and differentials in fertility from the 2010 census. Aspects of fertility are described for the total country, regions and rural and urban areas. The analysis is also expected to unravel the factors accounting for the situation in the country.

In the 2010 PHC, data were collected on deaths in the household in the 12 months preceding the census and deaths occurring among females aged 12-54, while pregnant, during delivery, or within six weeks after the end of a pregnancy or childbirth. Using the information collected, estimates have been calculated for levels, trends and age patterns of mortality in Chapter Nine. In addition, differentials in infant, under-five and adult mortality have been analysed and used to construct empirical model life tables for the country. Such data were collected to give an idea about mortality in the absence of a complete vital registration system in the country.

Migration and urbanisation result in the redistribution of a population, with socio-economic consequences for the country as a whole as well as for the places of origin and destination. Chapter Ten examines levels of internal migration, immigration, emigration and urbanization by age-sex composition, region, residence, education and occupation. This chapter is followed by an analysis of the economic characteristics of the population and provides information on the employment status, employed, unemployed, non-economically active population as well as the employment sector. These features are examined by age-sex, type of locality, marital status, educational attainment and region of residence in Chapter Eleven.

Agriculture is one of the issues covered for the first time in a national census. As a predominantly agricultural country with the sector contributing to about 30 percent of gross domestic product, detailed information was collected on the nature and characteristics of the sector and the population involved. Chapter Twelve examines the demographic and socio-economic characteristics of the agricultural population and households, agricultural activities, the types of food and tree crops grown and the acreages covered, livestock population and keepers and fish farming.

Chapter Thirteen is devoted to the analysis of data on disability, which was also collected for the first time in a national census. The chapter analyses the data on persons living with disabilities (PWDs), providing information on types of disabilities in the country and by socio-demographic characteristics such as age-sex, residence, education, marriage and region of persons living with disability. Sight disability emerged as the highest among the elderly and emotional disability among young people.

The 2010 PHC, for the first time, also collected data on access to and use of information and communication technologies (ICT). Information was collected on access to mobile phones, computers and internet facilities by individuals 12 years and older and access to fixed line phones by households. These items are described for selected demographic and socio-economic characteristics such as age-sex, level of education, region of residence, type of locality and economic activity in Chapter Fourteen. Special attention is given to ICT in agricultural households given the importance of the sector in the economy of the country.

Chapter Fifteen discusses data on stock of houses, facilities and amenities in houses at the national and regional levels. The data for the analysis were based on information on housing characteristics namely materials used for the building – walls, floor and roof – sources of energy for cooking and lighting, water and waste disposal. The sixteenth chapter provides a summary of the key findings and the policy implications from the analyses in the previous chapters.

1.4 Conclusion

The 2010 census data have been used to provide in-depth analyses of aspects of the population of Ghana in fourteen substantive chapters. Where possible, the data from the 2010 PHC are compared to those from the earlier post-independent censuses. The chapter on evaluation of the quality and quantity of data from the 2010 PHC reminds readers of the importance of the assessment of demographic data. Such an exercise helps to put confidence in the data used for the rest of the analysis. The nature of the changes in numbers, distribution, growth and re-distribution of the population has implications for planning to achieve national development. Responding to these aspects of the population will need a paradigm shift in thinking and approaches to planning. For instance, there is the need to create an economy which will provide employment opportunities for the youth who will be predominantly in urban areas due to natural change and migration from rural to urban areas.

With the increasing expectation of life as demonstrated in Chapter Nine (Mortality) and the declining fertility in Chapter Eight, the composition and structure of the population is going to change. For instance, the proportion of the aged population will increase in both proportion and absolute numbers. The changing age structure of the population has in-built dynamics and will have implications for the economy, social relations, housing, education, health and welfare of the population especially that of elderly persons. The country will need to respond to the changes in the population.

Information and Communication Technologies are transforming interactions in the country. The penetration of mobile phones, especially among rural and agricultural populations, provides opportunities for information sharing and education. For instance, the use of mobile phones for marketing agricultural produce and the on-going m-health programmes of the Ministry of Health provide some examples of the potential of these now tools for socio-economic development. What also emerges is the rural-urban divide in the ownership of computers in the country. This is one aspect which will define the nature of socio-economic development in the next decades.

The processes of population redistribution particularly inter-regional migration and rural-urban migration, the process of urbanization, its magnitude and determinants will have implications for future development. These changes, with implications for access to safe, adequate and affordable shelter, education and occupation, present challenges to strategies for improving living conditions. The results from the census and the analyses should provide basic information for assessing aspects of the education, health and sanitation components of the Millennium Development Goals. Finally, there is the need to endeavour that the decennial pattern of census taking in years ending in ‘zero’ is maintained to ensure the availability and comparability of censuses for planning in the country.

References

- Awusabo-Asare, K. (1990). "Reflections on the 1984 Population Census of Ghana" *Journal of Social Sciences* (UCC) Vol. 1(2):83-93.
- Bureau of Statistics (1964). *1960 Population Census of Ghana, Vol. XXX*. Ghana Bureau of Statistics, Accra
- Engmann, E. V. T. (1985). *Population of Ghana: 1860 – 1960*. Ghana Universities Press, Accra
- Ghana Statistical Service (2005), *Population Data Analysis Report, Vol. 1.Socio-Economic and Demographic Trends*. Ghana Statistical Service, Accra
- Republic of Ghana (1992). *The Constitution of Ghana*. Ghana Publishing Corporation, Accra.
- United Nations (2008). *Principles and recommendation for population and housing censuses*. Revision 2.Statistical Papers, Series M. No. 67/Rev. 2.United Nations, New York.

CHAPTER TWO

CENSUS METHODOLOGY²

2.1 Introduction

The primary objective of the 2010 PHC was to provide information on the number, distribution and social, economic and demographic characteristics of the population of Ghana necessary to facilitate the socio-economic development of the country. In conducting the 2010 PHC, the Ghana Statistical Service (GSS) was guided by the principle of international comparability and the need to obtain accurate information on population and housing Census in the country. Therefore, the 2010 PHC was conducted using all the essential features of a modern census as contained in the United Nations Principles and Recommendations for countries taking part in the 2010 Round of Population and Housing Censuses. The exercise was also informed by experience from previous post-independence censuses of Ghana (1960, 1970, 1984 and 2000). From the previous experiences, it was recognized that a large scale statistical operation as the 2010 Population and Housing Census required meticulous planning for its successful implementation. This chapter presents information on the pre-census planning, enumeration and post enumeration activities. It is organized into five sections namely, pre-enumeration activities, the census enumeration itself, post enumeration activities, challenges and lessons learnt, summary and recommendations.

2.2 Pre-enumeration

The pre-enumeration period consisted of a number of discreet and related activities. This section outlines the major pre-enumeration activities which were undertaken.

2.2.1 Development of census document and work plans

The first stage of the exercise involved the setting up of a working group at the Ghana Statistical Service Secretariat which was charged with the responsibility of preparing the census project document with the assistance of two consultants. The document contained the rationale and objectives of the census, census organisation, a work plan and a budget. The project document was launched in November 2008 as part of the Ghana Statistics Development Plan (GSDP). In November 2009, the document was reviewed and updated to take into account the changes which had occurred over the period. Secondly, a management and supervisory framework which outlined the responsibilities of the various stakeholders essential for the effective implementation of a population and housing census was also produced as part of the initial preparation.

2.2.2 Census secretariat and committees

To implement the activities outlined in the 2010 PHC project document, a National Census Secretariat was set up in January 2008. The Secretariat comprised professional and technical staff of GSS as well as staff of other Ministries, Departments and Agencies (MDAs), some of whom were seconded to GSS. The Secretariat, primarily responsible for the day-to-day

² Marjorie Danso-Manu and David Yenukwa Kombat have contributed this chapter.

planning and implementation of the census activities, consisted of seven units namely, census administration, cartography, recruitment and training, publicity and education, field operations and logistics management, data processing, and data analysis and dissemination.

The Census Secretariat was initially headed by an acting Census Coordinator engaged by the United Nations Population Fund (UNFPA) in 2008 to support GSS in planning the Census. In 2009, the Census Secretariat was re-organised with the Government Statistician as the National Chief Census Officer and overall Coordinator of the census. As part of the re-organization, a Census Management Team and a Census Coordinating Team were established to assist the National Chief Census Officer/Coordinator. The Census Management Team had oversight responsibility for the implementation of the Census took critical decisions on the census in consultation with other national committees. The Census Coordinating Team, on the other hand, was responsible for the day-to-day implementation of the Census programme.

Census committees were set up at both national and sub-national levels to provide technical advice and assist with resource mobilization. At the national level, the committees were the National Census Steering Committee (NCSC), the National Census Technical Advisory Committee (NCTAC) and the National Census Publicity and Education Committee (NCPEC). At the regional and district levels, the committees were the Regional Census Implementation Committee (RCIC) and the District Census Implementation Committee (DCIC) respectively.

At the apex of the structure of the 2010 PHC management was the National Census Steering Committee as the main policy making body. The Committee was responsible for policy setting and direction on all aspects of the 2010 PHC. The composition of the NCSC was inter-sectoral with representation at the highest level, from both public and private institutions, such as, the Ministry of Finance and Economic Planning, Ministry of Education, National Population Council, United Nations Population Fund (UNFPA), Electoral Commission, Traditional leaders and Vice-Chancellors Ghana.

The next tier was the National Census Technical Advisory Committee (NCTAC) which was multi-disciplinary in its membership, comprising subject-matter specialists from a broad spectrum of Ministries, Departments and Agencies (MDAs), universities, other research institutions and private consultants. This Committee served as a think-tank and an advisory body to the Census Management Team and supported the Census Coordinating Team at specific stages of the census programme. For instance, the Committee assisted in developing the questionnaires and ancillary documents used for the census.

A National Census Publicity and Education Committee comprising senior level representatives in communication, civic education and advocacy from relevant public and private institutions was set up to advise on education and publicity. The Committee provided technical advice to the Census Secretariat in the development of publicity and educational materials and implementation of the publicity programmes for the census.

Inter-sectoral Regional and District Census Implementation Committees were in all the regions and districts in the country. With membership drawn mainly from decentralized departments, Regional and District Coordinating Directors chaired the Committees respectively. The Committees worked closely with the Regional/District Census coordinators to plan the regional, district, community and locality level activities in areas such as publicity

and field operations. The Committees also supported the Regional and District Census Officers in the recruitment and training of field personnel (enumerators and supervisors) and assisted in mobilizing logistical support for the census.

2.2.3 Mapping of Enumeration Areas

A timely and well implemented census mapping was considered pivotal for the success of the 2010 PHC as it is the process for delineating the country into enumeration areas to facilitate smooth enumeration of the population. For the 2010 PHC, the process involved updating the 2000 Census Enumeration Area (EA) maps, which started in the last quarter of 2007, the acquisition of topographic and digital sheets of all indices from the Geographical Information System Unit of the Survey and Mapping Division of the Lands Commission.

A decision was reached to undertake a pilot survey in selected areas. Three Sub-Metropolitan Areas and one Municipal Assembly, all in the Greater Accra region, were selected for the pre-test. Four field teams were constituted to undertake the exercise. One of the teams combined the use of Global Positioning System (GPS) with the digital maps to delineate newly constructed roads and also geo-reference other features. The other teams used digital town sheets to carry out the delineation. The exercise lasted for three months, from January to March 2007. It came out that the use of digital town sheet in the delineation of EAs was efficient, accurate and faster. This technique was therefore used in the delineation of EAs in some metropolitan areas such as Sekondi-Takoradi and Kumasi Metropolitan Assembly.

In June 2008, 10 field teams were trained and deployed to update the 2000 PHC enumeration areas. The exercise involved the use of GPS to geo-reference all rural localities and newly constructed road networks, photo imageries for all coastal localities 10 km from the shore and digital air sheets for other major localities. The comprehensive approach adopted was meant to improve coverage and accuracy of the field mapping exercise in the areas where the GPS was used. In November 2008, the number of field teams was increased in order to complete the cartographic fieldwork on time. In February 2009, the number of teams was further increased to 37, when it became apparent that the cartographic fieldwork was behind schedule. Field cartographic work was eventually completed in February 2010.

One of the challenges for the mapping team was the reconciliation of administrative boundaries following the creation of new districts. To deal with the challenges, 10 teams were set up in March 2008 to reconcile the administrative boundaries of the newly created districts.

As in the case of the 2000 census, a 10-digit coding system was adopted for coding enumeration areas in the 2010 PHC. This system uniquely identified each EA by region, district, district type and sub-district. Office editing of sketch maps, coding and reproduction of enumeration area maps was done alongside the fieldwork. Map reproduction activities were completed by mid-September 2010. At the end of the exercise, 104,951 localities, 37,630 enumeration-area maps and 6,733 supervision-area maps were produced.

2.2.4 Development of questionnaire and manuals

For effective data collection, there is the need to design appropriate documents to solicit the required information from respondents. In developing questionnaires and other materials, the GSS consulted widely with main data users and other stakeholders such as MDAs, research

institutions, civil society organisations and development partners. The aim was to give these institutions and bodies, the opportunity to indicate the type of questions they felt should be included in the census questionnaire.

The documents developed for the census consisted of questionnaires, manuals and field operation documents. Three types of questionnaires were developed to cover different population groups: (1) PHC1A to enumerate the household population; (2) PHC1B for non-household (Group Quarters) population; and (3) PHC1C to enumerate out-door sleepers/floating population.

The field operation documents were the Enumerator's Visitation Record Book, Supervisor's Record Book, and operational control forms. Enumerators and supervisors used the record books as operational and quality control tools to control and monitor field activities respectively. The supervisor's record book consisted of checklists and was used to monitor enumerators under his/her supervision, to record all errors identified in the work of an enumerator and the measures which were taken to rectify the situation. Two summary sheets were developed for recording summaries of information collected at the enumeration and locality level: The PHC3 and the PHC4 forms. The PHC3 form was used to record total number of persons in each enumeration area by sex and the data from that form were collated and used to publish the provisional results. The PHC4 form was used to record information at the locality level on total number of persons enumerated and the availability of social facilities such as health and educational institutions, public toilets, and the distance to the nearest facility if that facility was not available in the locality. This form is used to prepare the Gazetteer, which is the alphabetical listing of all localities in the country by region and by district with their population and the identified facilities.

The topics which were eventually selected for the 2010 Population and Housing Census were based on recommendations from the United Nations Principles and Recommendations for 2010 Round of Population and Housing Censuses, the African Addendum to that document and the needs of data users. 2010 PHC adopted all the core topics recommended at the global level, i.e., geographical and internal migration characteristics, international migration, household characteristics, demographic and social characteristics such as age, date of birth, sex, and marital status, fertility and mortality, educational and economic characteristics, issues relating to disability and housing conditions and amenities were adopted and included in the census.

Some topics which were not considered 'core' by the United Nations' recommendations but were found to be of great interest and importance to Ghana and were, therefore, included in the 2010 PHC questionnaire. These topics were religion, ethnicity, employment sector and place of work, agricultural activity, Information and Communication Technology (ICT), and issues on housing, such as type of dwelling, materials used for outer walls, floor and roof, tenure/holding arrangement, number of sleeping rooms, cooking fuel and cooking space.

The specific items of information collected from the population encountered on census night were name, sex, age, date of birth, nationality, ethnicity, birthplace, religion, internal migration, marital status, literacy, full time education, fertility, mortality, economic activity, occupation, industry, employment status, employment sector, disability, use of ICT, and agricultural activity. All questions were pre-coded except those on ethnic group, agricultural activity, occupation and industry, which were coded in the field.

Two manuals were developed: enumerator and supervisor's manuals. The first, the enumerator's manual, contained procedures, definitions and concepts used in the census, instructions on how to enumerate all persons and households in localities and a historical calendar of national and regional events which was used to estimate the ages of persons who did not know their date of birth or age. The second, the supervisor's manual, contained information on the duties of a supervisors and how to conduct checks on the work of enumerators.

For the coding of occupations and industrial activities in the country, a codebook based on the International Standard Classification of Industry (ISIC) and International Standard Classification of Occupation (ISCO) was developed. The codes, which were a four-digit alphabetical ordering, were prepared taking into consideration the ISCO and ISIC structure as well as occupations and industrial activities specific to Ghana.

Prior to the training of the national level trainers, selected staff members and experts from universities and other tertiary institutions assisted the Census Secretariat to develop an instructional manual (training modules) to complement the census training guide and the enumerators' manual. The purpose of the instructional manual was to standardize the content and procedure for the training field personnel across the country. The documents were used to train all levels of field personnel.

2.2.5 Definition of Concepts

To ensure international comparability of the data, almost all the concepts and classifications used in the 2010 PHC were based on recommendations in the United Nations Principles and Recommendations for the 2010 Round of Population and Housing Censuses. In some instances, however, slight modifications were made to suit local conditions and to maintain comparability with data from the four post-independent censuses conducted in the country. For the exercise, all the concepts adopted and used such as, household, region and district were defined in the Enumerator's Manual and used in the training of enumerators and supervisors.

2.2.6 Pre-tests and trial census

The census questionnaire was pre-tested twice in the course of its development in line with the internationally accepted practices for conducting censuses. The first pre-test was carried out in March 2009 and was used to assess the suitability of questions and instructions, adequacy and completeness of questions and respondents' understanding of the questions. The second pre-test was conducted in 10 selected enumeration areas in August 2009. The objective of the second pre-test was to examine the sequencing of questions, testing of new questions which were introduced in the 2010 PHC such as date of birth and migration and assess how the introduction of 'date of birth' could help to reduce 'age heaping'. For the questions on fertility, the pre-tests sought to find out the difference, if any, between proxy responses and responses by respondents themselves. Both pre-tests were carried out in the Greater Accra Region. Experiences from the pre-tests informed the development of the final census questionnaires.

In May 2010, GSS with the support of the United Nations Population Fund conducted a special test-census in the Awutu Senya District of the Central Region. The aim of the exercise

was to test the hypothesis that questions on children ever born and children surviving could be asked in a census and secondly, if answered by respondents themselves or through proxy would generate useful and good quality data. The results from this test showed that it was possible to obtain lifetime fertility data in a census and that there were no significant differences between the responses given by proxy and the eligible women themselves. Based on this finding, lifetime fertility questions were re-introduced in the questionnaire.

A trial census was held in October/November 2009 as a dress rehearsal for all the activities and procedures which had been planned for the main census. These were recruitment and training, distribution of census materials, administration of questionnaires and other census forms, enumeration of the various categories of the population (household, institutional and floating population), and data processing. This trial census was held in six selected districts in six regions namely, Saboba (Northern Region), Chereponi (Northern Region), Sene (Brong Ahafo Region), Bia (Western Region), Awutu Senya (Central Region), and Osu Klottey Sub-Metro (Greater Accra Region). The selection of areas for the trial census districts was informed by factors such as administrative boundary issues, ecological zones, accessibility, and availability of outdoor-sleepers/floating and institutional populations, fast-growing areas and enumeration areas with scattered settlements.

After the trial census, series of technical meetings were held to incorporate the experiences in the main census plan. For instance, based on the results, the format of the questionnaire was re-designed taking into consideration the scanning technology which had been selected for data capture. The content of the main questionnaire was also modified: Some questions were dropped, new ones were introduced and others varied slightly. For example, the question on “place of residence five years ago” which was in the trial census questionnaire was dropped from the main census. In the agricultural activity section, “type of cropping” (mixed cropping, inter cropping and mono cropping) which was not in the trial census was introduced questionnaire for the main census. In the trail census, there were four questions on ICT and all of them were asked at the household level. Based on the results, the questions were modified and two questions (ownership of mobile phones, use of the internet) were asked from each household member aged 12 years and above, while the other two questions (presence of a fixed telephone line in the dwelling unit, ownership of a desktop/laptop) related to the household. A major shortcoming of the trial census was the inability of the Census Secretariat to use the scanning technology to test the capturing of data.

The trial census also provided an opportunity to assess plans, procedures and the state of preparedness for the conduct of the 2010 PHC. Results from the trial census were used to estimate the number of persons per questionnaire and the average number of persons in the household roster, to assess the question on migration, the placement of the mortality question, serial numbering of houses/housing structures and method of collection of information on community facilities. Some of the common errors encountered during the editing of the completed questionnaires resulted in modifications to the questionnaire and the enumerator’s manual. Lessons learnt from the trial census also guided the planning of the recruitment process, the procedures for training of field staff, publicity and education on the census.

2.2.7 Acquisition and distribution of census materials

The 2010 PHC procurement activities included the procurement of goods and equipment such as computers and accessories, office furniture and equipment, training material and field logistics, and printing of questionnaires, manuals and publicity materials as per the census procurement plan. From the experience of the trial census, the Census Secretariat was able to estimate the volume of items which were eventually procured and distributed throughout the country. From the experience, the Census Secretariat liaised with institutions that had the capacity to transport large volumes of materials to all parts of the country namely, The Ghana Armed Forces, the Electoral Commission and Ghana Highway Authority. These institutions assisted in transporting materials for the main census.

The Census Secretariat initially decided to adopt a complete data capture solution for the processing of census questionnaires. This involved contracting the same company to supply the hardware and software, printing of all the questionnaires required and management of all the data processing activities. However, due to challenges with the tendering process, GSS was compelled to abandon the use of complete data capture solution for a partial solution for the processing of the data. The partial solution involved contracting the supply of hardware, software and printing of questionnaires to different suppliers. The consequence of this change led to a delay in the selection of a company to print the census questionnaires which subsequently affected the census enumeration because enough questionnaires could not be printed at the initial stages of the field work and this led to shortages.

2.2.8 Publicity and Education

Publicity and public education on the census were considered essential for the success of the 2010 PHC. The objectives of the census education campaign were to sensitize the public on the importance of the census, to create awareness on the census topics/questions, to solicit for support from the public on the exercise and to assure the population of the confidentiality of the information provided. The publicity programme was implemented in two phases. Phase one was the publicity for the trial census and was restricted to the six trial census districts. For this phase, the publicity was mostly through direct community such as interpersonal communication through the Information Service Department vans and traditional forms such as drums and drama as some of the trial districts were rural and some of the people did not have access to radio or television. Phase two was the publicity for the main census and this involved sensitization of civil society groups, religious leaders and community leaders; seminars; workshops; television and radio programmes; and use of public address systems.

Materials used for the publicity of main census publicity included jingles, posters, banners, car stickers, brochures, handbills, flyers and t-shirts. These materials were distributed freely through Regional and District Offices of GSS, and Regional and District Census Implementation Committees.

The Census Night, Sunday, 26th September 2010, was observed in all Districts nation-wide with various activities to make the day memorable. The rationale for celebrating the Census Night was to create public awareness on the commencement of the census and also for people to remember that night since information on the census was collected with reference to that night.

Activities organised in communities included:

- Sounding of sirens using Information Service Department, Police vehicles and Fire Service tenders
- Television and radio discussions explaining the importance of the census on Census Night.
- Tooting of horns by Ghana Private Road Transport Union (GPRTU) vehicles
- Tolling of church bells
- Brass band floats and street processions
- Bonfires (especially in Greater Accra)
- Traditional drumming, gong-gong beating and firing of muskets (especially in the rural and semi-urban areas)
- Cultural shows and music by spinning groups
- Film shows.

2.2.9 Recruitment and Training of census personnel

Recognizing the importance of using high calibre personnel, training and motivation in conducting a successful census, the GSS developed elaborate plans for recruitment, training motivation. And as part of the preparatory activities for the trial census, GSS organised a one-week training on census methodology and procedures for Census Secretariat staff and selected staff of MDAs from the trial census districts.

For the main census, a nationwide process was put in place to select potential supervisors and enumerators. First, the Census Secretariat developed a criterion for field personnel. Using the developed criteria, an online recruitment process was adopted and interested persons were to complete an online application form. Qualified candidates were shortlisted and interviewed in the district of their choice. The names of successful applicants were forwarded to the Census Secretariat for processing. This approach was adopted because the Secretariat found the online application to be more cost effective, transparent and faster than the paper based approach.

Given the large number of personnel that had to be trained for the census enumeration a four-tier training programme was implemented. In the first tier, GSS trained about 50 national level trainers. These together with senior officials of GSS formed the core of trainers who trained about 250 regional level trainers. The regional level trainers then trained about 2000 district level trainers who in turn trained about 50,000 enumerators, supervisors and senior supervisors. These district level trainers were mainly from Ghana Education Service (GES) and officials of MDAs. In August 2010, a one-week training programme was conducted at the national level for all district level trainers. This was to ensure standardized training. After the training of the district level trainers, they in-turn organized training for field personnel in their respective regions.

Assessment of the training of the district level trainers suggested the need for further training to improve upon their skills. Therefore, further three-day training was organized for all district trainers at the regional level. The additional training helped to improve their understanding of and skills in the census exercise.

The training of the field personnel for the main census took place concurrently in all the 165 districts, including the 33 sub-metros (but excluding 5 metropolitan districts) from 11th to 21st September 2010. The training focused on the objectives of the census, interview techniques,

map reading skills, listing of households, administration of the census questionnaires and how to complete the operational control forms. The field personnel who were trained included senior field supervisors, field supervisors and enumerators.

Based on results from an assessment of the trainers, some of them were selected as supervisors. Those selected were given additional training which focused mainly on supervision of enumerators, field checks, and the completion of census operational control forms and summary sheets.

Enumerators and supervisors were trained to undertake the census due to the fact that Ghana is largely an illiterate society. Thus, the canvasser method, which involves trained field personnel visiting houses and households to enumerate, was adopted for the 2010 PHC. Specific arrangements were made for the coverage of special population groups, such as the homeless and the floating population.

2.3 Census Enumeration

2.3.1 Enumeration and field work

In the 2010 PHC, people were enumerated at where they were on census night (de facto) as in all the four post-independence censuses (1960, 1970, 1984, and 2000) conducted in the country and not at where they usually resided (de jure). The de facto count was adopted because it is based on physical presence on a defined date and therefore it is simple, straightforward, and easy to interpret as well as minimizes the risks of under-enumeration and over enumeration. The reference period, the census night, was fixed for 20th September 2010.

The field personnel used the week preceding the Census Night to identify EA boundaries, list houses and other structures in their enumeration areas and enumerated institutional populations (health facilities, boarding schools and prisons). A special operation was carried out by Census Secretariat staff and Regional Statisticians to identify possible locations of out-door sleepers in major cities such as Accra, Kumasi, Tema, Sekondi-Takoradi and Tamale before the Census Night. Out-door sleepers (floating population) were enumerated on the Census Night using the census questionnaire (PHC1C) by regional and district census officials. In a few locations in Accra, it was not possible to enumerate all persons who were found there on Census Night. Where recognized group leaders existed in such areas arrangements were made with the group leaders to enumerate those who could not be enumerated on Census Night on the next day.

Following the census night on 26th September 2010, enumeration of household populations started on Monday, 27th September 2010 with visits to houses, compounds and structures in enumeration areas. The enumeration was carried out in the order in which houses/structures were listed. Where the members of a household were absent, the enumerator left a call-back-card indicating when he/she would return to enumerate the household. The enumeration process took off smoothly and on schedule. However, after a few days' work, some enumerators ran short of questionnaires, delaying the process for about three days.

Enumeration resumed in all districts when the shortage of questionnaires was resolved and by 17th October, 2010, enumeration was completed in most districts. Enumerators who completed their work early were mobilized to assist in the enumeration of localities that had lagged behind such as some regional capitals and other fast growing areas such as Kasoa and

Techiman which could not be properly demarcated before the census night. In flooded areas, other inaccessible localities and areas characterized by large EAs enumeration continued beyond the official enumeration period. Furthermore, in the course of the enumeration, officials returned to enumerated institutions to reconcile the information they obtained from individuals and also to cross out names of those who were absent from the institutions on Census Night.

2.3.2 Supervision and monitoring of field work

To achieve effective supervision, one supervisor was assigned to five enumerators. The supervisors ensured that enumerators followed all the instructions and procedures in carrying out their assigned responsibilities. In addition, District and Regional Census Officers and Committee members also went round to ensure that the enumeration exercise was successful. Officers from the Census Secretariat including Consultants and United Nations staff also monitored the field work to ensure complete coverage and the collection of good quality data.

In addition to the normal control measures, quality control teams were set up in four regions (Greater Accra, Central, Western, and Ashanti) after the end of enumeration. The teams visited selected districts in those regions to check on listing and enumeration. Unlisted structures and households which were identified were tagged and enumerated. In the case of the Accra Metropolitan Area and adjoining districts where enumeration delayed, a special task force was set up at the GSS head office to ensure that all the households in such areas were enumerated. A special hotline was created for the purpose and this special operation ended in December 2010.

2.3.3 Retrieval of Census materials

At the end of field work on 17th October, 2010, enumerators submitted their completed questionnaires, summary forms (PHC3 & PHC4) and other census materials to their supervisors who in turn forwarded them to the District Census Office. Materials received at the District Office were documented and the receipts which accompanied the census materials were used to reconcile the items given to an enumerator and those returned. The PHC3 forms were quickly dispatched to the Census Secretariat from which the provisional results were compiled. The remaining forms and questionnaires were later transported to Accra.

2.4 Post Enumeration Activities

2.4.1 Data Processing

Editing of completed questionnaires was initially planned to be done by field supervisors before the questionnaires were brought to the head office for data capture. However, a sample check on the questionnaires received at the head office indicated the need for office editing and coding/recoding before the questionnaires could be scanned. Therefore, a task force was set up at the Secretariat to re-edit questionnaires and checked the appropriateness of assigned industrial and occupational codes before scanning.

After the editing, a team was set up and trained to check the questionnaires to ensure that recordings and bubbles were correctly entered and reference numbers which identify questionnaires belonging to particular households were clearly written on each sheet for easy recognition before the questionnaires were separated and prepared for scanning. The team

also checked that continuation forms for households with more than 10 members had been appropriately labeled and also tracked original sheets and to shelve questionnaires by EA and district after opening for scanning.

At the preparatory stages of the 2010 PHC, GSS had selected scanning as the preferred method of data capture. The decision to adopt scanning was based on the fact that the process had been found to be relatively cost effective, time saving and the experience from the processing of the 2000 PHC and the 2003 Core Welfare Indicator Questionnaire Survey (CWIQ). GSS staff who had participated in the processing of these two data sets were mobilized for the processing of the data. And a consultant who was involved in the processing of the 2003 Core Welfare Indicator Questionnaire Survey (CWIQ) was engaged to assist in managing the scanning process. The images of scanned forms were archived, while defective pages of the questionnaire were reprinted. Equipment used for the data processing were networked for efficiency.

The full scanning system deployed was fully installed and tested by June 2011 with a lot of challenges. During the testing of the system, it was realized that some of the questionnaires used for the enumeration exercise were not of good quality and created a lot of problems during scanning. Some defects included use of paper sizes other than A4, absence of reference blocks or faded blocks, turning upside down of some papers, missing pages and poor quality of paper. As a result, the team manually checked the completeness of the questionnaires and the quality of the paper before they were passed on for scanning. In some cases, new questionnaires had to be printed and used to transcribe information from defective questionnaires. Issues relating to inadequate storage space for census questionnaires and network instability were also some of the challenges faced during data processing. Some data processing personnel had to vacate their offices in order make-room for the storage of questionnaires. The fact that coding and editing staff were not housed in the same place caused disruptions in the flow of work and contributed to the delay in the completion of data processing. Frequent power outages as well as network stability also contributed to the delays in completing data processing.

2.4.2 Post Enumeration Survey

In line with United Nations' recommendations, GSS conducted a Post Enumeration Survey (PES) in April, 2011. The objective was to use the results to check for content and coverage errors and to provide feedback on aspects such as concepts and procedures on census operations. Findings from PES can also guide users in their interpretation of the 2010 PHC results. Five items of information were collected in the PES: name, sex, age, relationship to head of household and marital status. Similar PESs were undertaken in previous post-independence censuses. The results of the 1960 and the 1970 PESs were published but not those of 1984 and 2000.

For the PES a sample of 250 (0.67%) out of 37,642 enumeration areas, was selected across the country. To ensure reliability of the survey estimates of the PES, the 2010 PHC frame was used. First stratified into the 10 administrative regions, enumeration areas were allocated to each stratum (region) according to the proportion of EAs in each region. Systematic sampling with probability proportional to size (number of households) was applied in selecting the enumeration areas in each region. A matching exercise was conducted to check both coverage and content errors.

Some of the personnel who took part in the 2010 PHC field enumeration exercise were recruited and trained for six days on the instruments prepared for the PES. The field work was carried out for 21 days in April 2011 and was closely monitored and supervised to ensure quality output. The main findings of the PES were that:

- 97.0 percent of all household residents who were in the country on Census Night (26th September, 2010) were enumerated in the 2010 PHC representing an omission rate of 3.0 percent.
- 1.3 percent of the population was erroneously included in the census.
- The PES count recorded a population of 24.0 million for Ghana on Census Night against 24.1 from the main 2010.
- The true population which is the population estimated from the PES multiplied by the population from the census after correcting for erroneous inclusions and divided by matched population between the census and the PES is 24.5 million.
- Regional differentials are observed. Upper East region recorded the highest coverage rate of 98.2 percent while the Volta region had the lowest coverage rate of 95.7 percent.
- Males (3.3%) were more likely than females (2.8%) to be omitted in the census. The coverage rate for males was 96.7 percent and the coverage rate for females was 97.2 percent. Also, the coverage rates (94.1%) for those within the 20-29 and 30-39 age groups are relatively lower compared to the coverage rates of the other age groups.
- There was a high rate of agreement between the 2010 PHC data and the PES data for sex (98.8%), marital status (94.6%), relationship to head of household (90.5%) and age (83.0%).

2.5 Lessons learnt and challenges

This section highlights some of the challenges and lessons learnt before, during and after the planning and implementation of the 2010 PHC. The lessons learnt cover aspects such as management of the process, boundary disputes, timing of the census, field challenges and data processing.

2.5.1 Management of the census

The first step in the census organization process is to appoint a coordinator who will be charged with the overall responsibility for the exercise. One approach is to appoint an independent census coordinator. Another approach is for the chief executive officer of the national statistical office to function as the census coordinator. The advantage with the latter approach is that the chief executive is able to have oversight responsibility for the census. On the other hand, vesting such responsibilities in one person could affect efficient management of the census process and the office of the chief executive. In the former model, the head of the national statistical office retains a strategic oversight role over the exercise and is the person the census coordinator reports to. In the case of the 2010 census, the Government Statistician, who is the chief executive of the GSS, was also the chief census officer. This approach led to one person playing a dual role of Government Statistician and census coordinator. While there were benefits to having the chief executive leading the census it did also place a large responsibility on one person. In addition it may be beneficial for the head

of the statistical office to retain a strategic oversight role rather than day to day management of the census as someone the census coordinator can refer to if issues arise.

2.5.2 Boundary disputes

Disputes relating to district boundaries arose during the demarcation of enumeration areas and also during the actual enumeration of the population. During the delineation of EAs, some community leaders confronted the cartographic field personnel for placing their communities in districts other than those they claimed they belonged to. Similar confrontations occurred during the enumeration where some communities initially refused to be enumerated due to district boundary disputes. They claimed that enumerators assigned to their area were from different districts and therefore could not be allowed to enumerate them. In some cases, senior census officials, District Chief Executives and Regional Ministers had to intervene before the aggrieved communities accepted to be enumerated. The assurance given was that their population will be allocated to the district they claimed to belong to. Such disputes affected the timely completion of both exercises.

2.5.3 Timing of the census

Theoretically, a census must be organized in the mid-year (30th June). However, in low income countries such as Ghana where direct interviewing method of enumeration is used due to high level of illiteracy and the seasonality of economic activities, the timing of census have been altered to suit local conditions. Taking into consideration local conditions, censuses in Ghana have been conducted in March or early part of April when it is relatively dry in almost every part of the country, hence low farming activities and also because schools would have been on vacation for teachers to be trained and used as enumerators and field supervisors.

Given the experience from previous censuses, the 2010 PHC was originally planned to take place in March-April, 2010. However, due to the slow release of funds coupled with delays in the cartographic work, the exercise was postponed to September-October, 2010. This decision to conduct the census in 2010 and not to postpone it to the following year was to satisfy the 10-year periodicity even though September is known to be a rainy month in parts of the country. In fact, some parts of the country experienced flooding during the period of enumeration. For instance, communities along the Volta River in the Upper East and Northern Regions were flooded as a result of rainfall and the release of water from the Bagre Dam in Burkina Faso. This led to the suspension of enumeration in some communities and was continued after the floods had subsided, delaying the completion of the exercise in such areas. It is important that future censuses are held in March-April.

The fact that schools were in session during the enumeration also posed a challenge to the conduct of the enumeration since the majority of the field workers were teachers.

2.5.4 Large enumeration areas

Due to the high concentration of people in cities such as Accra, Tema and Kumasi and their adjoining fast growing rural peripheries, population of some EAs areas exceeded the stipulated maximum. For instance, in some parts of the Accra Metropolitan area, about 1,000 structures were listed in one small EA. The enumerators in such large EAs faced challenges and when this became known additional enumerators were assigned to such areas. This

situation led to late completion of work in such EAs, which contributed to the overall delay in the fieldwork.

2.5.5 Shortage of census questionnaires

The initial shortage of questionnaires was one of the major setbacks in the 2010 PHC. As a result, some enumerators resorted to the use of exercise books to record information of households. Enumerators who did this were asked to transfer such information to the questionnaire when the situation improved. This was done with the guidance of supervisors.

2.5.6 Supervision

Although conscious effort was made to select knowledgeable, experienced and committed people as supervisors, some of them could not perform as expected in the field. Such people did not have the necessary skills to supervise and monitor the work of others. In some cases, there were problems with supervision because some teachers were selected as supervisors over their superiors at work. This affected working relationships. In future, the selection of supervisors should be done with more care than was the case in some of the areas.

2.5.7 Logistics

During the mapping exercise, an inadequate number and frequent breakdown of vehicles was a challenge. Another challenge that GSS faced was the late delivery of bags/satchels that were to be used for packaging of the census questionnaires. Due to the late delivery of the bags/satchels, cartons were used to package and transport the census materials from field to the Census Secretariat. One other logistic challenge was delays in procurement of printing machines for reproducing maps.

2.5.8 Inadequate storage space

One of the main challenges faced by GSS was insufficient storage space to accommodate all the completed census questionnaires that were expected from the 197 Districts. Consequently, some of the questionnaires had to be placed on wooden pallets in the verandas of the Census Secretariat. Each wooden cubicle in the storage rooms was designed to take about eight satchels.

2.5.9 Data Processing

Data processing involves different stages: sorting, coding, data capture, editing, tabulation and storage of questionnaires after data capture. Some of the challenges encountered were due to the inadequate office space to accommodate these data processing activities.

The poor quality of printed questionnaires due to the speed, with which the printing was done, coupled with the use of wrong specifications of paper quality, posed a major challenge during the data capture.

Although the questionnaires were scanned on a district-by-district basis, scanned records used for the various households were not in any particular order. In appending these files, the pre-conversion officers sometimes lost track of some of the data; making it difficult for them to determine whether the records they had appended for the EAs in a particular district were complete or not. This problem was due to lack of a control sheet with a list of the number of EAs in a particular district to serve as a guide to the pre-conversion officers. With these

sheets, the officers could easily confirm whether appended records had indeed been completed for a particular EA and its respective district.

Additionally, the initial structure of the table used for the pre-conversion had field names that were renamed during the scanning. This created problems for the officers during pre-conversion as they could not get the geo-codes to match with the field names in the tables created.

The computers in the stand alone rooms were not networked and as a result the data had to be copied and transferred to pre-conversion computers using external hard drives and memory sticks. As a result, the computers were infected with viruses on the memory sticks, which resulted in corrupting some of the data because the computers had antivirus that had expired.

The above challenges faced in capturing the main census data using the scanning technology were the major cause of the delay in the release of the final summary results of the census.

2.5.10 Post enumeration survey

The delay in the scanning of the main census questionnaires also had consequences for the completion of the PES. For example, the matching of the PES to the main census was scheduled to take place immediately after the end of the PES field work in June 2011. This was postponed to November 2011 due to the delay in the availability of the scanned census forms for electronic matching.

With all the other census activities ongoing at the GSS head office there was little office accommodation available for the PES team and a number of PES activities had to be completed outside of GSS head office. Fieldwork itself would have benefited from more involvement of the cartography team to review the selected EAs in advance to help identify difficult to access areas.

2.5.11 Other challenges

In the case of the office cartographic work, frequent power outages, freezing of the GAEA-Info programme, the inability of ACCESS database to detect duplications

2.6 Summary and recommendations

2.6.1 Summary

Methodologies adopted for the 2010 census were derived from the recommendations from the United Nations Principles and Recommendations for the countries taking part in the 2010 round of population and housing census as well as experience from previous censuses in Ghana.

Topics covered in the census were: demographic and social characteristics, such as, age, sex, marital status, ethnicity, religion, literacy, education, economic characteristics, ICT, disability, fertility, mortality, agricultural activity and housing.

In the area of census mapping, both manual and digital mapping techniques were used. In previous censuses, only manual mapping techniques were used to produce census enumeration area maps.

A trial census was carried out in six districts, purposively selected across the country. The trial census data was captured manually while the main census data was captured using scanners.

The 2010 Population and Housing Census were widely publicized in every community in the country. The involvement of many stakeholders such as Ministry of Information, Information Service Department, and the National Commission for Civic Education, MMDAs and the private media contributed to the success of the census publicity campaign.

Training of district level trainers was done at the national level while field personnel were trained at the district level.

Some of the major challenges were encountered in the areas of census mapping, field data collection and data processing. However, staff of GSS and members of the various census committees were able to find solutions to these challenges.

2.6.2 Recommendations

The organizers of future censuses should consider appointing a census coordinator who is not the Government Statistician as was the case in the 1960, 1970 and 1984 censuses. A Census Coordinator is usually responsible for the day-to-day implementation of the census and is the main decision taker of all major issues relating to the census. Where every decision on the census is taken by the chief executive of the national statistical office who may be involved in other activities is not the best.

Although the setting up of census advisory and implementation committees is in line with international best practices, it is important that such committees are given the opportunity to contribute their maximum to the national effort.

The institutions responsible for the creation of districts, constituencies and electoral areas and enumeration areas should build consensus in the creation of these units to avoid conflicts in the conduct of national exercises such as elections and censuses.

In the future, every effort should be made to maintain the ten-year periodicity as well as conduct the census in March as has been the practice. This calls for timely release of funds for the conduct of the census exercise.

The field operations group should collaborate with the cartography section in the creation of EAs. This would help in minimizing cases where some EAs are exceptionally large. Field officers should also be requested to report cases of large EAs at the end of house listing to avoid the situation where some portions of EAs are left un-attended to.

The Census Coordinator should ensure that all the census materials, especially the census questionnaires, are provided to the field operations unit in good time and in sufficient quantities for distribution to avoid delays in census activities and shortages of census materials.

Management should recognize the importance of supervision and monitoring and budget adequately for them in future censuses.

The technology to be used for census data processing should be selected early and the necessary arrangements made for procurement to avoid the situation where the preferred technology is not tested in the trial census.

Sufficient office space with a good layout should be acquired for census data processing activities. This is necessary because of the large numbers of personnel and the huge volume of questionnaires involved. It is also important because of the need for smooth flow of questionnaires through the different stages of data processing.

References

- Ghana Statistical Service, (2012). The 2010 Population and Housing Census, Post Enumeration Survey report.
- Ghana Statistical Service, (2009). 2010 Population and Housing Census, Enumerator's Manual.
- Ghana Statistical Service, (2009). 2010 Population and Housing Census, Project Document.
- United Nations Economic Commission for Africa, (2010). The 2010 Round of Population and Housing Censuses, A guide on census planning and enumeration for African countries. African Centre for Statistics. Statistics Working Paper Series 3.
- United Nations, (2008). Principles and Recommendations for Population and Housing Censuses. Revision 2. Department of Economic and Social Affairs, Statistics Division. Statistical Papers Series M No. 67/Rev.2
- United Nations Economic Commission for Africa, (2008) Africa addendum to the United Nations Principles and Recommendations for Population and housing Censuses, Revision 2

CHAPTER THREE

EVALUATION AND ADJUSTMENT OF AGE-SEX DATA³

3.1 Introduction

The two characteristics of population which receive most attention in demographic analyses are age and sex. Age is a critical variable, either directly or indirectly, in almost every population research and analysis. However, despite its pervasive influence, age is a complex variable in terms of how information can be collected and analysed. Collecting information on sex, on the other hand is not as complex as that of age since the options are limited to two categories (in the case of Ghana).

The age-sex composition of a population is the outcome of mortality conditions and several forces, such as migration (both in and out), fluctuations in birth rates, wars, resettlements (forced or voluntary) and poor census enumeration. These factors can create modifications and exceptions to the pattern of uniformly declining percentages with increasing age.

In examining age data from a census, it is important to recognize that the factors that create modifications to the pattern of declining proportions as a birth cohort advances in age could have occurred at any time preceding the census. For this reason, a precise interpretation of a given age composition through evaluation must, ipso facto, precede accepting and using any age data. As observed by Gaisie (2005):

Evaluation provides among other things, guidelines for data users and, at the same time, offers the data producing agencies basic information for dealing with some of the deficiencies in the data collection methodology in future operations. Evaluation also furnishes the analyst and the user with a basis for adjusting or correcting the raw data (Page 15).

In modern censuses, the importance of the sex composition of the population is so widely recognized that the classification of each individual in the population as either male or female has become automatic. Few problems are connected with the collection of data on sex composition. Errors which occur in tabulated data on sex composition are caused almost entirely by errors due to proxy enumeration and differential completeness of coverage of the two sexes arising from socio-cultural beliefs. For instance, in some societies the true sex identity of some children may be hidden in order to avoid the ‘evil eye’.

The personal characteristic of sex holds a position of prime importance in demographic studies. Separate data for males and females are important in themselves as well as for the analysis of other types of population characteristics (e.g. level of education by sex, occupation by sex) and also for the evaluation of the completeness and accuracy of census or survey data.

³This chapter was contributed by Dr. Z.M.K. Batse and Dr. (Mrs.) Ellen Osei-Tutu

Various types of planning, in both the public and private sectors, require separate population data for males and females as the use of space and the provision of some services could differ by sex. Secondly, the sex composition of a population has implications for social and economic relationships, and social roles.

The classification of population by age, like the classification by sex, is important and universal in modern censuses. Almost all population characteristics, processes and demographic events such as marriage, childbearing, mortality and migration vary considerably with age and sex. Age and sex-specific entry and exit points characterize almost all demographic, social and economic activities, statuses and roles.

Since practically all demographic events could vary by age and sex, errors in the age-sex distribution have effects on the nature of other characteristics of a population. Therefore, assessing and knowing the quality of the age and sex data collected is crucial and is of interest to data consumers (planners, researchers) and other users, hence it is important to subject age.sex data to rigorous evaluation to determine the extent of error in reporting as a way of establishing the reliability and validity of the data.

3.2 Sources of Data on Sex and Age

Data on sex

Data on sex was obtained from the Head of household or the responsible individual who answered the question. Two boxes were provided for the responses: Males Females

Enumerators were trained not to automatically infer the sex of the respondent from the name since both males and females could use some names. This was particularly relevant for proxy reporting.

Data on Age

There are at least three approaches for collecting data on age. These are:

- Date of birth (year, month and day)
- Completed age (age at last birthday)
- Uncompleted age (age at next birthday)

In the 2000 Population and Housing Census, information on age was collected in completed years only i.e. complete years which had elapsed since the birth of the individual, ignoring the additional months, weeks or days. For the 2010 Population and Housing Census, the information on age was collected using date of birth (the day, month and year of birth) and age in completed years with reference to the census night (26th September 2010). For example, a person aged 49 years and 11 months was recorded as aged 49 years.

In both censuses, if a person did not know his/her age (date of birth) the enumerator was expected to assist him/her to estimate age using at least one of the following methods:

- Use of a historical event (at the national, regional, district or local level) which is a very important or memorable day that people usually remember and therefore use to derive age. For example, Independence Day, 6th March 1957.
- Use of biological relationships, i.e. using birth dates of age mates, spouses and children to arrive at a person's age.

- Use of physical appearance i.e. taking how a person looks (“youngish” or “elderly”) and using it as a last resort to establish age.

It has been suggested that the first approach gives more precise information and should be used whenever most people do not know their date of birth, whilst the second approach is likely to provide less accurate information and lead to age misreporting and rounding to the nearest age with zero or five (United Nations, 2011). For example, it may be difficult to decide if a person is aged 50 or 55 or 60; and a 10 or 11 months old child (i.e. aged 0) could be reported to be aged 1 year. The use of the date of birth and completed age approaches simultaneously in the 2010 population and Housing Census was meant to increase the validity and reliability of age data.

3.3 Detecting Age Misreporting

The age-sex distribution of a population is determined by fertility, mortality and migration. It, therefore, follows a fairly predictable pattern. The “expected” pattern of numbers at various ages is that, given stable birth rates, there should be more people in an age compared to the next higher age as a result of death in the absence of migration. Thus, for example, there should be fewer people aged 10 years than aged 9 years since not all nine-year olds will survive to age ten.

Any age distribution that does not approximate the “expected” pattern can be assumed to contain errors unless an explanation can be found in the historical circumstances of the population.

Tabulated data on age may be affected by coverage errors and content errors, (failure to record age and misreporting of age).

Coverage errors

Coverage errors are of two types. Firstly, individuals of a given age may have been missed by the census or counted more than once. Secondly, an individual may be erroneously counted when the person is not expected to be counted (i.e. not part of the population as on reference Census night).

Information from the Census Secretariat indicates that enumeration of all persons in households and living quarters was scheduled to start on 27th September 2010 and end on 10th October 2010. However, the mopping up exercise went on after this period in some parts of the country. The Post Enumeration Survey (PES) which involved re-interviews was designed, among others, to quantify the likely omission or duplications in the 2010 census enumeration in terms of coverage and content. Some of the results from the population and housing and the post-enumeration censuses are given in section 2.4.2.

Content errors

In a census, content errors refer to incorrect reporting of or failure to report an event or variable such as misreporting of age. The reporting of age in surveys and censuses have been observed in various data sets and the types of deficiencies identified have been grouped into four general areas namely, errors in single years of age, errors in grouped data, errors in ages of very old persons and failure to report age (Shryock and Siegel, 1976).

According to Shryock and Siegel, (1976) reports of ages in single years in comparison with the actual ages of the persons enumerated would show the number of persons at each age for whom age was correctly reported in the Census, the number of persons incorrectly reported “into” each age from lower or higher ages, and the number of persons incorrectly reported “out of” each age into higher or lower ages.

Factors which have been observed to account for age misreporting in census data from Ghana and other African countries are:

- (i) Misreporting of age as a result of
 - digit preference, with a high tendency to report ages ending with zero or five
 - not knowing actual age
 - proxy reporting
 - estimation method used
 - deliberate attempt to increase or decrease age for one reason or the other (eg. social, economic, employment, military, eligibility to vote reasons) and
 - exaggeration of age, especially by the elderly.
- (ii) Misreporting of age by the enumerator as a result of
 - Incorrect estimation methods
 - Inaccurate computation of age from the information given
- (iii) Post field work errors in the census office.

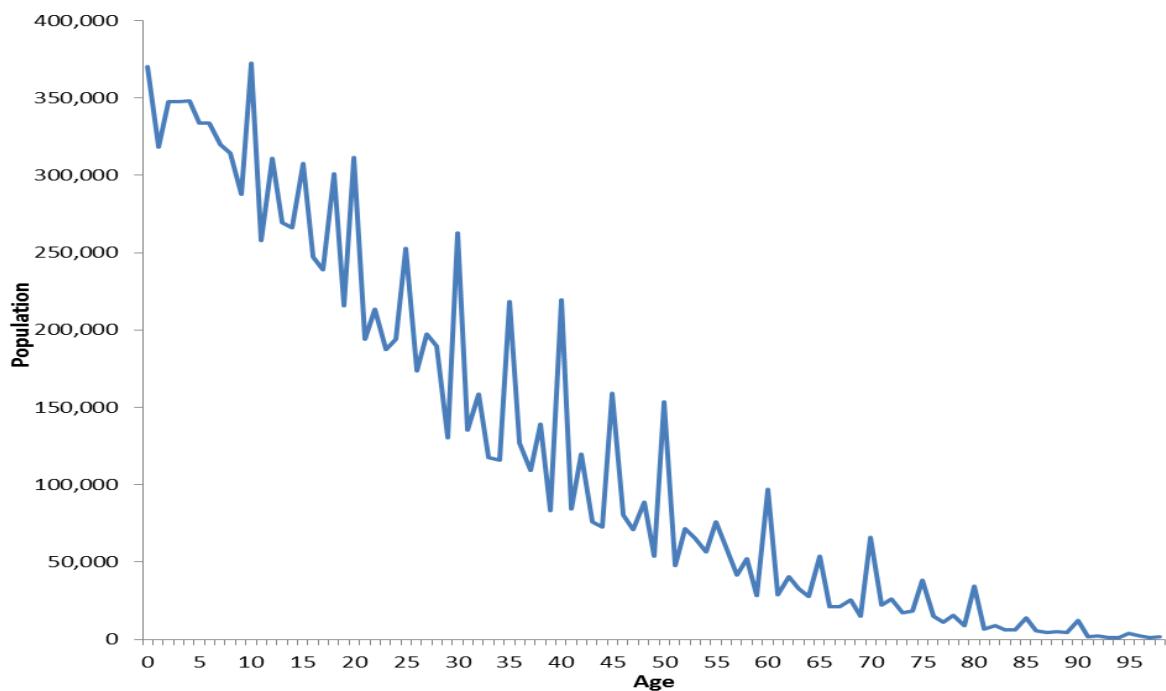
The errors have been attributed to a number of factors including level of education/literacy, cultural and social beliefs about numbers (Shryock and Siegel, 1976), and the desire to be within a certain age stage associated with statutory roles such as age at voting, marriage entry into school. The nature of the errors in age reporting can be identified through visual inspection, graphical representation and mathematical techniques.

3.3.1 Visual Inspection

Visual inspection has been used as an approach to identify errors arising from digit preference and other errors. In the 2010 Population and Housing Census, preference for ages ending in the digits 0, 5, and to some extent 2 and 8 can be observed in the data. For example, the number of males aged 9 years was 287,566, and those aged 10 years was 372,896. The difference of 85,330 can be attributed to preference for the number 10. Similarly, the females aged 79 years were 10,222 there were 60,194 aged 80 years, almost six times that of age 79 years. There is no evidence for such a gap in numbers to exist between ages nine and 10 for males and ages 79 and 80 for females other than digit preference.

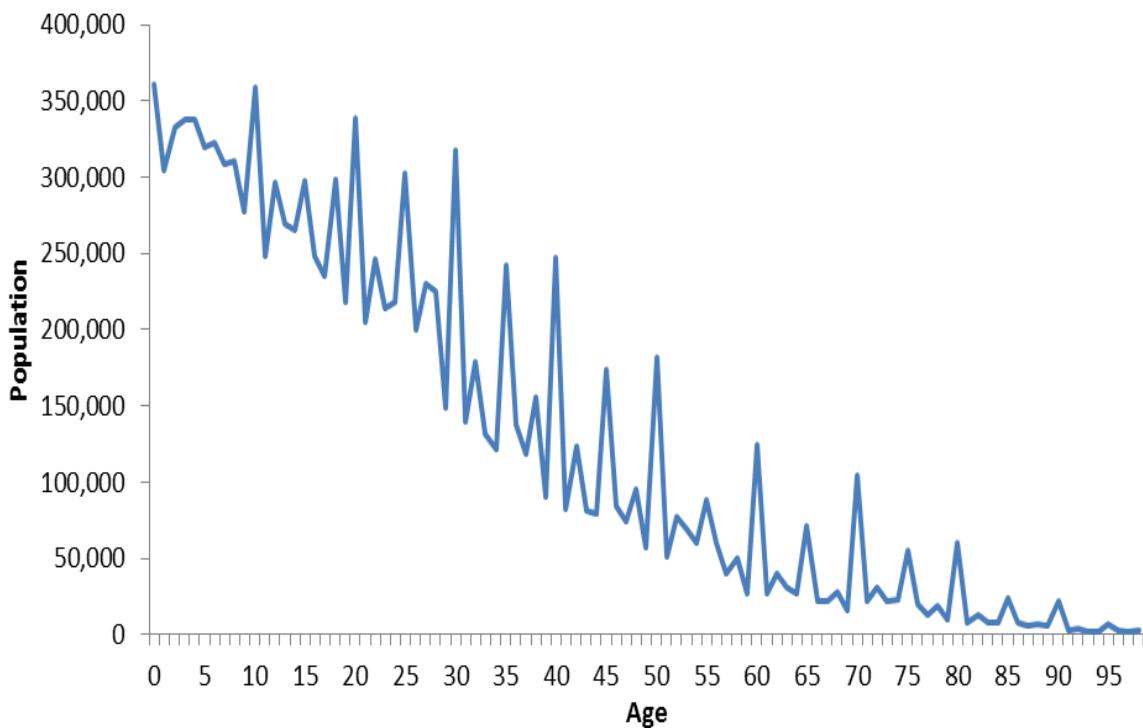
Graphing data is another visual approach for identifying age misreporting. Figures 3.1 and 3.2 show the population distribution by single years of age for males and females respectively. The graphs reveal preferences for zero and five as portrayed by peaks, followed even numbers and the avoidance of odd numbers shown by troughs for 1, 3 7 and 9.

Figure 3.1: Male Population (2010) by Single Years of Age



Source: Derived from 2010 Population and Housing Census

Figure 3.2: Female Population (2010) by Single Years of Age



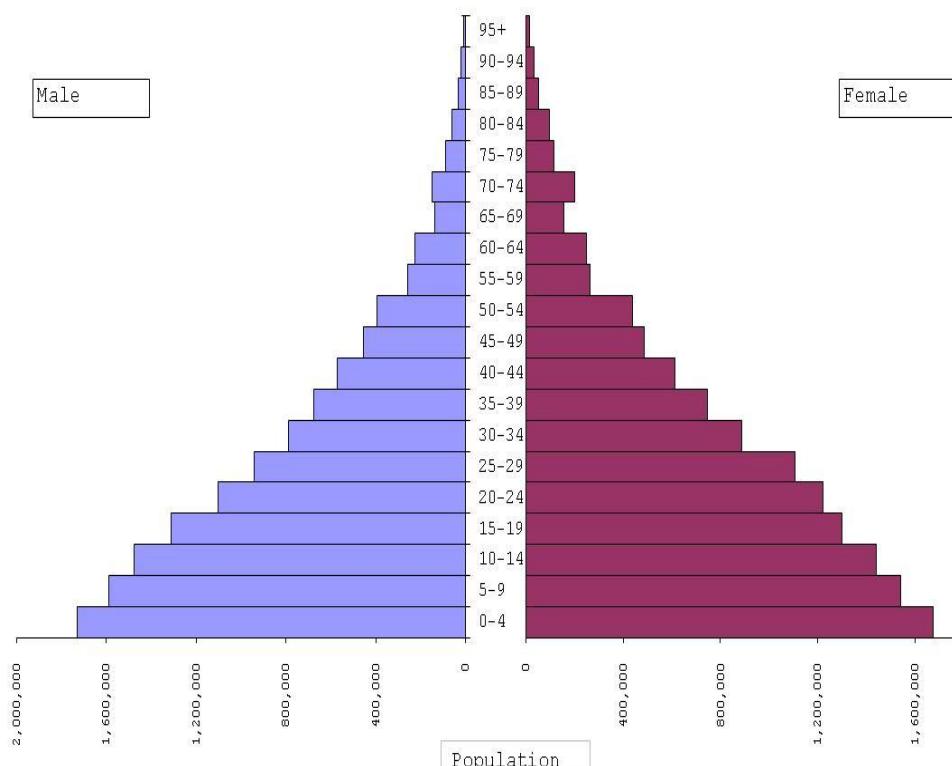
Source: Derived from 2010 Population and Housing Census

3.2.2 Population Pyramid

A population pyramid is another graphical representation of age and sex data. Figures 3.3 and 3.4 are population pyramids for Ghana for 2010 and 2000 respectively.

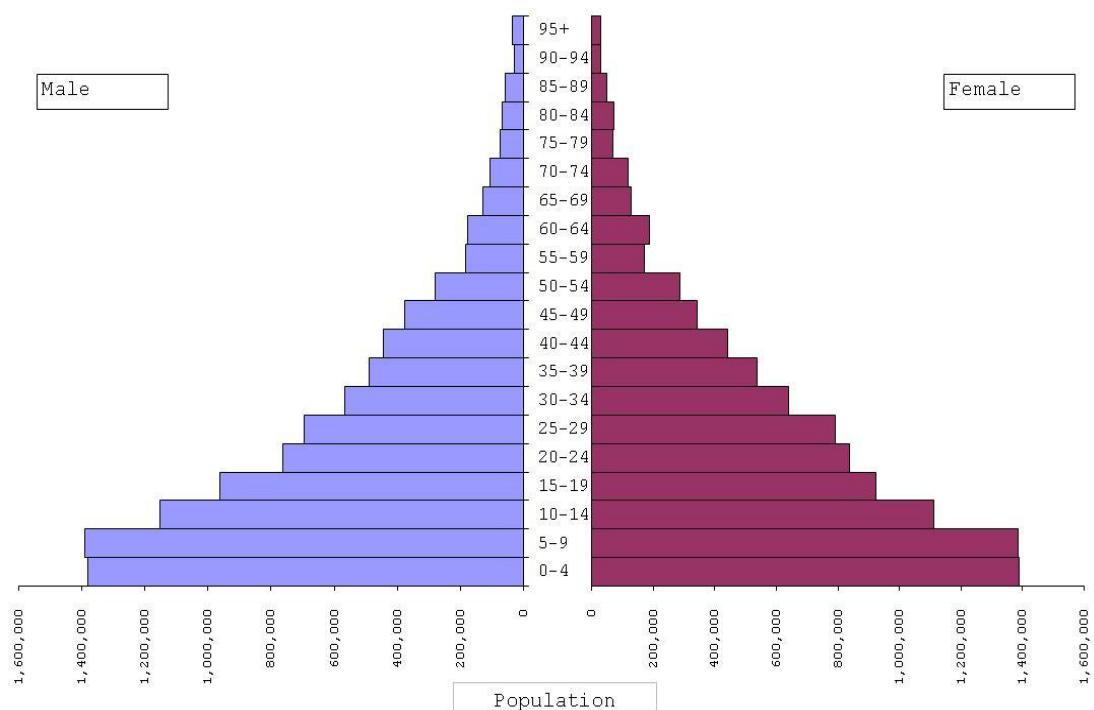
Both the 2000 and the 2010 population pyramids show the expected pattern of declines in the populations in each group with advancing age. Secondly, the two pyramids reveal higher numbers for groups which include an age ending in zero. For instance, for the female data in 2000, the bar for the age group 60-64 is longer than that for 55-59 while in the 2010 data the bar for the 65-69 age group is shorter than that of the 70-74 age group. The patterns which emerge for some of the graphs do not conform to the expected declining numbers with advancing age and could be attributed to age misreporting. However, comparing the two figures, it can be observed that ages were better reported and/or recorded in 2010 than in 2000. This is an indication of an improvement in the data on age reporting.

Figure 3.3: 2010 Population Pyramid of Ghana



Source: Derived from 2010 Population and Housing Census

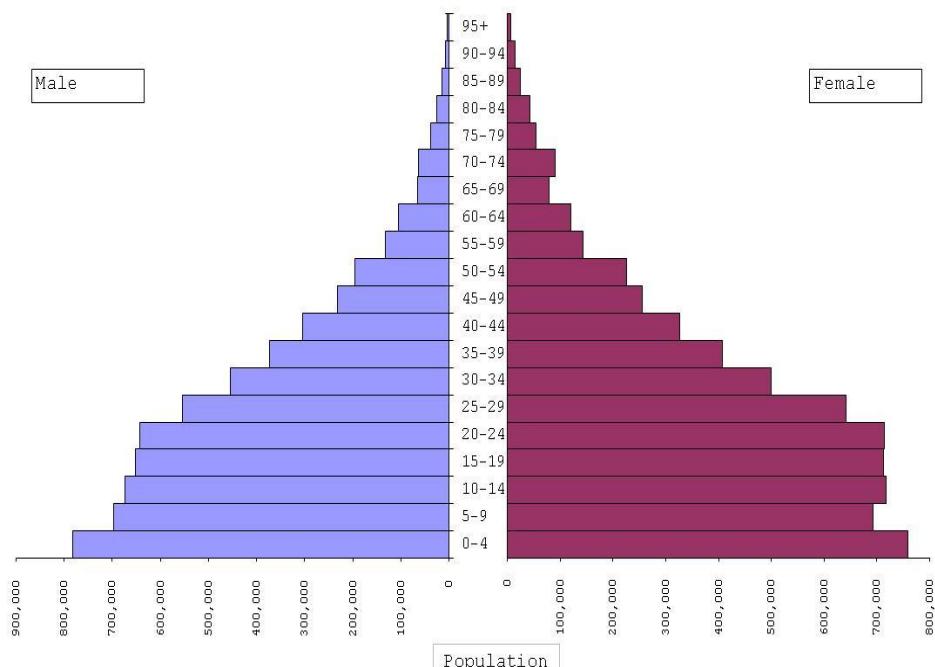
Figure 3.4: 2000 Population Pyramid of Ghana



Source: Derived from 2000 Population and Housing Census

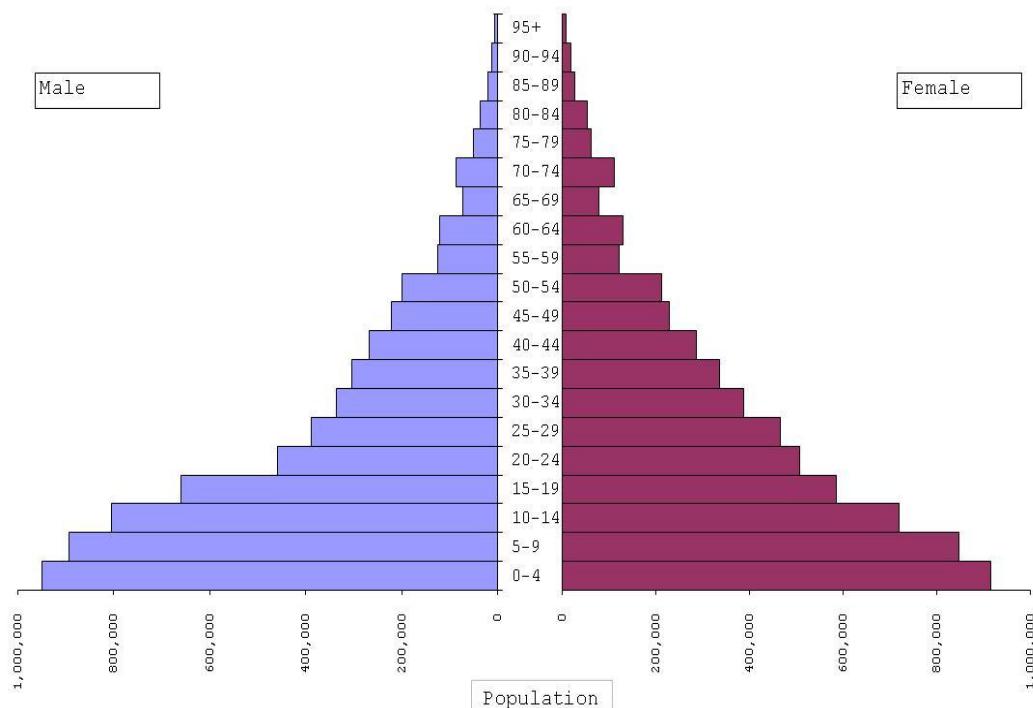
Figures 3.5 and 3.6 are the pyramids for urban and rural population in the 2010 PHC. The pyramid for the urban areas show approximately the same proportions of people in the age groups 10-14, 15-19 and 20-24, contrary to the expected pattern of reductions with advancing age. The rural areas follow the expected pattern. This could be attributed to migration from the rural to the urban areas and not necessarily inaccuracy of reporting.

Figure 3.5: 2010 Urban Population Pyramid of Ghana



Source: Derived from 2010 Population and Housing Census

Figure 3.6:2010 Rural Population Pyramid of Ghana

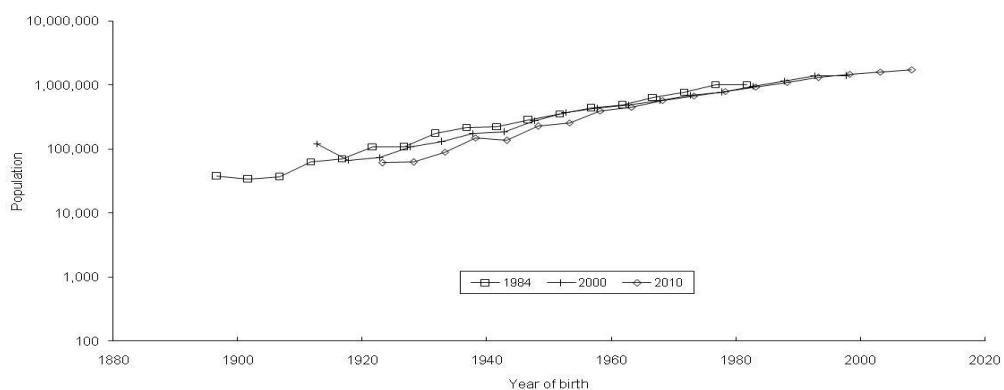


Source: Derived from the 2010 Population and Housing Census

3.2.3 Graphical Cohort Analysis

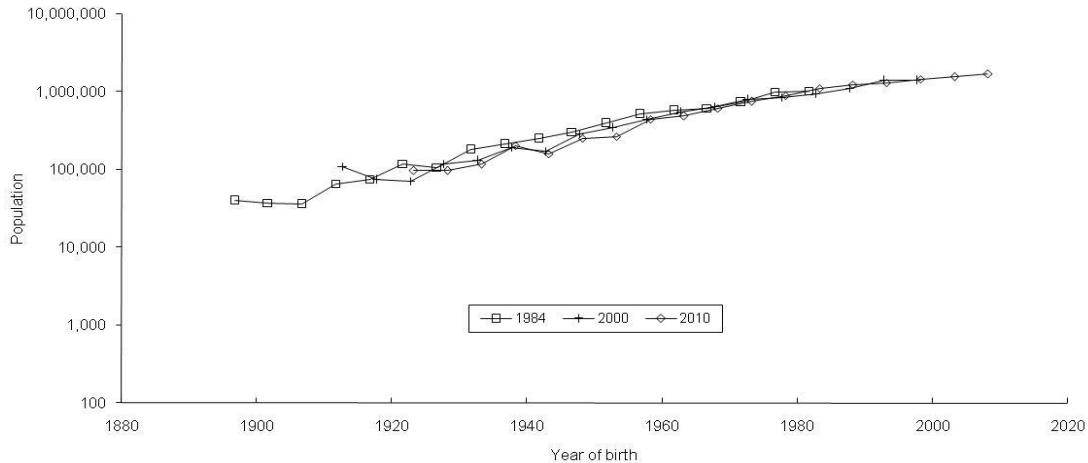
Another method of detecting age misreporting is the analysis of cohorts of population. This method is used to examine the consistency in age distribution in censuses over a period of time in the absence of major shocks that could impact on the age and sex distribution, and is especially useful when two or more censuses are compared in the same graph. Graphical cohort analyses are illustrated in Figures 3.7 and 3.8 for males and females respectively in 5-year age cohorts, for 1984, 2000 and 2010 censuses of Ghana.

Figure 3.7: Male Population, 5-Year Cohorts, 1984-2010



Source: Derived from the 1984-2010 Population Censuses

Figure 3.8: Female Population, 5-Year Cohorts, 1984-2010



Source: Derived from the 1984-2010 Population Censuses

The points on the line for each census are population counts for each cohort plotted at the mid-point of the 5-year interval during which the cohort was born. For example, for the male age group 0-4 in the 2010 censuses, their population size of 1,731,787 is plotted at the midpoint of the 2005-2010 period during which they were born. This procedure is repeated for each cohort in all three censuses. The lines of the graph are expected to show how the population born in the same period and enumerated in each successive census reduces through time. The three lines for the successive censuses should follow the same pattern i.e. run parallel to each other, but with spaces between them representing the reduction of each cohort due to persons who died or migrated out of the country during the inter-censal periods. The expected pattern is that the line for the 2010 census should be at the bottom, that for 2000 in the middle and that for 1984 should be at the top. However, this is not the case for the two graphs (Figures 3.7 and 3.8): The three lines have merged especially at lower ages suggesting age misreporting and shifting, reflecting errors in the data or different levels of census completeness.

The visual methods, although can be used to detect obvious misreporting, they are unable to identify subtle errors as well as provide measures for the nature and magnitude of misreporting. This has led to the use of statistical techniques. In the next section some statistical techniques are used to analyse the levels and patterns of the observed age-sex misreporting.

3.3 Measuring Age Misreporting

As a further step, algebraic methods have been used to evaluate and measure the extent of digit preferences and other errors. In this analysis, some of the common algebraic methods are used namely, the Whipple's index, Myer's blended index and Bachi's index.

3.3.1 Whipple's Index

The Whipple's index was developed to detect preference for or avoidance of a particular or each terminal digit. The values of this index range from 100 to 500. An index of 100 means that there is no preference for either 0 or 5; an index of 500 implies a preference for only 0 or 5; and an index below 100 means that digits 0 and 5 are avoided.

A data set is said to be highly inaccurate if the Whipple's index is above 175, inaccurate if its value lies between 125 and 175, fairly acceptable if its value lies between 110 and 125, and highly accurate if its value is less than 105 (see Appendix A3.1 for formula).

Table 3.1 shows the indices for the total country, and by rural and urban residence for the 2000 and 2010 censuses. The Whipple's index of 159 for the total country in 2010 is indicates that reporting of age data was fairly acceptable. Also, males tended to report their ages better than females, as reflected in the indices by sex (155 for males and 163 for females). The indices showed an improvement of the 2010 age-reporting compared to the 2000 indices which were over 175 for the total country and for males and females separately.

Table 3.1: Digit preference by various indices

	Whipple's Index			Myer's Index			Bachi's Index		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Total Country (2010)	155	163	159	20.8	24.0	22.5	12.5	14.6	13.6
Total Country (2000)	176	192	184	27.6	33.6	30.7	17.2	21.1	19.1
Rural (2000)	195	215	206	33.7	41.4	37.6	20.8	25.7	23.3
Urban (2000)	155	165	160	21.0	25.2	23.1	13.3	16.2	14.8
Rural (2010)	178	191	185	27.8	32.9	30.4	17.1	20.3	18.8
Urban (2010)	137	140	138	15.0	16.9	16.0	9.0	10.2	9.6

Source: Computed from the 2000 and 2010 Population and Housing Censuses

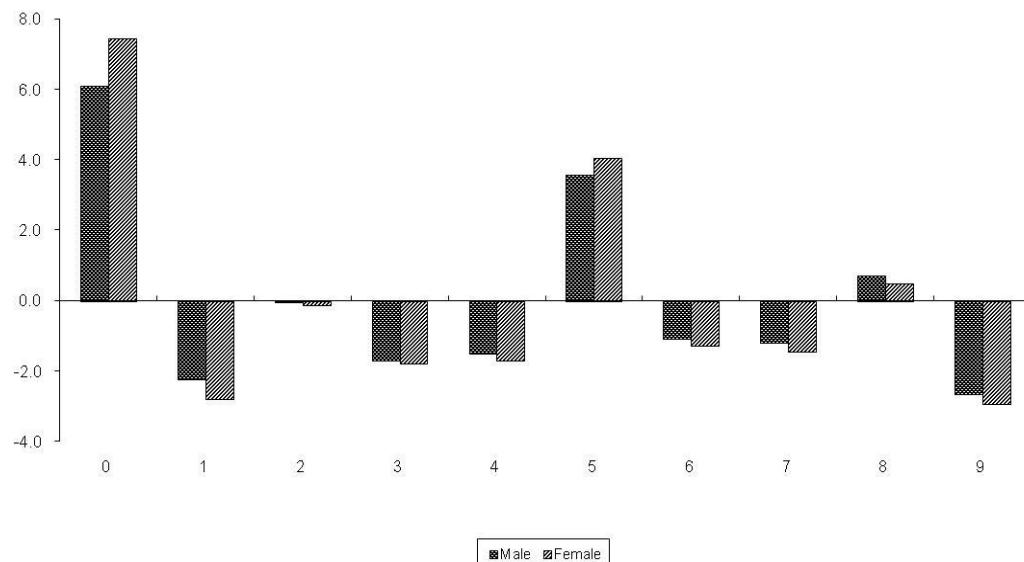
Table 3.1 also shows that there are differences in age reporting by type of locality (urban/rural). The index of 185 for rural residents in 2010 is an indication that age reporting in the rural area is highly inaccurate. On the other hand, the index of 138 for urban residents shows fairly accurate and acceptable age reporting. Similar to the observation in the total country, males tended to report their ages better than females among both rural and urban residents. However, the difference is larger among rural than urban residents. The better reporting of ages for males could be due to the practice of the head, who is usually a male, reporting ages of their partners and children. In such situations there is the likelihood of the male head under-reporting the age of her partner and children, vis-à-vis his age. The results for both rural and urban residents for 2010 were also better than those of 2000.

3.3.2 Myer's and Bachi's Indices

The Myer's blended index and Bachi's index are used to measure digit preference at ages ending in zero to none. The range of Myer's index and Bachi's index is 0-90. An index of zero means no digit preference while an index of 90 means a preference for a single digit. Furthermore, Myer's method takes into account the effect of mortality.⁴

The results for the Myer's and Bachi's indices for the total country show preferences for numbers ending with zero and five (Table 3.1). The least distortions, though, could be found in the 2010 urban population where the indices were 15.0 for males, 16.9 for females and 16.0 for the total country. The preference for and avoidance of specific digits are graphically presented in Figures 3.9 for males, 3.10 for females, and 3.11 to 3.14 for rural and urban populations for 2000 and 2010. Ages ending in 0 and 5 stand out as they have the longest positive bars but with the zeros, being higher than the fives. The next preferred digit was eight in all the figures. The results from the Bachi's index also indicated some preference for ages ending in two among males. The results also confirmed the observed better reporting of age data for 2010 compared to that of 2000.

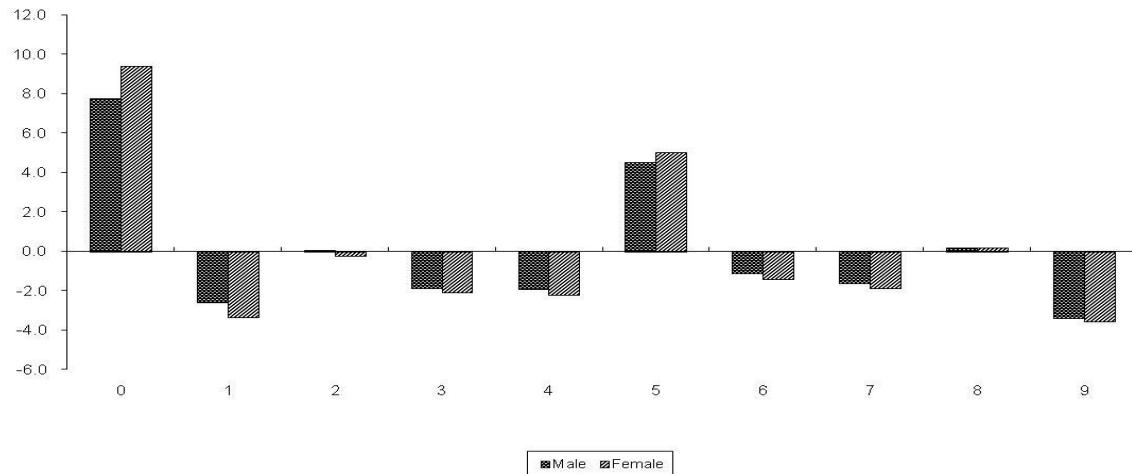
Figure 3.9: Myers Digit Preference, Ghana 2010



Source: Computed from the 2010 Population and Housing Census

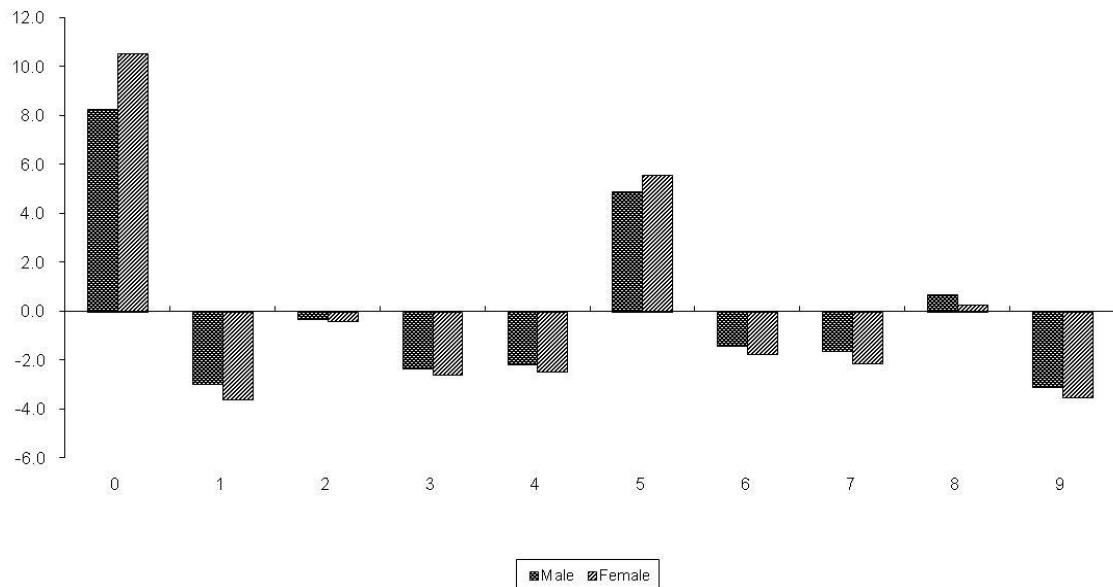
⁴ The procedure for the computation of Myer's blended index can be obtained from Shryock and Siegel (1976). The United States Population Analysis Spreadsheet (PAS) software has been used to compute the Whipple's, Myer's and Bachi's indices.

Figure 3.10: Bachi's Digit Preference, Ghana 2010



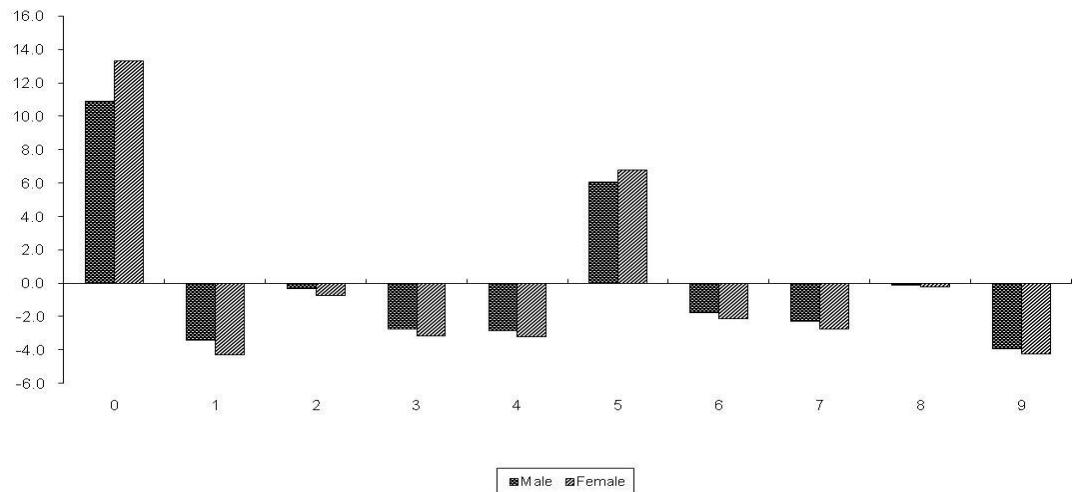
Source: Computed from the 2010 Population and Housing Census

Figure 3.11: Myer's Digit Preference, Ghana 2010 (Rural)



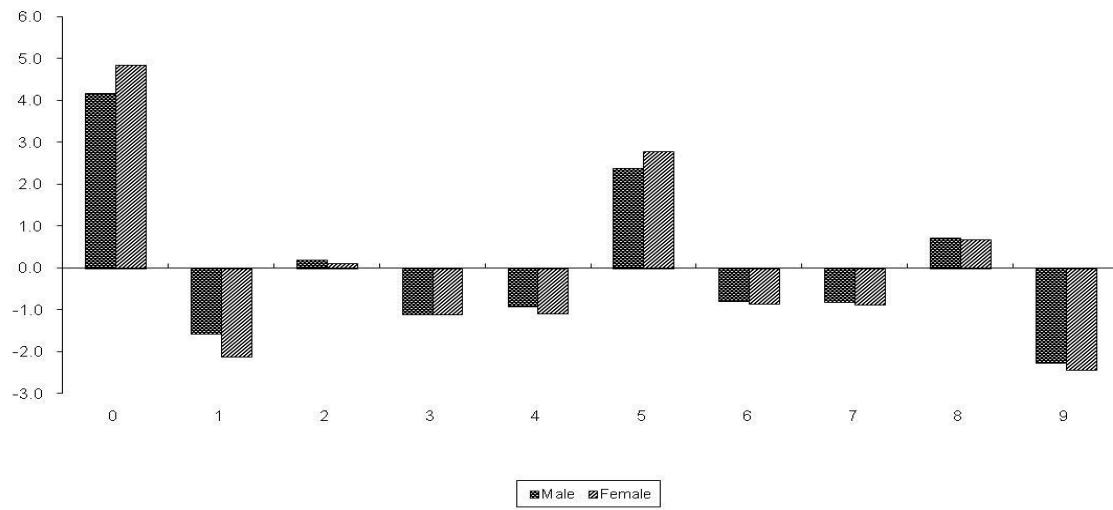
Source: Computed from the 2010 Population and Housing Census

Figure 3.12: Bachi's Digit Preference, 2010 (Rural)



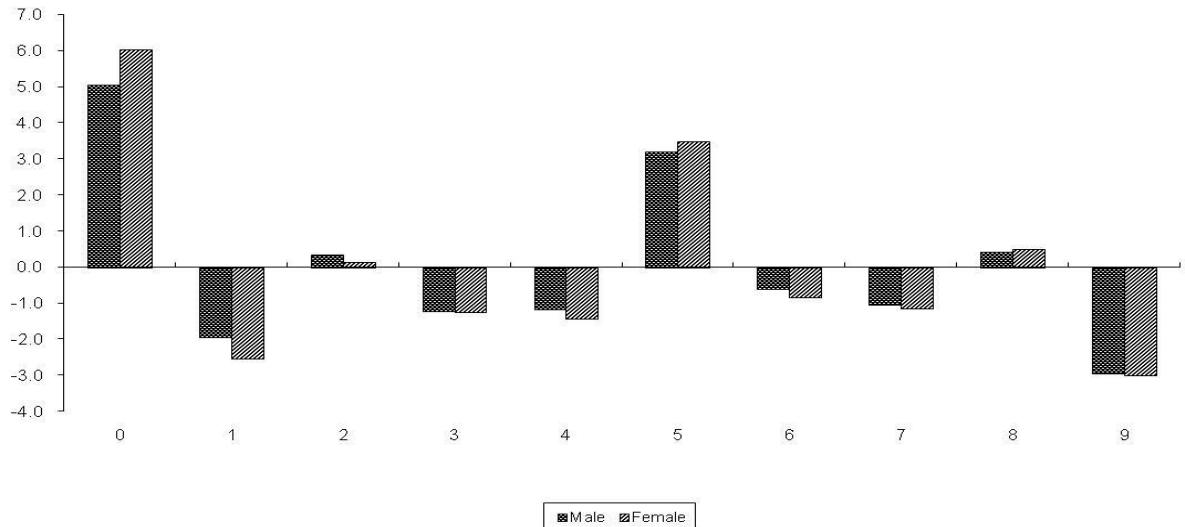
Source: Derived from the 2010 Population and Housing Census

Figure 3.13: Myer's Digit Preference, 2010 (Urban)



Source: Computed from the 2010 Population and Housing Census

Figure 3.14: Bachi's Digit Preference, 2010 (Urban)



Source: Computed from the 2010 Population and Housing Census

3.3.3 Analysis of Age Ratios

Another method of checking the quality of age data is through the calculations of age ratios. Age ratio is usually defined as the ratio of the population in the given age group to one half of the population in the two adjacent age groups, and is usually computed for each sex.

The formula for calculating the age ratio is as follows:

Age ratio for the age category x to $x+4$ is

$${}^5AR_x = \frac{{}^5P_x}{\frac{1}{2}({}^5P_{x-5} + {}^5P_{x+5})} \times 100$$

5AR_x = The age ratio for the age group x to $x+4$

5P_x = The enumerated population in the age category x to $x+4$

${}^5P_{x-5}$ = The enumerated population in the adjacent lower age category

${}^5P_{x+5}$ = The enumerated population in the adjacent higher age category

Others define it as the ratio of the population in the given age group itself to one third of the preceding and the following age groups, multiplied by 100. The formula for calculating the age ratio on this basis is as follows:

$${}^5AR_x = \frac{{}^5P_x}{\frac{1}{3}({}^5P_{x-5} + {}^5P_x + {}^5P_{x+5})} \times 100$$

In this section, the first formula is used. The age ratio for a particular cohort to the average of the counts for the adjacent cohorts should be approximately equal to 1 or 100 if multiplied by a constant of 100. Age ratios for 5-year age groups are often used as indices for detecting possible age misreporting. Normally, age ratios are expected to be similar throughout the age distribution, and all of them should be close to a value of 100 where fertility and mortality have not fluctuated much in the past and international migration has not been significant.

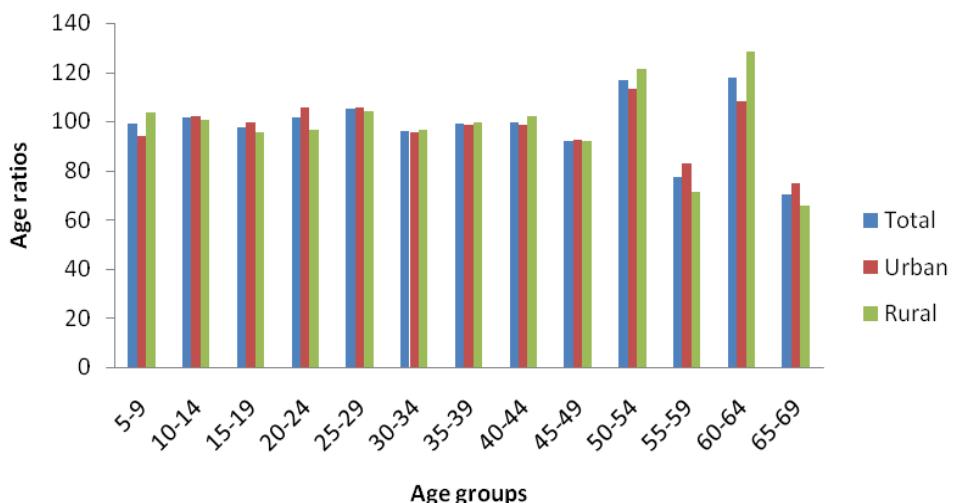
In theory, the proportion of ages ending with each digit should be 10% (since the ages should end in zero to nine). Therefore, in the absence of sharp changes in fertility or mortality, significant levels of migration or other distorting factors, the enumerated size of a particular age cohort should be approximately equal to the average size of the immediately preceding and subsequent cohorts. Departures from this “expected” ratio indicate either the presence of content or other errors in the census enumeration: the larger the departure of the age ratio from 100, the higher the possibility of errors in the data.

Almost one out of every three females (29.2 percent) reported ages ending in only two digits 0 and 5 (16.7 percent for 0 and 12.5 percent for 5). Similarly, a little more than one out of every four males (27.9 percent) reported ages ending in 0 and 5 out of the ten digits (15.8 percent for 0 and 12.1 percent for 5). Thus, the data from the 2010 census produced a distribution of the population by age and sex that did not conform to the expected “almost equal distribution” to each digit.

Female age ratios fluctuated between the young age groups of 5-9, 10-14 and 15-19 and also in the adult age groups (45 years and older) (Figure 3.15). A plausible explanation of the low 5-9 years age ratio may be the shifting of population from the 5-9 year olds to age 10-14 years. The age ratios of more than 100 for the ages 20-24 and 25-29 suggest a tendency of females to push their ages into the prime childbearing ages: young women who are married or mothers but in their teens may shift their ages into the adult age groups probably due to the use of socio-biological markers to estimate age. The age ratios for the age group 35-39 and 40-44 years are close to the expected pattern indicating better age reporting. The wide fluctuations after age 45 years and older is likely to be the result of distortions due to digit preference and or overstatement of age. The values above and below 100 over the entire age distribution is also indicative of net age misreporting.

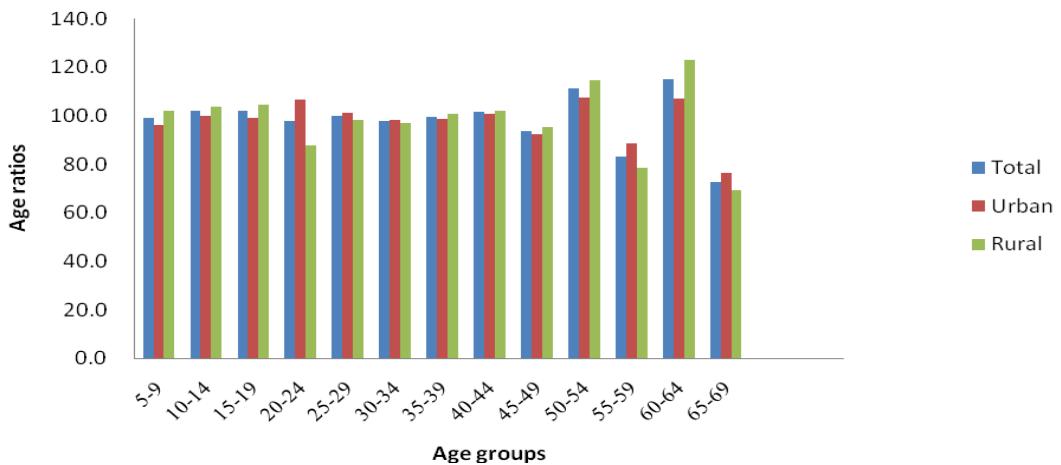
The male age ratios (Figure 3.16) show that the results for the age groups 5-9 years, 10-14 years and 50 years and older, follow the same pattern noted for females. The differences between the two sets of age ratios are that while the female ratios are above 100 for the age groups 20-29 years, the corresponding values for the males are below 100 for age group 20-29 years. This is probably due to the estimation of ages on the basis of marital and/or reproductive status for females. For the males, age misreporting was more widespread among persons aged 40 years and older.

Figure 3.15: 2010 Female Age ratios by Age



Source: Computed from the 2010 Population and Housing Census

Figure 3.16: 2010 Male Age Ratios by Age



Source: Computed from the 2010 Population and Housing Census

3.3.4 Analysis of Sex Ratios

Sex ratio is defined as the number of males per 100 females.

Biologically, there is an expectation of more males than females at birth. Throughout life, it is also expected that at every age mortality rates for females would be lower than that of males. Therefore, the sex ratio(s) for any population should decline from one age group to the other with advancing age. For the 2010 Census, the expected pattern of steady and gradual decline in the sex ratios is observed from the age group 0-4 to 15-19. The deep but fluctuating trough

from the age group 20-24 to 30-34 suggests age misreporting, under enumeration or out migration of males in these age groups. The sex ratios in subsequent age groups decline as expected but the levels indicate some age misstatement (Table 3.2).

Table 3.2: Sex ratios for Ghana, 2000 and 2010

Age group	2010	2000
0-4	103.5	99.3
5-9	103.3	100.4
10-14	102.7	103.6
15-19	100.9	104.2
20-24	90.0	91.1
25-29	85.2	87.8
30-34	88.9	88.5
35-39	90.9	91.1
40-44	93.3	99.7
45-49	93.4	110.0
50-54	90.0	97.1
55-59	97.5	105.7
60-64	91.3	93.8
65-69	86.4	99.6
70-74	74.1	89.8
75+	68.4	103.9

Sources: Computed from the 2000 and 2010 Population and Housing Censuses

In 2000, the expected pattern was not observed since the ratio for the age group 0-4 (99.3) was less than the ratio for the age group 5-9 (100.4). The observation could be attributed to age shifting from the 0-4 age group into the 5-9 age group since usually, there is an undercount of the former age group. The sex ratios decline from age group 20-24 to 30-34. From the age group 35-39 onwards, however, fluctuations occur and this could be an indication of age misstatement and shifts in ages since there has not been any significant change in population dynamics. These fluctuations which were not observed in 2010 suggest an improvement in the quality of the 2010 PHC data compared to that of 2000.

The sex ratios for rural and urban in the 2010 PHC (Table 3.3), indicate higher ratios in the rural population for the age groups 10-14 and 15-19 than the urban populations for the same age groups. The sex ratio for the rural population aged group 55-59 is larger than expected given the ratios for the two adjacent age groups. This could be attributed to an undercount of males in the adjacent age groups 50-54 and 60-64.

In the 2000 census data, the sex ratios for the rural areas fluctuated considerably and were above 100 in most of the age groups. For the urban areas the sex ratios between ages 45-59 years were unusually large, exceeding 100.0, suggesting age misstatement within the groups.

Table 3.3: Sex Ratios for Rural and Urban Areas in Ghana, 2010 and 2000

Age group	2010		2000	
	Rural	Urban	Rural	Urban
0-4	103.7	103.2	99.7	98.6
5-9	105.4	100.6	102.9	96.6
10-14	111.7	93.7	113.3	91.8
15-19	112.4	91.5	116.5	92.6
20-24	90.3	89.8	87.2	94.8
25-29	83.5	86.4	83.6	92.3
30-34	86.4	91.0	85.0	92.3
35-39	90.1	91.5	90.8	91.4
40-44	93.4	93.2	100.1	99.7
45-49	96.8	90.3	109.9	110.1
50-54	93.6	86.6	94.9	100.1
55-59	102.8	93.0	103.6	108.4
60-64	93.9	88.4	91.6	97.4
65-69	90.6	82.3	100.4	98.4
70-74	76.8	70.7	92.7	85.0
75+	74.4	61.4	105.9	100.9

Sources: Computed from the 2000 and 2010 Population and Housing Censuses

3.3.5 Accuracy Indices

Age ratios and sex ratios can also be combined to evaluate the accuracy of sex and age reporting in a census. The indices resulting from this combination are the age ratio score, the sex ratio score and the accuracy index. The sex ratio score is defined as the mean difference between sex ratios for successive age groups and averaged irrespective of sign. The age ratio score is defined as the mean deviations of the age ratios from 100 percent, irrespective of sign. The United Nations (1952) suggests a joint accuracy index based on the empirical relationships between the sex ratio scores and the age ratio scores. The joint score or age accuracy index is defined as the sum of the male and female age ratio scores plus three times the sex ratio scores calculated using data for ages 0-14 through 65-69.

The United Nations (1952) suggests that the age and sex structure of a population will be:

- Accurate if the joint score index is under 20,
- Inaccurate if the index is between 20 and 40; and
- Highly inaccurate if the index is over 40

Table 3.4 provides summary measures of the accuracy of age and sex reporting in the 2000 and 2010 censuses computed from the reported age and sex distribution and also from different smoothing/adjustment methods applied to the reported ages.

Table 3.4: Summary indices Measuring the Accuracy of data (2000 and 2010)

Index	Reported	Smoothed			
		Carrier Farrag	K-King Newton	Arriaga	United Nations
Sex ratio scores					
2000	7.11	4.19	4.47	4.15	4.18
2010	4.34	2.92	3.02	2.88	3.47
Male age ratio score					
2000	6.05	3.62	3.85	3.58	3.29
2010	5.79	1.80	1.71	1.95	1.71
Female age ratio score					
2000	9.02	2.22	2.45	2.25	2.69
2010	7.92	2.44	2.28	2.62	2.79
UN Joint Accuracy Index					
2000	36.40	18.40	19.71	18.30	18.51
2010	26.71	12.99	13.04	13.21	14.90
Sources: Computed from the 2000 and 2010 Population and Housing Censuses					

Sex ratio score

The reported sex ratio scores for the population census of 2000 and 2010 were 7.11 and 4.34 respectively, indicating better reporting for the 2010 population data than the 2000 data.

Age ratio score

Male and female age ratio scores for the 2000 Population census were 6.05 and 9.02 respectively. Similarly, male and female age ratio scores for the 2010 population census were 5.79 and 7.92 respectively. According to this measure of accuracy, age misreporting was higher among females than males, confirming results from the Whipple's, Myer's and Bach's indices. It also supported the assertion that the 2010 data were more accurate than the 2000 data.

UN Joint Score

The United Nations joint score index was 36.40 for 2000 and 26.71 in 2010, a difference of 10 points. Although, both are inaccurate by the United Nations' Standard, the age reporting for 2010 seems to have improved over the two most recent censuses as has been observed from other methods.

Results from the analysis of the urban and rural populations show that in both the 2000 and 2010 censuses, the reported level of accuracy was better for the data from the urban than the rural population (Table 3.5). Between the two censuses, the highest percent change in quality was among the rural population.

Table 3.5: Summary Indices Measuring the accuracy of Age Data, Urban/Rural and Percentage change 2000 and 2010

Index	Urban			Rural		
	2000	2010	Percentage change	2000	2010	Percentage change
Sex ratio score	5.04	3.44	+31.7	9.73	6.13	+37.0
Male age ratio score	4.68	4.65	+0.64	8.03	8.87	+10.46
Female age ratio score	6.42	6.51	-1.40	11.53	10.30	+10.66
UN Joint Accuracy Index	22.22	21.48	+18.07	48.76	37.56	23.0

Sources: Computed from the 2000 and 2010 Population and Housing Censuses

3.4 Adjustment of Age and Sex Data

According to the Ghana Statistical Service (2011), “the high coverage rate and low content error of the PES results indicate that the census results can be used for planning and policy decision making” (page X). Despite this, the reported age structure needs to be adjusted or smoothed to remove observed distortions.

Table 3.6: Reported and Smoothed Population by Age, Males

Age	Reported	Smoothed				
		Carrier Farrag	K.-King Newton	Arriaga	United Nations	Strong
Total, 0-79	11,901,797			11,901,797		11,901,797
Total, 10-69	8,341,717	8,341,717	8,341,717	8,341,717	8,347,551	8,341,717
0-4	1,731,787			1,718,477		1,737,100
5-9	1,589,632			1,602,942		1,584,319
10-14	1,477,525	1,478,835	1,474,161	1,478,576	1,471,607	1,430,577
15-19	1,311,112	1,309,802	1,314,476	1,310,061	1,305,705	1,272,023
20-24	1,100,727	1,103,844	1,104,568	1,101,072	1,109,797	1,105,250
25-29	943,213	940,096	939,372	942,868	938,023	955,440
30-34	790,301	796,610	797,181	794,360	794,349	803,180
35-39	676,768	670,459	669,888	672,709	676,449	679,601
40-44	572,620	564,489	563,665	562,227	566,267	564,366
45-49	452,975	461,106	461,930	463,368	466,455	465,892
50-54	394,600	368,723	367,985	366,266	374,535	370,190
55-59	258,582	284,459	285,197	286,916	280,200	295,481
60-64	227,050	204,388	207,555	204,112	206,606	224,362
65-69	136,244	158,906	155,739	159,182	157,560	175,356
70-74	149,512			128,024		135,092
75-79	89,149			110,637		103,569
80+	123,048					

Source: Derived from 2010 Population and Housing Census

Smoothing techniques involve applying formulae to the original data to produce new results on the assumption that these would have been the outcome if distortions had not occurred. The technique used depended on the perceived severity of errors in the age and sex distribution. The rate of agreement of age data between the 2010 PHC and the PES data is 83.0% (see section 2.4.2). Since it is necessary that the enumerated totals be maintained, the techniques of smoothing which preserve the original totals or alter the totals only slightly have been used. The smoothing techniques applied to the 2010 age sex data are the Carrier Farrag, K-King Newton, Arriaga, United Nations and Strong, using the PAS AGESMTH. As Arriaga and Associates (1994) noted, differences in results across procedures are very small. The results of the smoothing are presented in Table 3.6 for males and Table 3.7 for females.

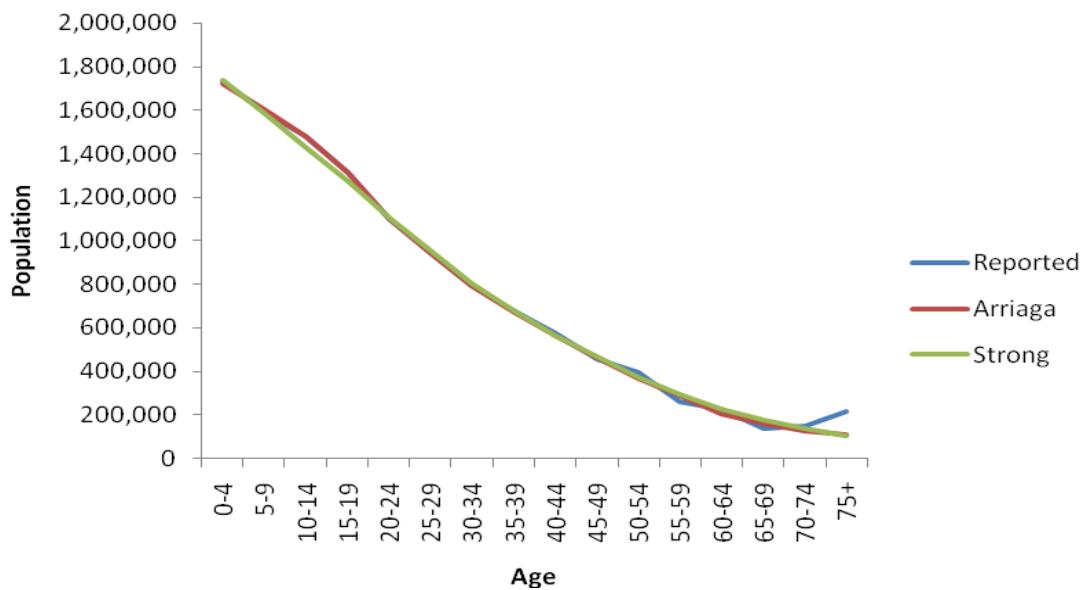
Table 3.7: Reported and Smoothed Population by Age, Females

Age	Reported	Smoothed			
		Carrier Farrag	K.-King Newton	Arriaga	United Nations
Total, 0-79	12,440,648			12,440,648	12,440,648
Total, 10-69	8,909,087	8,909,087	8,909,087	8,909,087	8,921,102
0-4	1,673,619			1,668,739	1,667,362
5-9	1,539,320			1,544,200	1,545,577
10-14	1,438,515	1,423,665	1,423,901	1,422,488	1,427,597
15-19	1,298,877	1,313,727	1,313,491	1,314,904	1,311,729
20-24	1,222,764	1,239,931	1,233,847	1,239,863	1,220,232
25-29	1,106,898	1,089,731	1,095,815	1,089,799	1,091,910
30-34	888,508	893,049	893,497	890,117	903,420
35-39	744,635	740,094	739,646	743,026	741,455
40-44	613,730	607,043	607,522	604,625	608,083
45-49	485,123	491,810	491,331	494,228	503,150
50-54	438,498	395,321	395,082	393,039	407,712
55-59	265,113	308,290	308,529	310,572	297,348
60-64	248,799	223,271	227,275	222,913	221,165
65-69	157,627	183,155	179,151	183,513	187,301
70-74	201,818			161,562	170,744
75-79	116,804			157,060	147,878
80+	193,330				

Source: Derived from 2010 Population and Housing Census

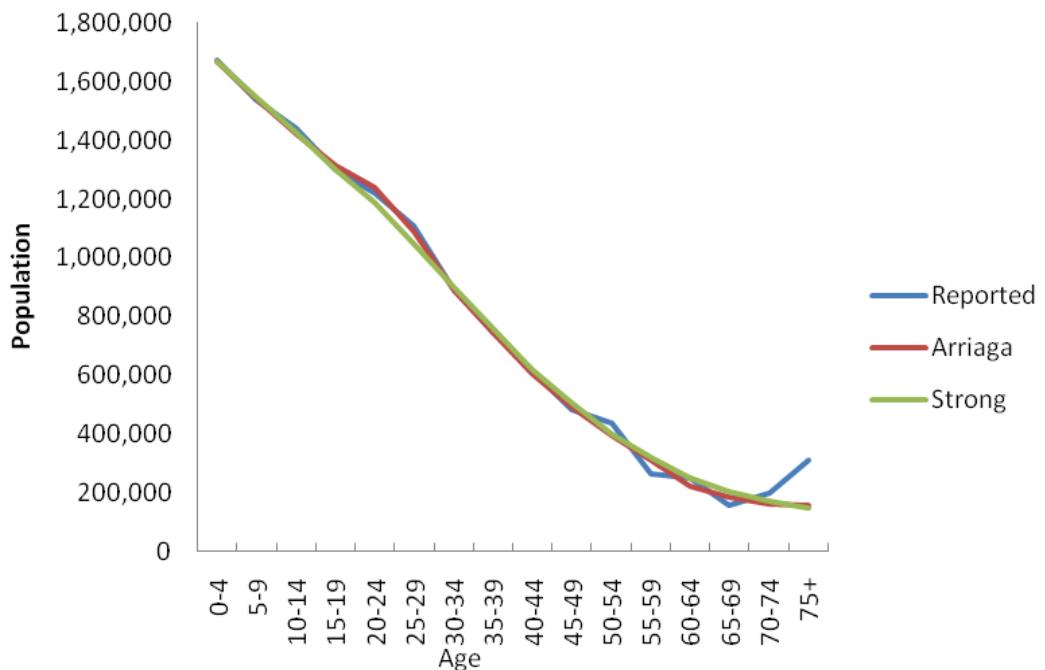
The reported and smoothed age distribution using the Arriaga and Strong procedures are presented in Figure 3.17 for males and Figure 3.18 for females. The figures show similarities between the reported and smoothed age distributions up to about age 50 indicating that the reported age distribution is relatively accurate in ages up to 50. The smoothed age distributions diverge from the reported distribution after age 50 especially from age 70 onwards. The divergence, however, is more pronounced for females than males. Thus, the 2010 age-sex data are fairly accurate and could be used for further analysis.

Figure 3.17: Reported and Smoothed Population by Age, Males



Source: Computed from the 2010 Population and Housing Census

Figure 3.18: Reported and Smoothed Population by Age, Females



Source: Computed from the 2010 Population and Housing Census

3.5 Summary, Conclusion and Recommendation

3.5.1 Summary

The results from subjecting the age sex data to various techniques of detecting and measuring age errors can be summarized as follows:

The index of similarity between the PHC and the PES data for age was 83.0 percent and that for sex was 98.8 percent. The results implied that the problems associated with the age data were far more severe than those associated with sex.

Reported age data from the 2010 PHC were found to be better than those of 2000. For instance, in the 2010 census, the population 0-4 was observed to be larger than the population 5-9 as expected, contrary to the reported common practice in many developing countries where the population of age group 0-4 is smaller than the population in the 5-9 age group. Nonetheless, there were a few content errors. Evidence from the detecting and measuring techniques applied (visual inspection, population pyramids, graphical cohort analysis, Myer's Whipple's and Bachti indices) indicated that there was preference for ages ending in zero and five, with the preference for digit 0 higher than for digit 5. Ages ending with digits 1, 2, 3, 4, 6, 7 and 9 are generally less likely to be reported or used by respondents or enumerators respectively.

Age data for males were relatively more accurate than that for females, and also reported age data tended to be relatively more accurate for the urban than the rural population. Compared to the 2000 PHC, the age-sex data in 2010 appeared to be relatively more accurate. The overall level of accuracy of the 2010 age data using the United Nations joint score accuracy index was 26.71. Although the index for 2010 constituted an improvement over that of 2000, the figure was higher than the recommended standard of below 20.

Based on the observations on the quality of data, the reported age structure was consequently adjusted using the Carrier Farrag, K-King Newton, Arriaga, United Nations and Strong smoothing techniques.

3.5.2 Conclusion

Due to the important role age-sex data plays in demographic analysis and in planning, it is imperative that in any census, the extent of misreporting is identified to facilitate analysis based on age and sex. The errors in the age.sex data, which were basically due to digit preferences and avoidance as well as age mis-statement at the older ages, present challenges for data collection and analysis in the country (Adeku and Ameka, 1995).

Although the pattern of digit preference and avoidance observed in the 2010 census were also present in the 2000 census results, the levels in the current data represent an improvement. It seems that awareness regarding age has increased and people reported their ages more accurately than in previous censuses. The results could also be due to the use of the data of birth and the completed age techniques in the data collection for 2010.

3.5.3 Recommendation

There is indication that there has been an improvement in age reporting over the last two censuses. The observation might be due, in part, to the increased utilisation of information on age for day-to-day transactions such as voting, driver's license and school attendance. It could also be due to the use of double age-based questions used in the 2010 census. If that is the case, it will be necessary to maintain this practice in subsequent data collection exercises and also to continue to use age and date of birth in some official transactions. Furthermore, the field staff would need to be sufficiently trained and encouraged to obtain accurate ages from respondents in future surveys and censuses.

References

- Adeku, J. & K. Ameka (1995). *Evaluation and Adjustment of the 1984 Census Age-Sex Data.* Analysis of Demographic Data Vol. I. Preliminary Analysis Reports.
- Arriaga, E. E., Johnson, P. D. & Jamison, E. (1994). *Population Analysis with Microcomputers Vol. I. Presentation of Techniques*, Bureau of the Census, United States of America.
- Gaisie, S. K. (2005). Assessment and Adjustment of Population Age and Sex Structures, 1960-2000 Ghana Censuses in Ghana Statistical Service 2005 Ghana Population Data Analysis Report Vol. 1, Socio-Economic and Demographic Trends (p.15).
- Siegel, J. S & Swanson, D. A. (Eds.) (2004). *The methods and materials of demography*. 2nd Edition. London, Elsevier Academic Press.
- United Nations (1952) Methods of Appraisal of Quality of Basic Data for Population Estimates, Manual II, Population Studies, Series A, No. 23, New York.

APPENDIX A3.1

Mathematical form of Whipple's index:

$$\frac{\sum (P_{25} + P_{30} + \dots + P_{55} + P_{60})x}{1/5 \sum (P_{23} + P_{24} + P_{25} + \dots + P_{60} + P_{61} + P_{62})} \times 100$$

Where P is the population between age 25 and 62

APPENDIX A3.2

Formula for calculating sex ratio

$$\text{Sex Ratio} = \frac{{}_5M_x}{{}_5F_x} \times 100$$

${}_5M_x$ = Number of males enumerated in a specific age group

${}_5F_x$ = Number of females enumerated in the same age group

CHAPTER FOUR

POPULATION SIZE, COMPOSITION AND AGE-SEX STRUCTURE⁵

4.1 Introduction

A country's population size and age-sex composition have broad ranging consequences for a number of socio-economic indicators such as the welfare of the people. The changes in a country's population are mainly through fertility, mortality and migration levels, which to a large extent, are influenced by age-sex composition. The 2010 Census, like all other Censuses undertaken in the country, was a "de facto" count of each person present in Ghana irrespective of nationality. The objective of this chapter is to analyse the size, composition, age and sex structure of the 2010 Census. Where data are available from previous censuses (1960, 1970, 1984 and 2000), comparisons have been made to bring out changes in these characteristics over time.

4.2 Population size and change

As shown in Table 4.1, Ghana recorded a population of 24,658,823 in 2010. The population was 6,726,815 in 1960 and increased to 18,912,079 in 2000. Thus, the population more than tripled between 1960 and 2010, a period of fifty years. The period 2000-2010 recorded a 30.7 percent increase. The highest increase between censuses over the 50-year period was 53.8 percent and this occurred between 1984 and 2000.

Table 4.1: Population size, annual percentage increase, growth rate and doubling time, 1960 – 2010

Year	Population
1960	6,726,815
1970	8,559,313
1984	12,296,081
2000	18,912,079
2010	24,658,823

Period	Annual intercensal increase (%)
1960 – 1970	27.2
1970 – 1984	43.7
1984 – 2000	53.8
2000 – 2010	30.4

Period	Annual growth rate (%)
1960 – 1970	2.4
1970 – 1984	2.6
1984 – 2000	2.7
2000 – 2010	2.5

Period	Doubling time (years)
1960 – 1970	29
1970 – 1984	27
1984 – 2000	26
2000 – 2010	28

Sources: Compiled from 1960, 1970, 1984, 2000 and 2010 population census reports, GSS

⁵This chapter was prepared by Prof. Samuel Nii.Ardey Cudjoe and Mr. Stephen Amoah

The average annual growth rate between 2000 and 2010 was 2.5 percent. The growth rates over the periods were 2.4 percent, 2.6 percent and 2.7 percent in the periods 1960-1970, 1970-1984 and 1984-2000 respectively (Table 4.1). The lowest and highest annual growth rates were recorded in the periods 1960-1970 (2.4%) and 1984-2000 (2.7%) respectively over the 50 years. For results indicated that the population doubled every 25 years, with the doubling time between 2000 and 2010 being 28 years.

Table 4.2 showing the regional distribution of population, indicates that Ashanti Region had the highest population in all the census years, followed by Eastern in 1960, 1970 and 1984, and then Greater Accra in 2000 and 2010. The proportion of the total population resident in the Ashanti region increased from 16.3 percent in 1960 to 19.4 percent in 2010, that of Eastern declined from 15.3 to 10.7 percent between 1960 and 2000 whilst that of Greater Accra rose from 7.9 percent in 1960 to 16.3 percent in 2010, recording the highest increase over the period.

The Upper West and Upper East regions consistently recorded the lowest proportions in all the censuses: 4.2 and 6.9 percent in 1960 and 2.8 and 4.2 respectively in 2010. Within the period 1960 to 2010, the proportions for the Upper West and Upper East regions declined, pointing to out-migration to other regions, especially Greater Accra and Ashanti. Overall, while the proportions of the population resident in five of the regions (Western, Volta, Brong Ahafo, Upper East and Upper West) declined between the year 2000 and 2010, that of the other five regions (Central, Greater Accra, Eastern, Ashanti and Northern) increased during the same period.

Table 4.2: Population and percentage share of total population by region, 1960 - 2010

Region	Population					% Share of total population				
	1960	1970	1984	2000	2010	1960	1970	1984	2000	2010
Total	6,726,815	8,559,313	12,296,081	18,912,079	24,658,823	100	100	100	100	100
Western	626,155	770,087	1,157,807	1,924,577	2,376,021	9.2	9.0	9.4	10.2	9.6
Central	751,392	890,135	1,142,335	1,593,823	2,201,863	11.0	10.4	9.3	8.4	8.9
Greater Accra	491,817	851,614	1,431,099	2,905,726	4,010,054	7.9	10.6	11.6	15.4	16.3
Volta	777,285	947,268	1,211,907	2,106,696	2,118,252	11.4	11.1	9.9	11.1	8.6
Eastern	1,094,196	1,261,661	1,680,890	1,635,421	2,633,154	15.3	14.1	13.7	8.6	10.7
Ashanti	1,109,133	1,481,698	2,090,100	3,612,950	4,780,380	16.3	17.3	17.0	19.1	19.4
Brong Ahafo	587,920	766,509	1,206,608	1,815,408	2,310,983	8.6	9.0	9.8	9.6	9.4
Northern	531,573	727,618	1,164,583	1,820,806	2,479,461	9.3	8.5	9.5	9.6	10.1
Upper East	468,638	542,858	772,744	920,089	1,046,545	6.9	6.3	6.3	4.9	4.2
Upper West	288,706	319,865	438,008	576,583	702,110	4.2	3.7	3.6	3.0	2.8

Sources: Compiled from 1960, 1970, 1984, 2000 and 2010 population census reports, GSS.

The regional annual growth rates presented in Table 4.3 shows that there were regional variations in growth since 1960, but with no clear pattern across the country. The three northern regions, namely, Northern, Upper East and Upper West, experienced increases in the first (1960-1970) and second (1970-1984) intercensal periods, followed by declines in the next period (1984-2000), and increases in the last period (2000-2010). The annual growth rates in Greater Accra and Ashanti, on the other hand, decreased during the first two intercensal periods, increased in the next intercensal period (1984-2000) and then declined again in the last period (2000-2010). Central, however, consistently experienced increases throughout the period under review. The increase in the annual growth rate of Brong-Ahafo region during the first two intercensal periods was followed by declines in the subsequent

intercensal periods. The annual growth rate of 2 percent in Volta region declined to 1 percent in the period 1970-1984 but rose in the subsequent census periods. While annual growth rates for the Western region increased during the first three intercensal periods, it declined between 2000 and 2010. The annual growth rates for Eastern region declined in the first three intercensal period but increased in the 2000-2010 period.

Table 4.3: Annual population growth rate (%) by region, 1960 - 2010

Region	1960-1970	1970-1984	1984-2000	2000-2010
Total	2.4	2.6	2.7	2.5
Western	2.1	3.0	3.2	2.0
Central	1.7	1.8	2.1	3.1
Greater Accra	5.2	3.3	4.4	3.1
Volta	1.5	1.0	1.9	2.5
Eastern	2.0	1.8	1.4	2.1
Ashanti	2.9	2.5	3.4	2.7
Brong Ahafo	2.7	3.3	2.5	2.3
Northern	3.2	3.4	2.8	2.9
Upper West	1.0	2.6	1.7	1.9
Upper East	1.5	2.3	1.1	1.2

Sources: Compiled from 1960, 1970, 1984, 2000 and 2010 population census reports, GSS.

4.3 Area and Population density

Within the country, the Northern region has the largest land area, almost a third of the total land area of Ghana (29.5%) while the Greater Accra occupies the least land area of 1.4 percent. The number of persons per parcel of land (e.g. per kilometre) is referred to as population density. This measure assumes equal distribution within any given area, hence it is known as crude density. Table 4.4 shows that the crude population density for Ghana was 28.6 persons per square kilometre in 1960 and 103.4 in 2010, reflecting a consistent increase since 1960.

These two regions with the lowest and the highest population densities in every census over the 50 years are also the regions with the largest and lowest land areas – Northern and Greater Accra regions respectively. The population density for Greater Accra region increased from 167 in 1960 to 1,235.8 in 2010, nearly an eightfold increase while that of Northern was nine in 1960 and 35.2 in 2010.

Central region has also consistently emerged as the second most densely populated region over the years. Eastern region ranked third in terms of population density in 1960 and 1970 but fourth in 1984, 2000 and 2010. The third most densely populated region in 1984 was Upper East and Ashanti in 2000 and 2010. Among the three northern regions, Upper East has the highest population density and Northern the lowest. The changing pattern of population density reflects the trends in population movements in the country over the period.

Table 4.4: Population density by region, 1960 - 2010

Region	Land Area (km ²)	Land Area (%)	Population density				
			1960	1970	1984	2000	2010
Total	238,533	100	28.6	35.9	51.5	79.3	103.4
Western	23,921	10.0	26.2	32.2	48.4	80.5	99.3
Central	9,826	4.1	76.5	90.6	116.3	162.2	224.1
Greater Accra	3,245	1.4	167.0	278.4	441.0	895.5	1,235.8
Volta	20,570	8.6	37.8	46.1	58.9	79.5	103.0
Eastern	19,323	8.1	54.0	62.6	87.0	109.0	136.3
Ashanti	24,389	10.2	45.5	60.8	85.7	148.1	196.0
Brong Ahafo	39,557	16.6	14.8	19.4	30.5	45.9	58.4
Northern	70,384	29.5	9.0	10.3	16.5	25.9	35.2
Upper West	18,476	7.8	15.6	17.3	23.7	31.2	38.0
Upper East	8,842	3.7	53.0	61.4	87.4	104.1	118.4

Sources: Compiled from 1960, 1970, 1984, 2000 and 2010 population census reports, GSS.

4.4 Urban population

In this country, the classification of a locality as urban or rural is based on population size. Localities with population of 5,000 or more are classified as urban. Table 4.5 shows that, for the first time since 1960, more than half of Ghana's population lived in urban areas: The proportion of urban population increased from 23.1 in 1960 to 50.9 in 2010. There were increases in the proportions of urban communities in all regions from 1960 to 2010, except Western and Central which experienced declines between 1970 and 1984 and increases between 2000 and 2010. Upper East was the least urbanized region in 1960 (3.9%) while over the rest of the period, the least urbanized region has been the Upper West (6.7% in 1970 to 16.3% in 2010). Upper East has a substantial proportion of its population concentrated in few towns, and this explains the high population density in Table 4.4 but low urbanisation in Table 4.5. Overall, the proportion of people living in urban areas in all the regions increased between 2000 and 2010 except in the Upper West region where the proportion urban declined from 17.5 percent to 16.3 percent. This is an issue which will need to be investigated further.

Table 4.5: Proportion of urban population by region, 1960 - 2010

Region	Proportion of urban population				
	1960	1970	1984	2000	2010
Total	23.1	28.9	32.0	43.8	50.9
Western	24.7	26.9	22.6	36.3	42.4
Central	28.0	29.1	28.8	37.5	47.1
Greater Accra	72.6	85.3	83.0	87.7	90.5
Volta	13.1	16.0	20.5	27.0	33.7
Eastern	21.1	24.6	27.7	34.6	43.4
Ashanti	25.0	29.7	32.5	51.3	60.6
Brong Ahafo	15.6	22.1	26.6	37.4	44.5
Northern	13.0	20.4	25.2	26.6	30.3
Upper West	5.0	6.7	10.9	17.5	16.3
Upper East	3.9	7.3	13.9	15.7	21.0

Sources: Compiled from 1960, 1970, 1984, 2000 and 2010 population census reports, GSS

4.5 Age and sex structure

4.5.1 Age structure

Ghana's population has a youthful structure (Table 4.6), with a broad base consisting of large numbers of children and a conical top of a small number of elderly persons. The structure of the population, though, has undergone changes over the years. For instance, the proportion aged less than 15 years was 46.9 percent in 1960, increased to 47.6 in 1970 and declined to 38.3 percent in 2010.

The old adolescent (15-19 years) and young adults (20-24 years) increased from 1.1 million in 1960 to 2.3 million in 1984, 3.5 million in 2000 and 4.9 million in 2010. These numbers accounted for about 20 percent of the total population over the years. A situation in which 20 percent or more of a population is aged between 15-24 years has great potential for socio-economic development. The population aged between 25 and 59 years increased from 30.6 percent in 1970 to 33.1 and 35.0 percent in 2000 and 2010 respectively. This pattern indicates the gradual ageing of the relatively large proportion of 15-24 year-olds in 1970. This increasing adult population would need to be tracked as it will be critical group as it ages.

Table 4.6: Age structure by sex and age group, 1960-2010

Age Group	Sex	Year				
		1960	1970	1984	2000	2010
Under 15 years	Male	44.6	47.6	46.2	41.9	39.9
	Female	44.5	46.3	43.9	40.6	36.8
	Both Sexes	44.5	46.9	45.0	41.3	38.3
15- 24 years	Male	16.0	16.6	18.5	18.5	20.1
	Female	17.5	17.5	19.0	18.4	20.0
	Both Sexes	16.8	17.0	18.7	18.4	20.0
25-59 years	Male	34.1	30.3	29.7	32.4	34.1
	Female	33.1	31.0	31.3	33.6	36.0
	Both Sexes	33.8	30.7	30.4	33.1	35.0
60+ years	Male	5.2	5.5	5.8	7.2	6.0
	Female	4.6	5.2	5.9	7.2	7.3
	Both Sexes	4.6	5.2	5.9	7.2	6.7
65+ years	Male	3.3	3.7	4.0	5.3	4.1
	Female	3.0	3.6	4.0	5.2	5.3
	Both Sexes	3.2	3.6	4.0	5.3	4.7

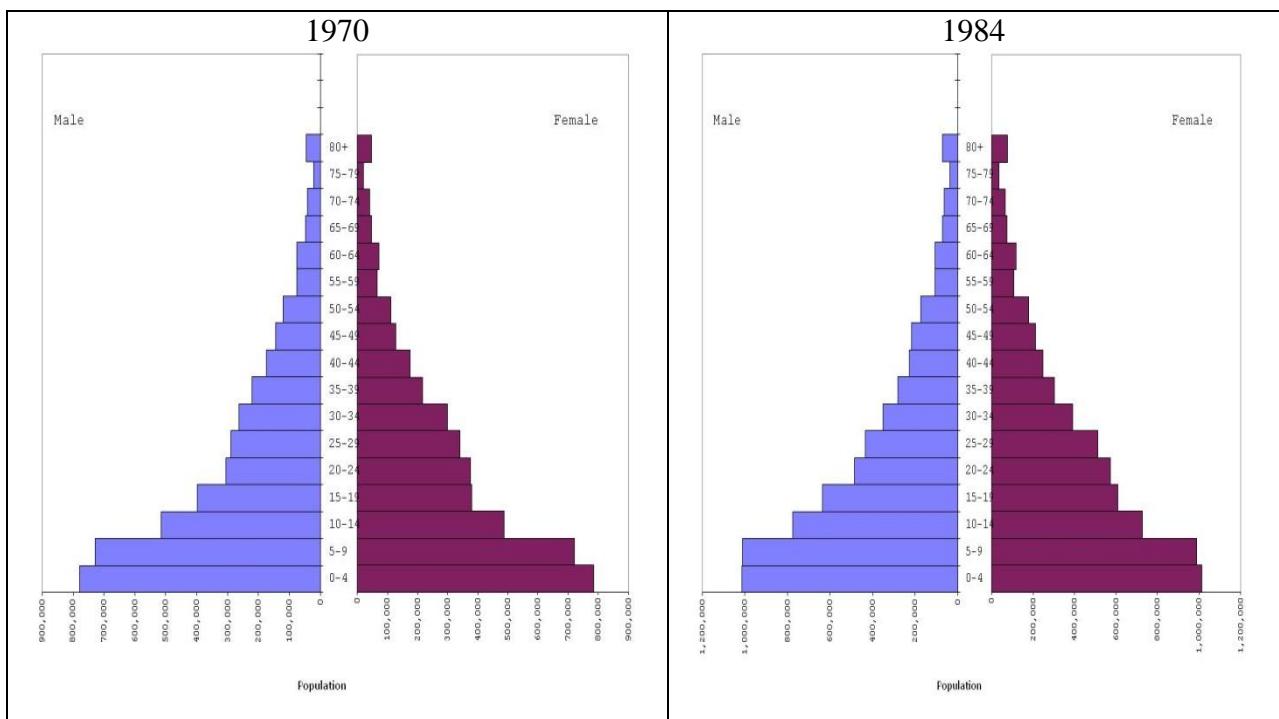
Sources: Compiled from 1960, 1970, 1984, 2000 and 2010 population census reports, GSS

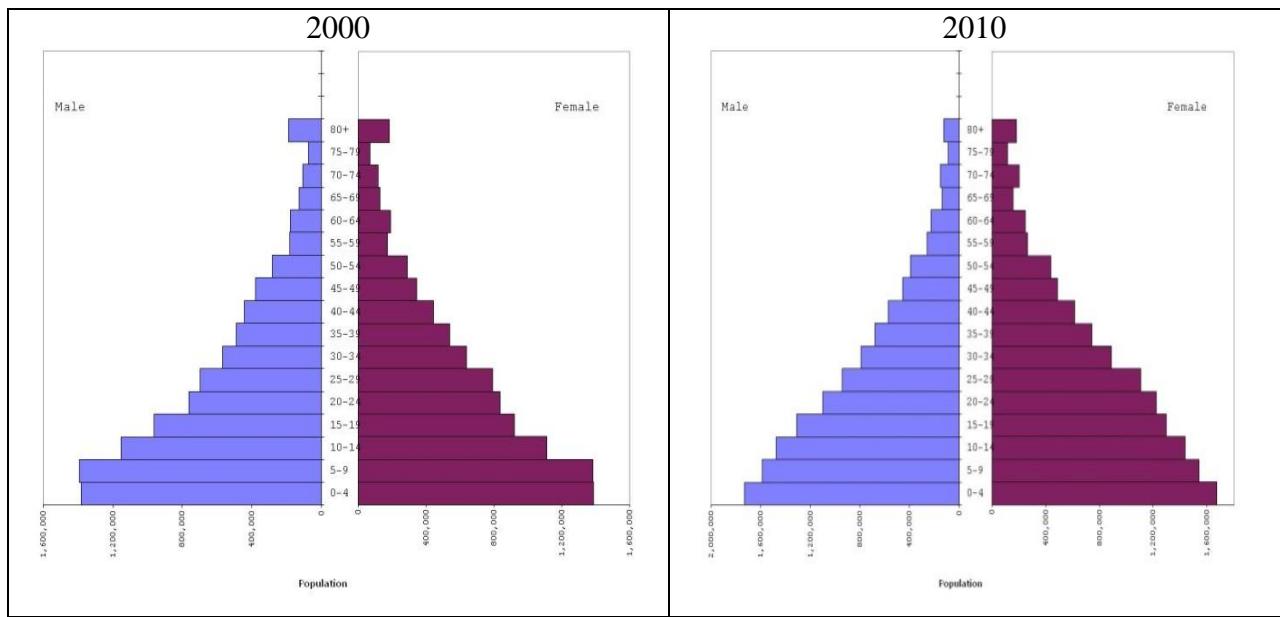
There is evidence of the ageing of the population, with the proportions aged 60 years and older rising from 4.6 in 1960 to 6.7 percent in 2010. The proportion of the 65 and above year-olds increased from 3.2 in 1960 to 5.3 percent in 2000 and then declined to 4.7 percent in 2010. Ageing may appear to be gradual at the moment but the older population will grow rapidly as the fertility transition advances. These issues are discussed elsewhere (see Ghana Statistical Service, 2012).

The proportion of males in the age group 0-14 years has consistently been higher for males than females as expected. In the rest of the age groups, there were no consistent pattern in the proportions of females and males. For instance, in the 15-24 age groups there were more females than males in 1960, 1970 and 1984, but this changed in 2000 and 2010. Among the population aged 65 years and above, there were higher proportions of males than females in 1960, 1970 and 2000, contrary to expectation. The expected pattern of more females than males in this age group occurred in the 2010 data. This is possibly a reflection of the better age-sex data reporting in the 2010 census (see Chapter 3).

The age-sex structure for 1970, 1984, 2000 and 2010 are shown in Figure 4.1. Two prominent features emerge from the population pyramids. Firstly, the population pyramids for all the census years depict a typical scenario in developing countries, with broad base denoting a youthful population, and a narrow apex, indicating fewer aged persons. Secondly, there is evidence of an increase in the elderly population, which is a manifestation of increasing longevity. However, this development should also be seen as a warning that Ghana must start contemplating about how to take care of its aged population.

Figure 4.1: Population pyramid of Ghana, 1970-2010





The female population aged 15 to 49 years increased from 1.1 million in 1960 to 2.3 million in 1984, 4.5 million in 2000 and 6.3 million in 2010. The population bulge at ages 15 to 49 years tends to last for four decades. Given the size of the population in the age group, population will continue to grow for 15 years after fertility has declined to the replacement level. The process leads to an ultimate population increase of two-thirds before growth ceases, a phenomenon referred to as “population momentum”.

The relationship between the populations aged 0-14 years and 65 years and above and the population aged 15-64 years constitute age dependency, measured per 100 population. The age-dependency ratios by sex at the national level for 1960-2010 are presented in Table 4.7. The ratio was 90/100 in 1960 and this increased to 102/100 in 1970, and has since declined steadily to 96/100 in 1984, 87/100 in 2000 and 76/100 in 2010. The steady decline is a positive occurrence as it implies that the number of persons in the active age group (15-64) is increasing vis-a-vis those in the dependent group.⁶

Table 4.7: Age-Dependency Ratios by sex: 1960, 1970, 1984, 2000 and 2010

Age group	Sex	Year				
		1960	1970	1984	2000	2010
0-14 years	Males	44.6	47.6	46.2	41.9	39.9
	Females	44.5	46.3	43.9	40.6	36.8
	Both sexes	44.5	46.9	45.0	41.3	38.3
15-64 years	Males	52.1	48.7	49.8	52.8	56.0
	Females	52.5	50.1	52.1	54.1	57.9
	Both sexes	52.3	49.4	51.0	53.4	57.0
65+ years	Males	3.3	3.7	4.0	5.3	4.1
	Females	3.0	3.6	4.0	5.2	5.3
	Both sexes	3.2	3.6	4.0	5.3	4.7
Total dependency ratio		90	102	96	87	76

Sources: Compiled from 1960, 1970, 1984, 2000 and 2010 population census reports, GSS.

⁶ This relationship does not translate into economic dependency since some of the people in the 0-14 and 65+ will be working and some of those in the 15-64 will not be working.

4.5.2 Age Structure by Region

The age structures in the ten regions are shown in Table 4.8. Although some of the regional differences in the age structures may be explained by differential age reporting and the nature of migration in each region, the rates tended to mirror the changes which occurred in the country's age structure over the five decades. The regional age structures indicate that the proportions of the population aged less than 15 years declined slowly from 1970 across all regions, except in the Northern region where the consistent decline started in 1984. The highest declines were in Ashanti (8.6% points) and Greater Accra (8.1% points) regions, with the lowest declines in the Northern, Upper East and Upper West regions.

The proportions aged 15-24 years and 25-59 years increased over the years in all the regions, indicating the decline in fertility (see Chapter 8). The comparatively lower proportions of 15-24 year-olds and 25-59 year-olds in the regions in the northern part of the country could be attributed to out-migration to the south including the current phenomenon of independent child migration from the three northern regions to mainly Accra and Kumasi (Frempong-Ainguah, Badasu & Codjoe, 2010; Kwankye, 2012; Tanle and Awusabo-Asare, 2009).

There has also been a steady increase in the proportion of the population aged 60 years and above in seven out of the ten regions, the exception being in the Volta, Brong Ahafo and Upper East region, where there were declines between 2000 and 2010. The general pattern is the shifting of the proportions in of the population from the younger to the older ages, underscoring the ageing of the population.

Table 4.8: Age structure by broad age group and region, 1960 – 2010

Country/Region	Age group	1960	1970	1984	2000	2010
Ghana	<15	44.5	46.9	45.0	41.3	38.3
	15-24	16.8	17.0	18.7	18.4	20.0
	25-59	33.8	30.7	30.4	33.1	35.0
	60+	4.6	5.2	5.9	7.2	6.7
Western	<15	42.3*	45.5	44.7	42.4	39.0
	15-24	16.9	17.3	18.7	17.7	20.2
	25-59	33.5	32.5	31.5	33.7	35.3
	60+	5.1	4.6	6.6	6.1	5.5
Central	<15		47.6	45.2	43.2	39.6
	15-24		15.4	18.6	17.3	20.0
	25-59		29.1	29.6	31.7	33.1
	60+		6.5	6.8	7.8	7.4
Greater Accra	<15	39.4	42.0	41.6	33.1	31.3
	15-24	21.3	20.8	20.3	22.7	21.1
	25-59	35.2	33.9	20.3	38.8	42.3
	60+	4.1	3.3	4.7	5.5	5.3
Volta	<15	45.6	47.6	44.2	41.1	38.4
	15-24	16.5	16.5	18.9	18.0	19.0
	25-59	31.9	29.2	29.1	32.1	33.8
	60+	6.0	6.7	11.3	8.9	8.9
Eastern	<15	45.5	47.8	44.1	41.7	38.4
	15-24	16.7	14.7	19.6	17.5	18.9
	25-59	32.4	29.1	29.7	32.8	34.6
	60+	5.3	5.0	6.6	8.0	8.0
Ashanti	<15	46.3	49.2	45.6	42	37.7
	15-24	17.8	17.7	20.1	17.6	20.7
	25-59	31.7	28.5	29.02	31.9	35.6
	60+	4.2	4.6	7.1	8.0	6.0
BrongAhafo	<15	46.1	48.7	46.8	43.1	40.4
	15-24	17.2	12.7	19.7	18.7	20.7
	25-59	32.6	29.3	29.0	32.1	33.2
	60+	4.1	5.0	5.4	6.2	6.2
Northern	<15	48.6**	47.1**	48.5	46.2	44.8
	15-24	14.4	16.0	16.0	17.0	19.1
	25-59	37.7	32	30.0	30.2	29.9
	60+	5.0	4.9	5.9	6.5	6.2
Upper East	<15			44.7	43.4	41.5
	15-24			15.1	15.7	19
	25-59			33.0	32.0	30.3
	60+			6.5	8.9	9.2
Upper West	<15			47.0	43.4	41.7
	15-24			16.0	16.6	19.6
	25-59			30.6	31.2	30.3
	60+			8.6	8.9	8.4

Sources: Compiled from 1960, 1970, 1984, 2000 and 2010 population census reports, GSS.

* Figures represent Western and Central Regions (Central Region was not created by then)

** Figures represent Northern, Upper East and Upper West Regions of Ghana (Upper East and Upper West Regions were not created by then)

4.5.3 Sex Composition

Sex ratio for 1960 was 102.2 males per 100 females and since then the ratios have declined consistently to 95.2 in 2010 (Table 4.9). The high sex ratio in 1960 has been attributed to the relatively large number of male immigrants from other African countries in Ghana which occurred after independence (Anarfi et. al., 2003)⁷. With regards to the regions, Central, Volta, Upper East and Upper West had more females than males in all the census years. Northern and Greater Accra, had more males in 1960 and 1970, and from then on had more females than males. Eastern region's sex ratio has a semblance of the national pattern: it had more males in 1960, and after that more females in the subsequent census years. Furthermore, Western and Brong Ahafo had more males in all the census years except in 2010 when Brong Ahafo had more females, and Western had equal proportions of males and females. Overall, except Western where there is sex parity, females outnumbered males in all the regions in 2010 (Table 4.9).

Table 4.9: Sex ratios by region: 1960 - 2010

Region	1960	1970	1984	2000	2010
Total	102.2	98.5	97.3	97.9	95.2
Western	110.2	104.7	102.6	103.4	100.0
Central	95.0	93.8	95.9	91.2	91.2
Greater Accra	112.0	104.9	96.0	97.7	93.6
Volta	95.2	92.5	93.9	93.6	92.8
Eastern	102.2	98.3	98.7	96.8	96.1
Ashanti	104.9	99.1	97.0	101.3	94.0
Brong Ahafo	111.2	104.5	103.5	100.8	98.2
Northern	104.0	102.1	98.1	99.3	98.4
Upper West	92.0	89.2	90.2	92.1	94.5
Upper East	93.2	90.8	91.0	92.6	93.8

Source: Compiled from population census reports, 1960, 1970, 1984, 2000 and 2010

4.6 Nationality

Nationality is defined as the country to which a person belongs. Ghanaian nationals are classified as Ghanaian by birth and by naturalization. Table 4.10 shows that the proportion of Ghanaians by birth in the population increased between 1960 and 2010 from 87.7 percent to 96.6 percent. The 2000 and 2010 censuses provided information on Ghanaians by naturalization and it showed a decrease from 3.9 percent in 2000 to 0.9 percent in 2010. Finally, the non-Ghanaian population declined from 12.3 percent in 1960 to 2.5 percent in 2010. The figures confirm a change in Ghana's status from one of a major immigration country in the West African sub-region to one of a low immigrant country.

⁷ In 1969, African nationals without valid resident permits were asked to leave Ghana in what was known as the Alien's Compliance Order.

Table 4.10: Population by nationality, 1960 - 2010

Nationality	1960	1970	1984	2000	2010
Total	6,726,815	8,559,313	-	18,912,079	24,658,823
Ghanaian by birth	87.7	93.4	-	92.2	96.6
Ghanaian by naturalization			-	3.9	0.9
Non-Ghanaian	12.3	6.6	-	3.9	2.5

Sources: Compiled from 1960, 1970, 1984, 2000 and 2010 population census reports, GSS.

Table 4.11 presents the percentage distribution of the population by nationality and region in 2010. As expected, the highest proportion of non-Ghanaians was in the Greater Accra region (3.0%), where Accra, the national capital, and Tema the leading port in the country, are located. Upper East and Upper West followed Greater Accra, with 2.9 percent of their population registering as non-Ghanaians. This can be attributed to their proximity to the neighbouring countries of Togo and Burkina Faso, where historical movements among people in these areas continue. Eastern region recorded the lowest proportion (1.7%) of non-Ghanaians. Finally, Volta recorded the highest proportion of Ghanaians by naturalization (2.7%)

Table 4.11: Population by nationality and region, 2010

Region	Population	Ghanaian Nationality by		Non-Ghanaian
		Birth	Naturalization	
Total	24,658,823	96.6	0.9	2.5
Western	2,376,021	97.4	0.6	2.0
Central	2,201,863	97.0	0.6	2.4
Greater Accra	4,010,054	96.0	1.0	3.0
Volta	2,118,252	94.8	2.7	2.4
Eastern	2,633,154	97.6	0.7	1.7
Ashanti	4,780,380	97.2	0.7	2.1
Brong Ahafo	2,310,983	96.6	0.8	2.6
Northern	2,479,461	96.4	0.9	2.8
Upper East	1,046,545	95.9	1.1	2.9
Upper West	702,110	96.2	0.9	2.9

Sources: Compiled from 1960, 1970, 1984, 2000 and 2010 population census reports, GSS

4.7 Birth Place

Birth place of a person has been defined as the locality of usual residence of the mother at the time of birth. As shown in Table 4.12, about two out of three persons were enumerated in the locality where they were born, with the proportions ranging from 58.4 percent in 1960 to 65.0 percent in 2010. The proportion of persons enumerated in another locality but in the same region where they were born decreased from 20.9 in 1960 to 15.0 percent in 2010.

The proportion of persons enumerated in a region other than that of their birth increased from 12.4 percent in 1960 to 17.9 in 1970 and has remained virtually stable around 19.0 percent since 1984. The proportion of persons enumerated in Ghana but born in the ECOWAS countries in the 2010 PHC was 1.1 percent and those from non-ECOWAS Africa or outside Africa was 0.2 percent. Thus, Ghana does not seem to be an immigrant country.

Table 4.12: Population by birthplace, 1960 - 2010

Birthplace	1960	1970	1984	2000	2010
Total	6,726,815	8,559,313	12,296,081	18,912,079	24,658,823
Locality of enumeration	58.4	57.1	58.7	69.1	65.0
Another locality in region	20.9	21.0	21.3	10.8	15.0
Other region	12.4	17.9	19.4	19.0	18.7
ECOWAS	8.3*	3.9	0.5	0.6	1.1
African, other than ECOWAS		0.2	0.01	0.3	0.1
Outside Africa			0.1	0.2	0.1

Sources: Compiled from 1960, 1970, 1984, 2000 and 2010 population census reports, GSS.

* Figure in 1960 represents ECOWAS, African other than ECOWAS and outside Africa.

Furthermore, Table 4.13 indicates that 53 percent of the population enumerated in Greater Accra were born in another locality in the region or outside the region. This shows the cosmopolitan nature of the national capital. The next regions with high levels of persons born outside the place of enumeration were Ashanti (42.0%) and Western (37.1%), an indication of in-migration to these areas. In addition, intra-regional migration is highest in the Ashanti (23.4%), Eastern (17.9%) and Volta (17.8%) regions and the highest inter-regional migration occurred between Eastern (11.3%), Volta (8.6%) and Ashanti (6.1%) on one hand and Greater Accra on the other.

Table 4.13: Population by birthplace and region: 2010

Birthplace	%	Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brong Ahafo	Northern	Upper East	Upper West
All Regions	98.7	2,346,713	2,161,896	3,924,869	2,071,445	2,611,041	4,744,033	2,288,839	2,453,825	1,040,697	692,276
Locality of enumeration	65.0	63.1	64.8	46.4	73.1	65.4	58.0	67.5	86.1	88.0	82.9
Another locality in region	15.0	12.0	16.3	11.6	17.8	17.9	23.4	11.7	8.9	5.6	9.5
Western	1.1	-	2.6	2.1	0.3	0.9	1.6	1.0	0.1	0.3	0.4
Central	2.5	6.0	-	6.4	0.4	2.6	2.4	0.7	0.2	0.1	0.2
Greater Accra	1.3	1.5	3.9	-	1.9	2.9	1.1	0.7	0.3	0.6	0.5
Volta	2.8	2.1	2.1	8.6	-	4.9	1.2	1.4	0.7	0.2	0.2
Eastern	3.0	2.7	3.5	11.3	1.5	-	2.0	0.9	0.1	0.2	0.3
Ashanti	2.5	3.9	2.8	6.1	0.7	2.1	-	3.9	0.6	2.5	1.6
Brong Ahafo	1.4	2.6	0.8	1.5	0.4	0.7	3.1	-	0.5	0.5	1.4
Northern	1.8	1.6	0.6	2.3	1.6	0.9	2.5	3.9	-	1.0	1.1
Upper East	1.3	2.0	0.4	1.0	0.1	0.5	2.8	2.7	0.7	-	0.5
Upper West	1.0	1.2	0.2	0.4	0.1	0.4	1.2	4.6	0.9	0.4	-
Outside Ghana	1.3	1.2	1.8	2.1	2.2	0.8	0.8	1.0	1.0	0.6	1.4

Sources: Compiled from 1960, 1970, 1984, 2000 and 2010 population census reports, GSS.

4.8 Ethnicity

Ethnicity refers to the ethnic group that a person belongs to. In the 2010 PHC, the question on ethnicity was asked of only Ghanaians by birth and Ghanaians with dual nationality. The classification is on major ethnic groups in Ghana as officially provided by the Bureau of Ghana Languages and has been in use since the 1960 census. Table 4.14 showing the reported ethnic affiliation, indicated that in 2010, Akan was the largest ethnic group in the country (47.3%), followed by Mole Dagbani (16.6%), Ewe (13.9%), Ga-Dangme (7.4%), Gurma (5.7%) and Guan (3.7%). The 2010 data show very little difference in the ethnic composition of Ghana from that of 2000 (the first census that recorded this information after 1960), with only the Guan and Gurma ethnic groups changing relative position. The Grusi and Mande ethnic groups were the least represented in the population in both 2000 and 2010.

While the proportions of the Akan, Ga-Dangme, Guan, and Grusi ethnic groups declined between 2000 and 2010, that of the Ewe, Gurma, and Mole-Dagbani ethnic groups increased during the same period with the proportion of Mande ethnic group remaining the same in the period under review (Table 4.14).

Table 4.14: Ghanaians by ethnic group, 2000 and 2010

Ethnic group	2000	2010
Akan	49.1	47.5
Ga-Dangme	8.0	7.4
Ewe	12.7	13.9
Guan	4.4	3.7
Gurma	3.9	5.7
Mole-Dagbani	16.5	16.6
Grusi	2.8	2.5
Mande	1.1	1.1
Other	1.5	1.4

Sources: compiled from 2000, 2010 population census reports, GSS

As shown in Table 4.15 for 2010, most of the population of Central (81.7%), Western (78.2%), Ashanti (74.2%), Brong Ahafo (58.9%) and Eastern (51.1%) regions were Akan. In addition, the highest proportions of the population of Greater Accra were Akan (39.7%) and Ga-Dangme (27.4%). Seventy four percent of the population of Volta was Ewe (73.8%), and for the Northern, Upper East and Upper West the predominant group was the Mole-Dagbani.

Nearly 18 percent of the population of Eastern region was Ga-Dangme. This is because the group astride the Eastern region and the Greater Accra regions. Secondly, one-fifth of the population of Greater Accra was Ewe. The Guan does not comprise the majority in any region but could be found in five out of the ten regions: (Northern (8.6%), Volta (8.1%), Eastern (5.3%), Central (5.3%) and Brong Ahafo (4.1%)). This is a group considered to be one of the original settlers of present Ghana (Dickson, 1969).

Table 4.15: Ghanaians by major ethnic group and region, 2010

Ethnic Group	Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brong Ahafo	Northern	Upper East	Upper West
Akan	78.2	81.7	39.7	2.8	51.1	74.2	58.9	3.1	2.3	1.4
Ga-Dangme	3.1	2.5	27.4	1.5	17.9	1.2	1.3	0.3	0.1	0.1
Ewe	6.2	6.2	20.1	73.8	18.9	3.8	3.7	1.7	0.3	0.4
Guan	0.8	5.3	1.9	8.1	5.3	1.5	4.1	8.6	0.3	0.8
Gurma	0.9	0.9	1.6	11.3	1.6	2.8	6.9	27.3	4.7	1.2
Mole-Dagbani	8.6	1.7	5.2	0.5	3.2	11.3	18.2	52.7	74.7	73.0
Grusi	0.8	0.5	1.3	0.1	0.8	2.0	3.9	3.7	8.6	20.6
Mande	0.8	0.4	0.7	0.1	0.3	2.0	1.8	0.5	5.6	0.3
Others	0.6	0.8	2.0	1.8	0.8	1.1	1.3	2.1	3.4	2.1

Source: 2010 population and housing census, summary report of final results

4.9 Religion

Seventy-one percent of the population (71.2%) reported to be Christians (Catholic, Protestant, Pentecostal/Charismatic and other Christian) in 2010, followed by Islam (17.6%) and Traditionalists (5.2%) (Table 4.16). About five percent (5.3%) indicated that they had no affiliation to any religion. While the proportion of people with no religious affiliation, traditionalist and the orthodox churches (Catholics, Protestants) slightly declined between 2000 and 2010, the proportions of Pentecostals/Charismatic, Islam and other Christians increased over the period.

Table 4.16: Population by religious affiliation: 2000 and 2010

Religion	2000	2010
Total	18,912,079	24,658,823
No religion	6.1	5.3
Catholic	15.1	13.1
Protestant	18.6	18.4
Pentecostal/Charismatic	24.1	28.3
Other Christian	11.0	11.4
Islam	15.9	17.6
Traditionalist	8.5	5.2
Other	0.7	0.8

Sources: Compiled from 2000 and 2010 population census reports, GSS

In seven out of the ten regions the dominant religious group was the Pentecostal/Charismatic. The proportions ranged from 44.6 percent in Greater Accra region to 24.5 percent in Brong Ahafo. The exceptions were three northern regions: three out of five residents in the Northern region were affiliated to Islam (60.0%). Brong Ahafo was the region with the highest proportion of persons with no religion (7.3%), Upper West the highest proportion of Catholics (35.7%), and Eastern the highest proportion of Protestants (24.8%).

Table 4.17: Population by religious affiliation and region, 2010

Religious Affiliation	Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brong Ahafo	Northern	Upper East	Upper West
All regions	2,376,021	2,201,863	4,010,054	2,118,252	2,633,154	4,780,380	2,310,983	2,479,461	1,046,545	702,110
No Religion	6.7	6.6	3.4	6.6	6.5	5.4	7.3	2.7	2.8	3.5
Catholic	16.2	11.1	7.5	17.6	7.9	12.7	20.1	7.6	19.9	35.7
Protestant	21.1	21.0	22.3	21.5	24.8	19.7	17.7	5.0	7.1	3.0
Pentecostal/Charismatic	29.5	29.8	44.6	26.6	36.3	30.1	24.5	6.3	11.8	4.3
Other Christian	15.2	21.4	8.9	7.1	15.5	15.3	9.9	2.1	2.9	1.3
Islam	9.4	8.7	11.9	5.7	6.7	15.2	17.0	60.0	27.1	38.1
Traditionalist	0.8	0.6	0.5	14.1	1.4	0.7	2.7	16.0	27.9	13.9
Other	1.0	0.9	1.0	0.8	0.9	0.8	0.7	0.4	0.6	0.3

Source: 2010 population and housing census, summary report of final results

4.10 Summary, Conclusion and Recommendations

4.10.1 Summary

Ghana's population increased from 6,726,815 in 1960 to 24,658,823 in 2010, an increase of three and half-times within fifty years. Average intercensal growth rate was 2.5% since 1960, with the highest rate of 2.7% observed between 1984 and 2000, which translates into a doubling time of the population within 28 years. The rate of growth and the resultant doubling time of the population is characteristic of a number of countries in West Africa (Population Reference Bureau, 2011). Greater Accra, Northern and Central continued to show high growth rates with Volta, Upper East and Upper West exhibiting relatively low growth rates. Ashanti has consistently retained the highest proportion of the country's population, while Upper West has the lowest.

Population density more than tripled between 1960 and 2010, with the highest density and the lowest density in the Greater Accra and Northern regions respectively. The increasingly high density of population in the Greater Accra region (167.0 in 1960 and 1235.8 person per square kilometre in 2010) presents a challenge for the management of such concentration of population in a small area. Half of the population lived in urban areas by 2010, with the highest proportion of population living in urban areas in the Greater Accra region and the lowest in Upper East and Upper West regions.

The age structure of the population is dominated by young people, with about 40 percent under 15 years of age. The elderly population (65 years and above) accounted for 4.7 percent of the total population, a decline of 0.6 percent between 2000 and 2010.

The proportion of the population recorded as Ghanaian by birth has been increasing while the proportion of Ghanaians by naturalization declined between 2000 and 2010 and that of the non-Ghanaian population has consistently declined since 1960. Generally, the proportion of the population enumerated in the at their locality of birth and the proportion enumerated in another region increased over the census years, except in the Greater Accra region where less than half of the population were enumerated were born in another locality, either in the same region or outside the region. The results point to the nature of Accra as a meeting point for all the ethnic groups in the country. Akan continued to be the dominant ethnic group in Ghana followed by Mole Dagbani, Ewe, Ga-Dangme, and Gurma in that order.

Christians accounted for 70 percent of the population, followed by adherents of Islam (17.6%) and traditionalists (5.2%). Between 2000 and 2010, the proportions of those with no religious affiliation, traditionalist and the orthodox churches (Catholics, Protestants) declined while the proportions of Pentecostals/Charismatic, Islam and other Christians increased.

4.1.0.2 Conclusions

The age structure of Ghana's population is typical of a country transiting from high to low fertility. The population remains young and therefore has a high growth potential. During the transition from high to low fertility levels, populations tend to be characterized by large proportions in the reproductive years, leading to large numbers of children being born, even if these women have on average only 2.1 children each (replacement level). Women in the reproductive ages (15-49 years) will constitute a comparatively large group in the population because they would have been born before the onset of fertility decline.

Furthermore, there has been a steady decline in the total age-dependency ratios since 1984, implying a decline in the proportion of the population which contributes to the ratio as a result of declining fertility. Apart from 1960 when there were more males than females, all the subsequent censuses recorded more females than males, as expected.

4.10.3 Recommendations

Although the annual growth rate declined slightly from 2.8 percent to 2.5 percent during the periods 1984-2000 and 2000-2010, the rate is far higher than the target in the 1994 Revised Population Policy which sought to reduce the annual growth rate of the population from about 3 percent per annum to 1.5 percent by the year 2020 (Government of Ghana, 1994). Therefore, serious efforts should be made to reduce the population growth rate as indicated in the Policy. It is now evident that the momentum that was generated by the national family planning programme has waned, due to the emergence of other pressing issues such as HIV/AIDS. There is therefore the need to reposition family planning programmes in the country and to reinforce the reproductive health component. In addition, programmes that promote female education and empower women should be intensified.

The country would need to take advantage of the demographic window of opportunity resulting from the declining total age-dependency ratio. This period brings with it the possibility of increased personal savings, and investments possibilities, albeit for only a limited period of time. In addition, the proportion of the aged population has been increasing and this is a group whose experiences could be tapped for national development. However, programmes that will improve the well being of the aged population should be enhanced. For example, care facilities for the aged in the communities should be provided (see UNPD (Ghana), 2007). Policy options for this segment of the population will have to include enhancement of social support systems of various kinds, both formal and informal, as well as employment opportunities for the elderly who are still capable of working. The national policy on the aged should also be vigorously pursued to ensure that the welfare of the elderly is enhanced, especially those who are not on formal pension schemes.

The rapid growth of the adolescent and youth population exerts increased pressure to expand education, health services and employment opportunities. In addition to increasing services and facilities to cope with large numbers of young people, the expansion of this segment of the population provides the following opportunities:

1. An adolescent and young adult population whose reproductive patterns, education and training should be targeted to enhance socio-economic development;
2. Adolescent and young adults are prone, among other things, to higher-risk sex behaviour, leading to potential increases in prevalence of HIV/AIDS.
3. These young people would need to be assisted to be creative and develop a high sense on positive work ethics.

Finally, for the first time since 1960, more than half of the population (50.9%) are in urban areas. This has implications for housing, employment, utilities such as water and sanitation and transportation. These facilities would have to be planned for the infrastructural development to keep pace with increasing urban population and urbanization. The rapid urbanization of African countries has been found to be associated with the development of slums (Tacoli, 2012). It will be necessary for government to develop comprehensive programme to develop such enclaves. This will need local level analysis of census data to support planning.

References

- Anarfi, J. K., Kwankye, S. O., Ofosu-Mensah, A & Tiemoko, R. (2003). *Migration from and to Ghana: A Background Paper*. Working Paper C4. Migration, Globalisation and Poverty. Development Research Centre, University of Sussex.
- Census Office (1960). *Population Census of Ghana*, Advance Report of Vol. III and IV, Demographic and Economic Characteristics of Regions
- Census Office (1964), *Population Census of Ghana*, Atlas of Population Characteristics. Survey of Ghana
- Ghana Statistical Service. (1970). *Population Census of Ghana* Vol. II. Demographic characteristics
- Ghana Statistical Service. (1984). *Population Census of Ghana, Demographic and Economic Characteristics Total Country*.
- Ghana Statistical Service. (1984). *Population Census of Ghana, Demographic and Economic Characteristics, Western Region*.
- Ghana Statistical Service. (1984). *Population Census of Ghana, Demographic and Economic Characteristics, Central Region*.
- Ghana Statistical Service. (1984). *Population Census of Ghana, Demographic and Economic Characteristics, Greater Accra Region*.
- Ghana Statistical Service (1984). *Population Census of Ghana, Demographic and Economic Characteristics, Volta Region*.
- Ghana Statistical Service (1984). *Population Census of Ghana, Demographic and Economic Characteristics, Eastern Region*.
- Ghana Statistical Service (1984). *Population Census of Ghana, Demographic and Economic Characteristics, Ashanti Region*.
- Ghana Statistical Service (1984). *Population Census of Ghana, Demographic and Economic Characteristics, Brong Ahafo Region*.
- Ghana Statistical Service (1984). *Population Census of Ghana, Demographic and Economic Characteristics, Northern Region*.
- Ghana Statistical Service (1984). *Population Census of Ghana, Demographic and Economic Characteristics, Upper East Region*.
- Ghana Statistical Service (1995). *Analysis of Demographic data* Vol. 2, Detailed Analysis Reports. Project Undertaken by Ghana Statistical (GHA/89P04)

- Ghana Statistical Service (2000). *Population and Housing Census of Ghana, Demographic, Economic and Housing Characteristics*. Total Country
- Ghana Statistical Service (2002). *2000 Population and Housing Census, Summary Report of final Results*
- Ghana Statistical Service (2005). *Population Data Analysis Report Vol. 1, Socio-Economic and Demographic Trends*. UNFPA Funded Project (GHA/01/P07)
- Ghana Statistical Service (2005). *Population Data Analysis Report Vol. 2, Policy Implications of Population Trends*.
- Ghana Statistical Service (2012). *2010 Population and Housing Census, Summary Reports of final Results*
- Hashim, I. (2007). Independent Child Migration and Education in Ghana. *Development and Change*, 38(5): 911-931.
- Heinsohn, G. (2003). *Sons and World Power: Terror in the Rise and fall of Nations*. Zurich: Orrell and Fussch.
- Kwankye, S. O. (2012). Independent North–South Child Migration as a Parental Investment in Northern Ghana. *Population, Space and Place* 18(5): 535-550.
- Frempong-Ainguah, F., Badasu, D. & Codjoe, S.N.A. (2010). North-South Independent Child Migration in Ghana: The Push and Pull Factors. In: Anarfi, J.K & Kwankye, S.O. (Eds.). *Independent Migration of Children in Ghana*. Pp. 71-100. Sundel Services, Accra.

CHAPTER FIVE

HOUSEHOLD SIZE, STRUCTURE AND COMPOSITION⁸

5.1 Introduction

The two major types of family ties that inform household formation are the nuclear and extended family systems. The nuclear family is made up of the father, mother and children (adopted and/or biological). The extended family consists of the nuclear family, parents, siblings, and other relatives (Nukunya, 2003; OTHERS). The relationship becomes more complex when marital ties of all these relations, both matrilineal and patrilineal, are taken into consideration.

Closely linked to the family is the formation of households in which members are not necessarily related by blood but live together and belong to a single consumption unit. Understanding the dynamics of household is fundamental to the understanding of the characteristics of a country's population. The size of a nation's population is mainly an aggregation of individual household members in the nation. The size, composition, and structure of households are influenced by socio-economic, and demographic factors such as age at first marriage and birth, length of time spent in school, cultural practices, occupation, material or financial abilities, capabilities of parents and couples, fertility and mortality rates, and migration. The total size of a country's population and its characteristics are, therefore, largely a reflection of what pertains within households.

Households constitute important units in planning for goods and services. In Ghana for instance, some social intervention programmes are targeted at the household. Some of these interventions include cash transfer to the extremely poor and the vulnerable, such as the Livelihood Empowerment Against Poverty Programme (LEAP) and the National Health Insurance Scheme (NHIS) in which household data provide inputs for calculating premiums and targeting those who should be exempted from the payment of premium. Households are also central to the study of income, maintenance, economic dependency, savings, fertility, migration and social welfare (Tacoli, 2012). Knowledge of household structure, composition, and headship provides important statistical tool for social and economic planning. A study of households also provides the basis for a reasonable projection of the future size of population, and planning of housing needs. A study on households indirectly uncovers the dynamics of household formation and disintegration.

Modernization, as a process whereby a society becomes increasingly rational, urban, and literate, has been identified by family sociologists as a key factor inducing changes over time in the size and structure of households. Decrease in the size of households gives indication of aspects such as decline in fertility, decline in the presence in the household of unrelated individuals such as lodgers and servants, and the fall in mortality which increases the length

⁸ David Yenukwa Kombat, Stephen Afranie & Gershon Togoh have contributed this chapter

of time couples survive after their children are grown and have left their parental homes (Wogugu and Fayorsey, 1980).

The basic objective of this chapter is to analyze household size, composition, structure and headships using data from the 2010 Population and Housing Census (2010 PHC). Attempt is made to establish trends with past Population and Housing Censuses. The analysis of household size, structure, and composition is based on observed differentials and trends at the national, regional and locality of residence level. In addition, an analysis of household headship is also carried out on the basis of age-sex structure, marital status, literacy and education, occupation and other social and economic characteristics of household heads.

5.2 Definition of Concepts

Household

In the 2010 Population and Housing Census, a household was defined as “a person or a group of persons, who live together in the same house or compound, share the same house-keeping arrangements and recognize one person as the head of household” (Ghana Statistical Service, 2010: 26). A household therefore may consist of a man, his wife, children, distant relatives, or a housekeeper living with them. Visitors who spent the census night with the household were also enumerated as members of the household as individuals were enumerated with respect to where they spent the census night, i.e., Midnight of 26th September, 2010

Household size

Household size refers to the total number of persons in a household irrespective of age, sex, or residential status.

Household composition

Household composition refers to the patterns of relationships between the head of household and other members of the household. This includes relationships such as spouse (wife/husband), child (son/daughter), grandchild, parent/parent-in-law, brother/sister, other relative and non-relative.

Household structure

Household structure is defined as classification of ties of filiation of persons who constitute households. In other words, it refers to the type of relationship (whether related or unrelated) between household members who were present on census night.

For the purpose of this chapter, non-household population, which consist of persons who spent census night in institutions such as schools and colleges, hospitals, police cells and camps, and outdoor sleepers, i.e., persons who were found in such places as lorry stations, in front of stores, veranda and pavements on census night, are not included.

Head of Household

A member of the household was referred to as head if he or she was recognized as such by the other members of the household. “The head of household is generally the person who has

economic and social responsibility for the household. All relationships are defined with reference to the head”⁹.

5.3 Sources and Limitations of Data

The analysis on households is mainly based on the 2010 Population and Housing Census data and contextualized based on the 1970, 1984 and 2000 censuses. There are a few notable limitations, including the differences in application of concepts of households and dwelling units, errors and biases in the data especially those related to some categories of households, such as single person household in the previous and the 2010 censuses. For instance, the 1960 census data on household is not comparable to the other national census data because, the information collected was based on housing units and not on households. Similarly, the 2008 revised version of the International Standard for Classification of Occupation and Industry code was used to classify occupation and industry in the 2010 census, thus, data on occupation and industry could not be compared with that of the 1970, 1984 and 2000 censuses. Inter-regional analyses will be done where there is data for inter-censal comparisons (Source). The detailed analysis of the 1970, 1984 and 2000 data are retained only as an indicator of trends in household size, structure and family composition for the total country..

5.4 Distribution of Households

Household formation and distribution can form the basis for planning for economic and social services needed by the population. The demand for housing units, for instance, will have to be based on location and distribution of size of households. It is also within households that decisions are taken on consumption, including schooling and other needs.

5.4.1 Distribution of Households by Region

From the 2010 Population and Housing Census, there were 5,467,136 households in the country with 55.8 percent of the households in the urban areas. The regional distribution of households is presented in Table 5.1. The data shows that, there is not much change in the pattern of regional household distribution from what pertained in previous censuses. Ashanti (20.6%) and Greater Accra regions (19.0%) continue to have the highest proportions of households, while Upper East (3.2%) and Upper West (2.0%) regions have the lowest proportions. The incidence of migration could be a plausible reason for the high proportional increase in the number of households in Greater Accra and Ashanti regions.

There were high percentage increases in the number of households in Central, Volta, Eastern and Ashanti regions between 2000 and 2010 than there were between 1984 and 2000 inter-censal periods.

⁹ GSS, 2010 PHC. Enumerators Manual, pages 49 and 50.

Table 5.1: Household distribution by region: 1970, 1984, 2000 and 2010

Region	Share of Households								Percentage Increase		
	1970		1984		2000		2010		1970-1984	1984-2000 ³	2000-2010
	Number of households	Percent	Number of households	Percent	Number of households	Percent	Number of households	Percent			
Western	188,035	10.5	262,617	10.6	410,142	11.1	553,635	10.1	39.6	56.2	35.0
Central	204,675	11.4	298,817	12.0	365,777	9.9	526,764	9.6	46.0	22.4	44.0
Greater Accra	215,020	12.0	358,885	14.5	626,613	16.9	1,036,426	19.0	66.9	74.6	65.4
Volta	187,529	10.5	250,078	10.1	345,821	9.3	495,603	9.1	33.4	38.3	43.3
Eastern	259,242	14.5	342,710	13.8	456,683	12.3	632,048	11.6	32.2	33.3	38.4
Ashanti	333,901	18.5	438,451	17.7	682,759	18.5	1,126,216	20.6	31.3	55.7	65.0
Brong Ahafo	170,894	9.5	236,292	9.5	342,808	9.3	490,519	9.0	38.3	45.1	43.1
Northern	102,221	5.7	133,081	5.4	245,617	6.6	318,119	5.8	30.2	84.6	29.5
Upper East	132,063 ¹	7.4 ¹	107,549	6.4	144,386	3.9	177,631	3.2	---	34.3	23.0
Upper West	---	---	51,888	---	80,635	2.2	110,175	2.0	---	55.4	36.6
Total	1,793,580	100.0	2,480,368	100.0	3,701,241	100.0	5,467,136	100.0	38.3	49.2	47.7

Sources: Compiled from 1970, 1984, 2000 & 2010 Population Censuses of Ghana

Notes: 1. includes Upper West;

2. includes Upper East and Upper West indicators;

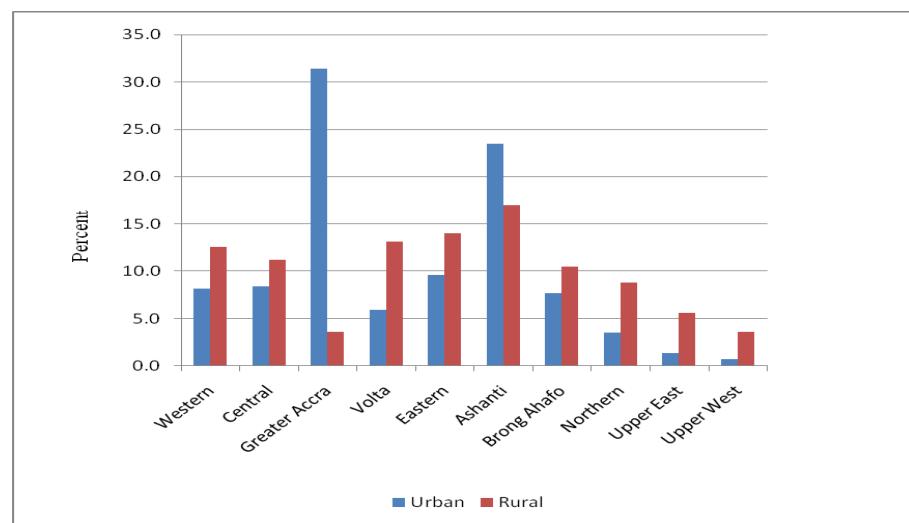
3. re-computed as a result of error detected in table 3.1 in the 2000 analytical report, Vol. 1

---- Not applicable

5.4.2 Distribution of Households by Region and Locality of Residence

As shown in Figure 5.1, Greater Accra region recorded the highest proportion of urban households (31.2%) followed by Ashanti (23.4%) region, while the Upper West region reported the lowest proportion of 0.7 percent. In the remaining eight regions, the proportions of households that live in the rural areas are more than the urban households. Greater Accra (3.6%) and Upper West (3.6%) regions have lower proportions of households in the rural areas.

Figure 5.1: Distribution of households by region and locality of residence. 2010



Source: Ghana Statistical Service, 2010 Population and Housing Census.

5.4.3 Trends in Household Distribution by Region and Locality of Residence

The distribution of households by urban-rural in each region provides a useful information on how urbanized or ‘ruralized’ a region is becoming, for planning purposes.

As indicated in Table 5.2, all the regions except Upper West experienced an increase in the proportion of urban households in 2010 compared to what pertained in 2000. The majority of households in the Greater Accra region (91.7%) live in urban areas probably because, the region hosts the capital, and provides increased economic opportunities and improved infrastructure. The same can be said of Ashanti region where the proportion of households categorized as urban increased by 10.2 percentage points from 53.3 percent in 2000 to 63.5 percent in 2010. In the remaining eight regions, despite an increase in the proportion urban, more than fifty percent of households are still located in rural areas.

5.6 Household Size

The 2010 census results show that Ghana had an average household size of 4.4 persons indicating a decline of 0.7 from the reported size of 5.1 persons in 2000. In all the census years, the household sizes for 2000 were the highest, giving a pattern of increase from 1984 to 2000 and decline from 2000 to 2010. The only exceptions were in the Volta region where the highest household size was in 1970 and the Northern region where the highest was in 1984. The highest household sizes over the census periods were from the Northern region (7.1 in 1970 and 7.7 in 2010). In the 2010 PHC, the Upper West (6.2) and the Upper East (5.8) regions recorded the next highest after the Northern region. The lowest household sizes were recorded in the Greater Accra region, where average household has been consistently around 3-4 persons per household. While Upper West showed a marginal decline in average household size from 6.4 to 6.2, that of the Northern region increased slightly from 7.4 in 2000 to 7.7 in 2010. This is the only region in which household size increased between 2000 and 2010.

In the 1984 and 2010 censuses, four regions – Brong-Ahafo, Northern, Upper West and Upper East – recorded rates higher than the national average. And in 2000 and 2010, the highest household sizes were in the Northern, Upper West and Upper East regions. Thus, household sizes depict a pattern of higher sizes in the savannah zone than the coastal zone.

Table 5.2: Distribution of households by region and locality of residence: 1970, 1984, 2000 and 2010

Region	Urban						Rural									
	1970		1984		2000		2010		1970		1984		2000		2010	
	Number of households	%	Number of households	%	Number of households	%	Number of households	%	Number of households	%	Number of Households	%	Number of Households	%	Number of Households	%
Western	53,876	28.6	64,203	24.4	160,204	38.8	248,919	45.0	134,159	71.4	198,414	75.6	249,938	61.2	304,716	55.0
Central	61,627	30.1	79,752	26.7	141,736	38.7	255,365	47.0	143,048	69.9	219,065	73.3	224,041	61.3	271,399	52.5
Greater Accra	190,259	88.5	307,545	85.7	553,789	88.4	950,391	91.7	24,761	11.5	51,340	14.3	72,824	11.6	86,035	8.3
Volta	31,169	16.6	54,784	21.9	98,717	28.5	178,817	36.1	156,360	83.4	195,294	78.1	247,104	71.5	316,786	63.9
Eastern	71,140	27.4	106,770	31.2	172,866	37.9	293,549	46.4	188,102	72.6	235,940	68.8	283,817	62.1	338,499	53.6
Ashanti	105,620	21.6	150,964	34.4	363,837	53.3	715,470	63.5	228,281	78.4	287,487	65.6	318,922	46.7	410,746	36.5
Brong Ahafo	38,963	22.8	69,114	29.2	140,322	40.1	236,287	48.2	131,931	77.2	167,178	70.8	202,486	59.1	254,232	51.8
Northern	23,830	23.8	37,886	28.5	72,732	29.6	106,071	33.3	78,391	76.2	95,195	71.5	172,885	70.4	212,048	66.7
Upper East	10,818	8.2 ¹	16,128	15.0	24,926	17.3	41,941	23.6	121,245	91.8 ¹	91,421	85.0	119,460	82.7	135,690	76.4
Upper West	6,992	13.5	17,395	21.6	22,628	20.5	44,896	86.5	63,240	8.4	87,547	79.5
All Regions	587,302	32.7	894,138	36.0	1,746,524	47.2	3,049,438	55.8	1,206,278	67.3	1,586,230	64.0	1,954,717	52.8	2,417,698	44.2

Sources: Compiled from 1970, 1984, 2000 & 2010 Population Censuses of Ghana

Note:¹ includes Upper West region;

---- Not applicable

Table 5.3: Average household size by region, 1970, 1984, 2000 and 2010

Region	1970		1984		2000		2010		Percentages			
	Population in households	Number of households	Population in households	Number of households	Population in households	Number of households	Population in households	Number of households	1970	1984	2000	2010
Western	754,739	188,035	1,145,893	262,617	1,920,647	410,142	2,307,395	553,635	4.0	4.4	4.7	4.2
Central	872,788	204,675	1,122,387	298,817	1,587,800	365,777	2,113,766	526,764	4.3	3.8	4.4	4.0
Greater Accra	825,479	215,020	1,404,428	358,885	2,896,302	626,613	3,888,512	1,036,426	3.8	3.9	4.6	3.8
Volta	935,020	187,529	1,197,399	250,078	1,632,027	345,821	2,086,567	495,603	5.0	4.8	4.7	4.2
Eastern	1,243,332	259,242	1,658,940	342,710	2,102,822	456,683	2,574,549	632,048	4.8	4.8	4.6	4.1
Ashanti	1,456,746	333,901	2,060,937	438,451	3,605,198	682,759	4,671,982	1,126,216	4.4	4.8	5.3	4.1
Brong Ahafo	759,571	170,894	1,194,083	236,292	1,813,141	342,808	2,265,458	490,519	4.5	5.1	5.3	4.6
Northern	722,348	102,221	1,156,373	133,081	1,818,588	245,617	2,445,061	318,119	7.1	8.7	7.4	7.7
Upper East	8,561,06 ¹	1,320,63 ¹	766,579	107,549	917,796	144,386	1,034,704	177,631	6.5 ¹	7.1	6.4	5.8
Upper West	---	---	433,747	51,888	575,987	80,635	688,333	110,175	---	8.4	7.1	6.2
All Regions	8,426,129	1,793,580	12,140,766	2,480,368	18,870,308	3,701,241	24,076,327	5,467,136	4.7	4.9	5.1	4.4

Sources: Compiled from 1984, 2000 & 2010 Population Censuses of Ghana

Notes:

1. Includes Upper West

---- Not applicable

5.7 Average Household Size by Region and Locality of Residence

Table 5.4 shows that average household size is higher in the rural than urban areas. The average household size in the rural areas is 5.0 persons per household compared with 4.1 persons per household in urban areas in 2010. Generally, the average size of households in urban localities showed a decrease between 2000 and 2010 in all regions, except Northern where the size increased. This pattern is also true in rural localities. Over the four censuses, the average urban households were higher in the Brong Ahafo, Northern Upper West and Upper East regions than the national average, but for the rural areas, it was the three last regions which recorded higher average household sizes than the national average

**Table 5.4: Average household size by region and locality of residence:
1970, 1984, 2000 and 2010**

Region	Urban				Rural			
	1970	1984	2000	2010	1970	1984	2000	2010
Western	3.7	4.0	4.4	4.0	4.1	4.5	4.9	4.5
Central	4.0	4.0	4.2	3.9	4.4	3.7	4.4	4.3
Greater Accra	3.7	3.8	4.6	3.8	4.7	4.6	4.9	4.4
Volta	4.6	4.3	4.5	4.0	5.1	4.9	4.8	4.4
Eastern	4.1	4.2	4.2	3.9	5.0	5.1	4.9	4.4
Ashanti	4.5	4.7	5.1	4.0	4.0	4.9	5.5	4.6
Brong Ahafo	4.5	4.5	4.8	4.4	4.5	5.3	5.6	5.0
Northern	5.5	7.6	6.7	7.1	6.8	9.1	7.7	8.2
Upper East	5.4 ¹	6.1 ¹	5.8	5.2	6.6 ¹	7.7 ¹	6.5	6.1
Upper West	---	---	5.8	5.1	---	---	7.5	6.7
All Regions	4.1	4.3	4.7	4.1	5.0	5.2	5.4	5.0

Sources: Compiled from 1970, 1984, 2000 & 2010 Population Censuses of Ghana

Notes:

1. Includes Upper West

---- Not applicable

5.6.2 Household Size by Locality of Residence

Table 5.5, showing the distribution of household sizes indicates that one-person households dominate. However, the proportions fluctuate from 1970 to 2010: from 21.2 percent in 1970 to 19.8 percent in 1984, declining further to 12.6 percent in 2000 and increasing to 17.6 percent in 2010. The fluctuating pattern occurred in both urban and rural and for the various household sizes. For the total and urban areas, there is noticeable decline in the proportion of households with 10 or more persons over the years.

Table 5.5: Households size by locality of residence: 1970, 1984, 2000 and 2010

Household Size	Total Country				Urban				Rural			
	1970	1984	2000	2010	1970	1984	2000	2010	1970	1984	2000	2010
1 Person	21.2	19.8	12.6	17.6	27.6	24.1	14.6	20.1	18.1	17.5	10.8	14.3
2 Persons	12.4	12.0	11.4	13.5	14.6	13.7	13.1	15.3	11.4	11.0	10.0	11.2
3 Persons	12.4	11.8	12.4	13.7	12.4	12.7	13.4	14.9	12.0	11.4	11.5	12.3
4 Persons	11.4	11.4	12.7	13.7	10.7	11.7	13.1	14.2	11.8	11.3	12.4	13.1
5 Persons	10.2	10.3	11.9	12.1	9.1	10.0	11.8	11.8	10.7	10.5	12.1	12.4
6 Persons	8.4	8.6	10.2	9.4	7.1	8.0	9.6	8.5	9.1	9.1	10.8	10.5
7 Persons	6.4	6.7	8.0	6.5	5.4	5.9	7.3	5.4	7.1	7.3	8.7	7.9
8 Persons	4.8	5.1	6.0	4.4	3.8	4.2	5.2	3.4	5.3	5.6	6.7	5.7
9 Persons	3.4	3.6	4.7	2.8	2.7	2.8	4.0	2.1	3.8	4.1	5.3	3.8
10+ Persons	9.4	10.7	9.8	6.3	6.6	6.9	7.8	4.3	10.7	12.2	11.7	8.8
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Compiled from 1970, 1984, 2000 & 2010 Population Censuses of Ghana

5.8 Household Composition

Data on composition of households in urban and rural areas are presented in Table 5.6. The nature of the composition differs markedly between male-headed and female headed households in both urban and rural areas. In urban households, where the head was a male, the heads accounted for a third of the persons in the households while among the female headed households the heads constituted about 15 percent. In rural areas the male heads formed about 25 percent while the females were about 10 percent. In both male and female headed households and in urban and rural areas, children accounted for about 40 percent of the population. There was only a marginal difference in the proportions between rural and urban areas. Another feature was the proportion of other relatives in households: In the 1970, 1984 and 2000 censuses, other relatives accounted for 10-20 percent, depending upon the census, but in 2010, the proportions were less than 10 percent in rural and urban areas, irrespective of head of household.

While spouses constituted about 20 percent in female-headed households, in male-headed was a marginal increase in the proportion of males who are spouses to female heads from 1.8 to 2.0 percent in 2000 and 2010 respectively. As expected, biological children constitute the largest proportion of the household. The pattern is the same in the rural households in 2010 and for the past censuses. The proportions of male and females enumerated in the census who were classified as heads of households is higher in the urban areas compared with the rural areas. In the rural areas the percentage of females who are spouses is more than the percentage of female spouses in the urban areas.

Table 5.6: Household composition by sex and locality of residence

Household Composition	Males				Females			
	1970	1984	2000	2010	1970	1984	2000	2010
Urban								
Head	34.4	30.9	26.7	32.6	14.2	15.5	13.4	18.2
Temporary Head	0.7	0.2	0.6	---	0.7	0.6	2.0	---
Spouse	0.4	0.6	1.8	2.0	18.5	16.9	15.2	17.9
Child	40.6	45.4	34.8	40.9	39.7	41.7	33.6	38.0
Son/Daughter-in-law	-	0.1	0.9	0.3	0.5	0.7	1.3	0.7
Parent/Parent-in-law	0.1	0.5	0.3	0.3	1.2	1.5	1.1	1.4
Grand Child	7.4	9.2	6.3	7.9	8.2	9.0	6.6	7.6
Bother/Sister	---	---	---	5.2	---	---	---	4.2
Stepchild	---	---	---	0.8	---	---	---	0.7
Adopted/Foster Child	---	---	---	0.4	---	---	---	0.4
Other Relatives	13.5	11.7	25.3	7.2	14.3	12.4	23.4	8.4
Non Relative	2.9	1.4	3.3	2.6	2.7	1.7	3.4	2.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Rural								
Head	29.1	26.4	24.6	28.4	10.1	10.3	9.8	12.3
Temporary Head	0.2	0.2	0.5	---	0.8	0.4	1.8	---
Spouse	0.3	0.6	1.2	1.2	22.7	20.6	18.8	20.0
Child	45.9	47.8	42.4	48.3	40.2	40.0	37.7	42.7
Son/Daughter-in-law	0.1	0.1	0.8	0.3	1.4	2.0	1.8	1.2
Parent/Parent-in-law	0.2	0.6	0.3	0.3	2.4	4.6	1.5	1.9
Grand Child	8.5	10.0	7.5	8.8	8.7	8.9	7.5	8.4
Bother/Sister	---	---	---	4.3	---	---	---	3.1
Stepchild	---	---	---	0.9	---	---	---	0.1
Adopted/Foster Child	---	---	---	0.4	---	---	---	0.4
Other Relatives	13.6	13.1	20.2	4.0	12.9	12.7	19.2	8.2
Non Relative	2.1	1.2	2.5	1.5	0.8	0.5	1.9	1.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Compiled from 1970, 1984, 2000 & 2010 Population Censuses of Ghana

Note: ---- Not applicable

5.9 Household Structure

Household structure presented in this section refers to the type of relationship (whether related or unrelated) among household members who were present on census night. Classification of households depend on whether it is a single person household, household that consists of head and spouse only, nuclear household (head, spouse(s) and their children) or nuclear extended among other combinations. Table 5.7 shows that households with head only, i.e. single person households, constitute about one-fifth (17.6%) of the total number of households in the country. From the data single person households constitute 20.1 percent of urban households and 14.3 percent of rural households

Table 5.7: Household structure by locality of residence, 2010

Household Structure	Total	Urban	Rural
Head only	17.6	20.1	14.3
Head and a spouse only	3.8	4.2	3.4
Nuclear (Head spouse(s) children)	24.5	22.2	27.3
Extended (Head, spouse(s), children, Head's relatives)	14.0	10.6	18.2
Extended + nonrelatives	0.9	0.9	0.8
Head, spouse(s) and other composition	3.0	3.0	3.0
Single parent Nuclear	12.9	13.6	12.0
Single parent Extended	11.0	11.1	11.0
Single parent Extended + non relative	0.8	0.9	0.6
Head and other composition but no spouse	11.6	13.3	9.4
Total	100.0	100.0	100.0
N	5,467,136	3,049,438	2,417,698

Source: Ghana Statistical Service, 2010 Population and Housing Census.

Households composed of the head and his or her spouse constituted only 3.8 percent of total households in the country. Nuclear family households, comprising both parents and their biological and/or adopted children (double parent nuclear) constitute about one quarter of total households (24.5%) while single parent nuclear family households was 12.9 percent of the total number of households. Double parent nuclear family households were more prevalent in rural than urban localities (27.3% compared with 22.2%). In addition, households with other family members (extended families) accounted for 18.2 percent of households in rural areas compared to 10.6 percent in urban areas.

Table 5.8 presents household structure by region. Apart from the three northern regions, Single person households constituted about one-fifth of total households in seven regions. The exceptions were in the Northern, Upper East and Upper West regions where single person households were about six-seven percent. Nuclear family households (head, spouse and children) accounted for about a quarter of total households in all the regions. For the Northern, Upper West and Upper East regions, extended family households are the predominant accounting for 40.6 percent of households.

Table 5.8: Household structure by region, 2010

Household Structure	Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brong Ahafo	Northern	Upper East	Upper West
Head only	18.2	20.5	20.0	18.0	19.9	19.0	16.0	5.5	6.7	7.3
Head and a spouse only	4.4	3.8	5.1	3.3	3.9	3.9	3.3	1.7	2.0	2.0
Nuclear (Head spouse(s) children)	28.7	23.6	23.2	22.2	24.3	24.1	24.9	28.1	23.7	23.3
Extended (Head, spouse(s), children, Head's relatives)	11.4	9.7	10.0	13.1	11.3	10.4	14.4	40.6	30.5	33.6
Extended + nonrelatives	0.8	0.6	1.0	0.8	0.7	0.8	1.2	1.3	0.8	0.7
Head, spouse(s) and other composition	3.1	2.8	3.4	3.2	3.2	2.8	3.2	2.1	2.7	3.0
Single parent Nuclear	12.9	15.1	12.2	13.7	13.5	14.1	13.2	6.1	12.6	9.5
Single parent Extended	9.2	12.0	9.8	12.6	11.4	11.9	12.2	8.1	12.5	10.9
Single parent Extended + non relative	0.6	0.6	0.9	0.6	0.7	0.9	1.0	0.4	0.5	0.3
Head and other composition but no spouse	10.7	11.5	14.5	12.4	11.0	12.1	10.7	5.9	8.1	9.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	553,635	526,764	1,036,426	495,603	632,048	1,126,216	490,519	318,119	177,631	110,175

Source: Ghana Statistical Service, 2010 Population and Housing Census

5.10 Household Head

A household head is described as a member of the household who is recognized as such by the other members of the household. “The head of household is generally the person who has economic and social responsibility for the household. All relationships are defined with reference to the head” (Ghana Statistical Service, 2010a: 49-50). This section focuses on issues relating to household headship with particular reference to gender, socioeconomic characteristics of the household heads and locality of residence.

5.10.1 Household Heads by Sex, Locality of Residence and Region

Table 5.9 shows that overall about two thirds of household heads in Ghana in 2010 were male, with 62.1 percent in urban and 69.4 percent in rural localities. However, variations existed among the regions: While 40.5 percent of households in the Central region were headed by women, the proportion was 15.0 percent in the Northern region. The proportion of female headed households has increased in all the ten regions since 1960.

Table 5.9: Distribution of household heads (15 years and older) by sex, locality of residence and region, 1970 – 2010

Place of Residence	1970		1984		2000		2010	
	Male	Female	Male	Female	Male	Female	Male	Female
Locality								
Total	71.4	28.6	68.1	31.9	68.7	31.3	65.3	34.7
Urban	69.1	30.9	64.2	35.8	65.4	34.6	62.1	37.9
Rural	72.4	27.6	70.3	29.7	71.6	28.4	69.4	30.6
Region								
Western	75.9	24.1	72.6	27.4	72.4	27.6	68.8	31.2
Central	60.7	39.3	58.7	41.3	61.2	38.8	59.5	40.5
Greater Accra	74.6	25.4	54.0	46.0	68.1	31.9	64.5	35.5
Volta	67.7	32.3	63.3	36.7	62.9	37.1	61.6	38.4
Eastern	68.2	31.8	66.6	33.4	66.1	33.9	63.2	36.8
Ashanti	65.3	34.7	63.0	37.0	65.4	34.6	62.4	37.6
Brong Ahafo	71.5	28.5	69.7	30.9	70.1	29.9	65.3	34.7
Northern	90.6	9.4	88.8	11.2	85.9	14.1	85.0	15.0
Upper East	87.7 ¹	12.8 ¹	76.2	23.8	77.8	22.2	72.3	27.7
Upper West	---	---	86.2	13.8	81.7	18.3	75.3	24.7

Source: Ghana Statistical Service, 2010 Population and Housing Census

¹ Includes Upper West

5.10.2 Household Headship by Age-group, Sex and Locality of Residence

Household headship rates by age-group, sex, and locality of residence for 2000 and 2010 are presented in Table 5.10. Headship rate is the percentage of all persons in each age group who are household heads. The tendency for adults members of a household to establish their own households rather than live with parents, other relatives or friends result in increases in headship rates.

The headship rate for males aged 15-19 years increased from 2.8 percent in 2000 to 3.8 percent in 2010, while that of females in the same age group increased from 1.8 percent in 2000 to 2.9 percent in 2010. The data show that headship rates increased with age for both sexes for all the age groups in 2010. While headship rates among men were over 80 percent among some age groups, those of females were 50 percent or lower, especially in rural areas.

Table 5.10: Headship rates by age-group (15 years and older) and sex, (2000 and 2010)

Age Group	Total		Urban		Rural	
	Male	Female	Male	Female	Male	Female
<u>2000</u>						
15 - 19	2.8	1.8	3.2	2.1	2.4	1.5
20 - 24	15.8	7.4	15.8	9.0	15.8	5.7
25 - 29	38.4	12.6	38.4	16.1	38.5	9.3
30 - 34	54.7	16.4	55.7	20.8	53.7	12.4
35 - 39	64.0	20.4	64.5	25.1	63.6	16.1
40 - 44	69.3	26.7	69.2	31.9	69.4	22.4
45 - 49	72.1	31.4	71.2	36.9	72.9	27.1
50 - 54	74.0	34.9	73.7	40.8	74.3	30.8
55 - 59	72.4	39.2	70.5	44.6	73.9	35.1
60 - 64	73.9	43.1	71.5	49.3	75.5	39.2
65+	59.0	43.1	50.2	45.3	65.0	41.7
All Ages (15+)	43.9	19.1	42.0	21.2	45.5	17.3
<u>2010</u>						
15 - 19	3.8	2.9	4.4	3.4	3.2	2.3
20 - 24	18.7	10.9	19.6	12.8	17.4	8.2
25 - 29	43.6	18.7	44.1	22.4	43.0	13.5
30 - 34	62.6	22.9	63.2	27.5	61.9	16.9
35 - 39	72.3	26.9	72.1	31.9	72.6	20.8
40 - 44	76.8	31.5	76.4	36.8	77.3	25.5
45 - 49	80.3	36.0	79.1	41.1	81.4	30.4
50 - 54	81.8	41.6	80.9	46.3	82.7	36.6
55 - 59	83.8	46.5	83.1	50.9	84.6	41.3
60 - 64	82.0	47.0	81.4	52.5	82.6	42.0
65+	78.6	48.4	77.7	52.3	79.3	45.0
All Ages (15+)	49.4	23.7	49.0	26.5	49.9	20.4

Source: Ghana Statistical Service, 2010 Population and Housing Census

5.11 Characteristics of Household Heads

5.11.1 Marital Characteristics of Household Heads

The marital status of heads of households is an important predictor of a wide range of socio-economic outcomes. In an ideal situation, the presence of the two parents is supposed to provide acceptable conditions for the upbringing of children, as the two individually and collectively provide socio-emotional, psychological and material environment, and support for members of the household.

Table 5.11 shows the proportion of heads of households who were married for both sexes in 2000 and 2010. Male heads of households who were married was 81.4 percent in 2000 and 78.3 percent in 2010, while female heads of households who were married was 46.3 percent in 2000 and 43.1 percent in 2010.

Table 5.11: Marital status of household heads (15 years and older) by sex: 2000 and 2010

Marital Status	Male		Female	
	2000	2010	2000	2010
Never Married	11.2	14.6	9.2	13.6
Currently Married ¹	81.4	78.3	46.3	43.1
Divorced ²	5.5	5.1	22.4	20.0
Widowed	1.9	2.0	22.0	23.3

Source: Ghana Statistical Service, 2010 Population and Housing Census

Notes:

- 1 Includes consensual union
- 2. Includes separated

Table 5.12: Marital status of household heads (15 years and older) by sex and locality of residence, 2000 - 2010

Marital Status	Urban				Rural			
	Male		Female		Male		Female	
	2000	2010	2000	2010	2000	2010	2000	2010
Never Married	16.2	19.7	12.7	17.7	7.3	8.7	5.4	7.3
Currently Married ¹	76.9	73.6	46.4	42.6	85.0	83.7	46.4	43.8
Divorced ²	5.4	4.9	21.9	19.6	5.5	5.4	23.0	20.7
Widowed	1.7	1.9	19.0	20.1	2.1	2.2	25.3	28.3

Source: 2000 and 2010 Population and Housing Censuses of Ghana.

Notes:

- 1 Includes consensual union
- 2. Includes separated

The proportion of never married household heads was 11.2 percent in 2000 and 14.6 percent in 2010 for men and 9.2 percent and 13.6 percent for women in the two periods respectively. The proportion of male heads of households who were divorced was 5.5 percent in 2000 and 5.1 percent in 2010 and for women it was 22.4 percent in 2000 and 20.0 percent in 2010. About 20 percent each of female heads were either divorced or widowed compared to five percent for divorced and two percent for widowed male heads. A plausible reason for the low proportion of male divorced or widowed heads of household is that, male heads are more likely to re-marry in the event of a divorce or death of wife than female heads.

The results in Table 5.12 show the proportion of urban and rural household heads that have never been married in 2000 and 2010. In urban localities, the proportion of male household heads who were never married increased from 16.2 percent to 19.7 percent while the proportion of never married female heads increased from 12.7 percent to 17.7 percent from 2000 to 2010. A similar trend is evident for rural localities. Currently married household heads constituted the largest proportion in both urban and rural areas, accounting for 80 percent or more for males and around 40 percent for females.

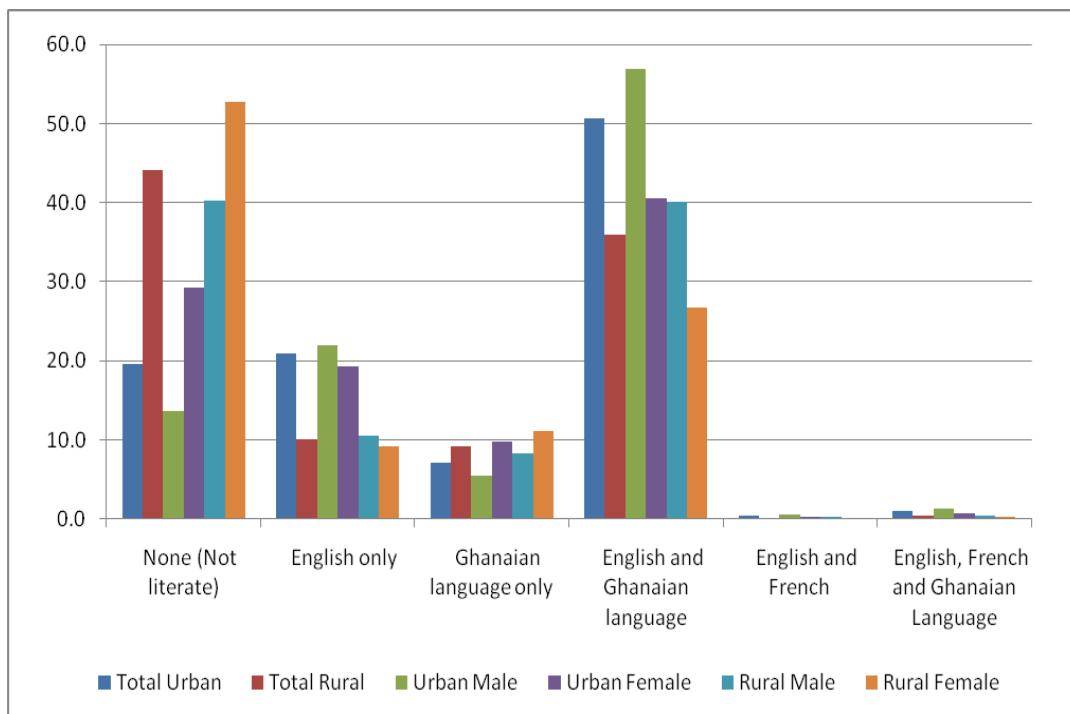
5.11.2 Literacy Level of Household Heads

Literacy generally refers to a person's ability to read and write in any language. In the 2010 census, a person was considered literate if he/she could read, write, and understand a simple statement. The question relating to literacy was asked of persons 11 years and older. The distribution of various levels of literacy among household heads 15 years and older by locality of residence is presented in Figure 5.2.

The chart shows that more than half of female (52.7%) and two-fifths of male (40.3%) household heads in rural areas were not literate. The pattern is the same for male and female urban household heads, where just fewer than 30.0 percent of female and 13.7 percent of male household heads were not literate.

The proportion of heads of households, who are literate in English only, for both male and female headed households, is higher for urban households than rural households. With regards to single language literacy, the data show that more urban household heads (22.0% male and 19.3% female) can read and write in the English language than in a native Ghanaian language (5.5% male and 9.8% female heads). Fifty-seven percent of the urban male and forty-one percent of female household heads were bi-lingual, that is can read and write in English and Ghanaian language. The proportions of female household heads (9.2%) in the rural localities who could read and write in a Ghanaian Language was higher than the proportion of urban male heads (7.1%). There were relatively small proportions of heads who were literate in English and French, and English, French and Ghanaian language. This presents challenge for the country's language policy.

Figure 5.2: Household head by literacy, sex and locality of residence, 2010



Source: Ghana Statistical Service, 2010 Population and Housing Census

5.11.3 Educational Level of Household Heads

Table 5.13 examines the various levels of educational attainment of household heads by sex. Generally, the 2010 data on education show that the level of education for male household heads is higher than for females. Thirty eight percent of female heads had never attended school compared 26.2 percent for males. In addition, for heads with some education, the proportions of male household heads completing a particular education level are higher than for female heads for every level except primary.

From 1970 to 2010, there has been a consistent decline over the decades in the proportion of household heads who have never attended school: Male heads who have never attended school declined from 63.3 percent in 1970 to 26.2 percent in 2010, while female heads in the same category dropped from 82.3 percent in 1970 to 38.4 percent in 2010.

For household heads (male and female) who had had some formal education, those who attended Middle/JSS/JHS constituted the highest proportion: 39.1 percent for males and 33.2 percent for females in 2010. The proportions of both male and female household heads who had had tertiary education increased: males from 0.7 percent in 1970 to 9.2 percent in 2010 and the females from 0.1 percent in 1970 to 4.2 percent in 2010. The general observation from the data is that an increasing number of household heads have attained some level of formal education.

Table 5.13: Education level of household heads by sex: 1970, 1984, 2000 and- 2010

Education	Male				Female			
	1970	1984	2000	2010	1970	1984	2000	2010
Never Attended	63.3	46.7	38.8	26.2	82.3	65.3	57.7	38.4
Primary	7.3	7.7	4.9	8.3	6.9	9.0	6.0	12.3
Middle/JSS/JHS	23.0	35.2	33.6	39.1	9.0	20.8	23.0	33.2
Secondary/SSS/SHS	2.8	5.6	8.5	11.6	0.6	2.1	4.2	7.0
Commercial/Technical/Vocational	1.4	2.7	5.6	3.3	0.4	1.3	3.6	2.8
Post-Secondary/Middle	1.5	2.0	3.9	2.3	0.7	1.2	3.3	2.1
Tertiary	0.7	1.2	4.7	9.2	0.1	0.3	2.2	4.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Compiled from the 1970, 1984, 2000 and 2010 Population Censuses of Ghana.

5.11.4 Educational Level of Household Heads by Locality of Residence

In both urban and rural localities the proportion of household heads with no formal education declined over the intercensal periods from 1970 to 2010. For instance, the proportion of female-headed households with no education in the rural areas declined from 88.0 percent in 19870 to 52.7 percent in 2010. For the males, the proportions were 74.0 percent and 40.3 percent. In the urban localities the proportion of heads with no formal education was 40.2 percent in 1970 and 13.7 percent in 2010 while that of females was 71.6 percent in 1970 and 29.3 percent in 2010. In both the urban and rural localities, the highest level of education attained by household heads for the period 1970 to 2010 was primary and Middle/JSS/JHS accounting for 41.3 percent and 36.4 percent for males and 37.1 percent and 27.1 percent for female household heads in 2010.

Table 5.14: Education level of household heads by sex and locality of residence, 1970 - 2010

Education	Male				Female			
	1970	1984	2000	2010	1970	1984	2000	2010
Urban								
Never Attended	40.2	28.9	22.3	13.7	71.6	53.2	45.7	29.3
Primary	6.6	5.3	4.1	7.0	8.1	8.4	5.9	11.7
Middle/JSS/JHS	38.8	43.5	38.7	41.3	16.2	28.7	29.0	37.1
Secondary/SSS/SHS	6.7	11.4	13.2	16.2	1.5	4.3	6.5	9.5
Commercial/Technical/Vocational	3.8	5.8	9.2	4.8	1.0	2.8	5.7	3.9
Post-Secondary/Middle	2.0	2.3	4.7	2.7	1.3	2.2	4.6	2.6
Tertiary	1.9	2.8	7.8	14.3	0.3	0.4	2.6	5.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Rural								
Never Attended	74.0	55.1	52.2	40.3	88.0	73.5	70.7	52.7
Primary	7.6	8.8	5.5	9.9	6.1	9.4	6.0	13.2
Middle/JSS/JHS	15.6	30.3	29.5	36.4	5.1	15.4	16.5	27.1
Secondary/SSS/SHS	1.0	2.6	4.7	6.5	0.2	0.6	1.8	3.0
Commercial/Technical/Vocational	0.2	1.1	2.7	1.6	0.1	0.3	1.4	1.0
Post-Secondary/Middle	1.4	1.7	3.2	1.8	0.4	0.7	2.0	1.3
Tertiary	0.2	0.4	2.2	3.5	0.1	0.1	1.6	1.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Compiled from the 1970, 1984, 2000 and 2010 Population Censuses of Ghana.

5.11.5 Activity Status of Household Head

Activity status in this chapter refers to economic or non-economic activity of persons during the seven days preceding census night. A household head is regarded as economically active if he/she worked for pay or profit or family gain for at least one hour within the reference period, or did not work, but had a job to return to or was unemployed (worked before and seeking work and available for work, or seeking work for the first time). The non-economic active included those who were not employed and were neither seeking for work nor available for work (See Chapter Eleven).

The results (Table 5.15) indicated that more than three quarters of both male (87.7%) and female head of households (76.6%) were employed in 2010. The proportions of household heads reported to be unemployed was 6.2 percent and 7.1 percent for males and females in 2000 and 2.2 percent for male and to 3.4 percent for female in 2010. The proportion of economically inactive male heads who were homemakers or who did home duties (1.2%) remained the same, while the proportion for female heads was 5.0 percent and 5.3 percent in 2000 and 2010.

The proportions of male and of female household heads who were employed in 2010 were higher in rural than in urban areas: In rural areas, 91.5 percent of male household heads, and 80.6 percent of female household heads were employed compared with 84.4 percent of male and 74.1 percent of female household heads in urban areas. Thus, there appears to be lower levels of unemployment among household heads in rural areas than in urban areas.

**Table 5.15: Activity status of household heads by sex and locality of residence:
1970, 1984, 2000 and 2010**

Type of Activity	Total			Urban			Rural		
	1970	2000	2010	1970	2000	2010	1970	2000	2010
Male									
Employed	93.8	84.9	87.7	92.1	82.3	84.4	94.7	87.0	91.5
Unemployed	2.1	6.2	2.2	3.6	6.7	3.1	1.4	5.7	1.1
Homemaker/Did home duties	0.2	1.2	1.2	0.2	1.6	1.5	0.1	0.8	0.9
Student(In full time education)	0.7	0.8	2.0	1.1	1.2	2.8	0.6	0.5	1.1
Old Age	0.0	2.6	2.4	0.0	2.1	3.2	0.0	3.0	1.0
Retired/Pensioner	0.0	1.8	2.2	0.0	2.9	1.0	0.0	1.0	1.2
Person with disability/Too sick to work	2.6	0.6	2.4	1.8	0.5	2.3	3.0	0.7	2.5
Other	0.6	1.9	1.3	1.2	2.7	1.7	0.2	1.3	0.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Female									
Employed	83.6	74.1	76.6	79.6	71.7	74.1	86.0	76.8	80.6
Unemployed	1.3	7.1	3.4	2.3	7.8	4.4	0.7	6.2	2.0
Homemaker/Did home duties	8.6	5.0	5.3	12.0	6.1	6.2	6.8	3.7	4.0
Student(In full time education)	0.4	0.7	2.0	0.5	1.0	2.5	0.4	0.5	1.2
Old Age	0.0	8.1	1.2	0.0	7.5	1.7	0.0	8.9	0.4
Retired/Pensioner	0.0	1.2	2.1	0.0	1.6	1.8	0.0	0.6	2.6
Person with disability/Too sick to work	5.7 ¹	1.1	7.5 ²	5.2 ¹	0.9	7.2	6.0	1.4	8.0
Other	0.4	2.7	1.8	0.4	3.4	2.2	0.1	1.9	1.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Compiled from the 1970, 1984, 2000 and 2010 Population Censuses of Ghana

Note: 1 includes Old Age and Retired/Pensioner 2. Includes persons too sick to work

5.11.6 Occupation of Household Heads

Occupation largely focuses on specific economic activities that people engage in for their livelihood. In the 2010 PHC, occupation was defined as economic activities that individuals engaged in to earn a living in cash or in kind. Table 5.16 shows that about 3.0 percent of household heads (3.0% males and 3.3% females) were in managerial positions.

Female household heads in urban localities were more likely to work in the service and sales sector than any other sector of the economy: 45.8 percent of female household heads in urban areas worked in the service and sale, while 56.8 percent of female head of households in rural localities worked in agriculture in 2010. The proportion of male household heads who were working in agriculture in rural localities was 73.1 percent but 15.5 percent for those in urban areas (See also Chapter 11).

Table 5.16: Household heads by occupation and locality of residence, 2010

Occupation	All localities		Urban		Rural	
	Male	Female	Male	Female	Male	Female
Managers	3.0	3.4	4.9	4.3	1.0	2.0
Professionals	7.5	5.2	10.7	6.4	4.0	3.5
Technicians and associate professionals	3.1	1.2	4.9	1.6	1.3	0.7
Clerical support workers	1.7	1.5	2.8	2.3	0.5	0.4
Service and sales workers	9.8	35.1	15.9	45.8	3.4	19.1
Skilled agricultural forestry and fishery workers	43.4	29.3	15.5	10.7	73.1	56.8
Craft and related trades workers	16.3	13.4	23.7	14.5	8.4	11.7
Plant and machine operators and assemblers	10.0	0.6	14.0	0.5	5.7	0.7
Elementary occupations	3.9	8.8	5.7	11.9	2.0	4.3
Other occupations	0.3	0.1	0.6	0.1	0.1	0.0
New workers seeking	0.9	1.5	1.3	1.9	0.5	0.9
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Ghana Statistical Service, 2010 Population and Housing Census.

5.11.7 Industry of household heads

The industries within which household heads were employed are shown in Table 5.17. The results showed that agriculture, forestry and fishing employed 44.6 percent of male and 30.1 percent of female household heads. Wholesale and retail; repair of motor vehicles and motorcycles was the second largest industry accounting for 29.8 percent of female and 11.9 percent male household heads who were employed. The high proportions of household heads in the wholesale, retail, repair of motor vehicles and motorcycles industry is probably due to the fact that people are not able to gain employment in the formal sectors and therefore resort to retail trade. The third industry was manufacturing, employing about one-tenth (9.9%) of total household heads 12.5 percent of female and 8.7 percent of male household heads.

Table 5.17: Industry of household heads by sex

Industry	Total	Male	Female
Agriculture forestry and fishing	40.0	44.6	30.1
Mining and quarrying	1.3	1.8	0.4
Manufacturing	9.9	8.7	12.5
Electricity gas steam and air conditioning supply	0.2	0.3	0.1
Water supply; sewerage waste management and remediation activities	0.3	0.3	0.3
Construction	4.3	6.3	0.2
Wholesale and retail; repair of motor vehicles and motorcycles	17.6	11.9	29.8
Transportation and storage	5.0	7.1	0.4
Accommodation and food service activities	4.3	1.2	11.1
Information and communication	0.5	0.6	0.2
Financial and insurance activities	0.8	0.9	0.5
Real estate activities	0.1	0.1	0.0
Professional scientific and technical activities	1.1	1.3	0.6
Administrative and support service activities	0.9	1.1	0.3
Public administration and defence; compulsory social security	2.3	2.7	1.3
Education	4.8	5.0	4.3
Human health and social work activities	1.5	1.3	1.9
Arts entertainment and recreation	0.7	1.0	0.2
Other service activities	3.9	3.3	5.0
Activities of households as employers	0.6	0.5	0.6
Activities of extraterritorial organizations and bodies	0.0	0.0	0.0
Total	100.0	100.0	100.0
N	4,585,293	3,132,907	1,452,386

Source: Ghana Statistical Service, 2010 Population and Housing Census.

5.11.8 Employment Status of Household Heads

Table 5.18 shows that 76.4 percent of female household heads and 61.3 percent of male household heads were self-employed without employee(s). At the locality of residence level, more than three quarters of both male (78.3%) and female (85.0%) household heads in rural areas were self-employed without employees.

Table 5.18 : Employment status of household heads by sex and locality of residence, 2010

Status in employment	Total		Urban		Rural	
	Male	Female	Male	Female	Male	Female
Employee	27.0	13.7	40.4	18.3	13.0	7.0
Self-employed without employee(s)	61.3	76.4	45.0	70.4	78.3	85.0
Self-employed with employee(s)	6.8	5.1	9.4	6.4	4.2	3.1
Casual worker	2.2	1.1	2.4	1.2	2.0	1.0
Contributing family worker	1.0	1.6	0.6	1.0	1.4	2.4
Apprentice	1.0	1.6	1.7	2.1	0.4	0.8
Domestic employee (House help)	0.5	0.5	0.4	0.5	0.6	0.5
Other	0.1	0.1	0.2	0.1	0.1	0.1
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	3,132,907	1,452,386	1,597,829	856,239	1,535,078	596,147

Source: Ghana Statistical Service, 2010 Population and Housing Census.

Self-employed male household heads with employees accounted for 6.8 percent of household heads, while female heads in this category constituted 5.1 percent. The proportions were higher in urban than in rural areas. Household heads who were casual workers, contribution family workers, apprentices and domestic employees were about five percent in rural and urban localities and for both male and female household heads.

5.11.9 Employment Sector of Household Heads

Results on employment sector of household heads by sex are presented in Table 5.19. The percentage of household heads who are employed in the private informal sector was 74.0 percent in 2000 and 82.0 percent in 2010. The proportion in this sector was 88.6 percent for females and 79.0 percent for male household heads. The proportion of household heads working in the private formal sector declined from 14.6 percent in 2000 to 8.4 percent in 2010. The decline occurred for both male and female household heads. The public sector accounted for 8.7 percent of the people employed.

Table 5.19: Employment sector of household heads by sex, 2000-2010

Employment Sector	Total		Male		Female	
	2000	2010	2000	2010	2000	2010
Public	9.6	8.7	10.8	9.7	6.5	6.6
Private formal	14.6	8.4	15.4	10.3	12.7	4.3
Private informal	74.0	82.0	71.7	79.0	79.7	88.6
Semi-public or parastatal	1.0	0.2	1.2	0.2	0.5	0.1
NGO's or International	0.2	0.7	0.3	0.8	0.1	0.3
Other	0.5	0.1	0.5	0.1	0.5	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	3,052,266	4,585,293	2,170,609	3,132,907	881,657	1,452,386

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses.

5.12 Summary of findings

The 2010 Population and Housing census data indicated that the total number of households (5,467,136) has increased by 47.7 percent over the number of households in the 2000 census (3,701,241). Two regions, Ashanti and Greater Accra have the largest share of households accounting for one-fifth each of the total number of households in Ghana (Ashanti 20.6%, Greater Accra 19.0%). The three northern regions have smaller proportions of households and they together account for just about one-tenth of the total number of households in the country.

Urban households account for more than half (55.8%) of the total number of households in the country. Regional distribution of households by type of locality of residence shows that, more than half of the urban households are found in two regions namely, Greater Accra (31.2%) and Ashanti (23.5%). Urban households in the Upper East and Upper West Regions account for about two percent of the total urban households. In terms of regional shares of rural households, the Ashanti Region had the largest share (17.0%), while Greater Accra and Upper West regions have the least number of rural households (Table A5.1). All the regions experienced consistent increases in urban households and decreases in rural households an indication that, increasing urbanization is common to all the ten regions.

The average household size from the 2010 census was 4.4 persons per household. The Greater Accra region has the lowest average household size of 3.9 persons while the Northern Region has the largest average household size of 7.8 persons. Most of the regions experienced some reductions in average household size between 2000 and 2010. Household sizes are relatively larger in rural localities than in urban localities. The relationship of most household members to the head in both urban and rural localities is largely affinal and biological. The household structure in both urban and rural communities has always been based on nuclear family ties. Biological children and household heads have always constituted the largest proportion of the household membership. In as much as the nuclear family household appears to be the most common household structure, the extended family household structure is still very significant in both urban and rural localities and particularly in the three northern regions. In all the censuses males have consistently dominated household headship especially in rural localities. However, there have been gradual reductions in male dominance of headship while female headed households are increasing gradually from one census to another. For example, male headed households have reduced from about three quarters (74.3%) in 1960 to about two-thirds (65.3%) in 2010. All the ten regions have experienced, to some degree, a reduction in male headed households and an increase in female headed households.

The number of female household heads who have never been married increased from about 3.0 percent in 1960 to almost 14.0 percent in 2010. Female household heads who have never been married has increased progressively in both urban and rural localities. The data from the 2010 census also show that more male household heads live with their spouses in both urban and rural localities than their female counterparts. The proportion of married male household heads is almost twice that of their female counterparts. A higher proportion of female household heads, in both urban and rural localities, are divorced than male household heads and a higher proportion are widowed than their male counterparts.

The analysis reveals that the percentage of male and female heads of household who are not literate remains high and is higher in rural than in urban areas. However, most male heads of household in urban areas are literate in both English and Ghanaian language. The data indicate that participation in formal education of household heads has increased between 1970 and 2010 resulting in a sharp reduction in household heads who have never attended school. The highest level of education attained by most household heads is up to the basic (Middle/JSS/JHS) and the percentages for both male and female household heads have increased over the decades.

The overwhelming majority of household heads are economically active as revealed by the 2010 census data. The three most common occupations that household heads engage in are: agriculture, forestry and fishery; services and sales; and craft and related trades. Agriculture is more popular in rural localities for both male and the female household heads. The service and sales sector is more popular among urban household heads. Most household heads are self-employed in the private informal sector of the economy, with a minority in the private formal and public sectors as employees.

References

- Afranie, S (2011). Persistence of Poverty in Rural Ghana: Culture of Poverty Perspective. Germany: VDM Verlag Dr. Muller GmbH and Co.KG and licensors
- Ghana Statistical Service, (2010a), 2010 *Population and Housing Census, Enumerators' Manual.* Ghana Statistical Service, Accra
- Ghana Statistical Service, (2010b), 2010 *Population and Housing Census, Summary Report of Final Results,* Ghana Statistical Service, Accra
- Ghana Statistical Service (2010c), *Unpublished Data from 2010 Population and Housing Census,* Ghana Statistical Service, Accra
- Ghana Statistical Service (2005), *Population Data Analysis Report, Vol. 1.Socio-Economic and Demographic Trends.* Ghana Statistical Service, Accra
- Ghana Statistical Service (2002), *2000 Population and Housing Census, Summary Report of Final Results* Ghana Statistical Service, Accra
- Ghana Statistical Service (1987). *1984 Population Census, Demographic and Economic Characteristics, Total Country.* Ghana Statistical Service, Accra
- Wogugu M.O and Fayorsey C.K(1980), *Modernization and Household size in urban Ghana,* Population Information and Documentation Systems for Africa, (PIDSA) Published by RIPS. IDRC. Ottawa, Canada

Appendix

Table A5.1: Locality of residence shares of national households by region, 2010

Region	Urban		Urban	
	Number	Percent	Number	Percent
Western	248,919	8.2	304,716	12.6
Central	255,365	8.4	271,399	11.2
Greater Accra	950,391	31.2	86,035	3.6
Volta	178,817	5.9	316,786	13.1
Eastern	293,549	9.6	338,499	14.0
Ashanti	715,470	23.5	410,746	17.0
Brong Ahafo	236,287	7.7	254,232	10.5
Northern	106,071	3.5	212,048	8.8
Upper East	41,941	1.4	135,690	5.6
Upper West	22,628	0.7	87,547	3.6
Total	3,049,438	100.0	2,417,698	100.0

Source: Ghana Statistical Service, 2010 Population and Housing Census.

Table A5.2: Household size by sex of head and locality of residence

Sex of Head	All Sizes	Number of people in household											
		1	2	3	4	5	6	7	8	9	10-14	15+	
1984													
Total Country													
Male	100.0	21.6	10.5	10.5	10.4	9.8	8.6	7.1	5.4	4	8.7	3.4	
Female	100.0	15.3	15.3	15.3	13.7	11.4	8.8	6.3	4.4	3	5.4	1.1	
Urban													
Male	100.0	28.6	12.4	11.2	10.5	9.3	7.7	5.9	4.2	2.8	5.3	2.1	
Female	100.0	16.2	16	15.4	13.8	11.1	8.4	5.9	4.1	2.8	5.1	1.2	
Rural													
Male	100.0	18.3	9.5	10.1	10.3	10.1	9.1	7.6	6	4.5	10.4	4.1	
Female	100.0	15.4	14.4	14.6	13.7	11.6	9.3	6.5	4.7	3.2	5.6	1	
2000													
Total Country													
Male	100.0	13.5	10.1	11	11.9	11.8	10.6	8.5	6.5	5	9.2	1.9	
Female	100.0	12.2	14.4	15	13.9	11.8	9.2	6.9	5.1	4	6.5	1	
Urban													
Male	100.0	16.5	12.3	12.2	12.4	11.7	9.8	7.5	5.5	4.1	6.7	1.3	
Female	100.0	12.9	14.8	15.3	13.9	11.6	8.9	6.6	4.8	3.8	6.4	1	
Rural													
Male	100.0	11	8.4	10	11.5	11.9	11.1	9.4	7.3	5.8	11.2	2.4	
Female	100.0	11.4	13.9	14.8	13.9	12.3	9.6	7.1	5.3	4.1	6.6	1	
2010													
Total Country													
Male	100.0	18.2	11.5	12	13	12.4	10.1	7.2	4.9	3.2	6.1	1.4	
Female	100.0	16.4	17.3	16.9	14.9	11.5	8	5.2	3.4	2.2	3.3	0.5	
Urban													
Male	100.0	21.9	13.7	13.3	13.7	12.2	9.1	5.8	3.6	2.2	3.1	0.9	
Female	100.0	17.3	18.1	17.5	15	11.1	7.5	4.7	3.1	1.9	3.3	0.5	
Rural													
Male	100.0	14	9	10.6	12.3	12.6	11.3	8.8	6.4	4.4	8.6	2	
Female	100.0	15	16.1	16.1	14.9	12.1	8.8	5.9	4	2.5	4.1	0.5	

Sources: Ghana Statistical Service, 1984, 2000 and 2010 population censuses.

Table A5.3: Household heads by literacy, sex and locality of residence

Literacy	Total		Urban		Rural	
	Male	Female	Male	Female	Male	Female
None (Not literate)	26.2	38.4	13.7	29.3	40.3	52.7
English only	16.6	15.3	22.0	19.3	10.5	9.1
Ghanaian language only	6.9	10.3	5.5	9.8	8.4	11.2
English and Ghanaian language	49.0	35.1	56.8	40.6	40.1	26.7
English and French	0.4	0.2	0.6	0.3	0.2	0.1
English, French and Ghanaian Language	0.9	0.5	1.3	0.7	0.5	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	3,571,820	1,895,316	1,893,907	1,155,531	1,677,913	739,785

Sources: Ghana Statistical Service, 1984, 2000 and 2010 population censuses .

CHAPTER SIX

MARITAL CHARACTERISTICS¹⁰

6.1 Introduction

This chapter focuses on marriage and marital characteristics within the Ghanaian socio cultural systems using the 2000 and 2010 Population and Housing Censuses (PHC). It describes the main legal systems of marriage as the basis for defining marital status by age, sex, education and household headship. Marriage has demographic, economic, socio-cultural and health implications as it sets the context for reproductive activities such as legitimising entry into sexual activities and childbirth (Braun, 2005). Thus, in cases where there is lack of adequate data on age, duration of marriage can be used as basis for fertility estimation. Marital status is also used as one of the determinants of social status and an indicator of social responsibility, trust and achievement in some societies (Animasahun & Fatile, 2011). Marital status has implications for other demographic events such as family formation, migration demand for housing and residential-related services.

6.2 Systems of marriage in Ghana¹¹

Among all the ethnic groups in Ghana, marriage is considered obligatory: a function that must be performed within an individual's lifetime (Nukunya, 2003). The underlying reasons for marriage include the desire to maintain the lineage, the need to have a spouse as a companion and the prestige attached to the institution of marriage. Socially, marriage is said to provide economic and human capital, and therefore connotes the concept of wealth in people and assets. In the past when the search for marriage partners was assisted by parents and the extended family, early marriage was the norm and the near-universality of marriage has been documented by several researchers (e.g. Aryee, 1975; Gaisie, 1976; Oppong, 1993). Premarital sexual activities were prohibited in traditional African societies and thus initial family planning programmes in many countries focused on couples in marital unions (Kioli, Were, & Onkware, 2012). As a result of the importance attached to marriage, most societies have outlined rules that govern the institution of marriage. However, pre-marital sex existed and continues to exist in these societies (Kioli, Were, & Onkware, 2012).

Three systems of marriage are formally acknowledged in Ghana. These are the Customary, Ordinance and the Islamic marriages (Fayorsey, 2003). These three systems are considered distinct and have specific implications and expectations. Ordinarily, Ordinance Marriage is often preceded by the performance of all the stipulated rites of a customary law marriage.

¹⁰This chapter was prepared by Edith Mote and Anthony Amuzu-Pharin

¹¹This section is adapted from Fayorsey 2003:37-42.

6.2.1 Customary Marriage

In Ghana, most marriages are essentially customary, contracted under the provisions of the customary conjugal systems. Customary marriage is governed by traditional norms and values of an area. The major prerequisites of a valid customary marriage are the permission and agreement of the parties involved and their immediate extended families. Included in such an agreement are the provision and payment of the demanded dowry or bride wealth, and the presentation of presents including drinks, money, cloths, and jewellery by the man's family as well as its acceptance by the woman's family.

The increasing levels of urbanization, globalization and the influence of Western culture and Christianity are impacting on the traditional concept of marriage. For instance, the presentation of religious symbols such as Bible and Koran has been introduced into traditional marriage systems. Attempts to regulate the customary marriage by the state authorities date back to 1888, with the recent one being the enactment of PNDC Law 112, the Customary Marriage Law, in 1985 (Awusabo-Asare, 1990; Government of Ghana, 1985). This law mandates all customary marriages to be registered with state authorities. Customary marriage is potentially polygamous. This implies that a man is not guilty of breaching a customary marriage contract when he decides to get into another conjugal contract with any other woman with the expressed approval of the spouse. In such situations both contracts are binding and the man is commonly referred to as the husband of all the women in that marriage.

6.2.2 Ordinance Marriage

The Ordinance Marriage (Cap 127) requires the consent of the families and individuals involved in the celebration of the marriage in a place of worship or a marriage registrar's office, the issuance of a marriage certificate and finally the consummation of the marriage. Ordinance marriage is distinguished from customary marriage in terms of its strictly monogamous nature. Under the Ordinance Marriage, a man (or woman) who contracts another marriage commits a crime referred to as bigamy. The guiding value and principle of the ordinance marriage are for individuals who are married under it to strictly act in accordance with its formal requirements. Parties who are customarily married can transform their marriage into an ordinance marriage. To do this, there must be strict compliance with the formal and mandatory requirements of the ordinance marriage with a ceremony in Church or a court (Fayorsey, 2003).

Ordinance marriages are regarded as socially prestigious and command considerable respect in Ghana. The title 'Misses' is conferred on the wives of ordinance marriages and the respect accorded them significantly surpasses those who are only customarily married (Fayorsey, 2003).

6.2.3 Islamic Marriage

Under Islamic marriages, it is of great importance for the spouses involved to be positioned in terms of common statuses, which include ages of the couple, socio-cultural backgrounds and their relative economic standing. The central theme of Islamic marriage is prescribed by the doctrines of the Koran and the Hadith, the recorded sayings of the Prophet Mohammed including the rules and content of contractual marriage (Fayorsey, 2003).

Ghanaian marriages are customarily and legally sanctioned unions between a man and a woman such that children born or adopted become legitimate children of the couple. Ghanaian marriages often establish rights in *uxorem* and *geneticum* or womb and offspring respectively. There are, however, emerging forms of unions such as consensual unions and convenience marriages for visa purposes. These emergent forms, which pose challenges to legislation, not covered in census schedules and therefore do not form part of the present analysis. Changes are occurring in the recognised and formally acknowledged systems of customary, ordinance and Islamic marriages (Fayorsey, 2003; Nukunya, 2003).

6.3 Sources of data, scope of analysis and limitations

6.3.1 Sources of Data and limitations

In the 2010 Population and Housing Census of Ghana, information on current marital status was collected for all respondents aged 12 years and above, by asking the question ‘*What is your marital status?*’ Six response categories were used and all persons who were eligible to answer the question fell into one exclusive category. These categories were:

- a) Never married
- b) Informal/Consensual unions/Living together
- c) Married
- d) Separated
- e) Divorced
- f) Widowed

The question on marriage in the 2010 Population and Housing Census (PHC) was on current status. Therefore:

- The census did not collect data on age at first marriage and age at first sex.
- The census did not collect data on marital mobility. That is, re-marriages, the number of times people marry, the duration of marriages and the period of stay as divorced or widowed before remarriage. These limitations do not allow detailed analysis on the population divorced or widowed.
- There was also no explicit information on types and modes of marriage. For example there were no specific questions on the types of marriages and the practice of polygyny.

6.3.2 Scope of analysis

This chapter adopts a number of analytical approaches to the data analysis including a comparison of the 2000 and 2010 Population and Housing Censuses (PHCs) data on marital characteristics, a disparity analysis, and the use of the singulate mean age at marriage concept.

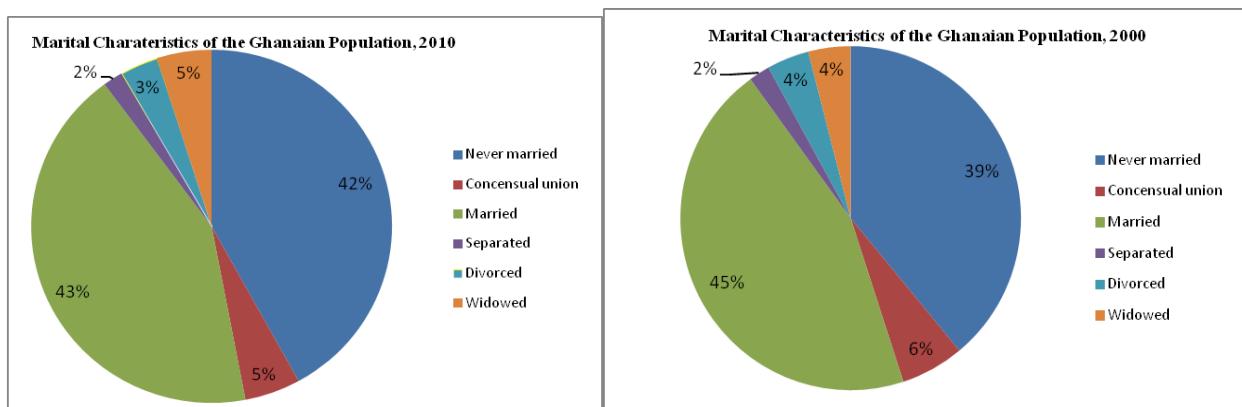
The disparity analysis involves the comparison of disaggregated data on marital characteristics by age, sex, and locality of residence, region, religion, educational level attained and household headship. Comparative analysis is limited to the 2000 and 2010 PHC data. The chapter also uses the concept of the singulate mean age at marriage to further analyse the data on marital characteristics. The singulate mean age at marriage (SMAM) denotes the average number of

years lived in single state by never married persons before they enter into a married union for the very first time. A low singulate mean age at marriage indicates an early entry into marriage union while a high mean age implies a late entry into marriage.

6.4 Marital status

Table 6.1 shows the distribution of the Ghanaian population aged 12 years and older by sex, marital status and locality in 2000 and in 2010. The population aged 12 years and older in 2010 and 2000 were 16,888,306 and 12,426,392 respectively. The pie chart, Figure 1, depicts the distribution of marital characteristics from the 2000 and 2010 censuses. In 2010, about 42 percent had never been married, 43 percent had been married, and five percent were widowed. The proportion of the population aged 12 years and older who have never married increased by about three percentage points between 2000 and 2010. The percentage widowed was four percent in 2000 and five percent in 2010 while the proportions married were 45 percent and 43 percent respectively in the two censuses.

Figure 6.1: Marital Status of the Population Aged 12 years and over in 2010 & 2000



6.5 Marital status and locality of residence

Table 6.1 shows the distribution of the population aged 12 years or older by marital status and rural-urban place of residence for 2000 and 2010. In 2010, 46 percent of urban dwellers and 37.4 percent of rural dwellers had never been married. The data also show that the proportion of rural dwellers who were married (46.9%) was higher than that of their urban counterparts (39.4%). Only a small proportion of rural dwellers (7%) and urban dwellers (5%) were in consensual unions. The proportion divorced (3.4%) was the same in both urban and rural areas. The widowed constituted 4.4 percent and 5.4 percent of urban and rural populations respectively.

In 2000 and 2010, the proportions of never married male urban dwellers were 50 percent and 52 percent while that of the females were 39 percent and 40 percent respectively. The proportion of urban males that were married (38.9%) and of their female counterparts (39.8%) was almost the same. In the rural areas in 2010, about 45 percent of males and 49 percent of females were

married – higher than among the urban population. In rural areas, there were more males (45.4%) than females (29.9%) who had never been married and these were slightly higher than the proportions observed in 2000 (Male: 42.3%; Female 26.8%). Furthermore, 4.5 percent of males and 6 percent of females in rural areas were in consensual unions - similar to those in urban areas. In general, the proportions married and those in consensual unions have declined between the censuses. The data also show that in 2010 a higher proportion of women in rural (9.1%) and urban areas (7.3%) were widowed compared with men (1.5% and 1.2% respectively), which may be an indication of higher mortality and higher re-marriage rates among males.

Table 6.1: Percentage distribution of population 12 years and older by sex, marital status and locality: 2000 and 2010

Marital Status	Urban						Rural					
	Both Sexes		Male		Female		Both Sexes		Male		Female	
	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Never married	44.3	45.9	49.7	52.1	39.2	40.4	34.5	37.4	42.3	45.4	26.8	29.9
Informal / Consensual union	4.9	5.0	4.3	4.6	5.5	5.3	6.9	5.1	6.0	4.5	7.8	5.6
Married	40.9	39.4	40	38.9	41.7	39.8	47.8	46.9	45.1	44.8	50.4	48.9
Separated	1.7	1.9	1.4	1.2	2	2.5	1.6	1.8	1.3	1.4	1.9	2.2
Divorced	4.3	3.4	2.9	2	5.5	4.7	4.3	3.4	3.3	2.4	5.3	4.3
Widowed	3.9	4.4	1.7	1.2	6.1	7.3	4.9	5.4	2.0	1.5	7.8	9.1

Source: Ghana Statistical Service, 2010 Population and Housing Census

6.6 Population 12 years or older by marital status and region

The distribution of the population 12 years or older in the various regions by marital status is given in Table 6.2. Greater Accra Region reported the highest proportion of never married (46.3%), and the Volta region, the lowest proportion of those never married (37.8 %). The proportion currently married ranged from 39 percent in Greater Accra and Ashanti Regions to 54.3 percent in the Northern Region. In all regions, there were substantially more widows than widowers.

The data revealed that in eight out of the ten regions, the proportion of females who were married was higher than that of males. For example, in the Northern Region, almost three-fifths of women (58.7%) were married compared to 49.6 percent among males. The same pattern can be observed in the Upper East, Upper West, Brong-Ahafo, Volta, Western, Ashanti and Eastern Regions. Secondly, the proportion of females who were either widowed or divorced was higher than that of males in all the regions (Table 6.2).

Table 6.2: Distribution of the Population by Marital Status and Region

Region	Never married			Informal/ Consensual union			Married		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	42.0	48.9	35.6	5.0	4.6	5.4	42.9	41.7	43.9
Western	41.0	46.8	35.3	3.9	3.6	4.2	45.3	44.6	46.1
Central	40.9	48.2	34.6	5.8	5.2	6.3	40.6	40.7	40.6
Greater Accra	46.3	50.8	42.2	5.6	5.5	5.7	39.1	39.2	39.0
Volta	37.8	46.5	30.1	4.6	4.1	5.0	44.6	42.5	46.5
Eastern	39.7	46.7	33.2	7.0	6.3	7.7	40.6	40.3	40.9
Ashanti	44.2	51.2	38.0	6.7	6.1	7.2	39.2	38.3	40.0
Brong Ahafo	42.3	50.1	34.9	6.3	5.4	7.1	41.9	40.1	43.6
Northern	38.9	47.2	31.0	0.8	0.7	0.9	54.3	49.6	58.7
Upper East	39.3	48.3	31.3	0.6	0.5	0.6	49.2	46.7	51.4
Upper West	40.0	49.1	31.9	0.7	0.6	0.8	51.1	47.5	54.2

Region	Separated			Divorced			Widowed		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Total	1.8	1.3	2.4	3.4	2.2	4.5	4.9	1.3	8.2
Western	1.8	1.3	2.2	4.2	2.6	5.8	3.8	1.1	6.4
Central	2.0	1.3	2.5	5.0	3.1	6.7	5.7	1.5	9.3
Greater Accra	2.3	1.5	3.1	2.9	1.8	3.9	3.8	1.2	6.1
Volta	2.8	2.2	3.3	3.4	2.7	4.1	6.8	2.0	11.0
Eastern	2.4	1.9	2.9	4.6	3.1	6.0	5.7	1.7	9.3
Ashanti	1.7	1.2	2.2	3.8	2.1	5.2	4.4	1.1	7.4
Brong Ahafo	1.5	1.1	1.8	3.7	2.3	5.2	4.3	1.0	7.4
Northern	0.9	0.7	1.0	1.0	0.9	1.3	4.1	0.9	7.1
Upper East	1.1	1.0	1.2	1.2	1.3	1.2	8.6	2.2	14.3
Upper West	0.8	0.6	1.0	0.8	0.8	0.9	6.6	1.4	11.2

Source: Ghana Statistical Service, 2010 Population and Housing Census

6.7 Marital status by Age

This section examines the distribution of marital characteristics by age and sex in the two censuses, 2010 and 2000. The data show that the proportion never married among females increased from 32.7 percent in 2000 to 35.6 percent in 2010. The proportion of males never married also increased from 45.7 percent to 48.9 percent over the same period (Table 6.3). The increase in the proportions of those never married may be accounted for by increasing age at first marriage due to a variety of reasons including increasing participation in education and economic reasons (Agyei-Mensah & Aase, 1998). The proportions married were 43 percent and

42 percent for males and 46 and 44 percent for females respectively in 2000 and 2010. For those in consensual unions, the results indicate a decline among males – from 5.2 to 4.6 percent between 2000 and 2010 and among females, from 6.7 to 5.4 percent.

The proportion of males separated was 1.3 percent in 2000 and 2010, and that for females were 1.9 percent and 2.4 percent in 2000 and 2010 respectively. There was also a moderate decline in the proportion of persons divorced for both sexes from 2000 to 2010. The proportion of males who were widowed declined from 1.8 percent to 1.3 percent. However, there was an increase in the proportion of females who were widows, from 7.0 percent to 8.1 percent. The observation could be due to a number of factors, including the higher female life expectancy compared to that of men, with the estimated life expectancy at birth for females being 63.4 years and 60.2 years for males¹², age differences between males and females at marriage and the practice of polygyny (Agyei-Mensah & Aase, 1998).

In terms of the age distribution, 94.2 percent of males and 86.8 percent of females aged 15-19 years had never been married. Also, more than eight in ten males (84.3%) and more than half of females (55%) aged 20-24 have never been married. The proportion of never married decreased with increasing age for both sexes such that, by age 50-54 years, the proportions of males and females never married were 3.9 percent and 2.4 percent respectively. Although in Ghana the legal age at marriage is 16 years, among those aged 12-14 years, 5.2 percent of females and 5.6 percent of males said they were married and a further 0.6 percent and 0.5 percent respectively were in consensual union.

There were variations in marital status between males and females: by age 25-29 years, more than half of females (56.4%) were married compared with only about one-third of males (31.7%); and by ages 35-44 years, more than 70 percent of males and females were married. Furthermore, from age 40 the proportion of females who were married begins to decrease while the proportion widowed begins to increase. In contrast, the proportion of males who were married continues to increase with age to about 50-54 years and then declines slightly but remains much higher than among females at age 40-44 years. By ages 75 years and over, about seven in ten (69%) males would be married while among females, only half (59.2%) were married. The difference could be attributed to high proportion of widowhood among women at that age. The proportion of females in consensual unions was 10.3 percent and that of males was 8.9 percent.

¹²This is computed from the 2010 Population and Housing Census. See Chapter Ten on Mortality

Table 6.3: Percentage distribution of population 12 years or older by marital status, sex and age

Age group	Never married				Informal / Consensual union/ Living together				Married			
	Male		Female		Male		Female		Male		Female	
	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010
Total	45.7	48.9	32.7	35.6	5.2	4.6	6.7	5.4	42.8	41.7	46.3	43.9
12 - 14	100.0	93.9	99.8	94.2	-	0.5	-	0.6	-	5.6	0.1	5.2
15 - 19	89.2	94.2	80.5	86.8	1.8	0.7	4.4	3.2	7.6	4.8	13.3	9.2
20 - 24	77.4	84.3	43.5	54.7	4.8	3.9	11.8	10.0	16.0	11.0	40.6	32.5
25 - 29	50.6	57.6	20.6	28.2	9.0	8.9	11.5	10.3	37.4	31.7	61.7	56.4
30 - 34	23.2	28.6	8.2	12.7	9.8	9.3	9.7	7.8	61.8	58.2	72.8	70.7
35 - 39	12.3	14.0	4.9	6.8	8.7	7.9	8.2	6.4	72.6	72.6	75.2	74.4
40 - 44	8.0	7.7	3.9	4.3	7.5	6.2	6.8	4.8	76.8	78.5	72.6	72.8
45 - 49	5.7	5.3	3.0	3.1	6.4	5.2	5.6	3.8	78.5	80.4	69.6	69.3
50 - 54	4.8	3.9	2.7	2.4	5.3	4.1	4.4	2.8	78.4	81.2	63.7	62.1
55 - 59	4.6	3.0	3.1	2.2	4.8	3.5	3.9	2.2	77.3	81.1	57.8	55.1
60 - 64	4.8	3.5	3.1	2.4	3.8	2.9	2.6	1.6	74.5	78.8	48.0	46.5
65 - 69	4.7	4.0	3.0	2.7	3.6	2.5	2.3	1.3	71.2	76.3	32.7	39..3
70 - 74	4.8	4.8	2.9	2.9	3.4	2.1	1.7	1.0	71.0	73.3	28.8	29.7
75+	5.8	6.6	4.1	3.7	3.4	2.2	2.5	1.1	59.2	68.6	28.2	21.8

Table 6.3: Percentage distribution of population 12 years or older by marital status, sex and age (cont'd)

Age group	Separated				Divorced				Widowed				
	Male		Female		Male		Female		Male		Female		
	2000	2010	2000	2010		2000	2010		2000	2010		2000	2010
Total	1.3	1.3	1.9	2.4	3.1	2.2	5.4	4.5	1.8	1.3	7.0	8.1	
12 - 14	-	-	-	-	-	-	-	-	-	-	-	-	
15 - 19	0.5	0.1	0.7	0.4	0.6	0.1	0.8	0.2	0.3	0.1	0.3	0.2	
20 - 24	0.7	0.4	1.5	1.4	0.8	0.3	2.1	1.1	0.3	0.1	0.5	0.4	
25 - 29	1.1	0.9	1.9	2.1	1.5	0.8	3.4	2.3	0.4	0.2	0.9	0.7	
30 - 34	1.6	1.6	2.4	2.9	2.9	1.8	5.2	4.1	0.7	0.4	1.7	1.7	
35 - 39	1.8	2.1	2.6	3.5	3.7	2.8	6.4	5.8	0.9	0.6	2.7	3.1	
40 - 44	1.9	2.6	3.0	4.1	4.6	4.0	8.5	8.0	1.2	1.1	5.2	6.1	
45 - 49	2.0	2.8	3.2	4.5	5.5	4.8	10.1	9.7	1.9	1.6	8.2	9.4	
50 - 54	2.2	2.9	3.2	4.8	6.7	5.5	12.1	11.7	2.6	2.4	13.9	16.2	
55 - 59	2.3	3.0	3.4	5.0	7.5	6.2	13.1	13.1	3.5	3.2	18.7	22.6	
60 - 64	2.4	3.1	3.1	4.2	8.3	6.8	14.2	12.1	6.2	5.0	29.0	33.2	
65 - 69	2.3	3.2	2.7	3.7	9.0	7.2	14.4	11.8	8.0	6.8	35.9	41.2	
70 - 74	2.2	3.0	2.3	3.0	9.0	7.3	14.1	10.4	9.7	9.5	45.7	53.0	
75+	2.4	2.4	2.6	2.2	9.4	6.1	13.6	7.8	14.5	14.1	47.8	63.4	

Source: Ghana Statistical Service, 2010 Population and Housing Census

The percentage of both males and females divorced increased with age, and at every age, the proportions divorced were higher among females than males. At every age group after 60 years, twice as many females as males were divorced. Furthermore, there was also a positive relationship between age and widowhood with proportions higher for females than males. By age 75 years and over, two in three females were widows while only one in ten males was a widower.

6.8 Proportion ever married by locality of residence

Even though people are delaying marriage as observed in the 2010 census, there is still the element of the universality of marriage within the process of social change and economic development (Nukunya, 2003). Table 6.4 shows the variations in the population ever married by age group and urban-rural residence. In the age groups 15 to 39 years, there was a decline in the proportions ever married between 2000 and 2010. For instance, in age group 15 to 19 years, the proportion ever married declined among males from 10.8 percent to 5.8 percent and among females, from 19.5 to 13.2 percent from 2000 to 2010.

Higher proportions of females in rural areas had ever married compared to females in urban areas in all the age groups. A similar pattern is evident for males. For example, by age 25-29, 83.9 percent of females in rural areas had ever married compared to 63.0 for those in urban areas; and among males, 54.4 percent of those in rural areas and 34.0 percent of those in urban areas had ever married (Table 6.4).

Table 6.4: Proportion of ever married by age, sex and locality, 2000 and 2010

Age Group	Total				Urban				Rural			
	Male		Female		Male		Female		Male		Female	
	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010
15 - 19	10.8	5.8	19.5	13.2	9.1	5.0	13.8	9.6	12.2	6.5	25.8	17.5
20 - 24	22.6	15.7	56.5	45.3	16.6	11.2	42.9	34.5	29.5	21.9	71.0	60.5
25 - 29	49.4	42.4	79.4	71.8	40.2	34.0	70.8	63.0	59.3	54.4	87.8	83.9
30 - 34	76.8	71.4	91.8	87.3	71.2	65.4	88.1	82.5	81.8	79.5	95.2	93.5
35 - 39	87.7	86.0	95.1	93.2	85.5	83.1	93.2	90.5	89.7	89.7	96.7	96.5
40 - 44	92.0	92.3	96.1	95.7	91.2	91.1	94.9	94.1	92.8	93.7	97.2	97.7
45 - 49	94.3	94.7	97.0	96.9	93.9	93.9	96.1	95.7	94.5	95.5	97.6	98.1
50 - 54	95.2	96.1	97.3	97.6	95.4	95.7	96.7	96.9	95.1	96.5	97.8	98.4
55 +	93.2	95.7	95.6	97.2	91.8	95.2	94.2	96.6	94.2	96.2	96.5	97.8

Source: Ghana Statistical Service, 2010 Population and Housing Census

6.9 Marital status and religion

6.9.1 Marital status by sex religious affiliation

Various religious persuasions have rules on marriage unions, in most cases discouraging informal and pre-marital relationships. Some religions do not allow separation and divorce, hence the need to explore the marital characteristics in relation to religious affiliation.

As shown in Table 6.5, for both males and females the proportions never married were higher for Christians than other religious groups. For instance, among Christians, the proportion of males never married was 41.0 percent in 2000 and 45.8 percent in 2010. Among females, the proportions were 27.1 percent in 2000 and 31.3 percent 2010. For Muslims, the proportions never married were 40.6 in 2000 and 44.1 percent in 2010 among males; and 23.7 percent in 2000 and 28.3 percent in 2010 for females. The levels of never married by religious affiliation are the flip sides of the proportions married. As expected the proportions married were lower for the Christians than other religious groups (Table 6.5).

There were also differences in the proportions reporting consensual unions by religious affiliation. Both males and females who were adherents of Traditional Religion and Islam reported lower proportions in consensual unions in 2000 and 2010 than Christians and those who do not adhere to any religious faith. The pattern between religion and marital status may be mediated by other factors such as education and urban living.

6.9.2 Ever married by religion

The proportions ever married by age, sex and religion are presented in Table 6.6. In the broad age group 15–34 years, the proportions ever married were lower for males and females who were Christians followed by Moslems for both 2000 and 2010. Among those aged 25–34 years, the proportion of female Christians ever married were 83 percent in 2000 and 77.7 percent in 2010 and for males, 61.1 percent and 55.4 percent. The decline in proportion of ever married was higher for those aged 15–24 years than for those aged 25–34 years. The proportions married among those aged 35 years and above were about the same for the various religious groups, reflecting the universality of marriage in the country.

Table 6.5: Marital status of population 15 years or older by religion and sex

Religion	Never married				Informal / Consensual union / Living together				Married			
	Male		Female		Male		Female		Male		Female	
	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010
No religion	29.0	34.6	15.9	19.6	3.6	9.8	11.7	10.3	55.1	44.9	50.6	47.6
Christians	41.0	45.8	27.1	31.3	6.5	5.5	8.6	6.8	45.2	43.6	48.0	44.8
Islam	40.6	44.1	23.7	28.3	2.6	2.2	3.0	2.1	51.4	50.0	61.6	58.1
Traditionalists	27.4	28.4	13.1	14.4	2.6	2.0	2.8	1.8	62.0	62.2	66.5	63.2
Others	-	42.1	-	27.8	-	5.0	-	5.7	-	47.5	-	48.8
Total	38.9	43.6	25.1	29.5	5.9	5.1	7.4	5.9	48.1	45.9	51.5	48.1

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses

Table 6.5: Marital status of population 15 years or older by religion and sex (cont'd)

Religion	Separated				Divorced				Widowed			
	Male		Female		Male		Female		Male		Female	
	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010
No religion	2.3	2.9	2.0	3.4	7.1	5.6	8.8	7.1	2.9	2.2	10.1	12.1
Christians	1.5	2.3	2.3	2.9	3.4	2.3	6.9	5.6	1.9	1.3	7.1	8.5
Islam	1.1	1.4	1.4	1.3	2.6	1.6	3.0	2.2	1.7	1.1	7.3	8.1
Traditionalists	1.5	1.8	1.8	1.7	3.3	2.8	2.9	2.6	3.2	3.0	12.9	16.3
Others	-	-	-	2.9	-	2.6	-	6.1	-	1.5	-	8.8
Total	1.5	2.2	2.6	2.6	3.5	2.4	6.0	5.0	2.1	1.5	7.8	9.0

Source: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses

Table 6.6: Proportion ever married by religion

Age Group	No religion and others				Christianity				Islam				Traditional			
	Male		Female		Male		Female		Male		Female		Male		Female	
	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010
15 - 24	24.7	15.7	50.2	43.5	14.7	9.4	34.9	26.7	16.2	12.3	41.3	33.9	23.4	19.2	53.3	46.4
25 - 34	65.1	62.6	87.2	85.3	61.1	55.4	83.2	77.4	57.6	56.9	87.7	84.5	74.3	71.8	93.9	92.0
35 - 44	87.1	85.7	94.7	94.4	90.4	89.5	95.1	93.9	88.0	88.9	96.6	96.3	91.1	92.3	97.5	97.8
45-49	92.3	91.2	96.4	96.1	94.8	95.1	96.7	96.6	93.7	94.9	97.5	98.0	94.7	95.7	98.0	98.5
50+	92.2	93.7	95.1	97.1	93.4	96.3	95.6	97.3	93.9	95.8	96.3	97.8	95.6	96.8	97.6	98.6

Source: Ghana Statistical Service, 2010 Population and Housing Census

6.10 Marital status by activity status

The activity status of persons in the population may in a way help to understand the categories into which people are placed in the country when discussing marital status. In some cultures or religions, ability to support a spouse financially is a key determinant of whether one could marry or not. Table 6.7 shows marital status by economic activity among the population aged 12 years and older. The majority of those who were not economically active (70.9%) have never married. In contrast, only one in four (25.4%) and slightly more than half (52.0%) of the employed and unemployed population have never been married. More than half of the employed persons (57.2%) and about one-third (32.7%) of the unemployed were married whereas less than close to one-fifth (17.9%) of the population inactive were married. Six percent of the economically inactive population were widowed compared with 4.4 percent of the employed and 2.1 percent of the unemployed. Overall, a higher proportion of males than females reported being never married in each of the activity status groups (Table 6.7).

Table 6.7: Marital Status by activity status (12 years and older): 2010

Marital status	Employed			Unemployed			Not active		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Never married	25.4	31.5	19.6	52.0	66.6	40.4	70.9	80.7	62.5
Informal / Consensual union / Living together	6.4	6.3	6.5	8.0	4.8	10.6	2.2	1.3	3.0
Married	57.2	56.6	57.8	32.7	24.7	39.1	17.9	14.5	20.7
Separated	2.3	1.7	3.0	2.1	1.4	2.7	1.0	0.7	1.3
Divorced	4.2	2.7	5.7	3.1	1.9	4.0	1.9	1.3	2.5
Widowed	4.4	1.2	7.4	2.1	0.7	3.2	6.1	1.6	9.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	10,500,292	5,142,599	5,357,693	665,795	665,795	366,149	5,720,219	2,630,236	3,089,983

Source: Ghana Statistical Service, 2010 Population and Housing Census

*The Economically Not active include

Pensioners/retired; Disabled/too sick to work; Too old/too young; Students

6.11 Marital status of household heads

The head of household is generally the person who has economic and social responsibility for the rest of the members of the household. The marital status of the household head could have implications for the welfare of the members of the household.

Table 6.8 shows the distribution of heads of households by their marital status. For the total population, the proportion of household heads who were never married were 11.2 percent in 2000 and 14.6 percent in 2010 for males; 9.2 percent in 2000 and 14 percent for females in 2010. While the proportion of household heads who were never married appear to have increased, the proportion of married or living together declined among both males and females. For instance, the proportion of male household heads married or living together declined from 81.4 percent in 2000 to 78.4 percent in 2010; for females the proportions were 46.3 percent in 2000 and 43.1 percent in 2010. More female heads of households were more likely to be divorced (13.8%) or widowed (23%) than their male counterparts (at 3.3% and 2%) respectively.

Between 2000 and 2010, the proportion of male and female heads of household who indicated they had never married increased in both urban and rural areas between 2000 and 2010. In the urban areas, the proportion of male household heads never married increased by 3.5 percentage points – from 16.2 to 19.7 percent and the female household heads, by 5 percentage points from 12.7 percent to 17.7 percent between 2000 and 2010. For those in rural areas, the percentage changes were 1.9 and 1.4 respectively for female and male household heads. In 2010, the proportions of female and heads of households in urban and rural areas who were divorced were about the same (13.2% and 14.7%). The proportions of divorced males were also similar for those in urban (3.5%) and rural areas (3.5%).

Table 6.8: Marital status of head of household by locality of residence, sex

Marital status	Total				Urban				Rural			
	Male		Female		Male		Female		Male		Female	
	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010
Married	74.1	71.3	39.3	37.2	70.7	66.2	40.3	36.9	76.8	77.0	38.6	37.6
Living Together	7.3	7.1	7.0	5.9	6.2	7.4	6.1	5.7	8.2	6.7	7.8	6.2
Separated	1.5	1.9	4.7	6.2	1.5	1.8	5.0	6.4	1.4	1.9	7.0	5.9
Divorced	4.0	3.3	17.7	13.8	3.9	3.0	16.9	13.2	4.1	3.5	16.0	14.7
Widowed	1.9	2.0	22.0	23.3	1.7	1.9	19.0	20.1	2.1	2.2	25.3	28.3
Never married	11.2	14.6	9.2	13.6	16.2	19.7	12.7	17.7	7.3	8.7	5.4	7.3

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses

6.12 Singulate mean age at marriage

The singulate mean age at marriage (SMAM) is the average number of years lived in single state by never married persons before they enter into a married union for the very first time. A lower singulate mean age at marriage tends to indicate an early entry into marriage while a higher mean age implies late entry into marriages.

Table 6.9 shows that the SMAM for the country was 24.3 years in 2000 and 25.9 years in 2010, an increase of 1.6 years. For females, the mean age at first marriage increased from 22.3 years to 24.8 years between 2000 and 2010, an increase on 2.5 years while that for the males were 27.7 and 28.2 years in 2000 and 2010 respectively. The increases in mean singulate age at marriage similarly occurred in both urban and rural areas: form 25.8 years to 27.1 years in urban areas and from 22.8 years to 24.2 years in rural areas.

The highest singulate mean ages at marriage by region were in the Greater Accra Region for 2000 and 2010 (26.3 and 27.7 respectively) and the lowest in the Upper East region in 2000 (22.7) and Northern region in 2010 (24.1). There were also increases in all the regions, with the highest increases in Western, Ashanti, Upper West and Upper East regions (1.9) and the lowest in the Volta region (0.8).

Table 6.9: Singulate mean age at marriage by selected background characteristics

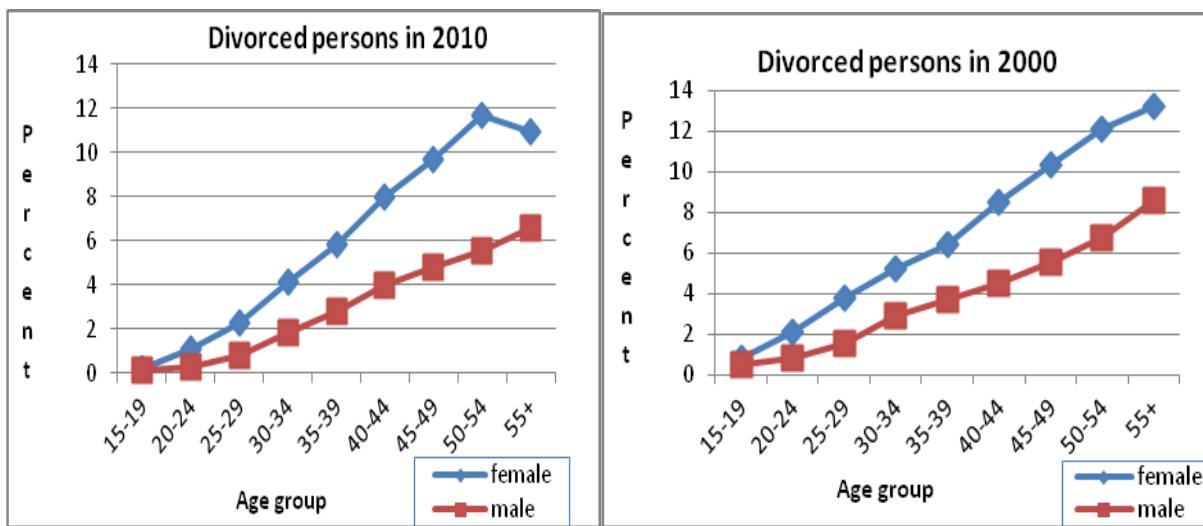
Background Characteristics	2000	2010	Increase
Total	24.3	25.9	1.6
Sex			
Male	27.7	28.2	0.5
Female	22.3	24.8	2.5
Locality			
Urban	25.8	27.1	1.3
Rural	22.8	24.2	1.4
Region			
Western	23.4	25.3	1.9
Central	23.8	25.4	1.6
Greater Accra	26.3	27.7	1.4
Volta	23.9	24.7	0.8
Eastern	24.0	25.4	1.4
Ashanti	24.6	26.5	1.9
Brago-Ahafo	24.0	25.4	1.4
Northern	23.2	24.1	0.9
Upper East	22.7	24.6	1.9
Upper West	22.8	24.7	1.9

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses

6.13 Patterns of divorce

Table 6.10 presents data on the population recorded as divorced by age, sex and place of residence. In 2010 about 4 percent of people aged 15 years and over in Ghana were reported to be divorced. There were no differences in the proportion divorced by locality of residence (3.8% in rural and 3.7% in urban areas). The proportions of females aged 15 years and over who were divorced were 6 percent and 5 percent in 2000 and 2010 respectively. The same was observed for males in urban and rural areas. The proportion of females and males divorced generally increases with age. Among females aged 45–49 years in 2010, 9.7 percent were divorced compared to 5.8 among those aged 35–39 years (see also Figure 6.2).

Fig. 6.2: Divorced by age group and sex



Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 6.10: Divorced Population by age and sex

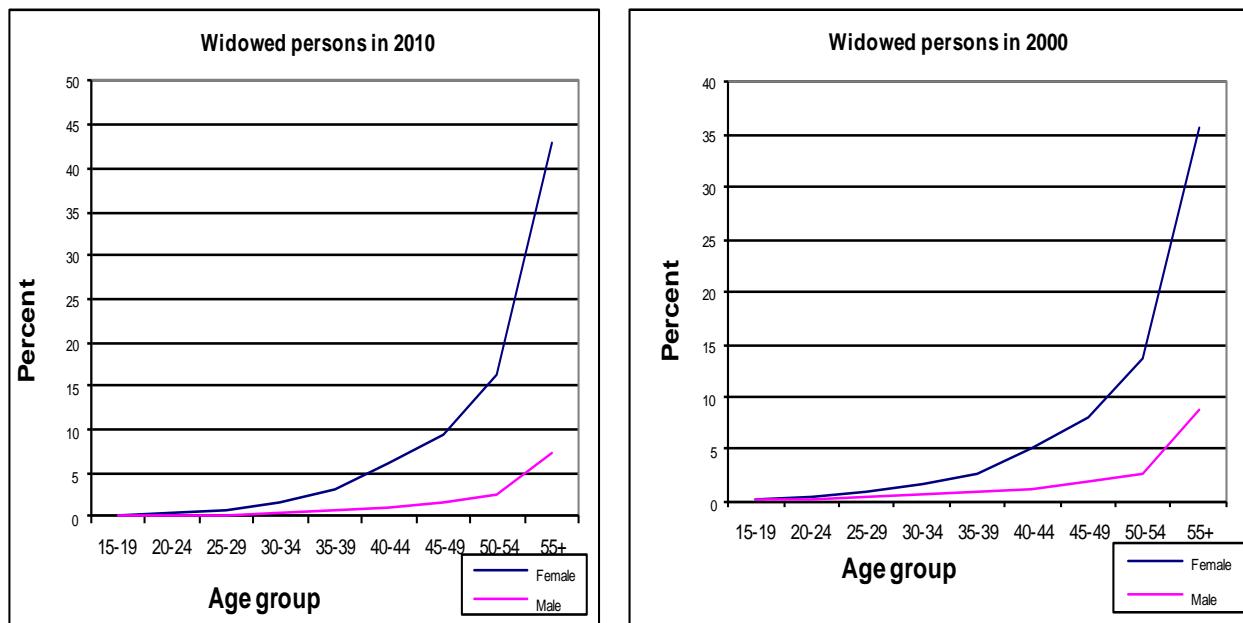
Age group	Proportion of population aged 15 years or older divorced by age sex and locality of residence					
	Total		Urban		Rural	
	2000	2010	2000	2010	2000	2010
Females						
15-19	0.8	0.2	0.6	0.2	0.9	0.3
20-24	2.1	1.1	1.7	0.8	2.4	1.0
25-29	3.8	2.3	3.5	2.1	3.2	1.8
30-34	5.2	4.1	5.6	4.3	4.6	3.0
35-39	6.4	5.8	7.5	6.6	5.4	4.1
40-44	8.5	8.0	9.9	9.2	7.4	5.8
45-49	10.3	9.7	11.9	11.2	9.2	7.3
50-54	12.1	11.7	13.9	13.1	10.9	9.7
55 +	13.2	10.9	13.9	11.7	12.7	10.7
Total	6.0	5.0	6.1	5.1	5.9	4.8
Males						
15-19	0.5	0.1	0.5	0.1	0.6	0.1
20-24	0.8	0.3	0.6	0.2	1.0	0.3
25-29	1.5	0.8	1.2	0.6	1.7	0.8
30-34	2.9	1.8	2.7	1.4	3.0	1.7
35-39	3.7	2.8	3.6	2.5	3.8	2.6
40-44	4.5	4.0	4.6	3.8	4.6	3.7
45-49	5.5	4.8	5.5	4.7	5.5	4.6
50-54	6.7	5.5	6.7	5.5	6.6	5.6
55 +	8.6	6.6	8.9	6.6	8.4	7.8
Total	3.5	2.4	3.2	2.2	3.8	2.8
Total Country	4.7	3.8	4.7	3.7	4.8	3.8

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses

6.14 Population widowed

The data on widowhood (Table 6.11) indicated that 5.3 percent of the population aged 15 years and over reported as widowed in 2010. Among males 2.1 percent were divorced in 2000 and 1.5 percent in 2010, while for females the proportions divorced were 7.7 percent in 2000 and 9.0 percent in 2010. Between urban and rural areas, the proportions divorced were higher in rural than in urban areas for 2000 and 2010. For instance, the proportion of females aged 15 years and over in rural areas that were widowed were 8.6 percent in 2000 and 10.1 percent in 2010 while the proportion for males was 2.2 percent and 1.7 percent in the two periods. The results from Table 6.11 suggest that males were less likely to be widowed compared to females. This result may suggest higher male remarriage rates and the existence of polygynous. Figure 6.3 shows the trend in proportions widowed for males and females in 2000 and 2010. Among those aged between 15 and 24 year there is little difference in the proportion widowed between the sexes. A noticeable difference is, however, observed among those aged from 25 years or older with higher proportions of females than males in age group being divorced.

Fig. 6.3: Widowed persons by age and by sex



Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses

Table 6.11: Widowed Population by Age and Sex

Proportion of population aged 15 years or older widowed by age sex and locality of residence						
Age group	Total		Urban		Rural	
	2000	2010	2000	2010	2000	2010
Total Country	4.9	5.3	4.3	4.6	5.4	5.9
Females						
15-19	0.3	0.2	0.3	0.2	0.4	0.2
20-24	0.5	0.4	0.4	0.3	0.6	0.5
25-29	0.9	0.7	0.8	0.6	1.0	0.8
30-34	1.7	1.7	1.7	1.6	1.8	1.9
35-39	2.6	3.1	2.7	2.9	2.7	3.2
40-44	5.2	6.1	4.9	5.8	5.3	6.4
45-49	8.1	9.4	7.9	9.2	8.3	9.7
50-54	13.7	16.2	13.5	15.7	14.1	16.7
55 +	35.7	43.1	35.6	42.7	35.8	43.5
Total female	7.7	9.0	6.7	8.0	8.6	10.1
Males						
15-19	0.3	0.1	0.2	-	0.4	0.1
20-24	0.3	0.1	0.2	0.1	0.4	0.1
25-29	0.4	0.2	0.3	0.1	0.5	0.2
30-34	0.6	0.4	0.6	0.3	0.8	0.4
35-39	0.9	0.6	0.8	0.5	1.0	0.7
40-44	1.2	1.1	1.1	1.0	1.3	1.2
45-49	2.0	1.6	1.9	1.6	2.1	1.6
50-54	2.6	2.4	2.5	2.3	2.7	2.5
55 +	8.8	7.4	9.6	7.3	8.3	7.4
Total male	2.1	1.5	1.9	1.3	2.2	1.7

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses

Table 6.12: Sex Ratio of Population across Marital Status by Age

Age group	Total		Never married		Married		Separated		Divorced		Widowed	
	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010
Total	96.8	91.6	135.3	125.8	89.4	85.8	65.4	51.9	44.4	55.9	25.6	14.8
12 - 14	104.6	101.8	104.8	101.5	-	107.2	0.9	-	-	-	-	-
15 - 19	104.2	100.9	115.6	109.6	55.3	45.2	74.5	24.8	32.2	76.9	91.7	30.6
20 - 24	91.1	90.0	162.1	138.8	36.1	31.7	43.1	24.4	22.4	34.8	59.7	23.6
25 - 29	87.8	85.2	216.0	174.0	55.6	51.8	51.0	36.2	30.7	39.4	40.9	20.8
30 - 34	88.5	88.9	251.3	200.9	76.8	76.5	60.2	48.8	39.4	48.9	35.2	18.4
35 - 39	91.1	90.9	228.8	187.8	88.8	90.5	64.0	53.5	44.2	52.9	29.8	18.5
40 - 44	99.9	93.3	206.4	169.1	106.0	101.9	64.8	58.3	46.4	53.4	23.7	16.6
45 - 49	110.0	93.4	207.6	158.1	123.9	109.2	69.5	57.4	45.5	58.7	26.6	15.8
50 - 54	97.1	90.0	172.6	147.4	119.4	118.2	66.8	54.5	42.1	53.3	18.2	13.4
55 - 59	105.7	97.5	161.9	136.7	141.0	144.2	74.0	58.0	46.0	58.8	19.8	13.9
60 - 64	93.8	91.3	149.4	132.9	145.0	154.9	73.6	67.8	51.3	55.0	19.6	13.6
65 +	99.4	74.4	151.0	121.9	193.4	188.0	96.7	74.2	53.1	72.3	26.5	14.3

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses

6.15 Sex ratio of married females and males

Table 6.13 shows the ratio of married females to married men by selected characteristics. Since there are no specific questions on the practice of polygyny in the census questionnaire to measure the extent of polygynous unions, the higher number of females among the selected characteristics could suggest the existence of such unions.

The data indicate that on the whole there is a higher ratio of married females to males across the background characteristics. Apart from Greater Accra and Ashanti in 2000, all other regions show higher ratios of married females to males in both 2000 and 2010. Higher ratios of married females to married males are also observed for those who never attended school or with primary education but drops among those with a JSS education or higher.

Table 6.13: Sex Ratio of Married Females to 100 Married Males

Background Characteristics	2000	2010
Total Country	115	117
Locality		
Urban	110	116
Rural	120	117
Region		
Western	100	106
Central	120	119
Greater Accra	100	109
Volta	120	125
Eastern	110	113
Ashanti	100	118
Brong Ahafo	110	117
Northern	120	125
Upper East	130	126
Upper West	130	128
Religion		
No Religion and Others	70	62
Christian	120	127
Islam	110	114
Traditionalist	120	102
Education		
Never attended	150	166
Primary	160	162
JSS/JHS/MLCE/Voc./ Tech./Com.	80	98
Secondary / SSS / Higher Education.	60	62

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses

6.16 Summary and Recommendations

6.16.1 Summary

The marital characteristics discussed in this chapter reveal the near universality of marriage regardless place of residence and religious affiliations. The proportions married by sex and age reveal that females tend to marry earlier than their male counterparts. The data also indicate that at every age, particularly in the older ages and in urban and rural areas, a higher proportion of females than males were widowed.

More than three quarters of male heads of household were married or living together or in consensual marriage compared with only 43 percent of female heads of household. This may suggest that some married females who were heads may not be living with their husbands.

The singulate mean age at marriage was 25.9 years in 2010. SMAM has increased from 2000 to 2010 among the various sub groups of the Population. The SMAM in rural areas increased from 22.8 to 24.2 years between 2000 and 2010.

The general decline in the proportions of persons married is more apparent in urban than rural areas. The data also show that the majority of the economically inactive population has never been married and that more than half of the unemployed have never married.

The proportion never married has increased in sub-groups such as sex, locality of residence, religion, etc. between 2000 and 2010, with higher increases occurring among the younger population. The proportion married declined slightly from 45 percent in 2000 to 43 percent in 2010 and the proportion divorced has also declined across most groups during the intercensal period.

6.16.2 Recommendations

The 1994 Revised Population Policy of Ghana seeks to reduce fertility through a number of social interventions. The findings that mean age at first marriage is rising suggest that late entry into marital unions could be targeted for achieving lower fertility goals. As women spend more time schooling, the chances of entering to early marriages reduce, which then reduces their fertility potentials as well as changing high fertility intentions. To that extent, there is a need to provide more access to formal education by removing economic and spatial barriers. This is likely to have positive effects on fertility.

References

- Agyei-Mensah, S. & Aase, A (1998). Patterns of fertility change in Ghana: a time and space perspective. *Geografiska Annaler: Series B, Human Geography*, 80(4), 203-213.
- Aryee, A. F (1975). "Nuptiality: An influence on population Growth". In: Laing, D. A. S. & Addo, N. O (Eds.). *Interdisciplinary Approaches to population Dynamics Programme*. Accra, Ghana Universities Press.
- Awusabo-Asare, K. (1990). Matriliney and the New Intestate Succession Law of Ghana. *Canadian Journal of African Studies*, 24(1), 1-16.
- Braun, V. (2005). In Search of (Better) Sexual Pleasure: Female Genital ‘Cosmetic’ Surgery. *Sexualities*, 8(407), 047–424.
- Fayorsey, C. (2003). *Polygyny in Ghana. Theoretical and Empirical Socio-Economic Background*. Attorney-General and Ministry of Justice Access to Justice Series No. 3, Buck Press.
- Gaisie, S. K. (1976). *Estimating Ghanaian Fertility, Mortality and Age Structure*. University of Ghana Population Studies No.4 Population Dynamics Programme, Legon.
- Ghana Statistical Service (2000). *Unpublished data from 2000 Population and Housing Census*. Accra.
- Ghana Statistical Service (2002). *2000 Population and Housing Census, Summary Report of Final Result*. Accra.
- Ghana Statistical Service (2005). *Population Data Analysis Report, Vol. 1 Socio- Economic and Demographic Trends*. Accra
- Ghana Statistical Service (2012). *2010 Population and Housing Census, Summary Report of Final Results*. Accra.
- Ghana Statistical Service (GSS), Ghana Health Service (GHS) & ICF Macro (2009). *Ghana Demographic and Health Survey 2008*. Calverton, Maryland, ICF International Inc.
- Ghana Statistical Service. *Unpublished data from 2010 Population and Housing Census data*. Accra.
- Government of Ghana (1985). *Intestate succession law, PNDC Law 111*. Accra, Ghana Publishing Company.

- Kioli, F. N., Were, A. R. & Onkware, K. (2012). Traditional perspectives and control mechanisms of adolescent sexual behavior in Kenya. *International Journal of Sociology and Anthropology*, 4(1), 1-7.
- Nukunya, K. (2003) *Continuity and Change*, Ghana Universities Press, Accra
- Oppong, C. (1993). "Some roles of women: What Do We Know?" Paper presented at the IUSSP Seminar on Women's Status and Population Change in Sub-Saharan Africa. Dakar, 3-6 March.

CHAPTER SEVEN

LITERACY AND EDUCATION¹³

7.1 Introduction

Education is an important aspect of societal development. It is the process of acquiring knowledge, skills, values and attitudes to fully develop individual capacities for societal well-being. There is a relationship between education, human resource development and economic growth (United Nations Development Programme, 2011). Countries therefore place emphasis on educational policies in designing their plans to accelerate development. It is for this reason that of the eight Millennium Development Goals (MDGs) one of the goals (MDG 2) is achieving universal primary education by 2015 (United Nations Development Programme, 2010). Two indicators used to track MDG 2 are Net Enrolment Ratio (NER) in primary education and proportion of people starting grade1 who reach the last grade of primary education. In addition, one of the indicators for MDG 3 is the ratio of boys to girls in primary, secondary and tertiary education. Education is also one of the three variables used for the calculation of the Human Development Index (HDI) (UNDP, 2010).

Since 1961, Ghana has subscribed to the concept of free and compulsory basic education and the Education For All (EFA) (UNESCO, 2000; World Bank, 2012). As part of the implementation of the MGDs, Ghana has mainstreamed the targets into the country's successive Medium Term National Development policy frameworks and it is the responsibility of the Ghana Statistical Service (GSS) to develop indicators to enable the tracking of achievements under the MDGs and other national development programmes. One of the objectives of the 2010 PHC was to collect adequate and reliable data which can be used to measure some of the indices identified in the MDGs.

The 2010 PHC collected data on literacy and full time education. The objective of this chapter is to analyse the correlates (age, sex, region, location of residence and economic activity) of literacy and education. Data from the 1960, 1970, 1984 and 2000 reports are used to establish trends for comparative analysis. The 2010 PHC collected information on the characteristics of the population and variables such as sex, age, head of household, region, religion, literacy, education, marital status, disability and economic activity.

7.2 Source of Data

The main data for this chapter are derived from the questions on education and literacy in the 2010 Population and Housing Census (2010 PHC).

In the 2010 census, questions on literacy and education were asked of persons 11 years and older. On literacy, eligible persons were asked whether they could read and write in any

¹³This chapter was contributed by Martin K. Poku and Charles Som

language. In the census, literacy was defined as the ability to read and write a simple statement with understanding. If a person can only read but cannot write or can write but cannot read, he or she is not literate. Similarly, if a person was literate some time ago but cannot read and write with understanding at present then he/she is not literate. The options were: None, English only, Ghanaian Language only, English and Ghanaian Language, English and French, English, French and Ghanaian Language, and Other

For education, the questions were asked of persons 3 years and older. The questions were on full time education (past and present), level, and highest educational level completed/attended in the past or currently attending. The questions were asked of persons aged 3 years and above, because in the system of education, children are expected to start school at age four (pre-school). In the 2000 census, the question was asked of persons five years and above. The differences in the age

7.3 Literacy

Table 8.1 presents the percentages of the population 11 years and above who were literate in at least one language and those who were not by sex, locality of residence and region. Seventy-four percent of the population aged 11 years and older was literate. The proportion for males was 80.2 percent and that of females 68.5 percent. For urban and rural areas, the proportions literate were 84.1 percent and 62.8 percent respectively.

Among the regions, Greater Accra reported the highest literacy rate of 89.3 percent, followed by Ashanti (82.6%) and Eastern region (81.0%). For the Northern, Upper east and Upper West regions, the proportions literate were lower than those illiterate. For instance, literacy rate in the Northern region was 37.2 percent, the lowest in the country. The percent of males who were literate was higher than those of females in all the regions (Table 7.1).

Table 7.1: Literate and non-literate population 11 years and older by region, sex and locality of residence

Region	Total		Male		Female		Urban		Rural	
	Not literate	Literate	Not literate	Literate	Not literate	Literate	Not literate	Literate	Not literate	Literate
Population	4,500,068	12,892,787	1,648,474	6,682,056	2,851,594	6,210,731	1,480,667	7,806,066	3,019,401	5,086,721
All regions	25.9	74.1	19.8	80.2	31.5	68.5	15.9	84.1	37.2	62.8
Western	23.6	76.4	16.9	83.1	30.1	69.9	15.0	85.0	30.5	69.5
Central	21.8	78.2	13.7	86.3	28.9	71.1	18.0	82.0	25.4	74.6
Greater Accra	10.7	89.3	6.4	93.6	14.7	85.3	9.8	90.2	20.4	79.6
Volta	26.5	73.5	18.8	81.2	33.4	66.6	18.7	81.3	30.7	69.3
Eastern	19.0	81.0	13.1	86.9	24.4	75.6	12.9	87.1	24.0	76.0
Ashanti	17.4	82.6	11.9	88.1	22.3	77.7	13.0	87.0	24.7	75.3
Brong Ahafo	30.2	69.8	24.6	75.4	35.5	64.5	21.6	78.4	37.6	62.4
Northern	62.8	37.2	55.7	44.3	69.6	30.4	44.5	55.5	71.9	28.1
Upper East	52.5	47.5	44.6	55.4	59.4	40.6	38.1	61.9	56.5	43.5
Upper West	53.8	46.2	46.7	53.3	60.1	39.9	31.1	68.9	58.7	41.3

Source: Ghana Statistical Service, 2010 Population and Housing Census

In general, older Ghanaians have lower literacy rates compared with the younger cohort (Table 7.2). Among the age group 11-14 years, 92.4 percent were literate and the proportion decreased steadily to the lowest rate of 20.3 percent among those aged 90-94 years. The pattern may be due to the increasing focus on education, and measures to improve access and enrolment, over the decades (United Nations Development Programme (Ghana), 2007). The pattern of decreasing proportion of the population literate by age, also exist among both males and females and for urban and rural residents. At the younger ages (11-19 years) the proportion of males and females literate were about the same. Differences occurred after age 20 years when the differences between males and females who were literate began to widen.

Table 7.2: Population 11 years and older by age group, literacy status, sex and locality of residence: 2010

Age	Total		Male		Female		Urban		Rural	
	Not literate	Literate								
All ages	25.9	74.1	19.8	80.2	31.5	68.5	15.9	84.1	37.2	62.8
11 - 14	7.6	92.4	7.6	92.4	7.5	92.5	3.2	96.8	11.7	88.3
15 - 19	11.1	88.9	10.0	90.0	12.2	87.8	5.8	94.2	16.9	83.1
20 - 24	17.9	82.1	13.7	86.3	21.6	78.4	9.9	90.1	29.0	71.0
25 - 29	23.5	76.5	18.1	81.9	28.2	71.8	13.2	86.8	38.0	62.0
30 - 34	28.5	71.5	21.6	78.4	34.7	65.3	16.4	83.6	44.6	55.4
35 - 39	31.6	68.4	24.2	75.8	38.4	61.6	19.1	80.9	46.9	53.1
40 - 44	34.7	65.3	26.5	73.5	42.4	57.6	21.0	79.0	50.4	49.6
45 - 49	34.8	65.2	27.1	72.9	42.0	58.0	21.7	78.3	49.0	51.0
50 - 54	36.8	63.2	28.4	71.6	44.3	55.7	23.2	76.8	50.6	49.4
55 - 59	34.8	65.2	25.4	74.6	44.1	55.9	23.4	76.6	47.6	52.4
60 - 64	48.7	51.3	34.5	65.5	61.7	38.3	35.6	64.4	60.5	39.5
65 - 69	52.9	47.1	37.8	62.2	66.0	34.0	41.9	58.1	63.3	36.7
70 - 74	65.0	35.0	48.4	51.6	77.3	22.7	54.7	45.3	73.0	27.0
75 - 79	67.8	32.2	52.4	47.6	79.5	20.5	58.2	41.8	75.7	24.3
80 - 84	74.4	25.6	61.0	39.0	83.1	16.9	64.5	35.5	81.8	18.2
85 - 89	72.0	28.0	59.8	40.2	80.1	19.9	63.1	36.9	79.5	20.5
90 - 94	79.7	20.3	70.0	30.0	85.4	14.6	70.6	29.4	86.1	13.9
95+	76.9	23.1	66.9	33.1	82.9	17.1	67.5	32.5	84.3	15.7

Source: Ghana Statistical Service, 2010 Population and Housing Census

The distributions of the population 11 years and older according to the languages in which they are literate for the country, region and sex are presented in Table 7.3. Nearly two-thirds of the 11 years and older population is either literate in English only (20.1%) or English and a Ghanaian Language (45.8%). The population that is literate in a Ghanaian Language only is just 7.0 percent, while only 0.3 percent reported that they could speak and write in English and French. In the Ashanti Region, 57.6 percent, the highest proportion, were literate in both English and a Ghanaian language followed by the Eastern Region (53.4%). The lowest rate was in the Upper East region where only 14.0 percent of the population was literate in both English and a Ghanaian language.

Table 7.3: Literacy levels for persons 11 years and older for the nation, regions and sex: 2010

Region Sex/Literacy	All Region	Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brong Ahafo	Northern	Upper East	Upper West
Both sexes	17,392,855	1,665,207	1,538,091	3,052,327	1,492,538	1,866,709	3,417,268	1,599,001	1,571,044	714,096	476,574
Male	8,330,530	826,123	713,500	1,457,344	702,162	898,301	1,624,010	781,515	766,724	335,398	225,453
Female	9,062,325	839,084	824,591	1,594,983	790,376	968,408	1,793,258	817,486	804,320	378,698	251,121
None (Not literate)											
Both sexes	25.9	23.6	21.8	10.7	26.5	19.0	17.4	30.2	62.8	52.5	53.8
Male	19.8	16.9	13.7	6.4	18.8	13.1	11.9	24.6	55.7	44.6	46.7
Female	31.5	30.1	28.9	14.7	33.4	24.4	22.3	35.5	69.6	59.4	60.1
English only											
Both sexes	20.1	23.1	21.8	34.9	10.8	16.1	13.2	14.3	16.3	32.0	19.2
Male	21.0	23.8	22.5	35.7	11.7	16.6	13.6	14.6	18.3	36.1	20.7
Female	19.3	22.5	21.2	34.1	10.1	15.6	12.9	14	14.4	28.4	17.8
Ghanaian language only											
Both sexes	7.0	5.6	6.3	4.4	12.0	10.7	10.7	6.8	1.5	1.3	1.7
Male	6.0	5.2	5.9	3.2	10.5	9.1	8.9	5.7	1.8	1.5	1.9
Female	7.9	5.9	6.7	5.5	13.3	12.3	12.3	7.8	1.2	1.1	1.5
English and Ghanaian language											
Both sexes	45.8	46.8	48.9	47.4	49.4	53.4	57.6	48.2	19.2	14.0	24.8
Male	51.9	53.0	56.8	51.8	57.3	60.3	64.3	54.4	24.0	17.5	30.0
Female	40.3	40.6	42.1	43.4	42.4	47.0	51.5	42.3	14.6	10.9	20.2
English and French											
Both sexes	0.3	0.3	0.3	0.8	0.4	0.2	0.2	0.2	0.1	0.1	0.1
Male	0.4	0.4	0.3	1.0	0.5	0.3	0.3	0.2	0.1	0.1	0.1
Female	0.3	0.2	0.2	0.7	0.3	0.2	0.2	0.1	0.1	0.1	0.1
English French and Ghanaian Language											
Both sexes	0.8	0.6	0.9	1.8	0.8	0.6	0.9	0.4	0.1	0.1	0.4
Male	0.9	0.8	0.8	1.9	1.1	0.7	1.1	0.5	0.1	0.2	0.5
Female	0.7	0.5	0.9	1.7	0.5	0.5	0.7	0.3	0.1	0.1	0.3
Other											
Both sexes	0	0	0	0	0	-	-	-	0	0	0
Male	0	0	-	0	0	-	-	-	0	0	0
Female	0	-	0	0	0	-	-	-	0	0	-

Source: Ghana Statistical Service, 2010 Population and Housing Census

Although English is the official language in Ghana, only 20.1 percent of the population can read and write in English only, with the highest proportion of 34.9 percent in the Greater Accra region followed by the Upper East Region (32.0%). Volta Region had the least proportion literate in English only (10.8%) but comparatively the highest literacy rate (12.0%) in a Ghanaian Language only and Upper East the least (1.3%). Literacy in English and French is very low with less than one percent being literate in both languages in any region.

Table 7.4 presents literacy level in by language, sex and locality of residence for persons 11 years and older. Levels of literacy levels were higher in urban than in rural areas for all the language groups except for Ghanaian languages where the literacy rates were slightly higher in the rural areas than in the urban areas (8.2% and 5.9% respectively). Males had higher literacy levels than females in all language groups and in urban and rural areas except for Ghanaian Language. Females were more literate in a Ghanaian language than males (7.9% versus 6.0%).

Table 7.4: Literacy level by sex and locality of residence for persons 11 years and older

Locality of residence/sex	All level	None (Not literate)	English only	Ghanaian language only	English and Ghanaian language	English and French	English, French and Ghanaian Language	Other
Total	17,392,855	25.9	20.2	7.0	45.8	0.3	0.8	0.0
Urban	9,286,733	15.9	24.1	5.9	52.3	0.5	1.2	0.0
Rural	8,106,122	37.3	15.6	8.2	38.4	0.2	0.4	0.0
Urban/rural ratio	1.2	0.5	1.8	0.8	1.6	3.0	3.9	1.00
Male								
Total	8,330,530	19.8	21.0	6.00	51.9	0.4	0.9	0.0
Urban	4,374,237	10.5	25.0	4.6	58.0	0.6	1.4	0.0
Rural	3,956,293	30.1	16.6	7.6	45.1	0.2	0.4	0.0
Urban/rural ratio	1.1	0.4	1.7	0.7	1.4	2.8	3.5	0.9
Female								
Total	9,062,325	31.5	19.3	7.9	40.3	0.3	0.7	0.0
Urban	4,912,496	20.8	23.4	7.2	47.2	0.4	1.1	0.0
Rural	4,149,829	44.1	14.6	8.9	32.1	0.1	0.3	0.0
Urban/rural ratio	1.2	0.6	1.9	1.00	1.7	3.4	4.5	1.1

Source: Ghana Statistical Service, 2010 Population and Housing Census

The proportion of people literate in a Ghanaian Language could be attributed to the Functional Literacy Programme of the Ministry of Education in the past two decades. The number of people that have been covered by the programme within the period has been encouraging. According to the Non-Formal Education Division report (2010), ten batches of learners enrolled between 1997 and 2010. Enrolment for the ten batches of learners during the 13-year period was over 1.6 million. Between 1993 and 1998 enrollment exceeded 200,000 per annum, however, in the three most recent batches enrolment were less than 40,000 per annum. Average graduation rates were almost the same for males (85.2%) and females (84.7%).

7.4 School Attendance

The school attendance profile for Ghana's population 6 years and older is presented in Table 7.5. Of the 20,600,411 persons aged 6 years and above, 76.5 percent had ever attended or were in school, with 40.7 percent attended school in the past, while the rest were in school at the time of the census. Females were less likely to have ever attended school than males: 71.7% for females and 81.7% for males. Indeed, more than half of females aged 6 years and over in the three northern regions had never attended school. In the Northern, Upper East and Upper West regions 37.4 percent, 48.1 percent and 46.5 percent of females had ever attended or were attending school. For the males, it was only in the Northern region that less than 50 percent of the population 6 years and above had ever attended or were attending school.

Table 7.5: Population 6 years and older by school attendance, sex and region

	All Region	Both sexes			Male			Female		
		Never Attended	Attended in the Past	Current Attending	Never Attended	Attended in the Past	Current Attending	Never Attended	Attended in the Past	Current Attending
Total (number)	20,600,411	4,836,027	8,393,922	7,370,462	1,820,203	4,285,155	3,854,081	3,015,824	4,108,767	3,516,381
Total (%)		23.5	40.7	35.8	18.3	43.0	38.7	28.3	38.6	33.0
Western	1,978,794	20.8	42.1	37.1	15.1	45.8	39.0	26.4	38.4	35.2
Central	1,830,309	19.2	41.5	39.3	12.3	44.5	43.3	25.3	38.9	35.8
Greater Accra	3,455,920	10.0	58.4	31.5	6.2	61.0	32.8	13.6	56.1	30.4
Volta	1,764,993	24.1	40.0	35.8	17.6	42.4	40.0	30.1	37.9	32.0
Eastern	2,206,359	17.1	46.9	36.0	12.2	48.8	39.0	21.8	45.1	33.1
Ashanti	4,024,421	15.4	47.3	37.4	10.6	49.0	40.4	19.7	45.7	34.6
Brong Ahafo	1,919,397	26.7	35.3	38.0	21.9	37.1	41.0	31.3	33.5	35.2
Northern	1,966,725	56.6	12.0	31.5	50.5	14.3	35.1	62.5	9.6	27.9
Upper East	870,294	45.8	16.2	38.0	39.1	18.6	42.3	51.9	14.0	34.1
Upper West	583,199	48.2	14.5	37.3	42.5	16.5	41.0	53.5	12.6	33.9

Source: Ghana Statistical Service, 2010 Population and Housing Census

The urban-rural dimension of school attendance of persons 6 years and older is shown in Table 7.6. Two thirds of the persons in rural areas had ever attended or were still in school, compared to 85.6 percent for the urban (14.4%) population. This pattern is replicated in all the regions in Ghana. Greater Accra reported the highest proportion of people who had ever attended or were in school in both urban and rural areas (90.9% and 81% respectively). The Northern Region had the lowest proportions in urban (60.8%) and rural areas who had ever attended school (35.4%). In all the regions, the proportions of females and males who had ever attended or were in school were higher in urban than rural areas. About 40 percent of males aged 6 years and older in rural areas in the Northern Region had ever attended or were in school. In the Northern, Upper East and Upper West regions, less than half of females had ever attended school (between 44.8% and 31.5%). In both rural and urban areas, there was very little variation in the proportions currently attending school in all the regions. The high proportion of person in school among the younger population reflects the expanded system in education in the last two decades.

Table 7.6: Population 6 years and older by school attendance, sex, region and locality of residence

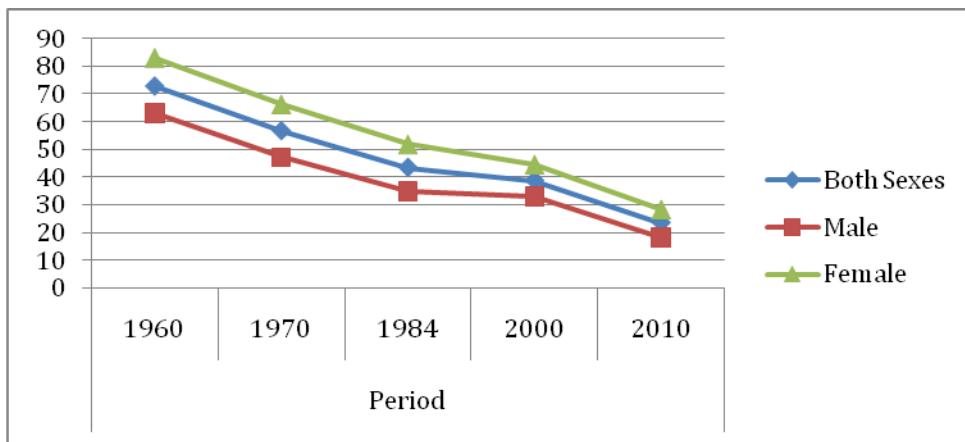
Region	All Region	Both sexes			Male			Female		
		Never Attended	Attended in the Past	Current Attending	Never Attended	Attended in the Past	Current Attending	Never Attended	Attended in the Past	Current Attending
Urban	10,717,599	14.4	49.4	36.2	9.6	51.5	38.9	18.8	47.4	33.9
Western	860,714	13.4	48.9	37.6	8.4	52.0	39.6	18.1	46.1	35.8
Central	873,848	16.1	44.4	39.4	10.4	46.4	43.2	21.1	42.7	36.2
G. Accra	3,140,995	9.1	59.6	31.3	5.5	62.1	32.5	12.5	57.3	30.2
Volta	605,348	16.9	45.1	38.0	10.8	47.1	42.1	22.2	43.3	34.5
Eastern	979,347	11.5	51.1	37.4	6.8	52.5	40.7	15.6	49.8	34.5
Ashanti	2,480,763	11.5	51.1	37.3	7.1	52.7	40.2	15.5	49.8	34.7
Brong Ahafo	873,878	19.0	40.7	40.3	13.6	42.3	44.0	23.8	39.3	36.9
Northern	618,704	39.2	21.3	39.5	30.8	25.5	43.7	47.3	17.2	35.5
Upper East	185,541	33.6	27.3	39.1	26.2	30.9	42.9	40.2	24.1	35.7
Upper West	98,461	28.0	28.7	43.3	20.5	32.1	47.4	34.9	25.6	39.5
Rural	9,882,812	33.3	31.4	35.3	27.4	34.1	38.5	39.1	28.8	32.1
Western	1,118,080	26.5	36.8	36.7	20.0	41.4	38.6	33.2	32.1	34.8
Central	956,461	22.0	38.8	39.2	13.9	42.8	43.4	29.3	35.2	35.4
G. Accra	314,925	19.0	46.9	34.1	13.3	50.7	36.1	24.5	43.3	32.3
Volta	1,159,645	27.9	37.4	34.7	21.0	40.0	38.9	34.3	35.0	30.7
Eastern	1,227,012	21.6	43.6	34.8	16.2	46.0	37.7	27.1	41.1	31.8
Ashanti	1,543,658	21.5	41.1	37.4	16.1	43.3	40.6	26.7	38.9	34.4
Brong Ahafo	1,045,519	33.1	30.7	36.2	28.3	33.0	38.7	38.1	28.3	33.6
Northern	1,348,021	64.6	7.7	27.8	59.5	9.3	31.2	69.5	6.1	24.4
Upper East	684,753	49.1	13.2	37.7	42.6	15.3	42.2	55.2	11.2	33.6
Upper West	484,738	52.3	11.6	36.1	46.9	13.4	39.7	57.3	9.9	32.8

Source: Ghana Statistical Service, 2010 Population and Housing Census

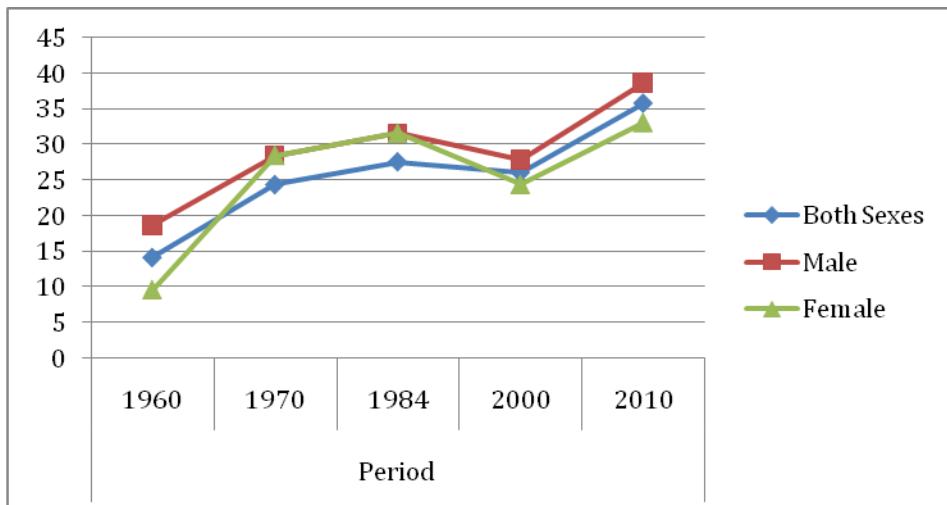
Figure 7.1 shows trends in school attendance for persons 6 years and older since the 1960 census. Over the four inter-censal periods from 1960 to 2010, there has been a steady increase in the proportion of the population that had ever attended school or was in school, increasing from 27.0 percent in 1960 to 76.5 percent in 2010. Over the same period, the proportion that was in school then increased from 14.2 percent to 35.8 percent while the proportion that attended school in the past increased from 12.8 percent to 40.7 percent. While both males and females recorded similar trends in school attendance, the increase in the proportion of females in school was higher than that of males.

Figure 7.1: Trends in school attendance, 1960, 1970, 1984, 2000 and 2010

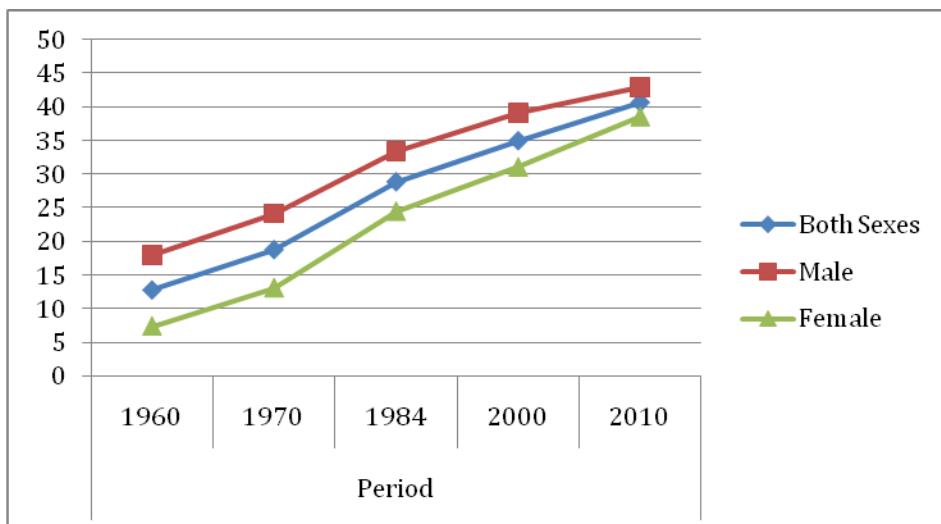
Never attended



Past attendance



Current attendance



Sources: Ghana Statistical Service, 1960, 1970, 1984, 2000 and 2010 population censuses

7.5 Level of education attained

Table 7.7 presents the population 6 years and older by sex, level of education and region. The table shows that 56.3 percent of the population 6 years and older, had had basic education comprising of primary (26.6%), JSS/JHS (20.6%) and middle (9.1%). About 7.5 percent of the population had had higher education beyond the secondary school level and less than 0.5 percent of the population reported post-graduate education. In seven of the ten regions, about 60 percent of the population had had primary/JHS/SHS education. The exceptions were the Northern, Upper East and Upper West regions where about 40 percent or less had had Primary/JSS/JHS level of education.

Fifty-six percent of males and 54.9 percent of females had had basic education (primary, JSS/JHS and middle). The difference between males and females in school participation occurs after basic education. In 2010, 5.5 percent of males and 3.1 percent of females had had post-secondary diploma and higher education. That is, the proportion of males in higher education was twice that of females.

Table 7.7: Population 6 years and older by sex, level of education and region

Level of Education	All Regions		Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brong Ahafo	Northern	Upper East	Upper West
	N	Per cent										
Both Sexes	20,600,411	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Never attended School	4,836,027	23.5	20.8	19.2	10.0	24.1	17.1	15.4	26.7	56.6	45.8	48.2
Nursery	87,794	0.4	0.6	0.4	0.2	0.4	0.3	0.2	0.6	0.8	0.8	1.2
Kindergarten	432,005	2.1	2.6	2.8	1.2	2.5	2.5	2.1	3.0	1.2	1.6	1.3
Primary	5,482,963	26.6	26.9	28.9	22.3	29.3	29.7	26.6	28.3	22.9	29.9	26.6
JSS/JHS	4,048,059	19.7	21.8	22.1	21.8	18.8	22.2	23.2	19.4	8.9	11.1	10.7
Middle	2,067,507	10.0	10.9	10.8	12.0	11.3	14.1	12.7	8.7	1.2	1.8	1.7
SSS/SHS	1,756,714	8.5	8.2	7.5	13.0	6.9	6.9	10.2	7.7	5.1	5.1	4.7
Secondary	349,221	1.7	1.6	1.2	3.8	1.2	1.4	1.9	1.0	0.5	0.5	0.5
Voc./Technical/Commercial	369,365	1.8	1.8	1.6	4.1	1.5	1.6	1.5	1.0	0.4	0.7	0.9
Post Middle/Post-Secondary Certificate etc.	243,739	1.2	1.1	1.0	1.5	1.4	1.2	1.3	1.0	0.8	0.9	1.0
Post-Secondary Diploma etc.	484,766	2.4	2.7	1.9	4.4	1.7	1.8	2.5	1.8	1.1	1.1	1.4
Bachelor degree	373,641	1.8	0.9	2.5	4.5	0.7	1.0	2.0	0.8	0.5	0.7	1.6
Post graduate etc.	68,610	0.3	0.2	0.3	1.0	0.1	0.2	0.3	0.1	0.1	0.1	0.1

Table 7.7: Population 6 years and older by sex, level of education and region (cont'd)

Level of Education	All Regions		Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brony Ahafo	Northern	Upper East	Upper West
	N	Per cent										
Male	9,959,439	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Never attended School	1,820,203	18.3	15.1	12.3	6.2	17.6	12.2	10.6	21.9	50.5	39.1	42.5
Nursery	45,642	0.5	0.6	0.4	0.3	0.4	0.3	0.2	0.6	0.9	0.9	1.2
Kindergarten	225,065	2.3	2.7	3.1	1.3	2.7	2.7	2.3	3.2	1.2	1.7	1.4
Primary	2,647,616	26.6	26.5	29.2	20.9	29.7	29.2	26.2	28.4	24.4	32.6	28.2
JSS/JHS	1,984,748	19.9	22.0	22.8	21.4	19.6	22.6	23.2	19.3	10.2	11.8	11.2
Middle	1,123,490	11.3	13.2	13.1	12.5	12.8	16.0	14.0	10.0	1.6	2.4	2.2
SSS/SHS	967,287	9.7	9.4	8.3	14.3	8.3	7.9	11.5	9.0	6.5	6.1	5.8
Secondary	223,952	2.2	2.1	1.7	4.7	1.8	1.9	2.5	1.5	0.8	0.7	0.7
Voc./Technical/Commercial	192,496	1.9	2.0	1.8	4.4	1.8	1.8	1.5	1.1	0.5	0.8	0.9
Post Middle/Post-Secondary Certificate etc.	125,572	1.3	1.1	1.1	1.4	1.7	1.3	1.3	1.2	1.0	1.1	1.2
Post-Secondary Diploma etc.	304,666	3.1	3.5	2.5	5.5	2.4	2.4	3.2	2.5	1.5	1.5	2.0
Bachelor degree	246,711	2.5	1.3	3.4	5.7	1.1	1.5	2.8	1.2	0.8	1.2	2.4
Post graduate etc.	51,991	0.5	0.3	0.4	1.5	0.3	0.3	0.6	0.2	0.1	0.2	0.2

Table 7.7: Population 6 years and older by sex, level of education and region (cont'd)

Level of Education	All Regions		Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brong Ahafo	Northern	Upper East	Upper West
	N	Per cent										
Female	10,640,972	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Never attended School	3,015,824	28.3	26.4	25.3	13.6	30.1	21.8	19.7	31.3	62.5	51.9	53.5
Nursery	42,152	0.4	0.6	0.3	0.2	0.3	0.3	0.2	0.5	0.8	0.8	1.1
Kindergarten	206,940	1.9	2.5	2.6	1.1	2.3	2.3	1.9	2.8	1.2	1.5	1.2
Primary	2,835,347	26.6	27.3	28.6	23.5	29.0	30.1	27.0	28.2	21.5	27.4	25.1
JSS/JHS	2,063,311	19.4	21.6	21.5	22.1	18.1	21.8	23.2	19.5	7.6	10.5	10.1
Middle	944,017	8.9	8.5	8.8	11.7	10.0	12.4	11.6	7.4	0.7	1.2	1.2
SSS/SHS	789,427	7.4	7.1	6.8	11.8	5.7	6.0	9.1	6.4	3.7	4.2	3.7
Secondary	125,269	1.2	1.0	0.8	3.0	0.7	0.8	1.3	0.5	0.3	0.3	0.3
Voc./Technical/Commercial	176,869	1.7	1.6	1.4	3.9	1.3	1.4	1.5	0.9	0.4	0.6	0.9
Post Middle/Post-Secondary Certificate etc.	118,167	1.1	1.0	0.9	1.7	1.2	1.1	1.4	0.8	0.5	0.7	0.8
Post-Secondary Diploma etc.	180,100	1.7	1.8	1.3	3.4	1.1	1.3	1.9	1.2	0.6	0.7	0.9
Bachelor degree	126,930	1.2	0.5	1.6	3.5	0.3	0.6	1.2	0.4	0.2	0.3	0.9
Post graduate etc.	16,619	0.2	0.1	0.1	0.6	0.0	0.1	0.1	0.0	0.0	0.0	0.0

Source: Ghana Statistical Service, 2010 Population and Housing Census

7.6 Past School Attendance

In Table 7.8 showing the distribution of past school attendance for persons aged 6 years and older by sex, region and highest level of school attended, over 7 out of every 10 educated Ghanaians had had primary, JSS/JHS and middle school education. Twenty-two percent had had secondary level education and another 7.1 percent had tertiary education. The national pattern is replicated in all the regions except the Greater Accra Region, where 24.1 percent of had had tertiary education. In the Upper West region, 1.9 percent had had tertiary education, the lowest in the country. The Greater Accra Region also had the highest proportion of people with post-secondary education (11.8%), followed by Western (6.1%), Ashanti (5.4%), Central (5.2%), and Brong Ahafo (5.1%) regions.

Table 7.8 further shows that of those ever attended school, two-thirds of males and three-quarters of the females had had basic education. For the Greater Accra region, the proportion of males with basic education was 58.5 percent compared to over 70 percent for the rest of the regions. This was because for the region, 14.8 percent of the males had had tertiary education. The pattern is similar for females where in the Greater Accra region, 62.3 percent had had basic education and 8.6 percent of females had had post-secondary education. For the rest of the regions, the proportions with post-secondary education were less than 10 percent.

7.7 Current School Attendance

Table 7.9 shows the distribution of persons 6 years and older who were in school at the time of the census by sex, level of education and region. Over seven million people aged 6 years and above were attending school then. Of the number, 76.2 percent was at the basic level of education, with 54.4 percent at the primary level and another 21.8 percent at the JSS/JHS level. The proportions of persons in nursery were 1.2 percent and kindergarten 5.9 percent. This appears to be anomalous because at age six children are supposed to be in primary school. Furthermore, 4.5 percent of the population 6 years and older were in post-secondary school education. A similar pattern existed in all the regions except Greater Accra where 47.7 percent were in primary school and 9.8 percent were in post-secondary institutions.

There is very little variation between males and females who were at the pre-school and basic levels (7.0% and 7.1% and 75.2% and 77.3% respectively). The variation between males and females in the proportion in school is narrow at the basic level. However, the proportion of females and males in school begin to widen at the post-secondary school level. For instance, the proportion of males in SHS/Vocational etc was 12.5 percent for males and 12.0 percent for females. But at the post-secondary level the proportions were 5.3 percent for males and 3.6 percent for females. The differences between males and females in the proportions with higher education occur in all the regions.

Table 7.8: Past School Attendance (six years and older) by Highest level attained by Region and Sex

Level of Education	All Regions	Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brony Ahafo	Northern	Upper East	Upper West
Both Sexes	8,393,922	832,759	759,387	2,019,883	706,599	1,035,073	1,902,993	677,013	235,072	140,735	84,408
Primary	17.6	16.2	18.9	12.4	22.9	19.9	20.5	21.3	22.0	22.7	23.5
JSS/JHS	31.3	34.6	35.2	27.6	29.9	32.2	30.1	29.6	29.1	28.6	28.1
Middle	22.4	23.5	23.7	18.5	25.3	27.8	26.3	27.1	27.9	28.7	29.5
SSS/SHS	12.1	11.1	9.7	15.5	9.1	8.2	9.0	8.4	7.9	7.3	6.7
Secondary	3.4	3.1	2.2	5.5	2.2	2.3	2.7	2.5	2.4	2.3	2.1
Voc./Technical/Commercial	3.9	3.6	3.4	6.5	3.2	3.0	3.7	3.6	3.5	3.4	3.4
Post Middle/Post-Sec. Certificate	2.3	1.9	1.8	2.1	2.8	2.1	2.4	2.4	2.5	2.6	2.6
Post-Secondary Diploma, etc.	4.0	4.1	3.0	5.7	3.0	2.7	3.0	2.8	2.6	2.4	2.2
Bachelor degree	2.5	1.6	1.7	4.7	1.3	1.5	1.9	1.8	1.7	1.6	1.5
Post graduate, etc.	0.6	0.4	0.5	1.4	0.3	0.3	0.5	0.5	0.4	0.4	0.4
Total	100	100	100	100	100	100	100	100	100	100	100
Male	4,275,155	451,432	382,807	1,011,273	356,723	523,535	946,130	350,600	139,115	77,197	46,343
Primary	13.8	12.7	14.3	9.1	18.5	15.3	15.9	16.5	17.0	17.6	18.1
JSS/JHS	29.1	31.7	32.8	25.9	27.9	30.5	28.5	28.2	27.8	27.5	27.2
Middle	23.7	26.2	26.7	18.3	26.6	30.2	27.7	28.4	29.1	29.8	30.5
SSS/SHS	13.5	12.1	10.7	16.9	10.6	9.3	10.2	9.7	9.1	8.6	8.0
Secondary	4.2	3.7	2.9	6.4	3.0	3.1	4.2	3.0	3.8	2.8	3.1
Voc./Technical/Commercial	4.0	3.6	3.6	6.7	3.5	3.2	2.8	2.4	2.4	3.1	3.7
Post Middle/Post-Sec. Certificate	2.4	2.0	2.0	1.9	3.3	2.2	2.3	2.7	5.2	4.2	5.6
Post-Secondary Diploma, etc.	5.0	5.2	4.0	6.9	4.1	3.6	4.6	3.9	6.6	5.3	7.0
Bachelor degree	3.3	2.2	2.3	5.9	2.0	2.2	3.2	2.1	3.3	3.1	3.9
Post graduate, etc.	1.0	0.5	0.7	2.0	0.5	0.5	0.9	0.4	0.8	0.7	1.0
Total	100	100	100	100	100	100	100	100	100	100	100

Table 7.8: Past School Attendance (six years and older) by Highest level attained by Region and Sex (Cont'd)

Level of Education	All Regions	Greater Accra			Brong Ahafo			Northern	Upper East	Upper West	
	Western	Central	Volta	Eastern	Ashanti						
Female	4,108,767	381,327	376,580	1,008,610	349,876	511,538	956,863	326,413	95,957	63,538	38,065
Primary	21.4	20.2	23.6	15.7	27.4	24.6	18.4	23.7	41.9	41.5	37.4
JSS/JHS	33.6	38.1	37.7	29.3	31.8	34.0	35.6	38.4	22.7	25.1	25.2
Middle	21	20.2	20.6	18.8	24.1	25.5	23.3	20.1	6.1	7.3	8.1
SSS/SHS	10.8	9.9	8.7	14.2	7.7	7.1	10.9	10.0	15.8	13.8	12.3
Secondary	2.5	2.3	1.6	4.6	1.4	1.5	2.3	1.3	2.4	1.6	2.0
Voc./Technical/Commercial	3.8	3.7	3.2	6.4	2.8	2.8	3.0	2.4	2.6	3.0	4.9
Post Middle/Post-Secondary											
Certificate	2.1	1.7	1.5	2.4	2.3	1.9	2.2	1.7	3.7	3.3	4.8
Post-Secondary Diploma, etc.	2.9	2.8	2.0	4.4	1.8	1.8	2.9	1.9	3.5	3.1	4.0
Bachelor degree	1.5	0.9	1.0	3.4	0.5	0.7	1.2	0.5	1.1	1.1	1.1
Post graduate, etc.	0.3	0.1	0.2	0.8	0.1	0.1	0.2	0.1	0.2	0.2	0.2
Total	100	100	100	100	100	100	100	100	100	100	100

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 7.9: Population 6 years and older currently in school by sex, level of education and region: 2010

Level of Education	All Regions		Greater Accra				Brong Ahafo		Upper East		Upper West
	N	Percent	Western	Central	Volta	Eastern	Ashanti	100	100	100	100
Both Sexes	7,370,462	100	100	100	100	100	100	100	100	100	100
Nursery	87,794	1.2	1.6	0.9	0.8	1.0	0.8	0.5	1.5	2.6	2.2
Kindergarten	432,005	5.9	7.0	7.2	3.7	6.9	7.0	5.7	7.9	3.8	4.2
Primary	4,009,198	54.4	54.1	53.5	47.7	56.3	56.6	52.6	55.9	60.0	62.4
JSS/JHS	1,608,398	21.8	22.1	21.4	21.7	22.5	22.6	22.4	21.1	20.9	20.6
SSS/SHS	805,168	10.9	10.3	9.6	14.5	10.0	9.2	12.9	9.9	9.5	7.5
Voc./Technical/Commercial	43,338	0.6	0.8	0.5	1.0	0.6	0.6	0.4	0.4	0.4	0.5
Post Middle/Post-Sec. Certificate, etc.	52,776	0.7	0.7	0.6	0.9	0.8	0.6	0.8	0.5	0.8	0.7
Post-Secondary Diploma, etc.	150,233	2.0	2.6	1.6	3.5	1.4	1.6	2.0	2.1	1.3	1.0
Bachelor degree	167,353	2.3	0.6	4.6	5.7	0.4	1.0	2.5	0.7	0.6	0.9
Post graduate, etc.	14,199	0.2	0.1	0.2	0.6	0.1	0.1	0.2	0.1	0.1	0.1
Male	3,854,081	100	100	100	100	100	100	100	100	100	100
Nursery	45,642	1.2	1.6	0.9	0.8	1.0	0.8	0.5	1.5	2.5	2.1
Kindergarten	225,065	5.8	7.0	7.2	3.9	6.7	6.9	5.8	7.8	3.5	4.1
Primary	2,054,758	53.3	53.0	52.7	46.8	54.8	55.7	51.5	54.3	57.8	61.6
JSS/JHS	843,833	21.9	22.2	21.6	21.2	23.1	22.9	22.2	21.4	21.7	20.3
SSS/SHS	436,417	11.3	10.8	9.1	14.6	10.8	9.6	13.2	10.7	10.7	8.1
Voc./Technical/Commercial	23,232	0.6	0.9	0.5	1.0	0.7	0.5	0.4	0.4	0.4	0.5
Post Middle/Post-Sec. Certificate, etc.	22,352	0.6	0.5	0.4	0.7	0.7	0.5	0.6	0.5	0.8	0.7
Post-Secondary Diploma, etc.	89,291	2.3	3.0	1.8	3.9	1.6	1.7	2.3	2.5	1.6	1.2
Bachelor degree	103,146	2.7	0.8	5.6	6.3	0.6	1.2	3.2	0.9	0.8	1.4
Post graduate, etc.	10,345	0.3	0.1	0.3	0.8	0.1	0.1	0.3	0.1	0.1	0.1

Table 7.9: Population 6 years and older currently in school by sex, level of education and region (Cont'd)

Level of Education	All Regions		Western	Central	Greater Accra			Ashanti	Brong Ahafo	Northern	Upper East	Upper West
	N	Percent			100	100	100					
Female	3,516,381	100	100	100	100	100	100	100	100	100	100	100
Nursery	42,152	1.2	1.6	0.9	0.7	1.0	0.8	0.5	1.4	2.8	2.3	3.3
Kindergarten	206,940	5.9	7.1	7.2	3.6	7.1	7.0	5.6	8.0	4.2	4.3	3.6
Primary	1,954,440	55.6	55.4	54.3	48.5	57.9	57.6	53.8	57.6	62.5	63.2	60.1
JSS/JHS	764,565	21.7	22	21.2	22.2	21.8	22.3	22.6	20.7	19.9	20.9	21.2
SSS/SHS	368,751	10.5	9.8	10.1	14.3	9.2	8.8	12.5	9.1	8.1	6.8	6.6
Voc./Technical/Commercial	20,106	0.6	0.6	0.5	1.0	0.6	0.6	0.4	0.4	0.4	0.6	1.0
Post Middle/Post-Sec. Certificate, etc.	30,424	0.9	0.9	0.7	1.2	0.8	0.7	1.1	0.6	0.6	0.6	0.7
Post-Secondary Diploma, etc.	60,942	1.7	2.0	1.4	3.1	1.2	1.4	1.7	1.7	1.0	0.9	1.3
Bachelor degree	64,207	1.8	0.5	3.5	5.1	0.3	0.8	1.8	0.5	0.3	0.4	2.3
Post graduate, etc.	3,854	0.1	0.1	0.1	0.4	0.0	0.1	0.1	0.0	0.0	0.0	0.0

Source: Ghana Statistical Service, 2010 Population and Housing Census

School attendance could involve people of all ages since education has no end. However, if it should include a large proportion of people in the working age group who are supposed to be working it could pose a problem to the country. On the other hand, if it includes a large majority, if not all persons, in the school-going age, then it holds prospects for the future. Table 7.10 presents the current school attendance ratio for persons aged 3 years to 59 years by age group, sex, locality of residence and region. The ratio relates the number of persons who are currently attending school at specified ages to the total population in the particular age per 100. From the table, the general current attendance ratio for persons 3 to 69 years stands at 39.5 percent. That is, almost 40 percent of the Ghanaian population 3 to 69 years was attending school. The ratio is slightly higher for males (42.3%) than females (36.8%), and is higher in urban (40.2%) than rural (38.7%) areas. The national pattern is repeated in all the regions except Greater Accra where the rural ratio of 37.9 percent was higher than the urban ratio of 35.4 percent. The current attendance ratio increases steadily from 69 percent at age 3 years to about 91 percent at age group 11-14 and declines thereafter and dramatically after age 20-24 years.

The school attendance ratios for the pre-school ages of 3, 4 and 5 years are 69 percent, 79 percent and 84 percent respectively. The figures suggest that universal attendance which the current education structure envisages at this stage of education has not yet been achieved. This could be that not all schools in the country have facilities for kindergarten and nursery education even if all parents want to send their children to pre-school. However, the fact that the ratio increases with age implies the desire for parents to send children to school at that level. The ratios increase steadily from 87 percent at age 6 when children are supposed to start primary education to the highest ratio of 91 at age 9. The ratio is maintained up to age 11 to 14 when children are expected to be in junior high school. The same pattern may be observed in all the regions with slight variations in the level of the ratios. The results indicate about 90 percent of the children who are expected to be in primary and JSS (the period of free and compulsory education are in school. Nonetheless, it indicates that Ghana is yet to achieve universal basic education, over 50 years after independence.

Table 7.10 further reveals that at 3-5 years the proportions of females in school at the various ages were slightly higher for females than males at the national level and in almost all the regions, except the Northern Region where in all the age groups the ratios for males were higher than those of females (see Appendix Table A7.1). Up to age 11-14 years female attendance ratios were either slightly higher or the same as that of males in almost all the regions Appendix A7.1). At ages 11-14 years, the Upper East and Upper West regions which had previously lagged behind reported ratios which were comparable to the rest of the regions. Two issues emerge from the data: The first is that the results seem to suggest that girl-child education is receiving attention, at least at the basic level now than in the past. Secondly, there is an indication that school participation rates are increasing in the three northern regions at these lower levels.

Table 7.10: Current school attendance ratio for persons aged 3 years to 69 years by sex and locality of residence

Age Group	Total	Male	Female	Urban	Rural
All Ages	39.5	42.3	36.8	40.2	38.7
3	68.9	68.4	69.4	82.2	58.6
4	79.0	78.7	79.2	90.2	70.3
5	83.7	83.6	83.8	92.6	76.8
6	86.9	86.8	86.9	94.4	81.0
7	89.2	89.2	89.3	95.5	84.2
8	89.9	89.9	89.9	95.8	85.3
9	91.3	91.2	91.4	96.5	86.8
10	90.0	90.2	90.5	96.0	85.8
11-14	90.7	90.9	90.5	95.0	86.6
15-19	66.8	70.3	63.3	70.8	62.4
20-24	23.6	29.8	18.1	27.3	18.4
25-29	7.1	9.6	4.9	8.8	4.7
30-34	2.8	3.9	1.8	3.7	1.5
35-39	1.2	1.7	0.7	1.8	0.5
40-44	0.7	1.0	0.5	1.1	0.3
45-49	0.6	0.7	0.5	0.9	0.2
50-54	0.4	0.5	0.3	0.6	0.2
55-59	2.0	0.3	0.2	0.3	0.1

Source: Ghana Statistical Service, 2010 Population and Housing Census

After ages 11-14 years, attendance ratios begin to reduce sharply, from the 90.7 percent among the age group to 66.8 percent at age 15-19 years. These ages correspond to the transition from JHS to SHS, implying that the continuation rate from JHS to SHS is about 60 percent. Continuation rates also differ between females (90.5 to 63.3) and males (90.9 to 70.3). There is another sharp decrease after age 15-19 years from 66.8 percent to 23.6 percent in 20-24 years. This also corresponds to the transition from SHS to tertiary level, indicating another low continuation rate in the system. The low levels of transition to higher education at the two levels reflect the bottlenecks in the educational systems which have existed over the years. The expansion of both public and private tertiary institutions in recent times hopefully, will ease the bottleneck in the future.

The regional school attendance ratios do not depart very much from the national pattern (see Table 7.11). Central Region had the highest ratio of 43.1 percent followed by Brong Ahafo (41.5%), Ashanti (41.4%), Western (41.0%) and Upper East (40.9%). The Northern Region had the lowest ratio of 34.7 percent and the Greater Accra, 35.6 percent. In all the regions the school attendance ratios for males were higher than those for females. Similarly, a higher proportion of

people were attending school in the urban areas than the rural areas in all the regions except Central and Ashanti where the ratios were the same for the urban and rural areas and in the Greater Accra where the rural ratio was higher than that of the urban area. The relatively lower rate in school attendance in the Greater Accra region compared to other regions, and higher in rural than urban areas are issues which will need to be investigated further. The assumption is that as the national capital with all facilities, school attendance should be higher, but this is not the case. The results point to the existence of pockets which are being left behind in education in the urban areas.

Table 7.11: Current school attendance ratio for persons aged 3 years and older by sex,region and locality of residence

Region	Total	Male	Female	Urban	Rural
All Regions	39.5	42.3	36.8	40.2	38.7
Western	41.0	42.8	39.2	41.6	40.6
Central	43.1	46.9	39.7	43.1	43.1
Greater Accra	35.6	37.0	34.3	35.4	37.9
Volta	39.2	43.1	35.6	41.6	38.0
Eastern	39.7	42.6	37.0	41.4	38.4
Ashanti	41.4	44.4	38.7	41.4	41.4
Brong Ahafo	41.5	44.3	38.8	44.0	39.5
Northern	34.7	38.0	31.4	43.2	30.9
Upper East	40.9	44.8	37.2	42.6	40.4
Upper West	39.7	43.1	36.6	46.3	38.4

Source: Ghana Statistical Service, 2010 Population and Housing Census

7.8 Educational attainment by Selected Economic Characteristics

Education prepares people for the world of work. It is generally believed that people who are better educated are more likely to be employees than those who have low levels of education, with the latter more likely to be self-employed. This assumption is reflected in Table 7.12 which shows increasing proportion of employees by level of education: 5.0 percent of those who never attended school were employees compared to 85.8 percent of those with a degree or higher. On the other hand, the proportion self-employed without employees was 70.3 percent among those who had never attended school and 6.4 percent among those with a degree or higher. A similar pattern is evident for contributing family workers. Persons with vocation/commercial/technical qualifications as well as those with Sec/SSS/SHS were likely to be in self employment without employees as well as being employed (SSS/SHS: 36.3% and 42.8%; Vocational/technical: 36.0% and 47.9%). In general, the national patterns are replicated for both sexes with virtually no difference between the males and females in the formal education and employment statuses. The exception is the proportions of self-employed with employees which were higher for males than for females at all the levels of formal education. At the lower levels of formal education and no formal education, females were more likely to be self-employed without employees.

Table 7.13 presents the distribution of the employed population 15 years and older by occupation and level of education. Over half of those with post middle/secondary certificate and above were professionals and managers. This is expected as formal education is meant to prepare people for higher professional and administrative positions. On the other hand, those who had never attended school and those with basic education were concentrated in the service and sales, skilled agricultural, forestry and fishery and craft-related occupations. Between the sexes, there is very little variation in the distribution of people by education at the managerial and professional levels of occupation. However, there is a much higher concentration of females as services and sales workers at all levels of education and as clerical support. Conversely, at almost all levels of education there are more males than females as technicians and associated professionals. The figures point to the general observation of females dominating in the clerical and service sectors and males in the professional, administrative and technical sectors. The dominance of males at all levels of education as skilled agricultural forestry and fishery workers however, appears to be at variance with the general observation in the country. Perhaps the difference emanates from the inclusion of forestry in the agriculture sector since that aspect is dominated by males. Equality in employment in the latter sectors can improve for females if more females continue into higher education after the senior high school level.

Table 7.12: Economically active population 15 years and older by level of education, sex and employment status

Employment status	Total	Total	Never attended	Basic School	Sec./	Vocational/	Post middle/	Post-	Degree
	Number	%			SSS/ SHS	Technical/ Commercial	secondary certificate	secondary diploma	and higher
Both Sexes									
Total	10,243,476	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employee	1,839,360	18.0	5.0	13.6	36.3	36.0	70.4	76.4	85.8
Self-employed without employee(s)	6,151,396	60.1	70.3	63.8	42.8	47.9	21.2	14.3	6.4
Self-employed with employee(s)	498,460	4.9	3.2	5.3	6.8	9.1	4.7	6.1	5.8
Casual worker	201,404	2.0	1.8	2.2	2.3	1.8	0.8	1.0	0.6
Contributing family worker	1,195,522	11.7	17.8	10.0	8.7	3.0	2.1	1.6	0.8
Apprentice	275,148	2.7	1.1	4.3	2.3	1.4	0.3	0.2	0.1
Domestic employee (House-help)	65,167	0.6	0.7	0.6	0.6	0.5	0.3	0.3	0.2
Other	17,019	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Male									
Total	5,005,534	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employee	1,252,782	25.0	8.1	19.9	39.4	41.9	67.1	75.4	84.8
Self-employed without employee(s)	2,732,824	54.6	71.3	57.7	39.8	41.4	23.7	14.6	6.7
Self-employed with employee(s)	280,989	5.6	3.5	6.0	7.2	10.0	5.4	6.7	6.6
Casual worker	136,188	2.7	2.4	3.2	2.8	2.4	1.0	1.1	0.7
Contributing family worker	439,650	8.8	12.8	8.6	8.0	2.3	2.1	1.6	0.7
Apprentice	124,801	2.5	1.0	3.9	2.0	1.4	0.3	0.2	0.1
Domestic employee (House-help)	29,028	0.6	0.7	0.6	0.5	0.4	0.3	0.3	0.2
Other	9,272	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2

Table 7.12: Economically active population 15 years and older by level of education, sex and employment status (Cont'd)

Employment status	Total Number	Total %	Never attended	Basic Sch	Sec./ SSS/ SHS	Vocational/ Technical/ Commercial	middle/ secondary certificate	Post-secondary diploma	Degree and higher
Female									
Total	5,237,942	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employee	586,578	11.2	2.9	7.1	31.3	29.1	74.3	78.1	88.3
Self-employed without employee(s)	3,418,572	65.3	69.7	70.1	47.7	55.6	18.3	13.7	5.6
Self-employed with employee(s)	217,471	4.2	2.9	4.6	6.2	8.2	3.8	5.0	3.8
Casual worker	65,216	1.2	1.3	1.2	1.5	1.0	0.6	0.7	0.6
Contributing family worker	755,872	14.4	21.0	11.4	9.8	3.9	2.2	1.8	1.1
Apprentice	150,347	2.9	1.2	4.6	2.7	1.5	0.4	0.2	0.1
Domestic employee (House-help)	36,139	0.7	0.7	0.7	0.7	0.6	0.3	0.3	0.2
Other	7,747	0.1	0.2	0.1	0.2	0.1	0.2	0.2	0.3

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 7.13: Economically active population 15 years and older by level of education, sex and Occupation

Occupation	Total	Total	Never	Basic	Sec./	Vocational/	Post middle/	Post-	Degree
	Number	%	attended	Sch	SSS/	Technical/	secondary	secondary	and
Both Sexes									
Total	10,243,476	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Managers	250,170	2.4	0.9	1.9	3.6	4.3	5.1	8.7	18.0
Professionals	546,668	5.3	0.4	1.6	10.1	7.1	50.3	44.3	51.0
Technicians and associate professionals	188,026	1.8	0.3	1.2	4.6	5.1	7.8	8.9	8.0
Clerical support workers	147,079	1.4	0.1	0.6	3.9	5.4	3.8	10.2	10.0
Service and sales workers	2,151,007	21.0	13.7	25.2	30.5	29.5	11.9	12.5	6.0
Skilled agricultural forestry and fishery workers	4,275,986	41.7	67.8	35.6	17.8	11.1	11.3	4.5	2.3
Craft and related trades workers	1,554,989	15.2	10.0	19.7	15.6	24.7	5.1	6.0	1.8
Plant and machine operators and assemblers	503,726	4.9	1.8	6.9	7.1	6.0	2.4	2.7	1.5
Elementary occupations	607,820	5.9	5.0	7.2	6.3	5.8	1.9	1.5	0.6
Other	18,005	0.2	0.0	0.1	0.6	1.0	0.4	0.8	0.7
Male									
Total	5,005,534	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Managers	124,925	2.5	0.4	1.4	3.6	4.2	6.0	9.6	18.6
Professionals	333,370	6.7	0.4	1.9	9.8	7.8	45.5	42.8	51.5
Technicians and associate professionals	141,767	2.8	0.5	1.9	5.7	7.4	7.4	10.7	8.6
Clerical support workers	79,257	1.6	0.2	0.9	3.1	3.2	3.3	7.4	7.8
Service and sales workers	508,109	10.2	5.2	10.3	20.6	14.9	8.5	9.8	5.3
Skilled agricultural forestry and fishery workers	2,269,041	45.3	78.3	42.4	22.0	15.0	16.7	5.9	2.7
Craft and related trades workers	843,430	16.8	7.0	23.1	18.1	31.4	6.5	7.6	2.1
Plant and machine operators and assemblers	474,740	9.5	3.9	13.1	11.1	10.6	4.1	3.9	1.9
Elementary occupations	216,044	4.3	4.1	4.8	5.2	4.2	1.6	1.5	0.6
Other	14,851	0.3	0.0	0.1	0.8	1.4	0.6	1.0	0.9

Table 7.13: Economically active population 15 years and older by level of education, sex and Occupation (Cont'd)

Occupation	Total Number	Total %	Never attended	Basic Sch	Sec./ SSS/ SHS	Vocational/ Technical/ Commercial	Post middle/ secondary certificate	Post-secondary diploma	Degree and higher
Female									
Total	5,237,942	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Managers	125,245	2.4	1.3	2.4	3.5	4.5	4.0	7.0	16.7
Professionals	213,298	4.1	0.3	1.4	10.5	6.3	56.2	47.0	49.6
Technicians and associate professionals	46,259	0.9	0.2	0.5	2.7	2.4	8.2	5.6	6.6
Clerical support workers	67,822	1.3	0.0	0.3	5.1	8.1	4.4	15.4	15.4
Service and sales workers	1,642,898	31.4	19.2	40.3	46.5	46.6	16.1	17.4	7.5
Skilled agricultural forestry and fishery workers	2,006,945	38.3	61.0	28.7	11.0	6.5	4.9	1.9	1.4
Craft and related trades workers	711,559	13.6	11.9	16.2	11.5	17.0	3.5	3.2	1.1
Plant and machine operators and assemblers	28,986	0.6	0.5	0.6	0.7	0.5	0.3	0.5	0.6
Elementary occupations	391,776	7.5	5.6	9.6	8.1	7.7	2.2	1.5	0.6
Other	3,154	0.1	0.0	0.0	0.3	0.4	0.2	0.4	0.5

Source: Ghana Statistical Service, 2010 Population and Housing Census

7.9 Summary, Conclusion and Recommendations

7.9.1 Summary

In the past two decades of constitutional rule, a number of educational policies have been formulated and programmes put in place to address some of the challenges of previous reform initiatives. Efforts to achieve universal primary education and adult literacy have been increased and linked to the global target of achieving educational goals in the MDGs. These efforts have achieved some measure of success.

For instance, 74.1 percent of the population 11 years and older were literate in 2010. Literacy rates are higher among males than females (80.2% versus 68.5%) and among residents in urban areas than those in rural areas (84.1% versus 62.8%). Greater Accra led the regions with the highest literacy rate followed by Ashanti and Eastern Region. Northern Region had the lowest literacy rate of 37.2 percent. Literacy levels decreased with increasing age, indicating the improvement in literacy rates over the years.

A feature of the 2010 PHC was the inclusion of a question on literacy in a wide range of language combinations. The results indicated that 45.8 percent were literate in English and a Ghanaian Language and another 20.1 percent in English only. The proportion literate in a Ghanaian Language was only 7.0 percent, a situation which presents a challenge to the nation's local language policy. In addition, less than one percent was literate in French and English or English, French and a Ghanaian Language. Literacy in English and Ghanaian Language was highest in Ashanti Region (57.6%) and lowest in the Northern Region (19.2%). Greater Accra had the highest proportion of people who were literate in English only (34.9%). Volta Region had the lowest proportion of 10.8 percent who were literate in English, but the highest proportion of those literate in a Ghanaian Language only (12.0%). More males were literate than females in all language groups and all localities of residence except in Ghanaian Languages where more females were literate than males (8.1% versus 5.9%).

About 36 percent of Ghana's population 6 years and older was in school at the time of the census and another 41 percent had attended school in the past. In the Greater Accra region, 10 percent had never attended school, the lowest proportion and in the Northern Region the proportion was 56.6 percent, the highest in the country. In all the regions, a higher proportion of females than males had never attended school and the proportions were as high as 51.9 percent among females in the Upper East and 63.0 percent in the Northern region.

In comparative terms, there was very little variation between males and females in the proportions currently attending school in all the regions. The observation points to the growing importance of education in the whole country in recent times. The increases in the proportions in school have been more remarkable among females than males.

With respect to the population 6 years and older, 56.3 percent have attained basic education. Among those who had attended school in the past, over 7 out of 10 had up to basic education and another 21.6 percent up to secondary education. At the basic level of education the difference between males and females in school participation was minimal, but the gap increased at post-

secondary education level. Greater Accra region reported the highest proportion of those who had ever attended school and the Upper West region the lowest. Overall, more males had had higher levels of education than females, with the proportion of males with tertiary education almost twice that of females. The male and female differences are replicated in all the regions except Greater Accra where the difference between males and females is wider than the national average.

Only 4.5 percent had attained higher education beyond the secondary level and less than half a percent of the population 6 years and older had had a post-graduate education. Generally, more males had had higher levels of education than females. Greater Accra also reported the highest proportion of people with tertiary education. This is expected as the region hosts the national capital where there is concentration of the nation's human capital. There is the need then to promote participation in higher education.

Of the over 7 million people currently attending school, 54.4 percent was in primary school and 21.8 percent in JHS. There was very little variation between males and females at the pre-school and basic levels but a substantial difference at the secondary and tertiary levels. In general, continuation rates were higher for males than females from JHS to SHs and from SHS to the tertiary level. The results point to the known lower female participation in education at the higher levels.

Current school attendance ratio for persons aged 3 years to 69 years stood at almost 40 percent. At ages 3-5 years and 11-14 years, female attendance ratios are slightly higher than that of males. Attendance ratios increase steadily from 69 at age 3 to a peak of 91 at age group 11-14 and declines thereafter. The peak of 6-14 years is the basic level (primary and JHS) where schooling is expected to be universal.

The proportion of persons engaged as an employee increases with the level of education. People with lower levels and no formal education were more likely to be self-employed. Males were more likely to be self-employed with employees at all levels of education than females whereas at lower levels of education females were more likely to be self-employed without employees.

At all levels of education females were more likely than males to be in service and sales as well as clerical support workers while there were more males in technical and associated professional fields. The dominance of males at all levels of education as skilled agricultural, forestry and fishery workers however, appears to be at variance with the general observation in the country, and could be due to the inclusion of forestry, which is dominated by males, in the agricultural category.

7.9.2 Conclusion

There is a general trend in improvement in school participation nationwide over the period of the four post-independence censuses. In particular, female participation in education has increased, especially at the basic level. Up to age 14, the proportion of males and females in school were close. The ratios for the pre-school ages (3 to 5 years) indicated that universal attendance for children at that stage has not yet been achieved, while at the basic level the participation rate was

around 90 percent. The results also collaborate other information which indicate that primary school level parity has stagnated at 0.96 since 2006/07, while the parity at the JHS increased slightly from 0.91 in 2006/07 to 0.92 in 2007/08. With only five years to the end line for the MDGs, Ghana is about 10 percent short of achieving universal basic education.

The number of activities aimed at promoting gender parity at the primary school level seems to have been largely achieved with near-equal proportion of males and females in school. Differences in school participation between males and females emerged at the post-secondary level. Therefore, the policy to promote gender equity in education should begin to pay more attention to female participation in education beyond the junior high school level.

Although, there were improvements in school participation rates in the northern parts of the country, the three northern regions, especially the Northern region, still lags behind in proportions of children in school at all levels.

7.9.3 Recommendations

The fact that nearly three-quarters of the population is literate in at least one language should make us start thinking in terms of functional literacy which is important for development in that it facilitates easy dissemination of information based on the assurance that people can receive simple instructions in a written form. There should be more effort in pushing the level of literacy further and to consciously capitalize on it to give development-related information to the people in simple language. Such information should come in the form of simple messages which should target functional groups such as farmers, fishermen, hairdressers, tailors/seamstresses, etc. If farmers, for example, can read simple instructions on agro-chemicals, they can apply them correctly without jeopardizing the health of consumers of farm products.

Ghana is surrounded by Francophone countries and one would have expected that a significant proportion of the population in Ghana will be literate in French. At one percent, the level of literacy in French is low. There is the need to increase the level of literacy in French to deepen the relationship between us and our neighbours. The compulsory teaching of French at the basic level of education is a step in the right direction. However, it does not seem to have made any meaningful impact yet. The way forward is to intensify and encourage the teaching of French and also Ghanaian languages in schools.

After decades of free education in the north, the proportion of people 6 years and above who never attended school in that part of the country is still well above the national average. This calls for a special study to identify the challenges which account for the low school participation rates, especially in the Northern region. Based on the outcome, there must be a mass education drive to sensitize the people about the importance of education. A similar effort must be made in the rural areas in an attempt to bridge the gap between them and the urban areas in the proportion of people who attend school. Existing government schools in all districts from primary to secondary level, including vocational and technical schools should be upgraded to appreciable standards to match the standard in the established schools.

The 2010 PHC showed that over 70 percent of all those with some education in Ghana did not go beyond basic education. As the country now enters the lower middle income bracket and keeps growing, there is the need to have in place people with the relevant skills to be able to manage affairs. Effort must therefore be made to push the level of attainment at the secondary and tertiary levels further. In doing so, conscious effort must be made to bridge the gender gap at the higher levels of education.

There is evidence that universal attendance envisaged by the new education strategy at the pre-school level has not yet been achieved. That means some Ghanaian children still start primary school without the benefit of pre-school training. A drive must be initiated to try to achieve universal attendance at the pre-school level.

The observation that the current school attendance of females was higher than that of males in the early years of schooling but not at the higher levels, point to the disadvantage that females face at the older ages where they are equally needed. The situation is reflected in the decline in continuation rates from JHS to SHS and from SHS to the tertiary level. The results indicate that the Ministry of Education and parents must work together to ensure that high participation rates are achieved at all levels and that the levels among females at the lower levels of education are carried over into the secondary and higher levels of education. Implementing the policy would call for public and private partnership in the provision of facilities as well as scholarships and incentives to ensure that females stay in school. This must be done as part of an integrated programme which includes the intensification of education on adolescent reproductive and sexual health.

References

- Ghana Education Service (2004), *Development of Education National Report of Ghana*, Ghana Education Service, Accra
- Ghana Statistical Service (1987), *1984 Population Census of Ghana, Demographic and Economic Characteristics, Total Country*, Ghana Statistical Service, Accra
- Ghana Statistical Service (2002), *2000 Population and Housing Census, Summary Report of Final Results* Ghana Statistical Service, Accra
- Ghana Statistical Service (2005), *Population Data Analysis Report, Vol. 1, Socio-Economic and Demographic Trends* Ghana Statistical Service, Accra
- Gribble, J & Bremner, J (2012) "Achieving a Demographic Dividend *Population Reference Bureau*, Vol. 67(2)
- Ministry of Education (2003), *Education Strategic Plan 2003 to 2015, Vol. 1, Policies, Targets and strategies*, Ministry of Education, Accra
- UNICEF/ NDPC (2010), *Ghana Millennium Development Goals Report, 2008*. Government of Ghana, Accra
- UNESCO (2000), *The Dakar Framework for Action* UNESCO, Paris
- UNDP (Ghana) (2007) *Ghana Human Development Report 2007: Towards a more inclusive society* UNDP, Accra
- UNDP (2010) *Human Development Report 2010: The real Wealth of Nations: Pathways to Human Development* Palgrave MacMillan, New York
- UNDP (2011) *Human Development Report 2011: Sustainability and Equity: A Better Future for All* Palgrave MacMillan, New York

Appendix

Table A7.1: School attendance ratio for persons age (3years and older) by sex, locality of residence and Region, 2010

Age group	Population	Current Attendance	Total	Attendance Ratio									
				Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brong Ahafo	Northern	Upper East	Upper West
Total	22,624,110	8,930,304	39.5	41	43.1	35.6	39.2	39.7	41.4	41.5	34.7	40.9	39.7
Male	10,988,971	4,644,919	42.3	42.8	46.9	37	43.1	42.6	44.4	44.3	38	44.8	43.1
Female	11,635,139	4,285,385	36.8	39.2	39.7	34.3	35.6	37	38.7	38.8	31.4	37.2	36.6
Urban	11,599,522	4,663,458	40.2	41.6	43.1	35.4	41.6	41.4	41.4	44	43.2	42.6	46.3
Rural	11,024,588	4,266,846	38.7	40.6	43.1	37.9	38	38.4	41.4	39.5	30.9	40.4	38.4
3													
Total	684,823	471,640	68.9	69.9	72.1	85.2	63.2	69.4	79.3	66	50.2	55.8	54
Male	347,482	237,520	68.4	69.5	71.1	85.1	62.7	68.1	78.9	65.3	50.3	54.8	53.5
Female	337,341	234,120	69.4	70.3	73.1	85.2	63.7	70.6	79.8	66.8	50.2	56.8	54.5
Urban	297,820	244,674	82.2	80.7	76.3	87.4	73.5	83.3	89.2	78.5	66.5	69.8	74.8
Rural	387,003	226,966	58.6	63.8	68.8	68.6	58.9	60.8	67.8	58.2	44.9	52.7	50.9
4													
Total	685,870	541,512	79	82	83.4	91.3	75.3	81	88.7	77.9	58.2	69.4	62.8
Male	348,431	274,290	78.7	81.4	83	91.2	74.6	80.1	88.6	77.3	59	68.9	61.8
Female	337,439	267,222	79.2	82.8	83.8	91.3	75.9	81.9	88.8	78.5	57.4	70	63.9
Urban	297,864	268,742	90.2	90.7	85.8	93.1	84.8	92.2	95.1	89	77.6	82.8	84.9
Rural	388,006	272,770	70.3	77.2	81.6	77.9	71.3	74.1	81.2	70.9	51.7	66.4	59.6
5													
Total	653,006	546,690	83.7	87.5	88.9	92.3	81.9	86.7	92.2	83.8	63.1	76.9	69.2
Male	333,619	279,028	83.6	87.1	88.6	92.4	81.2	86.3	92.1	84.1	63.9	76.3	68.3
Female	319,387	267,662	83.8	88	89.3	92.1	82.6	87	92.2	83.5	62.3	77.4	70.2
Urban	286,239	265,178	92.6	93.8	89.5	93.8	89.5	94.9	96.4	92.5	82.4	87.4	87.5
Rural	366,767	281,512	76.8	83.8	88.4	80.9	78.6	81.6	87.2	78.2	56.4	74.5	66.5

Age group	Population	Current Attendance	Total	Attendance Ratio									
				Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brong Ahafo	Northern	Upper East	Upper West
6													
Total	656,286	570,049	86.9	91.3	91.9	93.9	85.7	90.3	94.4	87.4	65.8	81.5	73.1
Male	333,999	289,971	86.8	91.2	91.7	94.2	85.2	89.9	94.4	87.2	66.9	80.6	72.1
Female	322,287	280,078	86.9	91.4	92.2	93.6	86.1	90.7	94.4	87.6	64.6	82.4	74.2
Urban	285,975	270,011	94.4	95.2	92.2	95.1	92.1	96.5	97.3	94.6	85.6	90.4	90.9
Rural	370,311	300,038	81	89	91.7	85.2	82.9	86.5	90.9	82.7	59.2	79.5	70.7
7													
Total	629,007	561,181	89.2	93.5	94.2	94.8	88.6	92.4	95.9	90.3	69.1	83.9	75.5
Male	320,142	285,426	89.2	93.5	94.1	95	88.3	91.9	96.1	90.4	69.8	83.1	73.7
Female	308,865	275,755	89.3	93.5	94.4	94.6	89	92.9	95.7	90.1	68.4	84.7	77.4
Urban	279,661	267,074	95.5	96.6	94.2	95.7	93.8	97.2	97.9	95.9	88.1	91.4	91.5
Rural	349,346	294,107	84.2	91.7	94.3	88.1	86.3	89.2	93.5	86.5	62.2	82.3	73.2
8													
Total	625,319	562,284	89.9	94.5	95	95.4	89.2	93	96.4	91.2	68.4	85.9	77.4
Male	314,306	282,609	89.9	94.5	94.9	95.6	89.2	92.6	96.6	91.4	69.2	84.9	76
Female	311,013	279,675	89.9	94.5	95.2	95.2	89.1	93.5	96.2	91	67.5	86.9	78.8
Urban	277,254	265,490	95.8	96.8	94.7	96.1	94.8	97.2	97.9	96.1	87.2	92.6	92.2
Rural	348,065	296,794	85.3	93.1	95.3	90	86.7	90.4	94.5	87.8	62	84.3	75.3
9													
Total	565,334	516,030	91.3	95.4	95.9	96.1	91.1	94.5	97	92.5	70.2	86.6	78.1
Male	287,566	262,225	91.2	95.5	95.7	96.5	90.7	94.1	97.2	92.7	71.1	86.1	76.2
Female	277,768	253,805	91.4	95.3	96.1	95.7	91.5	95	96.8	92.2	69.3	87.2	80.3
Urban	260,531	251,464	96.5	97.5	95.7	96.6	95.6	98	98.3	96.7	89.4	92.8	92.9
Rural	304,803	264,566	86.8	94	96.1	91.7	89	92.1	95.4	89.5	63.4	85.3	76

Age group	Population	Current Attendance	Total	Attendance Ratio									
				Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brong Ahafo	Northern	Upper East	Upper West
10													
Total	731,610	661,009	90.3	95.2	96	95.8	90.3	94.2	96.5	91.9	68.3	85.3	78.6
Male	372,896	336,406	90.2	95.6	96	96.2	89.7	93.7	96.9	91.8	69.2	84	76.2
Female	358,714	324,603	90.5	94.9	96	95.4	91	94.8	96.2	92	67.4	86.7	81.2
Urban	327,445	314,418	96	97.1	95.7	96.5	95.2	97.7	97.8	96.5	87.7	91.2	91.7
Rural	404,165	346,591	85.8	94.1	96.3	90.8	88.1	92	94.9	88.7	61.7	83.9	76.8
11 - 14													
Total	2,184,430	1,981,306	90.7	94.4	95.3	94.6	91.0	93.8	95.4	91.6	67.4	85.4	79.9
Male	1,104,629	1,003,779	90.9	94.9	95.5	95.7	90.6	93.5	96.3	92.0	68.5	84.5	77.2
Female	1,079,801	977,527	90.5	93.9	95.1	93.6	91.3	94.2	94.5	91.1	66.1	86.5	83
Urban	1,063,784	1,010,569	95.0	95.8	94.8	94.9	95.1	96.6	96.2	95.2	88.0	90.3	91.6
Rural	1,120,646	970,737	86.6	93.3	95.7	91.7	88.9	91.7	94.3	88.6	58.7	84.3	78.0
15 - 19													
Total	2,609,989	1,743,331	66.8	67.7	69.9	67.1	70.3	67.7	68.3	67.0	54.4	68.4	68.5
Male	1,311,112	922,178	70.3	71.5	73.0	71.0	74.1	71.4	72.5	70.5	57.9	70.9	68.7
Female	1,298,877	821,153	63.2	63.7	66.9	63.6	66.1	63.9	64.1	63.3	50.4	65.7	68.3
Urban	1,364,124	966,407	70.8	71.7	70.8	67.1	75.4	72.9	71.2	72.4	72.9	72.6	77.2
Rural	1,245,865	776,924	62.4	64.4	69	67.2	67.3	63.3	63.3	62.2	45.2	67.2	66.7
20 - 24													
Total	2,323,491	548,648	23.6	22	25.8	23.2	26	19.7	22.6	24.5	22.4	29	35.2
Male	1,100,727	327,492	29.8	27.7	33.1	26.6	33.7	25.3	28.4	31.5	30.8	37.9	43.8
Female	1,222,764	221,156	18.1	16.7	19.2	20.2	18.9	14.6	17.4	18.1	15.1	20.5	26.9
Urban	1,356,838	370,649	27.3	28.1	30.8	23.5	31.5	25.3	26.1	31	35.3	33.9	51
Rural	966,653	177,999	18.4	16.4	19.8	20.6	22.6	14.3	15.1	17.6	15.5	27.2	29.8

Age group	Population	Current Attendance	Total	Attendance Ratio									
				Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brong Ahafo	Northern	Upper East	Upper West
· 25 - 29													
Total	2,050,111	144,920	7.1	5.2	8.5	8	7.3	4.9	6.3	6	8.5	8.6	11.8
Male	943,213	90,525	9.6	6.7	11.5	9.6	10.5	6.5	8.5	8.7	13.8	13.3	18.3
Female	1,106,898	54,395	4.9	3.8	6.1	6.6	4.7	3.5	4.5	3.8	4.5	4.7	6.5
Urban	1,194,867	104,593	8.8	7.6	11.4	8.2	9.6	6.9	7.8	8.4	14.3	12	21.4
Rural	855,244	40,327	4.7	3.2	5.4	6.1	5.9	3.2	3.4	3.7	5.6	7.3	9
30 - 34													
Total	1,678,809	46,293	2.8	1.7	4.3	3.5	2.4	1.9	2.6	1.7	3	2.7	3.8
Male	790,301	30,429	3.9	2.2	6.3	4.3	3.6	2.6	3.7	2.6	5.1	4.1	6.3
Female	888,508	15,864	1.8	1.2	2.6	2.8	1.5	1.3	1.7	1	1.3	1.6	1.9
Urban	955,698	35,730	3.7	2.7	6.4	3.6	3.4	2.9	3.4	2.6	5.4	4.9	9.5
Rural	723,111	10,563	1.5	0.9	2	2.1	1.9	1.1	1	1	1.7	2	2.4
35 - 39													
Total	1,421,403	17,010	1.2	0.8	1.8	1.8	0.9	0.8	1.2	0.7	1.1	0.9	1.3
Male	676,768	11,671	1.7	1.1	2.8	2.3	1.4	1.1	1.7	1.1	1.8	1.5	2.2
Female	744,635	5,339	0.7	0.5	0.9	1.3	0.5	0.5	0.7	0.3	0.5	0.5	0.6
Urban	781,852	13,700	1.8	1.4	2.7	1.9	1.5	1.3	1.6	1.1	2.3	2.3	3.8
Rural	639,551	3,310	0.5	0.4	0.9	1.1	0.6	0.4	0.4	0.4	0.5	0.5	0.7
40 - 44													
Total	1,186,350	8,296	0.7	0.5	1	1.2	0.5	0.5	0.7	0.4	0.4	0.4	0.4
Male	572,620	5,449	1	0.7	1.5	1.4	0.7	0.6	1	0.6	0.6	0.6	0.6
Female	613,730	2,847	0.5	0.3	0.5	1	0.4	0.4	0.4	0.2	0.2	0.2	0.3
Urban	632,049	6,859	1.1	0.9	1.5	1.2	0.9	0.8	1	0.7	0.9	1.1	1.6
Rural	554,301	1,437	0.3	0.2	0.5	0.7	0.3	0.2	0.2	0.2	0.2	0.2	0.2

Age group	Population	Current Attendance	Total	Attendance Ratio								
				Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brong Ahafo	Northern	Upper East
45 - 49												
Total	938,098	5,335	0.6	0.5	0.8	0.9	0.5	0.5	0.6	0.3	0.3	0.3
Male	452,975	3,093	0.7	0.5	1.1	1	0.5	0.5	0.7	0.5	0.4	0.4
Female	485,123	2,242	0.5	0.6	0.6	0.8	0.5	0.4	0.4	0.2	0.2	0.2
Urban	487,192	4,263	0.9	0.8	1.3	0.9	0.9	0.8	0.8	0.5	0.8	0.9
Rural	450,906	1,072	0.2	0.3	0.4	0.6	0.3	0.2	0.2	0.2	0.1	0.1
50 - 54												
Total	833,098	3,471	0.4	0.4	0.6	0.7	0.4	0.4	0.3	0.3	0.2	0.2
Male	394,600	2,023	0.5	0.5	0.8	0.8	0.5	0.5	0.4	0.4	0.2	0.2
Female	438,498	1,448	0.3	0.4	0.4	0.6	0.3	0.4	0.3	0.1	0.2	0.2
Total	833,098	3,471	0.4	0.4	0.6	0.7	0.4	0.4	0.3	0.3	0.2	0.2
Urban	421,478	2,615	0.6	0.6	0.8	0.7	0.6	0.7	0.5	0.4	0.4	0.6
Rural	411,620	856	0.2	0.3	0.4	0.5	0.3	0.2	0.1	0.1	0.1	0.1
55 - 59												
Total	523,695	1,110	0.2	0.2	0.2	0.4	0.2	0.2	0.2	0.1	0.2	0.2
Male	258,582	675	0.3	0.2	0.3	0.5	0.2	0.2	0.2	0.2	0.2	0.3
Female	265,113	435	0.2	0.2	0.2	0.3	0.1	0.1	0.2	0.1	0.1	0.1
Urban	275,958	863	0.3	0.3	0.3	0.4	0.2	0.2	0.3	0.3	0.4	0.6
Rural	247,737	247	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1
60 - 64												
Total	475,849	157	0	0	0	0.1	0	0	0	0	0	0
Male	227,050	106	0	0	0	0.1	0	0	0	0	0.1	0
Female	248,799	51	0	0	0	0.1	0	0	0	0	0	0
Urban	225,385	131	0.1	0	0	0.1	0.1	0	0.1	0	0.1	0
Rural	250,464	26	0	0	0	0	0	0	0	0	0	0
65 - 69												
Total	293,871	32	0	0	0	0	0	0	0	0	0	0
Male	136,244	24	0	0	0	0.1	0	0	0	0	0	0
Female	157,627	8	0	0	0	0	0	0	0	0	0	0
Urban	143,114	28	0	0	0	0	0	0	0	0	0	0
Rural	150,757	4	0	0	0	0	0	0	0	0	0	0

Source: Ghana Statistical Service, 2010 Population and Housing Census

CHAPTER EIGHT

FERTILITY¹⁴

8.1 Introduction

Fertility in Ghana has declined from seven children per woman to four over the last 30 years (Ghana Statistical Service, 2009). The high fertility, coupled with declining mortality, has contributed to an intercensal growth rate of around 2.5 percent per annum since 1960. High fertility also exposes women of childbearing age to greater risk of morbidity and mortality (UNFPA, 2012).

The Government of Ghana, recognising the deleterious effect of rapid population growth on development, promulgated a national population policy in March 1969. The document, entitled “Population Planning for National Progress and Prosperity: Ghana Population Policy”, stated among other things, that “the population of Ghana is the nation’s most valuable resource” and that “it is both the instrument and objective of national development”, promulgated a population policy. The main thrust of the Policy was “to bring down the rate of population growth to manageable limits” in order “to assure a decent and modern standard of living for Ghanaian families” (Republic of Ghana, 1969). In 1970, a National Family Planning Secretariat was established as an offshoot of the policy to coordinate family planning activities in both the public and private sectors.

The 1969 policy was reviewed in 1989, 20 years after its promulgation. It was noted that although the Policy had made modest achievements, the goals and objectives of the policy could not be achieved. The policy was revised in 1994 taking into account emerging issues such as the sustainability of the environment, sexual and reproductive health of adolescents and young adults, the aged and people with disabilities, human immune virus and acquired immune deficiency syndrome (HIV and AIDS). The target of the 1994 Revised Population Policy is to reduce the total fertility rate from 5.5 in 1994 to 5.0 by 2000, 4.0 by 2010 and 3.0 by 2020. The 1994 Policy also aimed at achieving a contraceptive prevalence rate (CPR) of 15 percent for modern methods by 2000, 28 percent by 2010 and 50 percent by 2020 (Republic of Ghana, 1994).

Compared with mortality, relatively more fertility studies have been conducted and used to estimate fertility levels, patterns and trends as well as to examine factors affecting fertility behaviour in Ghana (Gaisie, 1981; Nyarko, 2005; Ghana Statistical Service, Ghana Health Service and ICF Macro, 2009; Tawiah, 1984). Using the 2000 Ghana population and housing census data, Nyarko (2005) estimated total fertility rates (TFRs) for the total country, urban-rural residence and region using the P/F ratio method, Arriaga method and the Brass relational Gompertz model. She found that the reported TFRs were lower than the estimates based on indirect fertility estimation techniques, indicating underreporting of births in the 12 months

¹⁴Emmanuel O. Tawiah and Joyce A. Amedoe contributed this chapter

preceding the census. Tawiah (1984) used the 1971 Supplementary Enquiry data on 72,816 currently married women to examine fertility differentials among socio-economic groups in Ghana and found significant fertility differentials associated with level of education, religion and form of marriage.

The various interventions initiated by the Government of Ghana to address and contain high fertility are yet to produce the desired outcomes. The low contraceptive prevalence rate of 23.4percent for any modern method for 2011 shows that the 1994 Revised Policy target of 28 percent by 2010 could not be achieved (Ghana Statistical Service, Year?; Republic of Ghana, 1994). There is the need for further analysis of the fertility situation in view of the decline which occurred in the 1990s and the stall in the 2000s (Ghana Statistical Service, 2004; 2009). The 1998, 2003, 2008 Ghana Demographic and Health Surveys and the 2011 Multiple Indicator Cluster Survey (MICS) reported total fertility rates of 4.55, 4.44, 4.03 and 4.3 respectively. The low contraceptive rate of 34.7 percent for any method for 2011 is not commensurate with a TFR of 4.3. The role of induced abortion in the fertility decline in the country has become increasingly significant over the years (Rockson 2010, Tutu, 2008).

This chapter examines fertility levels, patterns, trends, mean age at childbearing and childlessness from the 2010 PHC.

8.2 Definition of measures

Fertility refers to the actual birth performance i.e. frequency or childbearing among a population and fecundity denotes the physiological capacity of a woman, man or couple to reproduce (International Union for the Scientific Study of Population, 1982). The crude birth rate (CBR) is defined as the number of births in a given year divided by the number of people in the population in the middle of that year. The general fertility rate (GFR) is the number of births in a given year divided by the mid-year population of women in the age groups 15-44 and 15-49. This analysis used women between 15 and 49 years because women still have births after age 45. An age specific fertility rate (ASFR) is defined as the number of births to women of a given age group per 1,000 women in that age group. It is usually calculated for 5-year age groups from 15-19 years to 45-49 years.

The total fertility rate (TFR) which is widely used in the analysis is the average number of live births among 1,000 women exposed throughout their childbearing years (15-49 years) to the schedule of a given set of age specific fertility rates, assuming no women died during the childbearing years. In other words, it is the average number of children a woman will have given birth by the end of her reproductive years if current fertility rates prevailed. The contraceptive prevalence rate is the percentage of currently married women aged 15-49 years currently using any method of contraception (modern and traditional).

8.3 Sources of data

The data for the analyses are derived mainly from the 2010 Ghana Population and Housing Census (PHC). The 2010 PHC household questionnaire elicited information on both current and

lifetime fertility. The current fertility question asked females aged 12-54 years the number of children ever borne (CEB) alive in the 12 months preceding the census by sex. For lifetime fertility, females 12 years and older were asked to report on the number of children they have ever borne alive by sex. They were also asked the number of surviving children they have had. The census recorded 6,360,535 females aged 15-49 years comprising 3,559,821 (56%) in urban and 2,800,714 (44%) in rural areas.

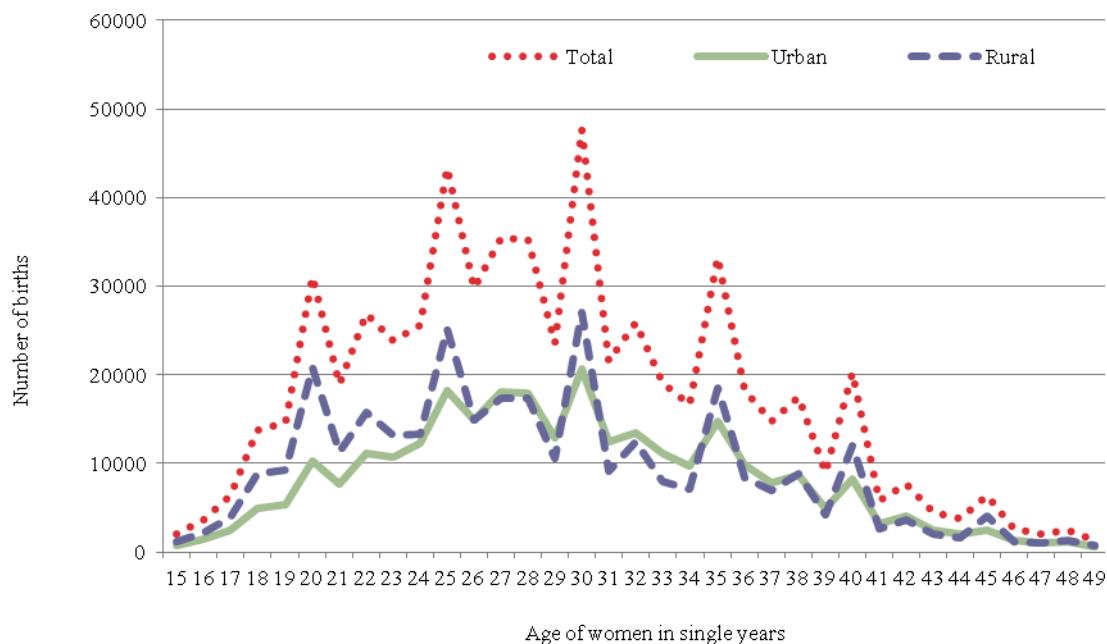
8.4 Methods of analysis

The mathematical techniques employed in the analysis include rates, ratios, proportions and indirect fertility estimation techniques (Brass P/F ratio method and Brass relational Gompertz model). In addition, bivariate cross tabulation techniques were used to examine fertility differentials and incidence of childlessness. Population Analysis System (PASEX) spread sheets developed by the United States Bureau of the Census (International Programs Centre) were used to calculate estimates of fertility measures derived from current fertility data (births in the last 12 months) namely, age specific fertility rates, total fertility rates (TFRs), crude birth rates, general fertility rates and TFRs derived with P/F ratio method and Gompertz relational model. Detailed discussions of the application of the P/F ratio method and Gompertz relational model are provided elsewhere (Brass, 1975; Brass, 1981; United Nations, 1983).

8.5 Quality of Data

The measurement of age and related issues such as age reporting, have been covered in Chapter Three this Report. To assess the reliability of the current fertility indices to be estimated from the 2010 fertility data, the distribution of births in the last 12 months by single years of age of woman, mean parities, age specific sex ratios and comparison of period fertility with reported average parities (P/F ratios) were examined. . Figure 8.1 shows the distribution of births in the last 12 months by single years of age of woman reported in the 2010 census. The three graphs show heaping of births on ages ending in digits zero and five, which suggests possible shifting of events from adjacent groups (see also Chapter Three). The heaping is more pronounced among women in rural than in urban areas. Nyarko (2005) observed a similar pattern of age heaping of births for the 2000 census data and suggested that this pattern of heaping of births could either inflate or deflate the actual fertility performance of a study population, depending on the direction and degree of heaping.

Figure 8.1: Births in the last 12 months by single years of age of women and locality: 2010



Source: Ghana Statistical Service, 2010 Population and Housing Census.

Mean parities, age specific sex ratios and P/F ratios for 2000 and 2010 censuses are presented in Table 8.1. The distribution of average number of children ever born by age for both census years increased with age of women. Mean parity varied from 0.11 births for women aged 15-19 years to 4.71 among women aged 45-49 years. Sex ratios were used as an evaluative tool to assess the quality of data (see Chapter 3). Sex ratios are not expected to fluctuate from one period to another unless there have been major changes in the dynamics of population change (Gaisie, 2005a). The age specific sex ratios tabulated ranged from 0.99 in the 15-19 years age group to 1.01 in the 45-49 years age group and then fell within the normal range of sex ratio at birth of 1.02 and 1.05. The results indicated fairly well reported sex ratios at birth which lie between 1.00 and 1.03, ratios found among African populations (Gaisie, 2005a).

Reported fertility experience as reported in the census, has been found to be distorted for a variety of reasons, including recall lapse. To adjust for some of the observed distortions, Brass fertility developed an estimation procedure (P/F ratio method) which relates the age pattern of fertility derived from information on recent births to the level of fertility implied by the average parity of women in age groups 20-24, 25-29 and perhaps 30-34 years. The P/F ratios are expected to be one if the expected mean parity (P_i) is equal to the cumulative age specific fertility (F_i). A P/F ratio greater than one implies underreporting of births in the last 12 months and lower than one denotes that parity might have been underreported. The P/F ratios for 2000 and 2010 were greater than one, implying that current births were under-reported this was more pronounced in the 15-19 years age group in both censuses (Table 8.1). Disregarding the P/F ratio for the 15-19 years age group because of underreporting of births and high infant mortality, the P/F ratios suggest that current births were underreported by about 41 percent to 55 percent.

Table 8.1: Mean parities, age specific sex ratios and P/F ratios: 2000 and 2010

Age group	Mean parities		Age specific sex ratios		P/F ratios	
	2000*	2010	2000	2010	2000*	2010
15-19	0.21	0.11	1.07	0.99	2.48	1.64
20-24	0.99	0.68	1.07	1.03	1.72	1.55
25-29	2.10	1.60	1.06	1.03	1.54	1.43
30-34	3.43	2.71	1.06	1.03	1.55	1.45
35-39	4.38	3.59	1.05	1.03	1.48	1.41
40-44	5.12	4.31	1.05	1.02	1.49	1.45
45-49	5.58	4.71	1.04	1.01	1.42	1.45
Total	2.21	2.00	1.05	1.02		

Sources: *Nyarko, 2005, Table 8.1, page 143; 2010 Ghana Population and Housing Census

8.6 Fertility levels and pattern

In view of the shifting of events, misreporting of ages and underreporting of events, which affect current fertility data, an attempt was made to use two indirect fertility estimation techniques (P/F ratio method and the Gompertz relational model) to estimate TFRs for comparison with the reported TFRs. The 917 births (0.15 percent) and 8,638 births (1.39 percent) that occurred to women aged 12-14 years and 50-54 years respectively were excluded from the calculation of the reported total fertility rates.¹⁵

Table 8.2 presents reported and estimated TFRs for the 2003 and 2008 Ghana Demographic and Health Surveys (GDHS) and the 2000 and 2010 censuses. The reported TFRs based on current fertility data appeared to be lower than the estimated TFRs, indicating possible under-reporting of births. The reported TFR for 2010 (3.28) is lower than the two estimated TFRs which are 4.71 and 4.57 derived with the P/F ratio method and Gompertz relational model respectively.

Table 8.2: Reported and adjusted total fertility rates: 2000-2010

Year	Reported TFR	P/F ratio	Adjusted relational Gompertz
2000	3.99*		5.66
2003	4.44	4.90**	4.37
2008	4.03	3.86**	4.28
2010	3.28	4.71**	4.57

Source: *Nyarko, 2005, Table 8.2, page 144;

** Based on average of (P3/F3, P4/F4), 2010 Ghana Population and Housing Census

Current fertility data (births in the last 12 months to women aged 15-49 years) have been used to estimate age specific fertility rates, total fertility rates, general fertility rates and crude birth rates for the total country, urban and rural areas (Table 8.3). All the four fertility measures declined between 2000 and 2010. The total fertility rate declined from 3.99 in 2000 to 3.28 in 2010, a

¹⁵ Assigning 917 births and 8,638 births to the 15-19 and 45-49 years age groups respectively yielded a reported total fertility rate of 3.20 compared with 3.28 after their exclusion, a negligible difference of 0.08.

decrease of about 17.8 percent. The decline was more pronounced in rural than in urban areas: rural from 4.90 to 3.94; urban from 3.00 to 2.78. All the four fertility measures show that rural fertility was higher than urban fertility. The rural total fertility rate in 2010 was 1.16 children higher than that of urban fertility (3.94 and 2.78 respectively) compared to a difference of 1.9 children in 2000. The general fertility rate declined from 130 births per 1,000 women aged 15-49 years in 2000 to 97 births per 1,000 women aged 15-49 years in 2010, while the crude birth rates (CBRs) were 31 and 25 per 1,000 population in 2000 and 2010 respectively.

Table 8.3: Age specific fertility rates, total fertility rate, general fertility rate, and crude birth rate by type of locality: 2000 and 2010

Age group	Age specific fertility rates					
	2000*			2010		
	Total	Urban	Rural	Total	Urban	Rural
15-19	0.04	0.02	0.06	0.03	0.02	0.04
20-24	0.13	0.09	0.18	0.10	0.07	0.15
25-29	0.17	0.13	0.21	0.15	0.13	0.18
30-34	0.17	0.14	0.20	0.15	0.13	0.16
35-39	0.14	0.11	0.17	0.12	0.11	0.14
40-44	0.09	0.07	0.11	0.07	0.06	0.08
45-49	0.06	0.05	0.07	0.03	0.03	0.04
TFR	3.99	3.00	4.90	3.28	2.78	3.94
GFR	130.0	100.1	155.50	96.6	81.10	116.20
CBR	31.1	26.7	33.80	25.3	23.0	26.90

Sources: *Nyarko, 2005, Table 8.7, page 151; 2010 Ghana Population and Housing Census

Because the reported TFRs are low due in part to misstatement of age and underreporting of current fertility, Brass relational Gompertz model was used to compute TFRs for the regions and urban and rural areas for 2000 and 2010 and the results are presented in Table 8.4. The estimated TFRs are based on the average of the 25-29 to 35-39 year age groups and in most cases on combined ASFR and (CEB) 2+2 point estimates. The estimated TFRs appear to be more “plausible” than the reported TFRs presented in Table 8.5. The estimated TFR of 4.57 for the country is more in line with the reported total fertility rate of the 2008 Ghana Demographic and Health Survey (4.03) whose fertility data are more likely to be robust because of better data collection methodology. Greater Accra Region recorded the lowest fertility (3.51), while the highest fertility was recorded in the Northern Region (6.01). The Northern, Upper West and Upper East regions recorded the three highest fertility levels: well over 5.0 children per woman. A woman in the Northern Region had 1.44 more children than the national average of 4.57 and 2.5 more than a woman in Greater Accra Region. In all the regions, TFR declined between 2000 and 2010. Table 8.4 also shows that TFR is higher for women in rural areas than for those in urban areas by 1.39 children.

Table 8.4: Adjusted total fertility rates* by region: 2000 and 2010

Region	2000	2010
Western	6.10	4.79
Central	5.76	4.78
Greater Accra	4.30	3.51
Volta	5.47	4.48
Eastern	5.30	4.53
Ashanti	5.69	4.43
BrongAhafo	5.97	5.01
Northern	7.03	6.01
Upper East	6.47	5.31
Upper West	6.97	5.48
Urban	**	3.95
Rural	**	5.34
All regions	5.66	4.57

Source: Ghana Statistical Service, 2010 Population and Housing Census

* Adjusted TFRs based on Brass relational Gompertz model

** Figures not available.

The factors responsible for higher rural than urban fertility include differences in contraceptive use and access to contraceptives, educational attainment and age at marriage. The contraceptive prevalence rate for any method for urban women in 2011 was 36.9 compared to 32.5 for rural women (Ghana Statistical Service, 2012).

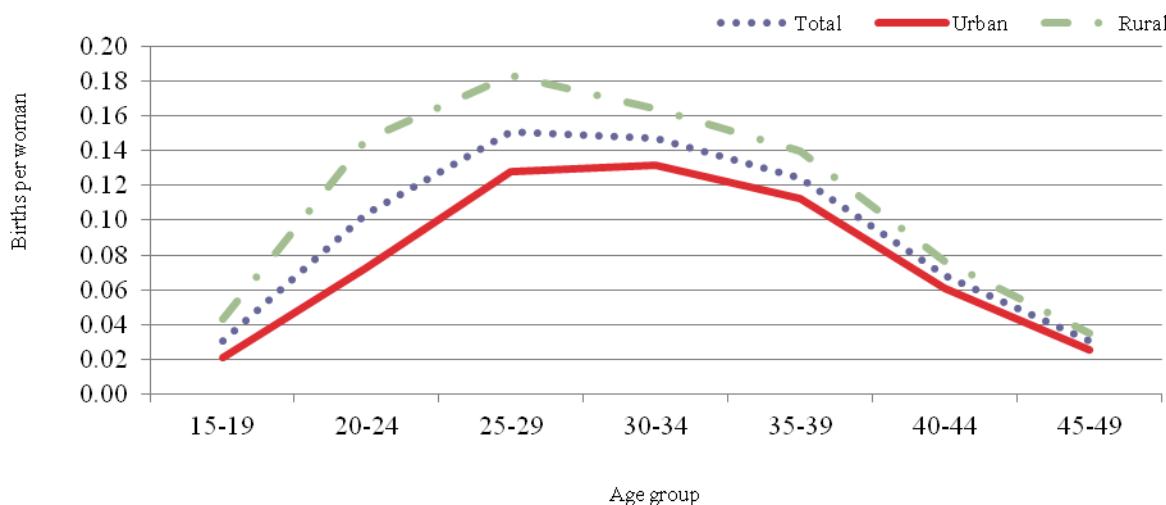
A second fertility measure based on retrospective data (children ever born) used to describe fertility levels is the mean number of children ever born per woman by age group. The mean number of children ever born is the number of children ever born to women in an age group divided by the number of women in that age group. The mean number of children ever born to women aged 45-49 years, which can be regarded as completed fertility, declined from 5.58 in 2000 to 4.71 in 2010, a decline of 0.87 births. The rural and urban figures for 2010 were 5.45 and 4.04 respectively (figures not shown). A completed fertility of 4.71 in 2010 indicates a relatively high fertility as depicted by the TFR of 4.6 as shown in Table 8.2.

8.7 Age pattern of fertility

The distribution of fertility by age of women in the reproductive age group is shown in Figure 9.2. Maximum fertility is attained in the 25-29 year age group, which according to the United Nations' classification of fertility distributions, can be described as late peak type. In Ghana, the expectation is that maximum fertility would be achieved in the 20-24 year age group because of relatively early age at marriage and childbearing. The attainment of maximum fertility in the 25-29 year age group suggests a shifting of births either in the 20-24 age groups to the 25-29 age groups as a result of age misreporting and/or an actual delay in the age at first birth. Median age at first marriage for women aged 25-49 increased from 19.4 in 2003 to 19.8 in 2008 while

median age at first birth also increased from 20.0 to 20.7 within the same period (Ghana Statistical Service, Noguchi Memorial Institute for Medical Research and ORC Macro, 2004; Ghana Statistical Service, Ghana Health Service and ICF Macro, 2009).

Figure 8.2: Age-specific fertility rates: 2010



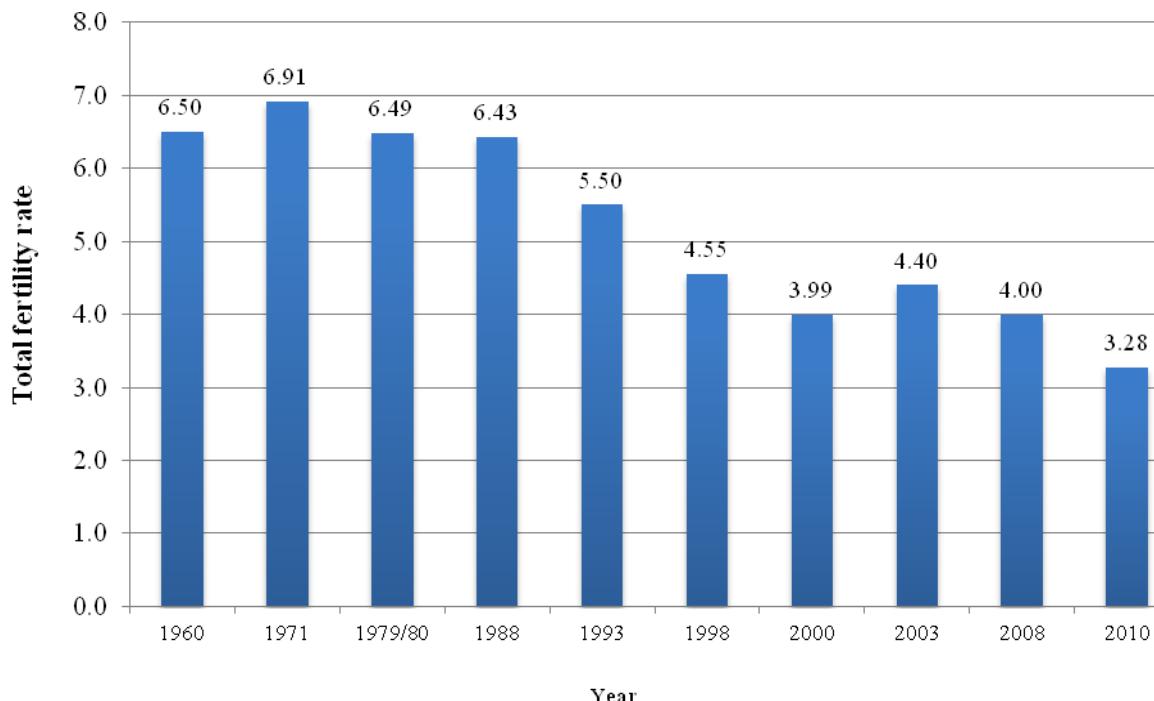
Source: 2010 Ghana Population and Housing Census data

8.7 Fertility trends, 1960-2010

Fertility data from the 1960 Post Enumeration Survey, 1971 Supplementary Enquiry, the 1979/80 Ghana Fertility Survey and the 1988-89, 1993, 1998, 2003 and 2008 Ghana Demographic and Health Surveys) have been utilized to provide a more complete picture of the fertility situation in the country. The differences between these various sources in the way the data were collected could account in part for the differences in the estimates between years. There is need to exercise extreme caution in interpreting the trend estimates.

The trend in fertility, as indicated in Figure 8.3, shows that total fertility rate reduced from 6.5 in 1960 to 3.28 in 2010, almost halved during the 50-year period. The TFRs from the GDHS for 1998, 2003 and 2008 suggest that fertility decline has somewhat stalled around 4-5 children (4.55 in 1998, 4.4 in 2003 and 4.0 in 2008). The mean number of children ever born to women aged 45-49 years increased in the 1960s through to the 1980s, reaching its peak of 7.25 children per woman in 1988 and decreasing to 4.71 in 2010. The corresponding values are 5.85 in 1960, 6.42 in 1971, 6.71 in 1979/80, 7.25 in 1988, 6.64 in 1993 and 5.93 in 1998 (Nyarko, 2005).

Figure 8.3: Reported total fertility rates: 1960-2010



Sources: Nyarko, 2005, Table 8.3, page 146; Ghana Statistical Service, 2010 Population and Housing Census

8.8 Fertility differentials

The level of fertility in any given area is influenced by biological, demographic, economic, geographical, and socio-cultural factors. In this section levels and trends in fertility are analysed region of residence, marital status and level of education. It examines the relationship between these factors and fertility level measured by reported total fertility rate and the mean number of children ever born to women aged 45-49 years (completed fertility). The reported TFRs are compared with estimated TFRs from the Brass relational Gompertz model. (See Appendix A8.1 for the estimated TFRs based on Brass relational Gompertz model for marital status and level of education).

8.8.1 Region of residence

Table 8.5 presents reported total fertility rates by region for 2000 and 2010. Whereas in 2000 Upper West exhibited the highest total fertility rate (4.90), Central Region was the region with the highest TFR in 2010 (3.60). The lowest total fertility rates of 2.53 and 2.56 in 2000 and 2010 respectively were observed in the Greater Accra Region. A plausible explanation for the situation in the Greater Accra Region is a stall in the fertility decline. All the regions, except Greater Accra Region, experienced decline in TFR between 2000 and 2010, ranging from 0.04 percent in the Volta Region to 32.6 percent in the Ashanti Region. The percentage declines in the Western, Ashanti, Northern, Upper East and Upper West Region were above the national average of 17.8 percent.

The regional differentials in fertility can be attributed to a variety of factors, including differences in levels of education, urbanism, contraceptive use, age at marriage and abortion (Blanc and Gray, 2003; Ghana Statistical service, 2009). Contraceptive use has been identified as one of the four proximate determinants of fertility (Bongaarts, 1978). The 2011 Multiple Indicator Cluster Survey reported lower contraceptive prevalence rates (CPRs) for the three northern regions. The CPRs for any method were 20.0 percent, 21.6 percent and 27.2 percent for Northern, Upper East and Upper West Regions respectively, compared with a national average of 34.7 percent. Greater Accra Region had the highest CPR of 43.5 percent (Ghana Statistical Service, 2011). However, the role of abortion in decline of fertility in the country has not been fully established (Blanc and Gray, 2003). This is one area which will need further research beyond census and DHS-type data.

Table 8.5: Reported total fertility rates by region: 2000 and 2010

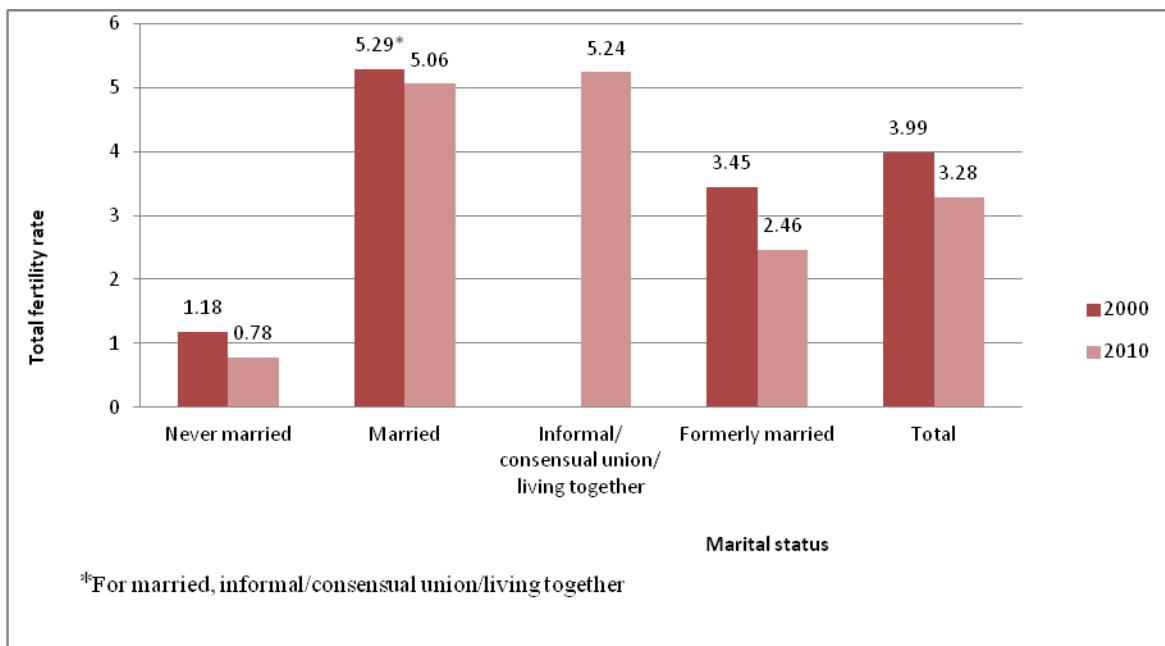
Region	2000*	2010	% Decline (2000-2010)
Western	4.42	3.57	19.20
Central	4.01	3.60	10.20
Greater Accra	2.53	2.56	+ 0.01*
Volta	3.51	3.38	0.04
Eastern	3.72	3.55	0.05
Ashanti	4.84	3.26	32.64
Brong-Ahafo	4.24	3.58	15.57
Northern	4.87	3.53	27.52
Upper East	4.19	3.43	18.14
Upper West	4.90	3.45	29.59
All regions	3.99	3.28	17.79

Sources: Nyarko, 2005, Table 8.8, page 153
2010 Ghana Population and Housing Census

8.8.2 Marital status

The 2010 census collected information on current marital status from persons aged 12 years and older. The marital status data have been classified into never married, married, informal/consensual union/living together and formerly married (separated, divorced and widowed). Women in the informal/consensual union/living together reported the highest total fertility rate of 5.24, and the never married females had the lowest total fertility rate of 0.78 (see Figure 8.4). The low total fertility rate among the never married could be due cultural attitudes to childbearing outside marriage, large proportion (83%) being relatively young (aged 12-24 years). The total fertility rate of married females is twice that of the formerly married (separated, divorced and widowed). The relatively low total fertility rate among the latter could partly be as a result of marriage instability brought about by separation, divorce and death of spouse.

Figure 8.4: Total fertility rates by marital status: 2000 and 2010



Sources: 2000 and 2010 Ghana Population and Housing Censuses

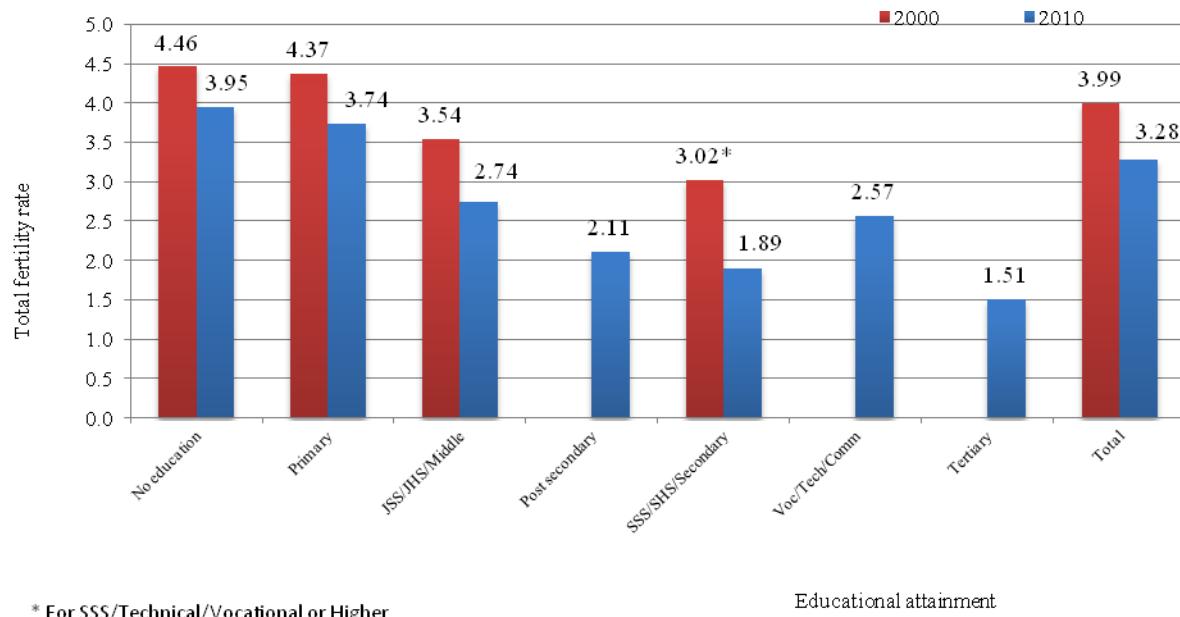
8.8.3 Educational attainment

The 2010 census collected information on the highest level of formal schooling a person aged three years or older had ever attended or was attending. Figure 8.5 displays reported total fertility rates by educational attainment of females aged 15-49 years in 2000 and 2010. Total fertility rate is inversely related to level of education both census years as noted in other African countries (Central Statistical Office and Macro International Inc., 2008; National Bureau of Statistics and ICF Macro, 2011; National Statistical Office and ICF Macro, 2011; Liberia Institute of Statistics and Geo-Information Service and Ministry of Health and Social Welfare, 2008; Zimbabwe National Statistics Agency and ICF International, 2012). In 2010, TFR varied from 3.9 among females with no formal education to 1.51 for females with tertiary education. The level of fertility of females with no formal education was 2.6 times that of females with tertiary education.

The data show similar fertility behaviour of females with no formal education and females with primary school education. The TFR for females with no formal education for 2000 was 4.46 compared with 4.37 for females with primary school education, a difference of only 0.09 births. In 2010, the corresponding values were 3.95 and 3.74, (a difference of 0.21 births). The high TFR for women with no formal education and women with primary education in Ghana compares positively with TFR recorded in other sub-Saharan African countries, such as Democratic Republic of Congo [7.1](Ministere du Plan and Macro International, 2008), while the corresponding figures for women in the same category in Bangladesh and Egypt were 3.0 and 2.9 and 3.4 and 3.2 respectively (National Institute of Population Research and Training, Mitra and Associates, Macro International, 2009; El-Zanaty & Way, 2009).

A possible explanation for this finding is that a little formal education, i.e. primary school level only, does little to change the fertility behaviour of females. The finding that the level of education of females is inversely related to fertility and that the impact of education begins to be felt after basic education underlines the need for at least secondary education for females for any influence on fertility behaviour, and consequently reproductive health to be felt.

Figure 8.5: Total fertility rates by educational attainment: 2000 and 2010



Sources: 2000 and 2010 Ghana Population and Housing Censuses

Mean number of children ever born to women aged 45-49 years is the second fertility measure that is used to examine the relationship between fertility and the three selected characteristics of females namely, type of locality, marital status and level of education. The pattern of fertility differentials shown by the reported TFRs is also reflected by the mean number of children ever born to women aged 45-49 years (Table 8.6). As with the reported TFRs, rural women, married women and women with no formal education reported the highest mean number of children ever born: 5.45, 4.97 and 5.51 respectively.

Table 8.6: Mean number of children ever born to women aged 45-49 years by selected characteristics: 2010

Characteristic	Number of females	Number of children ever born	Mean number of children ever born
Type of locality			
Urban	256,046	1,034,093	4.04
Rural	229,077	1,248,479	5.45
Marital status			
Never married	15,252	30,127	1.98
Informal/consensual/union/living together	18,629	88,098	4.73
Married	336,178	1,671,577	4.97
Formerly married*	115,064	492,770	4.28
Level of education			
No education	203,785	1,122,272	5.51
Primary	56,629	282,316	4.99
JSS/JHS/Middle	166,092	700,747	4.22
SSS/SHS	20,324	63,207	3.11
Vocational/Technical/Commercial	16,409	51,386	3.13
Post middle/Secondary certificate/Post-secondary diploma	15,495	46,894	3.03
Bachelor degree	6,389	15,750	2.47
Total	485,123	2,282,572	4.71

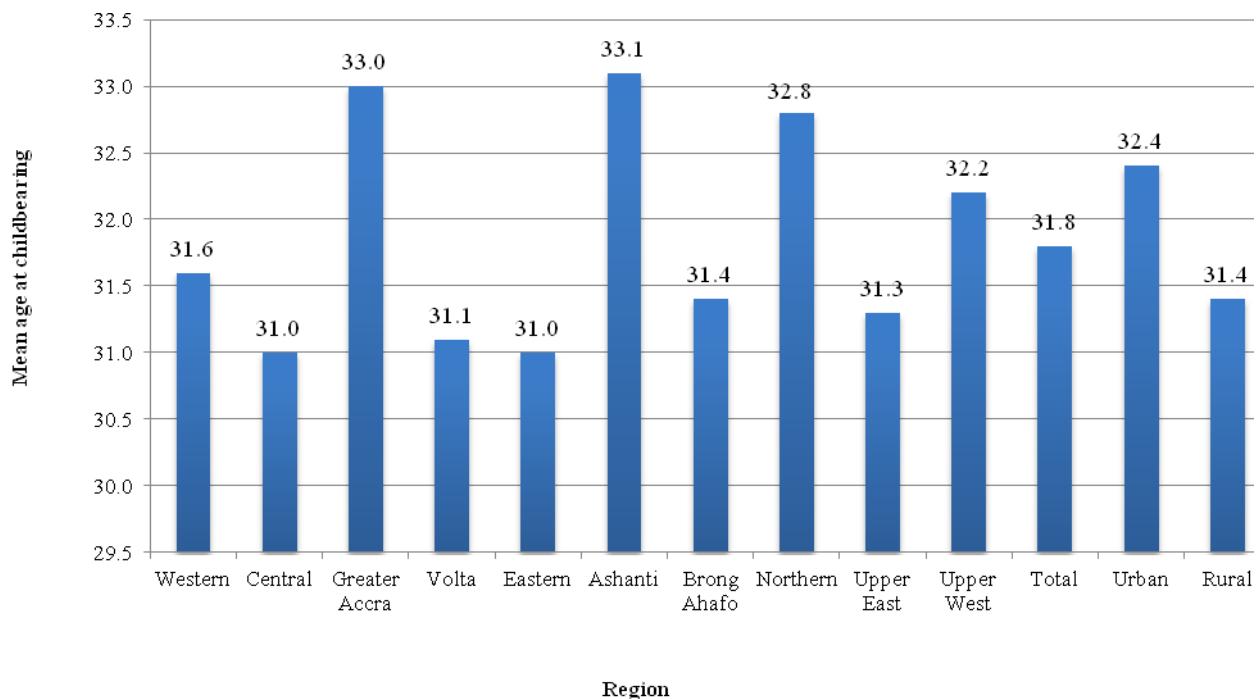
Source: Ghana Statistical Service, 2010 Population and Housing Census

*Comprised separated, divorced and widowed.

8.9 Mean age at childbearing

Figure 8.6 shows mean age at childbearing based on births in the 12 months preceding the 2010 census. The overall, mean age at children from the data was 31.8, varying from 31.1 among females in Volta region to 33.0 for the Greater Accra region. The mean age at childbearing among females in urban was 32.4 years and 3.14 for those in rural areas (31.4 years) and this probably underpins lower urban total fertility rate compared with that of the rural areas. Greater Accra Region stands out as one of the regions with the highest mean age at childbearing (33.0 years), after Ashanti Region at 33.1 years, and this is reflected in a lower total fertility rate of 2.56. Reported mean ages at childbearing were 32.8 and 32.2 years respectively for the Northern and Upper West Regions, above the national average of 31.8 years. These are two of the regions with the highest total fertility rates. The observation may be due to age misstatement and shifting of events in the two regions. Although TFR declined from 3.99 in 2000 to 3.28 in 2010, the mean age at childbearing remained virtually the same, 31.7 and 31.8 in 2000 and 2010 respectively. The results could be an artefact of age reporting.

Figure 8.6: Mean age at childbearing: 2010



Source: Ghana Statistical Service, 2010 Population and Housing Census

8.10 Childlessness

The 2010 census collected information on children ever born alive and surviving from females 12 years and older. The analysis of childlessness is measured in two ways namely, the proportion of females with no child by age 35 years and the proportion of women who remain childless after seven years of marriage (Larsen & Menken, 1989 cited in Nyarko, 2005). However, the analysis uses only proportion of females with no child by age 35 years because of lack of data on marriage duration from the 2010 census.

The percentages of females aged 35 and over who were childless were 9.1, 10.0 and 8.1 respectively for the total country, urban and rural areas (Table 8.7). In general, childlessness was slightly more prevalent among women in urban than rural areas. The percentages of females who are childless decreased with increasing age up to 50-54 years after which the percentages increased. The percentage of childless females aged 35-39 years in urban areas was 131 compared to 8.1 of rural females and this rural-urban difference is the largest across all age groups.

Table 8.7: Females with no child by age 35 years and above and locality

Age group (years)	Number of females	Number of females with no child	Percentage
35 - 39			
Total	744,635	80,862	10.9
Urban	408,174	53,568	13.1
Rural	336,461	27,294	8.1
40 - 44			
Total	613,730	51,726	8.4
Urban	327,174	31,801	9.7
Rural	286,556	19,925	7.0
45 - 49			
Total	485,123	35,309	7.3
Urban	256,046	20,706	8.1
Rural	229,077	14,603	6.4
50 - 54			
Total	438,498	28,928	6.6
Urban	225,922	15,638	6.9
Rural	212,576	13,290	6.3
55 - 59			
Total	265,113	18,722	7.1
Urban	142,974	10,416	7.3
Rural	122,139	8,306	6.8
60 - 64			
Total	248,799	23,147	9.3
Urban	119,647	10,939	9.1
Rural	129,152	12,208	9.5
65 - 69			
Total	157,627	16,099	10.2
Urban	78,526	7,753	9.9
Rural	79,101	8,346	10.6
70 - 74			
Total	201,818	19,985	9.9
Urban	90,165	9,274	10.3
Rural	111,653	10,711	9.6
75+			
Total	310,134	39,049	12.6
Urban	142,789	18,597	13.0
Rural	167,345	20,452	12.2
35-75+			
Total	3,465,477	313,827	9.1
Urban	1,791,417	178,692	10.0
Rural	1,674,060	135,135	8.1

Ghana Statistical Service, 2010 Population and Housing Census

The percentage of childless females aged 35 years and older by region is shown in Table 8.8. The Greater Accra Region had the largest percentage of childless females (12.6%) followed closely by the Northern Region (12.3%). The region with the lowest proportion of childless females was Brong-Ahafo (6.6%) followed by Upper East (6.9%).

Table 8.8: Percentage of childless females aged 35 years and older by region, 2010

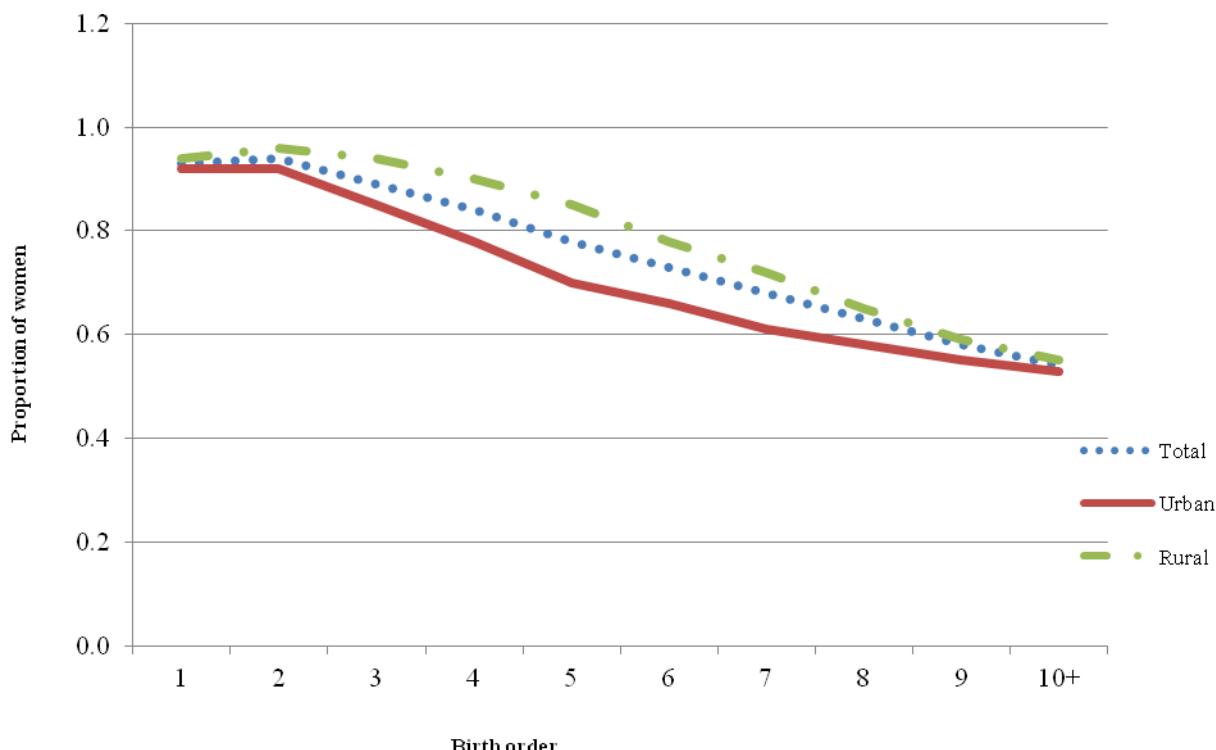
Region	Number of females	Number of childless females	Percentage
Western	302,746	28,255	9.3
Central	332,604	23,720	7.1
Greater Accra	572,482	72,299	12.6
Volta	345,776	28,221	8.2
Eastern	409,572	30,349	7.4
Ashanti	657,810	55,136	8.4
Brong-Ahafo	298,892	19,767	6.6
Northern	280,288	34,518	12.3
Upper East	162,302	11,145	6.9
Upper West	103,005	10,417	10.1
All Regions	3,465,477	313,827	9.1

Source: Ghana Statistical Service, 2010 Population and Housing Census

8.11 Parity progression ratios

Parity progression ratios are calculated as the proportion of a cohort of women who have had a birth-by-birth order. Figure 8.7 presents proportions of women aged 45-49 years by birth order and type of locality. In general, the graphs show a decrease in the proportion of women who moved to higher order of births for the total country, urban and rural areas. For the total country, 73 out of every 1,000 women aged 45-49 years had never had a child. The figures were 81 and 64 for women in urban and rural areas respectively. Out of each 1,000 women in the total country, urban and rural areas 927, 919 and 936 respectively had had at least one child. The high fertility among women in rural areas is reflected in the high proportion of females with high birth orders. As expected, the proportions by birth order among females aged 45-49 years decreases from 0.93 for birth order one to 0.54 for birth order 10 or more in the total population. The corresponding figures for urban and rural areas were 0.92 and 0.53 and 0.94 to 0.55 respectively.

Figure 8.7: Proportion of women aged 45-49 years by birth order and locality: 2010



Source: Ghana Statistical Service, 2010 Population and Housing Census

8.12 Summary, Conclusion and Recommendations

8.12.1 Summary and Conclusion

Total fertility rate reduced from 6.50 in 1960 to 3.28 children per woman in 2010, a reduction by about 50 percent over the 50-year period from 6.50 in 1960 to 3.28 in 2010. In the last two censuses total fertility rate declined from 3.99 in 2000 to 3.28 in 2010, a decrease of 17.8 percent. The mean number of children ever born to women aged 45-49 years (completed fertility) has declined from 5.58 in 2000 to 4.71 in 2010. The analyses showed that levels and rates of decline in fertility varied by type of locality, region, marital status and level of education. Women in rural areas reported higher fertility than their urban counterparts, 3.94 as compared with 2.78. There was an observed inverse relationship between educational attainment and fertility which confirmed findings from other African countries. Nonetheless, the fertility behaviour of women with no formal education and those with primary school education only were similar, pointing to the effect of education on fertility behaviour after secondary education.

What is yet to be satisfactorily explained is the mismatch between the apparent fertility decline and a CPR of 34.7 percent for any method (any modern, 23.4 percent and any traditional, 11.3 percent) (2011 Ghana Multiple Indicator Cluster Survey), a phenomenon known as the “demographic conundrum”. Some observers have attributed the decline in fertility to induced abortion (Blanc & Grey, 2003; Tutu, 2008; Rockson, 2010). Abortion is believed to have played

a critical role in the fertility transition in countries such as Japan. Using the proximate determinants framework, Tutu (2008) estimated that the fertility-inhibiting effect due to abortion increased from 10 percent in 1998 to 20 percent in 2003 and has become the index with the second highest fertility inhibition effect after postpartum infecundability (57% in 2003). For the urban areas in Ghana, the corresponding percentage figures due to abortion are 17 percent and 24 percent in 1998 and 2003 respectively. Rockson's (2010) study on unmet need for contraception and fertility in Ghana estimated the number of births averted due to abortion if unmet needs remained the same, reduced by 25 percent, reduced by 50 percent, reduced by 75 percent and totally eliminated in 1998, 2003 and 2008. Assuming unmet need was reduced by 25 percent, the numbers of births that will be averted for each woman were 3.1, 3.7 and 3.9 for 1998, 2003 and 2008 respectively. These do not help to fully explain the decline in fertility and the observed patterns. Thus, the studies by Tutu (2008) and Rockson (2010) point to the role of abortion in the level of fertility in Ghana, but this aspect of fertility studies is yet to be fully explored.

The inverse relationship between educational attainment and fertility suggests the catalytic role of education in fertility decline. Higher levels of formal education lead to delays in marriage and childbearing empower women and afford them the opportunity to take decisions that affect their lives. Educating females up to at least secondary school level will open the door to a whole vista of opportunities including a favourable attitude towards small family sizes with its attendant benefits.

The 2010 census has provided the opportunity to analyse fertility data to throw more light on certain aspects of the fertility situation in the country. It asked a question each on current and lifetime fertility.

8.12.2 Recommendations

From the analysis, it has become apparent that the census data on current and lifetime fertility can be a useful for fertility studies. Therefore, future censuses should continue to collect such data to supplement fertility data from other sources. In order to collect complete information on the number of children ever born particularly from older females, it may be necessary to ask three separate questions: number of children living in the same household, number of children living in the locality of enumeration and number of children living elsewhere. Such an approach will help to collect comprehensive data, as some older females may not have included grown-up children who have left the household and are living elsewhere in their responses.

Decline in fertility can be explained by level of contraceptive use, marriage, infecundability and abortion (Bongaarts, 1978). Data from the census and other sources on marriage, contraceptive use and infecundability (e.g. MICS and GDHSs) could not fully explain the decline in fertility observed. One variable, which has been missing, is abortion. There is need to conduct a specific fertility survey that will elicit more detailed fertility information particularly on abortion in order to acquire a better understanding of the factors that affect fertility in the country.

References

- Bongaarts, J. (1978). A framework for analysing the proximate determinants of fertility. *Population and Development Review*, 4(1):105-132.
- Brass, W.(1975). *Methods for estimating fertility and mortality from limited and defective data*. Laboratories for Population Statistics. An Occasional Publication.
- Brass, W.(1981). *The use of the Gompertz relational model to estimate fertility*. International Population Conference: Manila, 3, 345-362. International Union for the Scientific Study of Population, Liege, Belgium.
- Central Statistical Office (CSO) [Swaziland], and Macro International Inc. (2008).*Swaziland Demographic and Health Survey 2006-2007*. Mbabane, Swaziland: Central Statistical Office and Macro International Inc.
- El-Zanaty, Fatma and Ann Way(2009). *Egypt Demographic and Health Survey 2008*. Cairo and Calverton, MD: Ministry of Health (Egypt), El-Zanaty and Associates, and Macro International.
- Gaisie, S.K. (1981). ‘Child spacing patterns and fertility differentials in Ghana’. In:Pace, H. J.&Lesthaeghe, R. (Eds.). *Child spacing in Tropical Africa: traditions and change*. Academic Press, pp. 237-253.
- Gaisie, S.K. (2005a). Chapter 1. ‘Population size, composition and age-sex structure’. *Population Data Analysis Report:Socio-economic and Demographic Trends*. Ghana Statistical Service.
- Gaisie, S.K. (2005b). Chapter 2. ‘Assessment and adjustment of population age and sex structures, 1960-2000 Ghana censuses’. *Population Data Analysis Report. Socio-economic and Demographic Trends*. Ghana Statistical Service.
- Ghana Statistical Service (GSS), Ghana Health Service (GHS) and ICF Macro(2009). *Ghana Demographic and Health Survey 2008*. Accra, Ghana: GSS, GHS and ICF Macro.
- Ghana Statistical Service(2012). *Ghana Multiple Indicator Cluster Survey with an Enhanced Malaria Module and Biomarker, 2011*. Final Report. Accra, Ghana.
- International Union for the Scientific Study of Population(1982). *Multilingual Demographic Dictionary* (2nd Ed.). English section. Liege, Belgium: Ordina Editions.
- Kpedekpo, G.M. K. (1982). *Essentials of demographic analysis for Africa*. Chapter 3. Heinemann, Ibadan.

Liberia Institute of Statistics and Geo-Information Services (LISGIS) [Liberia], Ministry of Health and Social Welfare [Liberia], National AIDS Program [Liberia], and Macro International Inc. (2008). *Liberia Demographic and Health Survey 2007*. Monrovia, Liberia: Liberia Institute of Statistics and Geo-Information Services (LISGIS) and Macro International Inc.

Ministère du Plan and Macro International. 2008. *Enquête Démographique et de Sante, République Démocratique du Congo 2007*. Calverton, MD: Ministère du Plan and Macro International.

National Bureau of Statistics (NBS) [Tanzania], and ICF Macro (2011). *Tanzania Demographic and Health Survey 2010*. Dar es Salam, Tanzania: NBS and ICF Macro.

National Institute of Population Research and Training (NIPORT), Mitra and Associates, and Macro International (2009). *Bangladesh Demographic and Health Survey 2007*. Dhaka, Bangladesh and Calverton, MD: NIPORT, Mitra and Associates, and Macro International.

National Population Commission (NPC) [Nigeria] and ICF Macro(2009). *Nigeria Demographic and Health Survey 2008*. Abuja, Nigeria and Calverton, MD; NPC and ICF Macro.

National Statistical Office (NSO) and ICF Macro(2011). *Malawi Demographic and Health Survey*. Zomba, Malawi, and Calverton, Maryland, USA: NSO and ICF Macro.

Nyarko, P.E. (2005). Chapter 8. ‘Fertility levels, patterns and trends’. Vol.1. *Socio-economic and demographic trends*. Ghana Statistical Service.

Republic of Ghana (no date). National Population Policy (Revised Edition, 1994).

Republic of Ghana(1969). *Population planning for national progress and prosperity: Ghana population policy*. Ghana Publishing Corporation (Printing Division), Accra-Tema, Ghana.

Rockson, E. M. (2010). *Unmet need for contraception and fertility in Ghana: Policy implications for development*. Unpublished PhD thesis submitted to the Regional Institute for Population Studies, University of Ghana.

Siegel, J. S & Swanson, D. A. (Eds.) (2004). *The methods and materials of demography*. 2nd Edition. London, Elsevier Academic Press.

Tawiah, E. O. (1984). Determinants of cumulative fertility in Ghana. *Demography*, 21(1), 1-8.

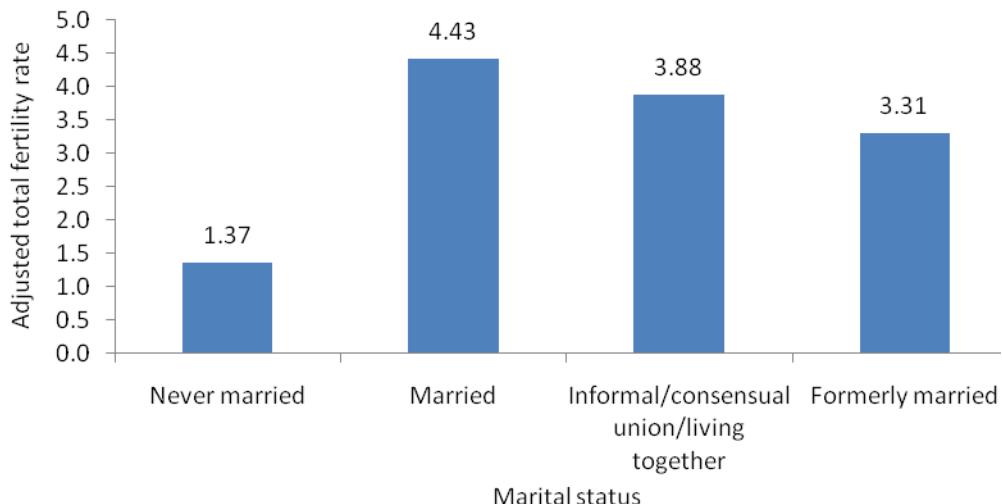
Tutu, R. A. (2008). *Child spacing and fertility levels in Ghana, 1998-2003*. Unpublished M.Phil. thesis submitted to the Regional Institute for Population Studies, University of Ghana.

United Nations(1983). *Manual X. Indirect techniques for demographic estimation*. United Nations, New York.

Zimbabwe National Statistics Agency (ZIMSTAT) and ICF International (2012). *Zimbabwe Demographic and Health Survey 2010-11*. Calverton, Maryland: ZIMSTAT and ICF International Inc.

Appendix

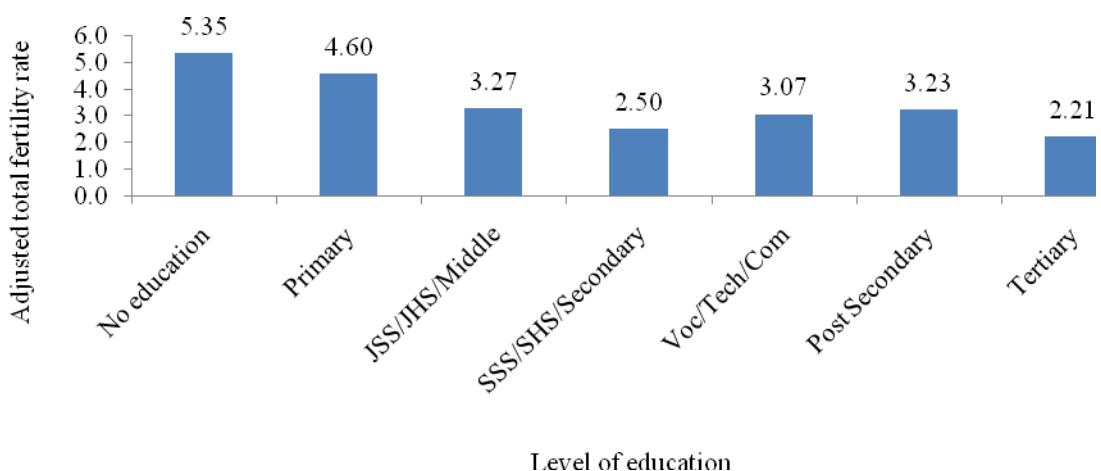
Figure A8.1: Adjusted total fertility rates* by marital status, Ghana 2010



Note: * Adjusted TFRs based on Brass relational Gompertz model

Source: Ghana Statistical Service, 2010 Population and Housing Census

Figure A8.2: Adjusted total fertility rates* by level of education, Ghana 2010



Note: * Adjusted TFRs based on Brass relational Gompertz model

Source: Ghana Statistical Service, 2010 Population and Housing Census

CHAPTER NINE

MORTALITY¹⁶

9.1 Introduction

Mortality, as one of the three components of population growth, plays an important role in determining the growth of a population. The level and pattern of mortality is a reflection of the health status of a population. Thus, indices of mortality have been used as indicators of socio-economic development.

Mortality data are needed, among others, for the analyses of potential growth of population and construct population projections as well as to formulate policies, develop, implement and evaluate public health programmes and projects. Mortality data are used in calculating probable life span of population which are then used by institutions such as insurance companies to set premiums. Results from mortality analyses underpin disease control programmes and in identifying viable health and related programmes which advance human survival.

This chapter deals with estimates of levels, age patterns, trends and differentials in infant, under-five and adult mortality as well as the construction of empirical model life tables. Socio-economic and demographic differentials are presented to highlight factors that enhance or retard child and adult survival.

9.2 Sources of Data and Definition of Concepts

9.2.1 Sources of Data

The conventional measurement of mortality requires information on the number of deaths and on the population subject to the risk of dying. Customarily, number of deaths is obtained from the registration of deaths as they occur while the population at risk is derived from censuses and sample surveys. In Ghana the registration of deaths is incomplete and fraught with omissions, misstatement of age and other errors such that mortality measures based on the generated data can lead to distort estimates.

Due to the inadequacy of mortality registration data, countries such as Ghana have collected data on deaths in censuses and surveys. In Ghana, censuses and sample surveys (i.e. 1960 Post-Enumeration Survey, 1968/69 Demographic Sample Survey, 1971 Supplementary Inquiry, 1979/80 World Fertility Survey, 1988-2008 Demographic and Health Surveys, 2000 Census and 2010 Census) have provided the information required for the determination of the levels, age patterns, differentials and trends of mortality.

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The data utilised in measuring mortality rates in this chapter were derived from the fertility and mortality sections of the 2010 Population and Housing Census (PHC) questionnaire.

The specific questions were on “births and deaths in the last 12 months” (i.e. current data); and children ever born and children surviving.

9.2.2 Definition of Concepts

The mortality estimates used in this chapter are childhood and maternal mortality ratio and rate, crude death rate, infant death rate, age-specific death rate and life expectancy at birth.

Childhood mortality measures the risk of dying from birth to exact age five years. The specific measures considered are infant, child and under-five mortality rates (in years).

Infant Mortality ($1q_0$ or q_1) is the probability of dying between birth and age one. This is expressed per 1,000 live births

Child Mortality ($4q_1$ or q_4) is the probability of dying between age one and five.

Under-five Mortality ($5q_0$ or q_5) is a combination of infant and child mortality and is defined as the probability of dying between birth and exact age five. The rate is expressed per 1,000 children.

Maternal Mortality Ratio is defined as the number of deaths due to pregnancy related causes (puerperal causes) per 100,000 live births.

Maternal Mortality Rate relates the number of deaths due to pregnancy related causes to the number of women of the child-bearing age group (15-49 years). The death due to pregnancy related causes must occur whilst pregnant, during delivery, or within six weeks after the end of the pregnancy or childbirth.

Crude Death Rate is the number of deaths per 1,000 population in a given year.

Infant Death Rate is the number of deaths to infants in a given year per total live births in that same year.

Age-Specific Death Rate is the number of deaths of people in a specified age group per 1,000 population of that age group.

Life Expectancy (e^0_0) is an estimate of the *average* number of additional years a person could expect to live if the age-specific death rates for a given year prevailed for the rest of a person’s life.

9.3 Methods of Analysis

There are basically two main procedures for estimating childhood mortality. These are the direct and indirect procedures. The direct procedure depends on reliable data on the population as well as birth and death. The indices for this measurement are crude death rates and age-specific death rates. These indices are also used to construct life tables to derive life expectancies at birth. The data obtained from the 2010 PHC were used to estimate mortality for a period of 12 months preceding the census date and compared with the Demographic and Health Survey (DHS) which provides data for computing mortality for periods 0-4, 5-9 and 10-14 years before the survey.

Indirect procedures are used when reliable and adequate birth and death registration data are not available. Several techniques are available to derive estimates of childhood mortality based on available data which may be incomplete and/or inadequate. In this chapter, the Brass indirect estimation technique is employed. This technique uses data on children ever born (CEB) and children surviving (CS) by age of mother to derive the proportion dead among children ever born. In the 2010 PHC such data were collected. The PAS, Q-FIVE and MORTPAK softwares were used to construct the estimates and the life tables.

9.4 Quality of Data

Among the major concerns in the estimation of mortality levels and age patterns of mortality are the accuracy of data and the consequences for mortality measurement. Data on mortality obtained from censuses and surveys tend to suffer from response and omission errors. Such distortions tend, in most cases, to lead to underestimation of the level of mortality and distort trends of mortality. Therefore, measures such as sex ratios and average parities by age of mother are used to assess the quality of data.

The computed sex ratios for children ever born, surviving and dead for the 2000 and 2010 censuses are presented in Table 9.1. A sex ratio significantly higher than 100 implies under reporting of daughters and a sex ratio significantly lower than 100 implies under reporting of males. The ratios do not reveal irregularities which could point underreporting by sex in Table 9.1. Nonetheless, the sex ratios indicate that the 2010 data seem to be better reported than the 2000 data.

The quality of the data on children ever born can also be assessed by examining the pattern of the average parities reported by women of each age group. If fertility has not increased at some time in the past, average parities should increase with age up to the age group 45-49 years. However, there is a tendency among older women to underestimate the number of children they have given birth to as well as omit some of the children who might have died than those who have survived as a result of memory lapse, especially children who died shortly after birth (Macinko et al., 2007). These and other errors such as age misstatement can distort the pattern of the average parities. But according to this preliminary appraisal, the 2010 census data appear to be fairly well reported.

The proportions of dead children tend to increase rapidly with age of mother, especially from 35 years and above as indicated in Table 9.2. If figures for the first two age groups are rejected due

to underreporting for instance, the proportions do not give an indication of an increasing number of omissions of dead children as age advances. The increase in the proportions dead with age of mother underscores the longer average exposure to the risk of dying of the children of such women leading to higher child mortality from 10 to 15 years than the earlier periods before the census. Although there was definitely underreporting of dead children (table 9.2), the levels are such they are not expected to affect the child mortality estimates. Furthermore, the measurement procedures have been constructed to minimise the effects of response and omission errors on the estimates.

Table 9.1: Sex ratio of children ever born, surviving and dead by age of mother: 2000 & 2010

Age of mother	2000 Census			2010 Census		
	CEB ¹⁷	CS	CD	CEB	CS	CD
15-19	1.07	1.07	1.34	1.00	0.93	1.06
20-24	1.07	1.04	1.25	1.02	0.98	1.05
25-29	1.06	1.05	1.18	1.03	1.00	1.03
30-34	1.06	1.04	1.18	1.03	1.01	1.02
35-39	1.05	1.03	1.15	1.03	1.01	1.02
40-44	1.05	1.03	1.17	1.02	1.00	1.02
45-49	1.04	1.03	1.17	1.01	1.00	1.02

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 9.2: Age group of mothers, children ever born, children surviving and children dead

Age Group of mother	Both sexes			Male			Female		
	Children Ever Born	Children Surviving	Children Dead	Children Ever Born	Children Surviving	Children Dead	Children Ever Born	Children Surviving	Children Dead
15-19	0.106	0.094	0.012	0.052	0.045	0.007	0.053	0.049	0.005
20-24	0.684	0.618	0.096	0.346	0.305	0.118	0.339	0.313	0.077
25-29	1.601	1.463	0.086	0.813	0.731	0.101	0.789	0.732	0.072
30-34	2.706	2.470	0.087	1.372	1.240	0.096	1.334	1.230	0.078
35-39	3.587	3.256	0.092	1.816	1.636	0.099	1.771	1.620	0.085
40-44	4.310	3.838	0.110	2.175	1.923	0.116	2.135	1.915	0.103
45-49	4.705	4.126	0.123	2.369	2.062	0.130	2.336	2.064	0.116

Source: Ghana Statistical Service, 2010 Population and Housing Census

The Brass growth balance equation method was used to estimate the completeness of reporting of deaths over five years (Table 9.2). The method revealed a completeness range of between 58 and 62 percent. Thus, underreporting of deaths ranges between 38 and 42 percent. The estimates must be interpreted with caution because of the limitations of the procedure including age misreporting and incompleteness of reporting of the population by age.

¹⁷ CEB means Children ever born, CS is Children surviving and CD is Children dead

9.5 Levels of mortality

9.5.1 Crude death rate

The computed crude death rate was 6.8 deaths per 1,000 population in the year preceding the census. The computed crude death rates for urban and rural areas were 5.4 deaths and 7.9 deaths per 1,000 population respectively. Infants and child deaths could not be evaluated with the Brass growth balance equation technique mentioned in the previous section. Notwithstanding, adjustment by the upper limit of underreporting of deaths (i.e. 42%) yields a crude death rate of 9.4 per 1,000 population for the country and 7.7 and 11.2 per 1,000 population for the urban and rural areas respectively. The United Nations (UN) estimate and that of the Population Reference Bureau (PBR) for Ghana for 2010 was 8 deaths per 1,000 population in each case (UN, 2010; PBR, 2011). While the estimated crude death rate from the census was lower, the rate derived from under-five mortality was higher than the other estimates. Hence the level of crude death rate is close to the estimate from the United Nations and PBR.

9.5.2 Infant death rate

The infant death rate estimated from the 2010 Census data was 38.4 per 1,000 live births. Comparison with estimates based on other types of data and estimation procedures indicates that there was a significant under reporting of infant deaths in the 12 months before the census. For instance, both the estimated United Nations (2010) infant mortality rate for 2010 and the rate from the 2008 Ghana Demographic and Health Survey were 50 per 1,000 live births, while that of the PBR was 47 deaths per 1,000 live births (PBR, 2011). Thus, the rate from the census appears to be underestimated.

9.5.3 Age-sex specific death rates

Death rates are calculated for specific age groups in order to compare mortality at different ages or at the same age over time. The age specific death rate is computed as a ratio of deaths of people in a specified age group, for example deaths among the 20-24 year-age group to the population in that age group (20-24 years) multiplied by 1,000. The results, presented in Table 9.3, show that the rates among females were higher than those of males among the age groups 10-49 years, a possible indication of relatively high maternal mortality in the country. This is graphically presented in Figure 9.1. However, the age-specific death rates for females are lower than that for males in all other age groups.¹⁸ The estimated mortality pattern is similar to rates which have been observed in other African countries. For instance, Table 9.3 and Figure 9.1 show that the urban and rural age-sex specific death rates are similar. However, the patterns are slightly higher for female in the childbearing age range (15-49 years). In the age groups 50-54 years and above, females tended to have lower age-specific death rates than males of the same age in urban and rural areas. Up until age 75-79 years, males and females in rural areas reported higher age-specific death rates than those in urban areas. Overall, there is little difference in age-specific death rates within the 15-54 age groups but large differences after age 55 years between males and females.

¹⁸This empirical structure will be utilized later on to construct a model life table for the country.

Table 9.3: Reported age-specific death rates (m_x) by sex and residence

Age	Total Country			Urban			Rural		
	Both Sexes	Male	Female	Both Sexes	Male	Female	Both Sexes	Male	Female
<1	0.038	0.043	0.034	0.035	0.038	0.032	0.042	0.047	0.036
1-4	0.007	0.007	0.006	0.005	0.005	0.005	0.008	0.008	0.008
5-9	0.002	0.002	0.002	0.002	0.002	0.001	0.002	0.003	0.002
10-14	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.001	0.002
15-19	0.002	0.001	0.002	0.001	0.001	0.001	0.002	0.002	0.003
20-24	0.002	0.002	0.003	0.001	0.001	0.002	0.003	0.003	0.004
25-29	0.003	0.003	0.003	0.002	0.002	0.002	0.004	0.004	0.005
30-34	0.005	0.004	0.005	0.002	0.003	0.004	0.007	0.006	0.007
35-39	0.006	0.005	0.006	0.004	0.004	0.005	0.007	0.007	0.008
40-44	0.008	0.007	0.008	0.005	0.006	0.007	0.009	0.009	0.009
45-49	0.008	0.008	0.008	0.006	0.007	0.007	0.009	0.009	0.009
50-54	0.010	0.011	0.010	0.009	0.01	0.008	0.011	0.012	0.011
55-59	0.011	0.014	0.008	0.010	0.013	0.007	0.012	0.015	0.009
60-64	0.015	0.020	0.011	0.013	0.018	0.010	0.017	0.021	0.012
65-69	0.019	0.025	0.015	0.018	0.023	0.014	0.021	0.026	0.016
70-74	0.024	0.034	0.017	0.023	0.034	0.016	0.025	0.034	0.017
75-79	0.030	0.040	0.022	0.031	0.042	0.023	0.030	0.039	0.022
80+	0.054	0.068	0.045	0.051	0.067	0.068	0.055	0.043	0.046

Source: Ghana Statistical Service, 2010 Population and Housing Census

Figure 9.1: Reported age-specific death rates by sex, 2010

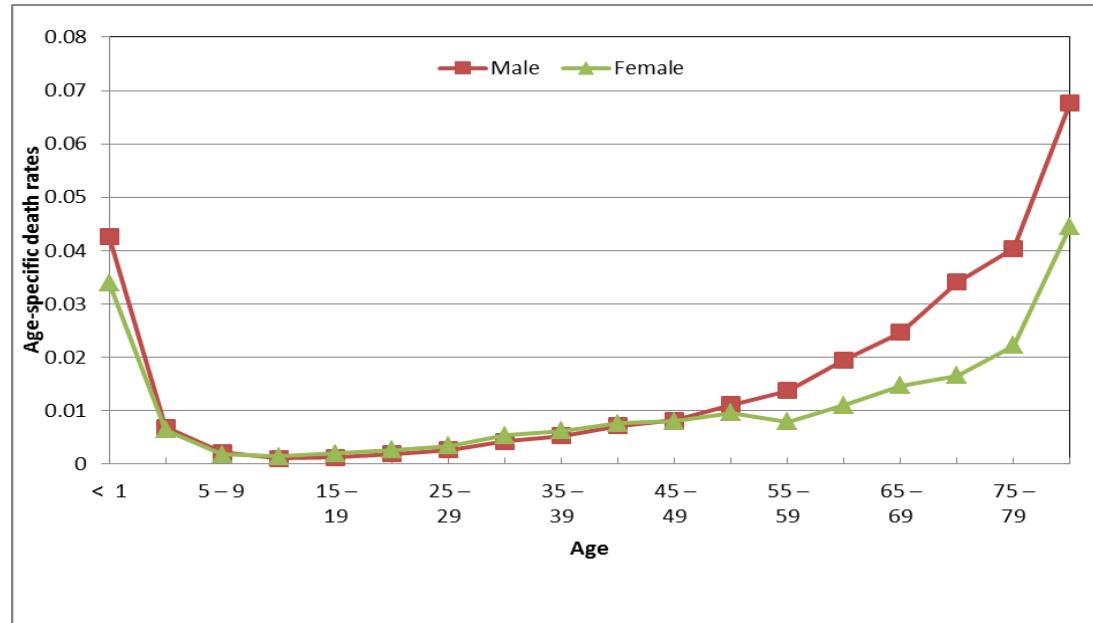
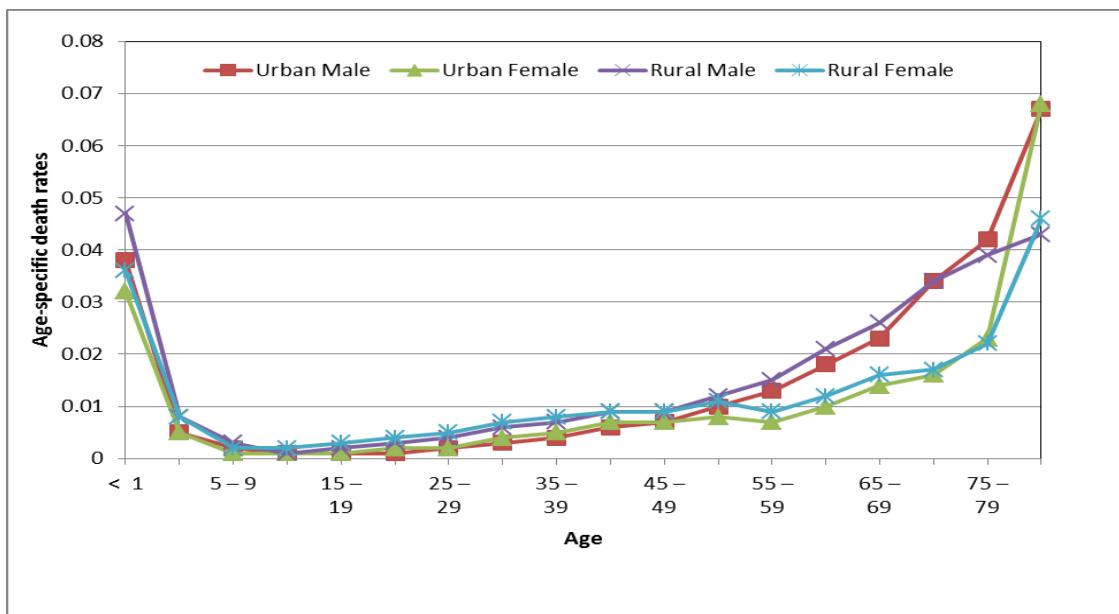


Figure 9.2: Reported age-specific death rates by sex and urban-rural, 2010



9.5.4 Maternal mortality ratio and rate

The census reported a total of 33,342 deaths to females aged 12-54 years of which 3,026 (9%) of the deaths were pregnancy-related. The cause of death was ascertained based on lay verbal autopsy (WHO, 2005) from respondents in the households within which the deaths occurred. The computed maternal mortality ratio (MMR) was 485 deaths per 100,000 live births and this translates to maternal mortality rate of 4.9 deaths per 1,000 women. The maternal mortality ratio estimated by GSS (GMHS) in 2007 was 580 deaths per 100,000 live births. The GSS observed that an effective assessment could not be undertaken for the 2007 ratios “because of the numerous assumptions made to arrive at this table” and “no confidence intervals” were therefore provided (GMHS, 2007: pp). The recent WHO/UNICEF/UNFPA/World Bank (Year) estimate of maternal mortality ratio for Ghana in 2010 was 350 deaths per 100,000 live births, with an uncertainty range between 210 and 630. Taking into account the impact of sampling errors on the estimates constructed by the international organisations, the maternal mortality ratio of 485 based on the 2010 census data appears to be a satisfactory indicator of the level of maternal mortality in the country.

The pattern of maternal mortality by age depicts high maternal mortality among teenagers (566 for those aged 12-19 years), declining to 380 and 359 among those aged 20-24 years and 25-29 years respectively, and then rising again to 735 among those aged 40-44 years, 990 among those aged 45-49 years (Table 9.4). Available evidence suggests that the relatively high maternal death rates among teenagers could be due to, among other causes, to induced abortion (Guttmacher Institute, 2010). Abortion is a very important cause of maternal mortality, and may be associated with at least 20 percent of all maternal deaths though the incidence varies widely (Boerma 1987). Secondly, the fragile physiological make up of teenagers also make them more vulnerable to

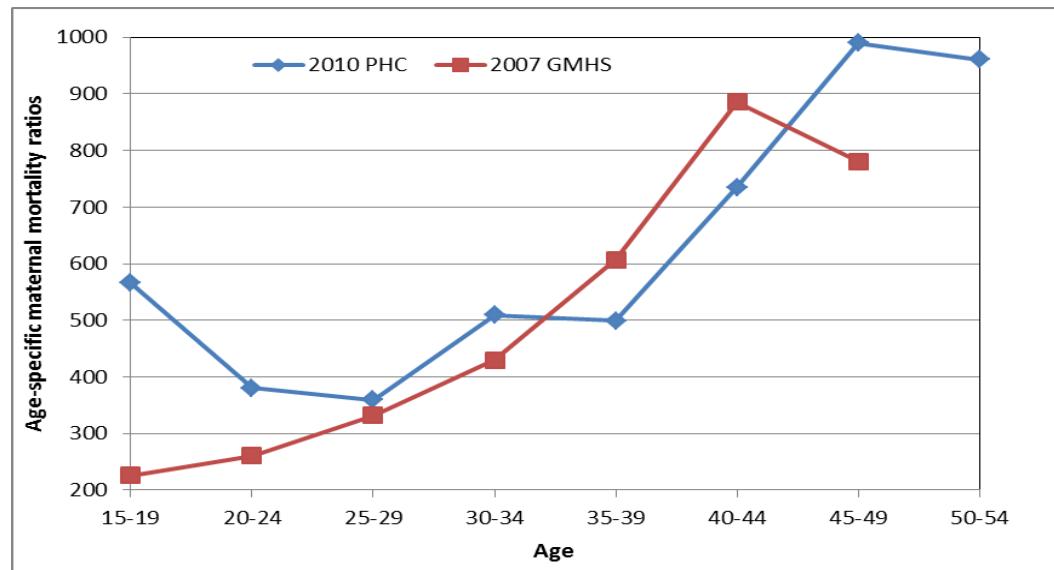
childbirth complications (Kirchengast & Hartmann, 2003). The most important causes of maternal death in developing countries are haemorrhage, infection and pregnancy-induced hypertension (toxaemia or eclampsia), the three major underlying causes of 50 percent or more of direct maternal deaths(Ghana Statistical Service, 2008). The direct maternal deaths constitute at least 70 percent of all maternal deaths. These causes, particularly pregnancy-induced hypertension, underpin the increase in maternal death rates after age 40 years (Ghana Statistical Service, 2008).

Table 9.4: Pregnancy-related age-specific maternal mortality ratios, 2010

Age (years)	Births	Pregnancy- related deaths	Maternal mortality ratios		
12-14	917	52	5671		
15-19	40307	228	566 ¹⁹	226 ²⁰	324 ²¹
20-24	126417	480	380	261	196
25-29	167306	600	359	332	273
30-34	130724	666	509	430	301
35-39	92751	463	499	607	935
40-44	41898	308	735	886	1373
45-49	14742	146	990	781	308
50-54	8638	83	961	-	-
Total	623700	3026	485	580	416

Sources: 2010 Population and Housing Census; Ghana Maternal Health Survey (GMHS) 2007

Figure 9.3: Reported Age Pattern of Maternal Mortality, 2007 & 2010



¹⁹Maternal mortality ratio for age group 12-19 is 679

²⁰,⁴Maternal mortality ratios for age group 12-19 from GMHS, 2007

9.6 Indirect estimation procedure

The Brass indirect estimation procedure was employed in this section to derive estimates of childhood mortality. If mortality has been changing, information on the proportion of children dead can yield estimates of child mortality as well as estimates of trends. In using Brass' indirect estimation method for estimating childhood mortality estimates covering overlapping periods provide a powerful tool for checking consistency and selecting those less likely to be affected by extraneous biases.

9.6.1 Assumptions and sources of errors

The method employed assumes that information on the children dead is accurate. If some of the children dead are reported as being alive or if dead children are omitted to a greater extent than the living children, the derived mortality estimates will be low. Children of women aged 15-19 years are known to experience higher mortality than those of older women as the children born to younger women are more likely to be first births, and first births experience higher mortality than all births in a population. This is because young women, especially those giving birth for the first time, may be less able, for a variety of reasons, to give adequate care and attention to their new born babies compared to older women. Therefore, using children from younger women would lead to overestimation of overall mortality levels. Mortality indices based on reports of women aged 20-24 years might also be overestimated, since a proportion of their children would have been born when they (mothers) were aged 15-19 years. On the other hand, omissions and other errors are more prevalent among older women than younger women. For instance, decline of average parities by age is indicative of possible omission of children, particularly dead children (Macinko et al., 2007).

For all these reasons, estimates based on reports of women aged 15-19 years and, to some extent, on those of women aged 20-24 years are generally unreliable and are not likely to reflect the overall mortality experience of the population under study. Estimates derived from the reports of the older women, especially those aged 40 years and above, are also almost invariably affected by omission errors. Thus, given the upward biases that usually distort the estimates based on reports of the younger women, and the down bias based on information provided by the older women (age 40 and above years), data from the two extremes tend to be regarded as inaccurate.

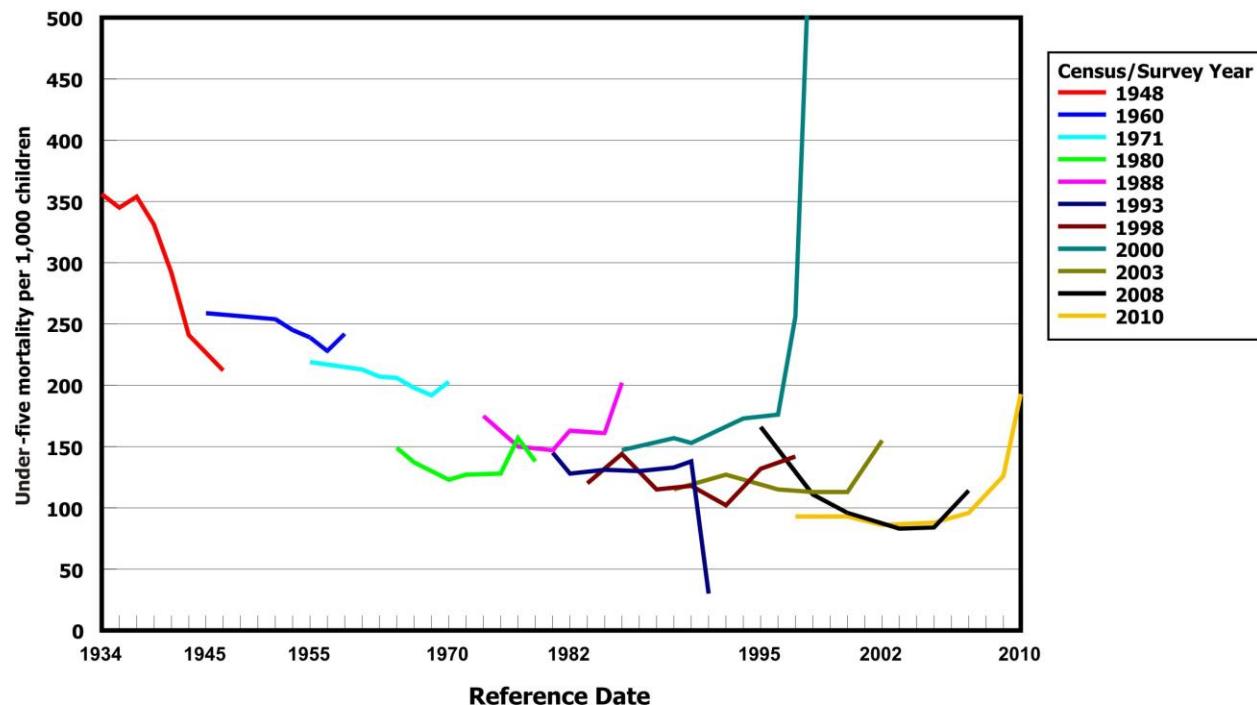
9.6.2 Reliable estimates

The most reliable estimates of childhood mortality produced by the Brass method usually refer to a period between three and ten years preceding the interview. Based on the reasons noted above, under-five mortality, $q(5)$, is chosen for the determination of the mortality trends. This is because under-five mortality is particularly sensitive to the mortality patterns underlying the different models. No matter which mortality model is chosen to apply the Brass method to, the errors that are likely to affect resulting estimates of $q(5)$ are likely to be smaller in both absolute and relative terms than those affecting $q(1)$ (infant mortality) or $q(4)$ (child mortality)(Brass, 1975). In other words, based on mortality models for the same levels of mortality, the $q(5)$ fluctuates less than the infant rate or child mortality rate. This underscores the robustness of $q(5)$ as an indicator of mortality in childhood when it is estimated using the Brass method (United Nations, 1990). As shown in Figure 9.4, the estimated $q(5)$ values show declining trend over time.

Although the estimates display considerable inconsistency, one can infer from the results the trend of childhood mortality over time.

In order to compare the $q(x)$ values over the time periods to which they refer, they are transformed into one parameter estimate [i.e. 5q_0] for each period, using the Coale-Demeny North model life tables (Coale & Demeny, 1983).

Figure 9.4: Under-five mortality rate, 1948-2010



9.6.3 Levels of infant and under-five mortality rates (${}_1q_0$ and 5q_0)

The estimated infant and under-five mortality rates based on retrospective data are presented in Table 9.5 for the 2000 and 2010 censuses. The infant mortality rate declined, on average, from 90 to 59 infant deaths per 1,000 live births during the period 1992-2006, whilst the under-five mortality rate dropped from 167 to 90 child deaths per 1,000 children during the same period. As noted earlier, under-five mortality is a much more reliable index of the risk of a child dying before age 5 years. The estimated infant mortality rate of 59, using retrospective data, compared with the reported 38 infant deaths per 1,000 live births in the 12 months preceding the census, could be indicative of the extent to which infant deaths were underreported in the 2010 census.

Table 9.5: Estimated infant mortality and Under-five mortality rates, 2000 & 2010

Census Year	Infant	Under-five	Reference Period
	mortality rate (1q0)	mortality rate (5q0)	
2000	90	167	1991.9-1996.3
2010	59	90	2002.7-2006.8

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses

9.6.4 Estimates based on direct and indirect procedures

Conventional or direct methods are usually employed to compute mortality indices for which relatively good quality birth and death data (including dates) are available such as Demographic and Health Surveys. Misdating of births and deaths will greatly affect estimates, particularly in a setting where dating of events is a problem. Dates may be derived from estimated ages but good quality basic information is critical for obtaining plausible estimates. Estimates derived with direct and indirect techniques are presented in Table 9.6. In general, and depending on the quality of the data available, the two procedures must not yield significantly different estimates. As shown in Table 9.6, there is not much difference between the estimates based on the 2008 GDHS and 2010 census data that were derived with the indirect technique for infant and under-five mortality: 59 infant deaths per 1,000 live births and under-five mortality of around 90 during the period 2002-2006. However, rates from the 2000 census and the 2003 estimates show marked differences. The comparable estimates from the 2010 Census and the 2008 DHS gives an indication of the quality of the data collected in both exercises.

Table 9.6: Estimated infant and under-five mortality rates based on direct and indirect procedures

Census/Survey Year	Infant mortality		Under-five mortality		Reference Period
	Direct	Indirect	Direct	Indirect	
2000 Census	-	90	-	167	1991.9-1996.3
2003 DHS	64	72	111	114	1996.0-2002.0
2008 DHS	50	59	80	88	2000.4-2004.9
2010 Census	-	59	-	90	2002.7-2006.8

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses; 2003 and 2008 GDHS

9.7 Socio-economic differentials in mortality

The mortality indicators for the socio-economic differential considered in this section are infant, under-five and maternal mortality. Differences in these indicators are the result of a complex interplay of demographic, economic, socio-cultural, environmental and political factors. Specific factors such as educational attainment, occupation, marital status, place of residence and the quality of health facilities exert some influence on mortality (Shryock & Siegel, 2004). Some of these socio-demographic factors namely, locality and region of residence of the child, sex of the child, marital status, occupation and educational attainment and employment status of the mother are used as independent variables on infant, child and maternal mortality.

9.7.1 Locality of residence

Locality of residence is considered an important influential factor in mortality analysis. Residing in a rural or urban area has some influence on levels of childhood mortality and this is influenced by the living and environmental conditions of the locality, the behavioural patterns of the people in the particular locality and also access to appropriate health services. In Table 9.7, estimates show that infant and under-five mortality rates are slightly higher in rural than in urban areas. In the five-year period before the 2010 Census, infant mortality in rural areas was 60 deaths per 1,000 live births compared with 55 deaths per 1,000 live births in urban areas. The under-five mortality rate during the same period was 90 deaths per 1,000 live births in rural areas compared with 83 deaths per 1,000 live births in urban areas. Male mortality rates, both infant and under-five, were higher than those of females in both rural and urban areas during the period 2003-2007. The estimated under-five mortality for rural areas of 90 was the same as had been observed in the 2008 GDHS while that of the urban areas (83 per 1,000) was higher than that of the GDHS (75 per thousand) (GSS, 2009).

9.7.2 Region of residence

The geographical location of mothers influences the mortality experiences of their children. This is because the regions differ in their environmental and socio-cultural settings which can affect the survival chances of children under five years. As shown in Table 9.7, in the five years preceding the 2010 Census, infant mortality ranged from 48 deaths per 1000 live births in the Greater Accra Region to 81 deaths per 1000 live births in the Upper West Region. During the same period, under-five mortality rates ranged from 72 deaths per 1000 children in the Greater Accra Region to 128 deaths per 1000 children in the Upper West Region. Children in the Greater Accra Region experienced the lowest risk of infant and under-five mortality while those in Upper West Region were exposed to the highest risk of dying during the period under review. Children in the three northern regions are more exposed to the risk of dying in childhood than their counterparts in other regions. This may be attributable, among other things, to the disparities in the distribution of health and medical facilities between the northern and other regions, environmental and other socioeconomic factors. For instance, the three northern regions have reported the highest levels of poverty over the last three decades (Ghana, 2006).

Table 9.7: Infant and Under-five Mortality by Socio-Economic Characteristics

Socio-Economic Characteristics	Infant mortality			Under-five mortality			Reference Period
	Both Sexes	Male	Female	Both Sexes	Male	Female	
Locality							
Urban	55	60	49	83	92	76	2003.3-2007.0
Rural	60	65	53	90	98	82	2002.1-2006.7
Region¹							
Western	55			82			2002.6-2006.8
Central	61			94			2002.7-2006.8
Greater Accra	48			72			2003.3-2007.0
Volta	57			87			2002.2-2006.7
Eastern	50			75			2002.3-2006.7
Ashanti	53			80			2003.0-2007.0
Brong-Ahafo	58			87			2002.7-2006.8
Northern	73			116			2002.3-2006.8
Upper East	74			117			2002.7-2007.0
Upper West	81			128			2003.1-2007.1
Marital Status							
Never Married	90			146			2003.1-2006.7
Married	53			80			2001.2-2005.3
Divorced	61			94			2001.2-2004.8
Widowed	73			116			2001.9-2006.3
Mother's Level of Education¹							
No Education	62			95			2001.8-2006.2
Primary/JHS	55			83			2001.3-2006.5
SSS+	52			78			2004.9-2007.4
Occupation¹							
Professionals	56			85			2003.0-2006.0
Skill Agric., Forestry & Fishery workers	59			90			2001.6-2006.4
Crafts, Related Workers & Elementary Occupations	58			88			2002.4-2006.2
Mother's Employment Status¹							
Unemployed	61			95			2003.6-2006.1
Employees	64			99			2004.4- 2005.7
Self-employed (with/without employees)	55			83			2001.6-2005.6

Source: Ghana Statistical Service, 2010 Population and Housing Census

9.7.3 Marital status

The 2010 PHC collected information on the marital status of persons aged 12 years and above. This information has been categorised into never married, married, divorced and widowed. The results presented in Table 9.7 show that infant and under-five mortality rates among married women were 53 per 1,000 live births and 80 per 1,000 population respectively. Children of women who were never married experienced the highest infant and under-five mortality rates (90 and 146 respectively), followed by those of widows (73 and 116 respectively). Overall, children of married women in the country experienced the lowest childhood mortality possibly because of the combined effort of the spouses in terms of financial resources and better care for the children as compared with that of single mothers (Gyimah, 2007).

9.7.4 Level of education

Research conducted in several parts of the world, including Africa, has established relationships between the educational level of the mother and the mortality of the children. In a study of nine sub-Saharan African countries, infant mortality was found to fall more strongly and more rapidly with increase in mother's level of education (Gyimah, 2007). Table 9.7 shows that, for the 2010 Census, as a mother's education increases, the risk of child death decreases. Infant mortality among children of mothers with no education was 62 deaths per 1000 live births compared to 55 deaths per 1,000 live births among children of women with Primary or Junior High School education and 52 deaths per 1000 live births for children of women with Senior Secondary School education or higher. Similarly, the under-five mortality experienced by children whose mothers had no education (95 deaths per 1000 children) was higher than that of their counterparts whose mothers had attained Primary/Junior High School education (83 deaths per 1,000 children) or Secondary or higher education (78 deaths per 1000 children).

9.7.5 Occupation and Employment Status of mother

Children of mothers in professional, managerial, clerical, technical and sales and service occupations experienced infant mortality rate of 56 deaths per 1,000 live births and under-five mortality of 85 deaths per 1,000 children (Table 9.7). These were the lowest among the various occupational groups. Children of mothers in paid employment experienced the highest infant mortality, while those of self employed women experienced the lowest. Similarly, the under-five mortality was lower among children of mothers in self-employment than those of mothers in paid employment. Nonetheless, the link between occupation and employment status on one hand and demographic variables on the other can be cofounding as it relates to other factors such education and rural-urban residence.

9.7.6 Regional differences in maternal mortality rates and ratios

The data also show wide regional variations in maternal mortality ratios. The national maternal mortality ratio was 485 maternal deaths per 100,000 live births, but ranged from 355 in Greater Accra region to 802 in the Upper East region. Five regions - Western, Greater Accra, Ashanti, Brong-Ahafo and Upper West - reported maternal mortality ratios below the national average, while Central, Volta, Eastern, Northern and Upper East Regions had ratios above the national average (Table 9.8). Regional variations indicated that two out of 1,000 women died during pregnancy and/or childbirth in Greater Accra Region compared with six in the Volta and Upper East Regions.

Table 9.8: Maternal mortality ratios and rates by Region

Total Country/Region	Maternal Mortality Ratio (per 100,000 live births)	Maternal Mortality Rate (per 1,000 women)
Total Country	485	5
Western	435	4
Central	520	5
Greater Accra	355	2
Volta	706	6
Eastern	538	5
Ashanti	421	3
Brong-Ahafo	421	4
Northern	531	5
Upper East	802	6
Upper West	466	4

Source: Ghana Statistical Service, 2010 Population and Housing Census

9.8 Trends in under-five mortality

The estimated $q(5)$ values and the implied life expectancies at birth are presented in Table 9.9 and Appendix 1 Table 1. The estimates based on the average of the $q(5)$ values of the 25-29, 30-34 and 35-39 year age groups indicate a steady decline of under-five mortality since the 1940s, falling from 343 deaths per 1,000 children in the late 1930s to 274 in the late 1940s and early 1950s and to 209 deaths per 1,000 children in the mid-1960s. The downward trend continued throughout the 1970s and the 1980s with the mortality rate dropping to between 126 and 132 in the late 1980s. The tempo of decline slowed down during the 1990s with the estimated $q(5)$ value of 112 in the early 1990s, and stalling towards the end of the 1990s. The downward trend resumed at a very slow pace at the beginning of the 2000, falling to between 88 and 90 deaths per 1,000 children during the period 2000-2007. Under-five mortality rate fell by 20 percent in the 1940s and early 1950s and by 24 percent from early mid-1950s to early 1960s. From mid-1960s to early 1970s, the rate of decline was 4 percent per year.

Table 9.9: Under-five mortality rate, implied life expectancy at birth and reference period, 1948- 2010

Census/ Survey Year	$q(5)$	Implied e^o_0 (Years)		Reference period
		Female	Male	
1948	343	34.4	31.9	1938.9-1942.9
1960	274	42.9	37.7	1951.1-1955.5
1971	209	47.5	44.5	1962.4-1967.2
1980	126	57.1	54.8	1970.1-1974.9
1988	157	-	-	1979.5-1984.2
1993	132	56.7	52.7	1984.9-1989.5
1998	112	58.4	54.9	1988.8-1993.9
2000	167	-	-	1991.9-1996.1
2003	113	59.1	55.6	1996.1-2000.1
2008	88	63.8	60.7	2000.4-2004.9
2010	90	63.4	60.2	2002.7-2006.8

Sources: 1948, 1960, 1971, 2000 and 2010 Censuses, 1980 World Fertility Survey, 1988
1993, 1998, 2003 and 2008 GDHS

From the estimates based on the census and sample data, under-five mortality declined in all the ten regions from the 1990s (Table 9.10). For instance, in the Greater Accra Region, under-five mortality dropped by 50 percent from 1992 to 2007. Western, Volta, Eastern, Ashanti and Brong-Ahafo Regions also experienced declines with the Eastern Region exhibiting almost the same level of under-five mortality in the Greater Accra Region during the mid-2000s. Within each period, under-five mortality rates in the Northern, Upper West and Upper East Regions were higher than the rates in the other regions (Table 9.10; Appendix 1 Table 2). Both the 2008 GDHS and 2010 Census data show similar levels of childhood mortality in the Eastern, Ashanti and Brong-Ahafo Regions whilst there were differences between the estimates for the remainder of the regions. The differences in rates may reflect variations in cultural attitudes and practices to infant and child care, existing social and economic conditions as well as inequalities in the distribution of health and medical facilities in the country (Gyimah, 2006).

The estimates must, however, be interpreted with caution because they could be affected by a number of errors including reporting errors as discussed earlier. An important issue is whether data from sub-national areas provide sufficient data to estimate plausible demographic parameters such as mortality for planning purposes. One of the requirements for estimating rates is that number of observations must be large enough to yield estimates of desired precision. Secondly, the data are from reported deaths in the household. Thus, although the data are large enough to yield reasonable estimates, content errors may bias the estimates.

Table 9.10: Under-five mortality rate by region and reference period

Region	q(5)*	Reference Period	q(5)**	Reference Period	q(5)***	Reference Period	q(5)****	Reference Period
Western	161	1991.5-1995.9	106	1994.7-1999.5	65	2001.3-2006.9	82	2002.6-2006.8
Central	163	1991.6-1996.0	102	1996.2-1999.6	106	2001.9-2006.3	94	2002.7-2006.8
G/Accra	152	1991.6-1996.1	113	1998.1-2000.2	56	2003.5-2007.1	72	2003.3-2007.1
Volta	174	1991.8-1995.9	129	1995.6-1999.7	57	2002.2-2006.8	87	2002.2-2006.7
Eastern	144	1991.8-1995.9	94	1996.9-2002.2	88	2001.3-2006.6	75	2002.3-2006.7
Ashanti	146	1992.1-1996.1	116	1996.9-2002.3	79	2002.1-2007.1	80	2003.0-2007.0
B/Ahafo	164	1992.1-1996.1	95	1994.3-1999.7	86	2003.8-2006.7	87	2002.7-2006.8
Northern	199	1991.9-1995.9	148	1993.7-1999.4	139	2002.1-2006.6	116	2002.3-2006.8
U/west	226	1991.8-1995.9	191	1995.8-2000.1	90	2001.9-2006.8	117	2003.1-2007.1
U/East	179	1991.5-1996.0	96	1997.5-2000.3	146	2001.5-2006.8	128	2002.7-2007.0

Sources: *2000 Census ** DHS 2003, ***2008 and ****2010 Census

9.9 Construction of empirical model Life tables

A life table is the source of estimates of life expectancy at birth – a robust indicator of the level of mortality in populations and one of the indicators of overall human development (UNDP, 2011). Life table is also used to construct population projections. Its use has been extended to other areas such as measuring the effectiveness of contraceptive methods, school and working life tables.

Four sets of life tables were constructed from observed age-specific death rates and population by age based on the death data collected in the 2010 census. The reported age-specific death rates were smoothed by a moving average of logarithms by age groups, using a smoothing process that retained virtually all the main features of the age patterns (Figure 9.5). For instance, the female pattern that contained a positive bulge between ages 15 and 49 and which did not exist in the male pattern, was retained. Once the reported age patterns were smoothed, they were adjusted and used to estimate life expectancies at birth as shown in Table 9.11 (estimates based on Q-Five procedure).

The estimated life expectancies based on the four procedures are presented in Table 9.11 (See Appendix A9.4 for description of the methods used). The life expectancies derived from estimated under-five mortality were not as high as those based on the death data, population by age and model life tables (i.e. three procedures used in constructing the life tables). They were not substantially different from the levels of life expectancies based on the fourth procedure (60.2 and 63.4 and 60.7 and 65.1 for males and females respectively). The estimates based on the Q-FIVE and the fourth procedure lie in the neighbourhood of the United Nations recent estimates of 61.8 for males and 63.3 for females (UN, 2010). The estimates based on the forth procedure depict the levels of life expectancies at birth during the year prior to the census whilst those derived with the Q-FIVE procedure refer to the period 2003 and 2007.

The estimates are also similar to the implied life expectancies at birth in Table 9.9. Thus, the general pattern is increase in life expectancy at birth increased over the years. From the table, life expectancy increased from 33.6 years in the late 1930s and early 1940s to 62.7 years between 2000 and 2007.

Table 9.11: Estimated Life expectancy at birth

Estimation Based on:	Life Expectancy at birth	
	Male	Female
Procedure 1	66.6	71.3
Procedure 2	68.5	77.0
Procedure 3	61.5	66.1
Procedure 4	60.7	65.1
Procedure: Q-Five	60.2	63.4
UN (2010 Estimate)	61.8	63.6

Source: Derived estimates based on 2010 Population and Housing Census

1 Reported age-specific death rates and population by age (LTPOPDTH)

2 Reported age-specific death rates and adjusted mx values (LTMXQXAD).

3. Crude death rate and the population by age and Coale-Demeny North model (LTNTH).

4. Brass growth balance equation method to adjust reported number of deaths (LTPOPDTH).

The smoothed age patterns after adjustment yielded estimated life expectancies of 60.2 for males and 63.4 for females (based on Q-five procedure). The model life tables for urban and rural areas are represented in Figures 9.6 and 9.7. (See also Appendix 3: Tables 1, 2, 3 and 4). There is a bulge between ages 15 and 49 years in both the urban and rural areas age patterns which cannot easily be explained.

Table 9.12: Empirical Model Life Table for Males

Age Group	Mx	Qx	lx	Lx)	Sx)	Tx	ex
0-1	0.069	0.065676	100000	95055	0.92043	6024030	60.24
1-5	0.009	0.035511	93432	365160	0.972151	5928975	63.46
5-10	0.003	0.014091	90115	447398	0.989417	5563815	61.74
10-15	0.001	0.007025	88845	442664	0.992092	5116417	57.59
15-20	0.002	0.009228	88221	439163	0.989287	4673753	52.98
20-25	0.003	0.012477	87407	434458	0.984776	4234590	48.45
25-30	0.004	0.018368	86316	427844	0.978162	3800132	44.03
30-35	0.005	0.025641	84731	418501	0.969504	3372288	39.80
35-40	0.007	0.035575	82558	405738	0.960301	2953787	35.78
40-45	0.009	0.043936	79621	389631	0.950344	2548049	32.00
45-50	0.011	0.05590	76123	370283	0.938031	2158418	28.35
50-55	0.014	0.068861	71868	347337	0.920888	1788135	24.88
55-60	0.019	0.090832	66919	319859	0.896914	1440798	21.53
60-65	0.025	0.116963	60840	286886	0.86506	1120939	18.42
65-70	0.034	0.154948	53724	248173	0.826498	834053.7	15.52
70-75	0.043	0.193286	45400	205115	0.789891	585880.4	12.90
75-80	0.053	0.234424	36625	162018	0.574494	380765.8	10.40
80+	0.089	...	28039	218748	...	218747.6	7.80

Table 9.13: Empirical Model Life Table for Females

Age Group	mx	qx	lx	Lx)	Sx)	Tx	ex
0-1	0.066	0.062	100000	95225	0.925103	6348708	63.40
1-5	0.008	0.035	93734	367326	0.975635	6253483	66.71
5-10	0.002	0.012	90782	451282	0.989762	5886156	64.84
10-15	0.002	0.009	89731	446662	0.989632	5434874	60.57
15-20	0.003	0.013	88934	442031	0.985484	4988213	56.09
20-25	0.003	0.017	87822	435614	0.980226	4546182	51.77
25-30	0.005	0.023	86352	427000	0.973412	4110568	47.60
30-35	0.006	0.030	84356	415647	0.965144	3683568	43.67
35-40	0.008	0.039	81801	401159	0.957866	3267920	39.95
40-45	0.009	0.045	78578	384257	0.952128	2866761	36.48
45-50	0.011	0.051	75072	365862	0.945065	2482504	33.07
50-55	0.012	0.058	71218	345763	0.939045	2116642	29.72
55-60	0.013	0.063	67055	324687	0.935882	1770879	26.41
60-65	0.014	0.066	62821	303869	0.925968	1446191	23.02
65-70	0.017	0.084	58672	281373	0.906097	1142322	19.47
70-75	0.022	0.108	53751	254951	0.885404	860949	16.02
75-80	0.028	0.130	48116	225735	0.627498	605997.6	12.59
80+	0.056		41842	380263	...	380262.5	9.09

Figure 9.5: Age Patterns of Mortality by Sex, 2010

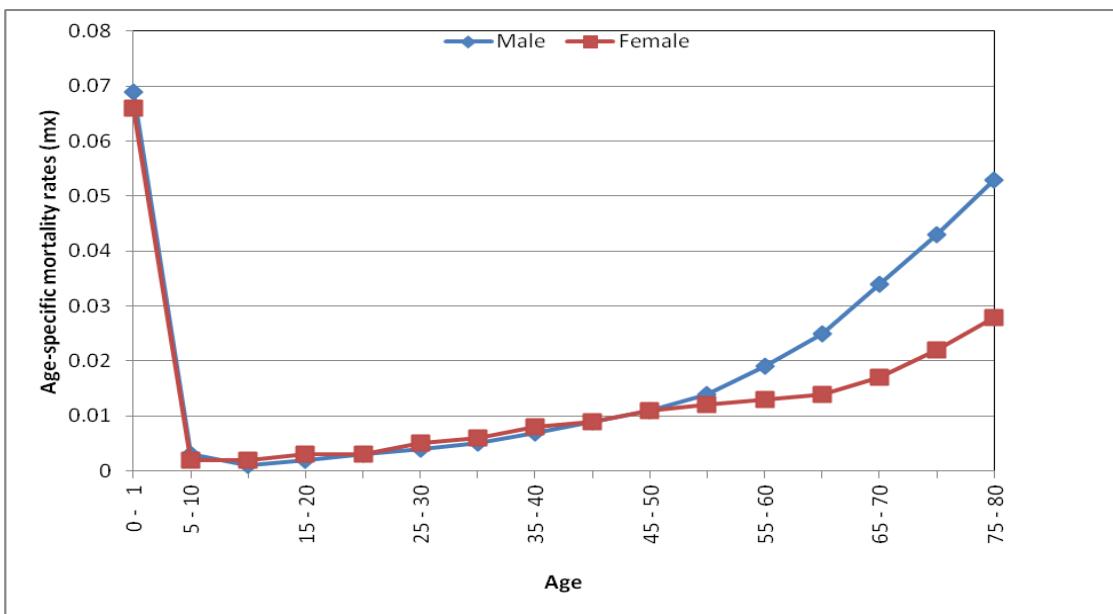


Figure 9.6: Age Patterns of Mortality by Sex, 2010

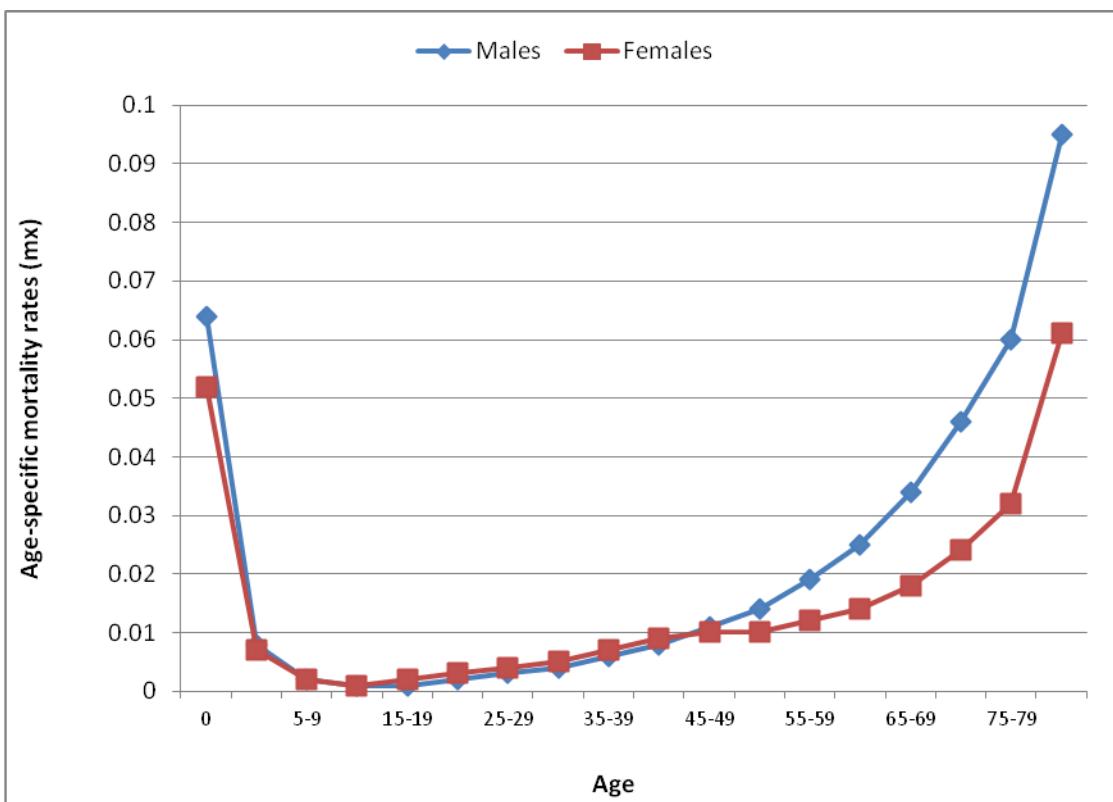
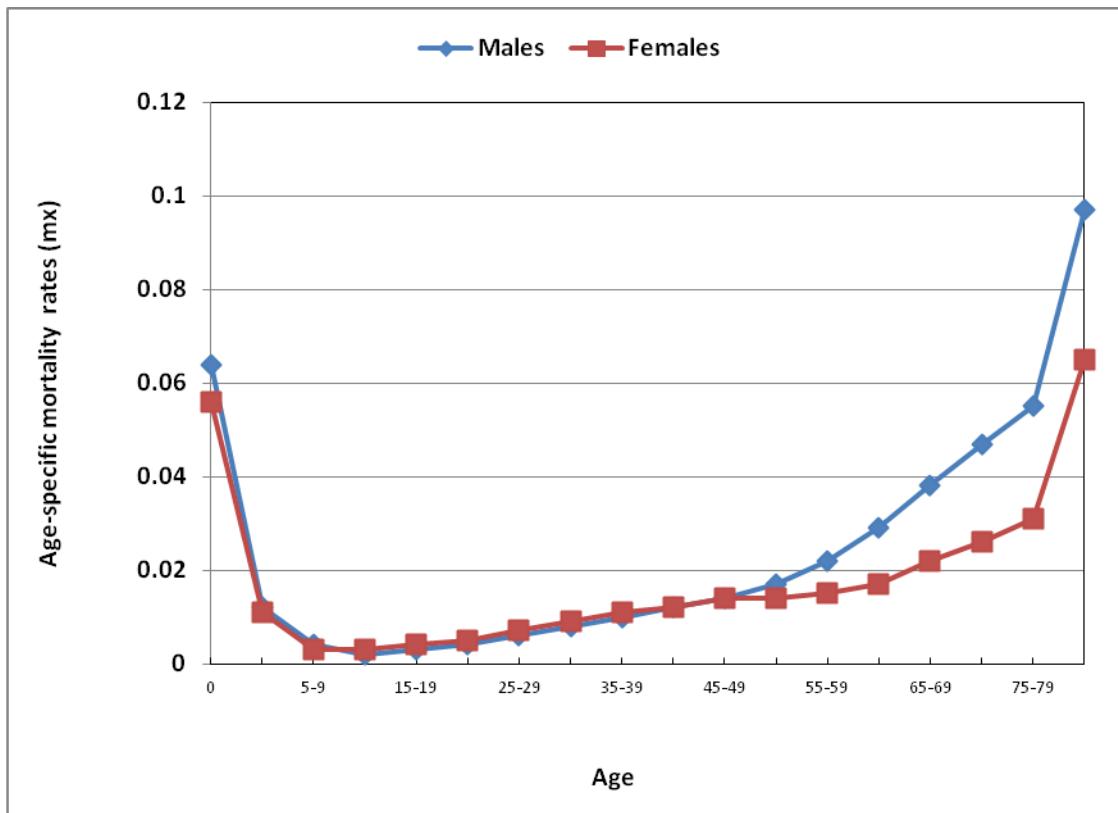


Figure 9.7: Rural age patterns of mortality by sex



9.10 Summary, Conclusion and Recommendations

9.10.1 Summary

The data on CEB, CS and deaths in households in the last 12 months and other relevant information collected in the 2010 census have provided a valuable base for estimating mortality indices.

Utilisation of both the 2008 GDHS and 2010 census data yielded an infant mortality rate of 59 infant deaths per 1,000 live births and under-five mortality of 90 deaths per 1,000 children. These are plausible estimates derived with the indirect technique. Nine percent of the reported deaths of females aged 12-54 years were pregnancy-related deaths. The estimated maternal ratio is 485 per 100,000 live births whilst the maternal mortality rate is 4.9 per 1,000 women. The maternal mortality ratio of 485 based on the census data appears to be a reliable estimate of the level of maternal mortality in the country.

Childhood mortality was comparatively higher for the children of women who have never married as well as among children of the women who are widowed. The higher the educational level of mothers, the lower the mortality experience of their children. Data from the 2010 Census

indicate that the children of mothers with no education experience infant and under-five mortality of 62 deaths per 1,000 live births and 95 deaths per 1,000 children respectively compared with 52 and 78 as mothers education increases to the secondary school level or higher. The estimates based on the 2000 and 2010 censuses show that the infant mortality rate declined from 90 to 59 infant deaths per 1,000 live births during the period 1992-2006, whilst the under-five mortality dropped from 167 to 90 child deaths per 1,000 children during the same period.

Similarly, there has been a steady decline of under-five mortality since the 1940s, falling from 343 deaths per 1,000 children in the late 1930s to between 88 and 90 deaths per 1,000 children during the period 2000-2007. Presumably, the decline may be a reflection of the impact of programmes put in place after the attainment of political independence. The life expectancy at birth increased from 33.6 years in the late 1930s and early 1940s to 62.7 years between 2000 and 2007, almost doubling over the seven decades.

The Greater Accra and the Eastern Regions experienced 50 percent decline in the rate of under-five mortality between 1992 and 2007. The decline in these two regions has been attributed to the relatively developed nature of the regions in relation to the rest of the country (IFC Macro, 2010). The Western, Volta, Ashanti and Brong-Ahafo Regions also experienced declines in under-five mortality during the mid-2000s. Though the rates decreased in the Northern, Upper East and Upper West regions, under-five mortality was still high compared with the rates in the other regions. Besides cultural attitudes and practices, the slow pace of improvements in social and economic conditions in the regions as well as inequalities in the distribution of health and medical facilities could explain the high levels under-five mortality decline in the three regions.

9.10.2 Conclusions

In the absence of reliable vital registration, data on CEB, CS and deaths in households in the last 12 months were used to construct empirical model life tables for the country. An appraisal of the data indicated likely underreporting of deaths and children ever born and surviving. In spite of the observation, the data appeared to be satisfactory for estimating various mortality indicators including age patterns of mortality, infant and under-five mortality and the construction of life tables. As evident from the analysis, the constructed model life tables provided fairly reliable estimates when compared with independent sources such as the Demographic Survey and estimates from Population Reference Bureau.

Although the estimated infant and child mortality showed declines and expectation of life at birth increased over the last two decades, the rates appeared to be relatively high compared with infant mortality rates of between 20 and 40 infant deaths per 1,000 live births and between 25 and 50 deaths per 1,000 under-five mortality in some African countries. For instance, Cape Verde and Namibia had infant mortality rates of 19 per 1,000 live births and 36 per 1,000 live births respectively in 2011 (Population Reference Bureau, 2011). The results also showed that the indices were high in rural areas and in the three regions in the northern part of the country.

The factors that affect mortality are almost invariably interdependent. For instance, occupation is related to education; income is related to education and both income and education may influence diet and livelihoods. The variations in the indicators by socio-economic background

such as locality and region of residence, marital status, education, occupation and employment status of mothers exist in the country and would need to be addressed.

9.10.3 Recommendations

The relatively high infant, child and maternal mortality rates present challenges to the achievement of Millennium Development Goals 4 and 5, which are the health indicators on child and maternal mortality. Given the rates, there will be the need for proactive measures aimed at reducing infant, child and maternal mortality. For instance, maternal and child health services including family planning should be strengthened, especially in rural areas where the indices are high. In particular, the provision of more health facilities like the Community Health Planning Services (CHIPS) compounds in the rural areas should be vigorously pursued.

The relationship between education level and childhood mortality may also be a factor in explaining the relatively high infant and under-five mortality in the three northern regions. As shown in Table 7.5, over half of females aged 6 years and over in these three regions had never attended school. To improve childhood mortality, therefore, effort should be made first to improve access to education and secondly encourage females to progress at least to the secondary level.

The transition from high to low birth and death rates tends to create a period of instability that may be as short as a generation or as long as a century. The longer it takes to complete the transition from high to low level, the greater the demographic, social and economic impact with serious implications for human survival. At the current pace of decline, the under-five mortality is unlikely to be reduced by two-thirds within the next three years (2015) as per the MDG target.

References

- Arriaga, E. D., Johnson, P. D., & Jamison, E. (1994). *Population Analysis with Microcomputers, I & II*. US Bureau of Census.
- Boerma, J. T. (1987). Levels of Maternal Mortality in Developing Countries. *Studies in Family Planning*, 18(4): 213-221
- Brass, W. (1975). Methods for Estimating Fertility and Mortality From Limited and Defective Data based on Seminars Held 16-24 September 1971 at the Centro Latinoamericano De Demografía (CELADE) San José, Costa Rica. Chapel Hill, North Carolina: Carolina Population Center, Laboratories for Population Statistics.
- Brass, W. (1985). *Advances in Methods for Estimating Fertility and Mortality from Limited and Defective Data*. Centre for Population Studies, Occasional Publication, London School of Hygiene and Tropical Medicine.
- Coale, A. J. & Demeny, P. (1983). Regional Model Life Tables and Stable Populations . New York: Academic Press.
- Ghana Statistical Service (GSS), Ghana Health Service (GHS), and Macro International. (2009). *Ghana Maternal Health Survey 2007*. Calverton, Maryland, USA: GSS, GHS, and Macro International.
- Gyimah, S. O. (2006) Cultural background and infant survival in Ghana. *Ethnicity and Health*, 11(2), 101-120.
- Gyimah, S. O. (2007). What has faith got to do with it? Religion and child survival in Ghana. *Journal of Biosocial Science*, 39, 923-937.
- INDEPTH (2002). *Population and Health in Developing Countries: Population, Health and Survival at INDEPTH Sites*. International Development Research Centre, Canada.
- INDEPTH (2004). *INDEPTH Model Life Tables for Sub-Saharan Africa*. London, Ashgate.
- ICF Macro. 2010. *Millennium Development Goals in Ghana: A new look at data from the 2008 Ghana Demographic and Health Survey*. Calverton, Maryland, USA: ICF Macro.
- Kirchengast, S., & Hartmann, B. (2003). Impact of maternal age and maternal somatic characteristics on newborn size. *American Journal of Human Biology*, 15(2): 220-8.
- Macinko, J., de Souza, M. F. M., Guanaisc, F. C., & da Silva Simões, C. C. (2007). Going to scale with community-based primary care: An analysis of the family health program and infant mortality in Brazil, 1999–2004. *Social Science & Medicine*, 65: 2070–2080.

- United Nations (1982). *Model Life Tables For Developing Countries*. UN, New York.
- United Nations (1983). *Manual X: Indirect Techniques for Demographic Estimation*. New York, United Nations.
- United Nations (1990). *Step-by-Step Guide to the Estimation of Child Mortality*. New York, United Nations.
- World Health Organisation (2000). *World Mortality in 2000: Life Tables for 191 Countries*. Geneva, WHO.
- World Health Organisation (2005). *WHO technical consultation on verbal autopsy tools*. Geneva: WHO.

Appendix

Table A9.1: Under-five mortality rates (per 1,000 children) by age of mother and reference date, 1948-2010

Age of mother	Reference		Reference		Reference	
	1948	Date	1960	Date	1971	Date
15-19	212	1946.2	242	1958.8	203	1970.4
20-24	241	1944.7	228	1957.4	192	1969.1
25-29	292	1942.9	239	1955.5	198	1967.2
30-34	331	1941.0	245	1953.4	206	1964.9
35-39	354	1938.9	254	1951.1	207	1962.4
40-44	345	1936.7	324	1948.7	213	1959.7
45-49	356	1934.1	259	1945.9	219	1955.5

Age of mother	1979/		Reference		Reference	
	1980	Date	1988	Date	1993	Date
15-19	138	1978.2	0	1987.3	30	1992.7
20-24	157	1976.8	202	1986.0	151	1991.4
25-29	128	1974.9	161	1984.2	135	1989.5
30-34	127	1972.7	163	1982.0	130	1987.3
35-39	123	1970.1	147	1979.5	131	1984.9
40-44	137	1967.4	150	1976.8	128	1982.2
45-49	149	1964.5	175	1973.9	145	1979.3

Age of mother	Reference		Reference		Reference	
	1998	Date	2000	Date	2003	Date
15-19	142	1997.2	999	1998.9	155	2002.6
20-24	132	1995.9	256	1997.6	134	2001.6
25-29	102	1993.9	176	1966.0	113	2000.0
30-34	118	1991.5	173	1994.1	113	1998.1
35-39	115	1988.8	153	1991.9	115	1996.0
40-44	144	1986.0	157	1989.6	127	1993.6
45-49	120	1983.0	147	1986.8	115	1989.7

Age of mother	Reference		Reference	
	2008	Date	2010	Date
15-19	0	2007.8	193	2009.6
20-24	114	2006.6	126	2008.5
25-29	84	2004.9	96	2006.8
30-34	83	2002.8	88	2004.9
35-39	96	2000.4	86	2002.7
40-44	111	1997.8	93	2000.2
45-49	116	1994.9	93	1997.4

Table A9.2: Under-five mortality rates by age of mother, reference date and region: 2010

Age of Mother	WESTERN				CENTRAL			
	Infant Mortality	Reference Period	Under Five Mortality	Reference Period	Infant Mortality	Reference Period	Under Five Mortality	Reference Period
Reference Period	2010	Reference Period	2010	Reference Period	2010	Reference Period	2010	Reference Period
15-19	2009.6	111	2009.6	185	2009.6	111	2009.6	184
20-24	2008.5	76	2008.5	120	2008.5	81	2008.5	129
25-29	2006.8	57	2006.8	86	2006.8	63	2006.8	98
30-34	2004.9	54	2004.9	81	2004.9	60	2004.9	93
35-39	2002.6	53	2002.6	80	2002.7	60	2002.7	92
40-44	2000.1	57	2000.1	87	2000.2	66	2000.2	103
45-49	1999.7.3	59	1997.3	89	1997.4	69	1997.4	108
GREATER ACCRA								
Age of Mother	Infant Mortality		Under Five Mortality		Infant Mortality		Under Five Mortality	
	Reference Period	2010	Reference Period	2010	Reference Period	2010	Reference Period	2010
15-19	2009.5	116	2009.5	194	2009.6	105	2009.6	174
20-24	2008.4	86	2008.4	138	2008.4	71	2008.4	112
25-29	2007.0	66	2007.0	103	2006.7	59	2006.7	89
30-34	2005.2	83	2005.2	79	2004.6	56	2004.6	86
35-39	2003.3	48	2003.3	70	2002.2	56	2002.2	85
40-44	2001.0	46	2001.0	68	1999.7	60	1999.7	92
45-49	1998.2	46	1998.2	67	1996.8	60	1996.8	92
EASTERN								
Age of Mother	Infant Mortality		Under Five Mortality		Infant Mortality		Under Five Mortality	
	Reference Period	2010	Reference Period	2010	Reference Period	2010	Reference Period	2010
15-19	2009.6	92	2009.6	149	2009.6	118	2009.6	198
20-24	2008.4	68	2008.4	106	2008.5	80	2008.5	128
25-29	2006.7	52	2006.7	78	2007.0	59	2007.0	90
30-34	2004.6	49	2004.6	73	2005.1	51	2005.1	77
35-39	2002.3	49	2002.3	73	2003.0	49	2003.0	73
40-44	1999.7	53	1999.7	79	2000.5	52	2000.5	77
45-49	1996.9	53	1996.9	79	1997.7	53	1997.7	79

Table A9.2: Under-five mortality rates by age of mother, reference date and region, 2010 (cont'd)

BRONG-AHAFO				NORTHERN				
Age of Mother	Infant Mortality		Under Five Mortality		Infant Mortality		Under Five Mortality	
	Reference Period	2010	Reference Period	2010	Reference Period	2010	Reference Period	2010
15-19	2009.6	103	2009.6	170	2009.7	134	2009.7	226
20-24	2008.5	75	2008.5	119	2008.5	86	2008.5	138
25-29	2006.8	61	2006.8	93	2006.8	74	2006.8	117
30-34	2004.9	56	2004.9	85	2004.7	72	2004.7	114
35-39	2002.7	56	2002.7	84	2002.3	74	2002.3	117
40-44	2000.3	59	2000.3	90	1999.7	80	1999.7	128
45-49	1997.4	59	1997.4	90	1996.8	79	1996.8	125

UPPER EAST				UPPER WEST				
Age of Mother	Infant Mortality		Under Five Mortality		Infant Mortality		Under Five Mortality	
	Reference Period	2010	Reference Period	2010	Reference Period	2010	Reference Period	2010
15-19	2009.7	131	2009.7	222	2009.7	123	2009.7	208
20-24	2008.6	92	2008.6	149	2008.6	94	2008.6	153
25-29	2007.0	74	2007.0	117	2007.1	79	2007.1	125
30-34	2005.0	72	2005.0	114	2005.2	81	2005.2	128
35-39	2002.7	76	2002.7	120	2003.1	83	2003.1	132
40-44	2000.2	85	2000.2	137	2000.7	91	2000.7	147
45-49	1997.3	87	1997.3	140	1997.8	92	1997.8	150

Table A9.3a: Empirical model life table for URBAN MALES

Age, x	nMx	nqx	lx	nLx	5Px	Tx	ex
0	0.064	0.060	100000	94000	0.918	6270218	62.7
1-4	0.008	0.029	94000	365011	0.988	6176218	65.7
5-9	0.002	0.012	91253	453503	0.991	5811208	63.7
10-14	0.001	0.005	90149	449507	0.994	5357705	59.4
15-19	0.001	0.007	89654	446727	0.992	4908197	54.7
20-24	0.002	0.009	89036	443140	0.989	4461471	50.1
25-29	0.003	0.014	88220	438112	0.983	4018331	45.5
30-34	0.004	0.020	87025	430674	0.975	3580219	41.1
35-39	0.006	0.030	85244	419856	0.966	3149544	36.9
40-44	0.008	0.039	82698	405476	0.955	2729688	33.0
45-49	0.011	0.052	79492	387206	0.941	2324212	29.2
50-54	0.014	0.066	75390	364424	0.923	1937006	25.7
55-59	0.019	0.089	70380	336224	0.898	1572581	22.3
60-64	0.025	0.116	64110	301962	0.865	1236358	19.3
65-69	0.034	0.157	56675	261075	0.821	934395	16.5
70-74	0.046	0.205	47755	214275	0.770	673320	14.1
75-79	0.060	0.261	37955	165053	0.640	459045	12.1
80+	0.095	1	28066	293992		293992	10.5

Table A9.3b: Empirical model life table for URBAN FEMALES

Age x	nMx	nqx	lx	nLx	5Px	Tx	ex
0	0.052	0.049	100000	95100	0.930	6876685	68.8
1-4	0.007	0.027	95100	370042	0.989	6781585	71.3
5-9	0.002	0.010	92510	460193	0.991	6411543	69.3
10-14	0.001	0.007	91567	456175	0.991	5951350	65.0
15-19	0.002	0.010	90903	452242	0.988	5495175	60.5
20-24	0.003	0.013	89994	446965	0.984	5042933	56.0
25-29	0.004	0.019	88792	439784	0.978	4595968	51.8
30-34	0.005	0.026	87121	429928	0.969	4156185	47.7
35-39	0.007	0.037	84850	416504	0.960	3726256	43.9
40-44	0.009	0.043	81752	400006	0.953	3309752	40.5
45-49	0.010	0.050	78251	381396	0.949	2909746	37.2
50-54	0.010	0.051	74308	362106	0.946	2528349	34.0
55-59	0.012	0.057	70535	342580	0.938	2166244	30.7
60-64	0.014	0.067	66497	321360	0.924	1823664	27.4
65-69	0.018	0.086	62046	296827	0.901	1502304	24.2
70-74	0.024	0.114	56684	267318	0.869	1205477	21.3
75-79	0.032	0.150	50243	232374	0.752	938159	18.7
80+	0.061	1	42707	705785		705785	16.5

Table A9.3c: Empirical model life table for RURAL MALES

Age x	nMx	nqx	lx	nLx	5Px	Tx	ex
0	0.064	0.060	100000	94000	0.906	5729999	57.3
1-4	0.012	0.045	94000	359246	0.982	5635999	60.0
5-9	0.004	0.018	89811	445088	0.986	5276754	58.8
10-14	0.002	0.009	88224	439055	0.989	4831665	54.8
15-19	0.003	0.013	87398	434080	0.984	4392610	50.3
20-24	0.004	0.019	86234	427082	0.976	3958530	45.9
25-29	0.006	0.029	84599	416962	0.967	3531448	41.7
30-34	0.008	0.037	82186	403270	0.957	3114485	37.9
35-39	0.010	0.049	79122	385925	0.947	2711216	34.3
40-44	0.012	0.057	75248	365478	0.937	2325291	30.9
45-49	0.014	0.069	70943	342406	0.924	1959812	27.6
50-54	0.017	0.082	66019	316545	0.906	1617407	24.5
55-59	0.022	0.106	60599	286915	0.880	1300861	21.5
60-64	0.029	0.135	54167	252568	0.847	1013947	18.7
65-69	0.038	0.174	46860	213914	0.810	761378	16.2
70-74	0.047	0.209	38705	173258	0.776	547464	14.1
75-79	0.055	0.243	30598	134385	0.641	374206	12.2
80+	0.097	1	23156	239821		239821	10.4

Table A9.3d: Empirical model life table for RURAL FEMALES

Age x	nMx	nqx	lx	nLx	5Px	Tx	ex
0	0.056	0.053	100000	94700	0.916	6129489	61.3
1-4	0.011	0.042	94700	363066	0.984	6034789	63.7
5-9	0.003	0.015	90767	450362	0.986	5671722	62.5
10-14	0.003	0.013	89378	444007	0.984	5221360	58.4
15-19	0.004	0.019	88225	436873	0.977	4777353	54.1
20-24	0.005	0.026	86525	426894	0.969	4340479	50.2
25-29	0.007	0.036	84233	413534	0.959	3913586	46.5
30-34	0.009	0.045	81181	396781	0.950	3500051	43.1
35-39	0.011	0.054	77531	377112	0.943	3103270	40.0
40-44	0.012	0.059	73313	355671	0.937	2726158	37.2
45-49	0.014	0.067	68955	333283	0.933	2370487	34.4
50-54	0.014	0.067	64358	310950	0.930	2037204	31.7
55-59	0.015	0.073	60022	289085	0.922	1726254	28.8
60-64	0.017	0.083	55612	266566	0.908	1437169	25.8
65-69	0.022	0.102	51014	242029	0.888	1170603	22.9
70-74	0.026	0.122	45797	214990	0.868	928574	20.3
75-79	0.031	0.143	40199	186609	0.738	713583	17.8
80+	0.065	1	34445	526974		526974	15.3

Appendix A9.4: Methods for the Estimations

The first set was built from the observed age-specific death rates (mx) and population by age, using LTPODTH software (US Bureau of Census, 1994). The procedure produces a life table based on the mx values smoothed by a moving average of the logarithms of the death rates. The second set was constructed and smoothed using reported age-specific death rates and adjusted mx values, employing LTMXQXAD software (US Bureau of Census, 1994). In the third set, the procedure utilized the crude death rate and the population age structure to construct a life table based on the Coale-Demeny North model, using LTNTH software (US Bureau of Census, 1994). In the fourth set, the reported number of deaths by sex was adjusted for completeness by the Brass balance growth equation method and the adjusted total number of deaths by sex was then redistributed by age by the observed proportions in each age group. The LTPODTH software was employed to generate the life table. Results from the model refer to the period of 12 months prior to the census, depicting the current level of life expectancy at birth compared with the others which are based on retrospective data and derived using an indirect technique.

The development of models based on local data are much more likely to depict the critical features of age patterns of mortality and are therefore useful for constructing reliable mortality estimates and population projections. Thus, the resultant empirical model life tables are preferable to models that are completely devoid of data from sub-Saharan Africa (e.g. Coale-Demeny Life Tables). The International Network for continuous Demographic Evaluation of Population and their Health (INDEPTH) has been trying over the years to address the shortcomings of the Coale-Demeny and UN model life tables by developing empirical model life tables for sub-Saharan Africa, using data collected in a number of African countries. An assessment of the INDEPTH model life tables shows that they are based on localized data. In Ghana, for example, the data collected in the Navrongo site are inadequate for constructing a national model life table for the country. Notwithstanding, two standard age patterns of mortality are recommended for generating model life tables for sub-Saharan African countries; pattern 1 is a non-HIV/AIDS model whilst pattern 2 reflects the impact of HIV-AIDS (INDEPTH, 2002 & 2004).

The World Health Organization (WHO) constructed life tables for 191 countries to assist Member States to measure overall population health and to assess how well health systems were performing. The WHO standard for African Region was “based on fitting split-level Coale-Demeny models to estimates of child (and occasionally) adult mortality for countries in the region” (WHO, 2000). Consequently, the empirically constructed models that are based on local data are preferable to models based on non-African data.

The second procedure was utilised to develop empirical model life tables for urban and rural areas (Figures 9.6 and 9.7, Appendix A9.3: Tables 1, 2, 3 and 4).

CHAPTER TEN

MIGRATION AND URBANISATION²²

10.1 Introduction

The process of distribution and redistribution of a population occurs through natural growth and migration. The redistribution through migration is shaped by a variety of demographic, geographic and socio-economic factors. These include the distribution and utilisation of natural resources and infrastructural development, which results from local factors as well as policies, and programmes of government and non-government agencies. One outcome of the movement is urbanization.

This chapter presents the patterns of migration and urbanisation in Ghana using data from the 2010 Population and Housing Census (PHC). It describes the characteristics, trends and regional differentials as well as the determinants of internal migration and urbanisation. The report examines distribution of total population by nationality and sex, the processes of population redistribution, in particular, inter-regional migration and rural-urban migration. It discusses the process of urbanisation, its magnitude, determinants and effects on development. The report concludes with the policy implications of current trends in population distribution and redistribution on national development.

10.2 Concepts and measures

Migration is a socio-economic phenomenon which is a result of complex mechanisms involving social, psychological, economic, political and institutional determinants. The movement of population in space is incidental to carrying out daily activities in life, such as commuting to and from places of work and travelling for business or for pleasure. These movements are often monitored and analysed for specific purposes. The duration of stay distinguishes the temporary stay from a short stay. However, when such mobility involves a permanent sojourn in the place of destination, it is considered as migration. Migration is therefore defined as a geographical movement involving a change from a usual place of residence over a defined territory beyond a defined period (United Nations, 2012?).

10.2.1 Sources of Data

Analyses of estimates of rural-urban migration in censuses are usually based on questions on place of birth and place of enumeration. These data have all the usual characteristics of place of birth data, being non-specific as to time of movement and as to place of last residence. Nevertheless, they give a general picture of the net effect of internal migration over the lifetime of the surviving population. The questions on migration in the 2010 PHC were: place of birth;

²²This chapter was contributed by John.K. Anarfi and Marian Kpakpah

duration of residence; emigration and nationality. The birthplace of a person refers to the locality of usual residence of the mother at the time of birth. In the 2010 PHC, the concept of duration of residence referred to the number of years a person had lived in a particular place. Breaks in duration of residence lasting less than 12 months were disregarded. The duration of residence of persons who made multiple movements of one year or more was assumed to be the number of years lived in the locality since the last movement. On the basis of the answer to the place of birth question, migrants are defined as persons who were enumerated in a place different from where they were born, whilst non-migrants were persons who were enumerated in the place they were born.

International migration refers to movements across national boundaries. It is called emigration from the point of view of the nation from which the movement occurs and immigration from the point of view of the receiving nation. For the first time, the 2010 PHC solicited questions on emigration. Questions were asked of all former household members 15 years and older who had been living continuously for 6 months or more outside Ghana or those who intended to emigrate.

Urbanisation is a process by which an increasing number of people become permanently concentrated in relatively small areas forming cities. This results in the physical growth of these areas and an increase in the proportion of people living there. In most instances, the definition of an urban area is derived from statistical standards developed either by international organisations or by the country. In the 2010 PHC in Ghana, an urban settlement was defined as a population of 5,000 people or more. This definition has been used in previous censuses. The report discusses the issue of urban agglomerations within the constraints of available data on the development of urban centres. Urban agglomeration is defined as the continuous urban spread of a town and its adjoining urban outgrowths, or two or more physical contiguous towns together and any adjoining urban outgrowths of such towns (United Nations, 2012). Estimating the population of urban agglomerations over time has been a challenge to many countries due to the complexity of the urban growth process. Towns are transformed into urban agglomerations either as a result of natural population growth or due to rural-urban or urban-urban migration. They may also emerge as a result of administrative processes. The phenomenon of urban agglomeration in Ghana is as a result of inter-regional migration as well as the creation of several newly established districts over time.

Although urbanisation and migration are interlinked, because cities expand in space as well as in population and because migration has to be measured in relation to fixed areas, it is often difficult to isolate the contribution of migration to urban growth. Intercensal changes in territories classified as urban, often present particular challenges in using data from two censuses for estimating intercensal net migration. The change in the size of the urban population from one census to another consists of (a) natural increase in areas classified as urban at the first census; (b) net migration to these areas; (c) addition at the second census of places newly defined as urban; (d) deletion at the second census of places newly removed from the urban category; and (e) additions and deletions of population due to intercensal changes of the boundaries of individual urban places.

10.3 Limitations of data

Census data generally has certain limitations which influence the scope of analysis. In a census, complete coverage is achieved by sacrificing more detailed information. Therefore, studies on migration and urbanisation, for example, are limited to general issues for which information are available in the census questionnaire. In addition, the explanation for any patterns and variations that may be observed cannot be confirmed using census data due to the lack of information on explanatory factors.

Furthermore, there has not been consistency in the type of questions used to elicit information on migration in previous censuses. For example, the 2000 PHC used “place of birth”, “place of usual residence” and “the place of residence 5 years ago” to elicit information on migration. In the 2010 census, the last question was replaced with “duration of residence”. The immediate problem is that technically the migration information from the two censuses cannot be compared without caution if the 2000 analysis was based solely on the place of residence 5 years ago. Again, data from the 2000 census would not allow the identification of duration of residence in the destination area, while the questions from both censuses are unable to capture the timing of the last move, as well as return migration that happened prior to the time of the censuses. As a consequence, results of census analysis underestimate actual mobility of people. Due to these shortcomings census data on migration do not provide enough and adequate information on patterns and differentials of migration in a country.

Regarding urbanisation, the analysis is based on population figures obtained from the censuses. However, in the last twenty years or so, changes have occurred in geographical boundaries at the district and sub-district levels following the introduction of decentralisation. Furthermore, the rapid socio-economic development since the introduction of decentralisation has resulted not only in increasing migration flows but also in rapid expansion of urban areas. Therefore, urbanisation in Ghana in the last two decades has received contributions from both migration and geographical expansion of urban areas. However, the contribution of geographical expansion to urban growth cannot be assessed because the census data do not include geo-coded data over time which would allow decomposition of the factors affecting urbanisation.

10.4 Internal Migration

10.4.1 Current distribution of the Population of Ghana

The 2010 Ghana Census returned a total population of 24,568,823. Of that number, Ghanaians by birth constituted 94 percent of the population on the census night, Ghanaians by naturalisation was one percent and another three percent with dual citizenship (See Table 10.1). About 600,049, representing two percent of the total population were non-Ghanaians. The distribution of the non-Ghanaian population is a little different from that of the population of Ghanaians by birth. About a quarter (24.6%) of naturalized Ghanaians could be found in the Volta Region, followed by Greater Accra (16.5%) and the Ashanti Region (14.6%). The Northern Region had 9.5 percent of the naturalized Ghanaians, 7.9 percent in the Brong-Ahafo (7.9%) and 7.7. percent in the Eastern. Upper West again has the least concentration of naturalized Ghanaians (2.6%).

Unlike the 2000 Census, the sex distribution of the naturalized Ghanaian population is similar to that of the Ghanaian population by birth, with a little over 51 percent being females. Perhaps the female immigrants who chose to naturalize did so through marriage.

10.4.2 Current Distribution of the Non-Ghanaian Population

Table 10.2 shows the regional distribution of the non-Ghanaian population by sex and place of origin. Eighty-six percent of the non-Ghanaian population were African nationals with 68.3 percent from other ECOWAS countries. Only 13.6 percent were from non-African countries. The proportion of males to females in the total non-Ghanaian population was 53.3%:46.7%). While males are the majority among the ECOWAS nationals (about 55%), there is no significant difference between males and females with the non-African nationals (50.6%) and absent among the African non-ECOWAS nationals (49.6%). The ECOWAS nationals could possibly be private individuals who were in the country for economic reasons where males can choose to leave their spouses behind. The other African and non-African nationals were possibly in Ghana as employees of organisations and other overseas interests. Such people are more likely to move with their families hence the near sex balance among their populations.

Nearly 60 percent of the total non-Ghanaian population (58.4%) were found in Greater Accra (20.2%), Ashanti (16.7%), Northern (11.4%) and Brong-Ahafo (10.1%) regions. ECOWAS nationals were concentrated in Greater Accra (21.1%), Ashanti (14.7%) and Volta (11.5%). As observed in the 2000 census, the large proportion of ECOWAS nationals in the Volta Region could probably be attributed to Aflao being the entry point for immigrants from Togo, Benin and Nigeria. The same reason may explain why Greater Accra has increased its share of ECOWAS nationals over the total non-Ghanaians while Ashanti has a reduced proportion. Around one fifth of African-non ECOWAS and non-Africans were resident in the Ashanti Region (20.9%) each.

One could speculate that the non-Ghanaians were employees of international organisations, missionaries and investors in the mining towns in the Ashanti Region. Furthermore, there were a number of non-Ghanaian investors engaged in the gold, timber and crafts shops in Kumasi. Similarly, the increasing importance of the Northern Region as home to non-Ghanaians is probably as a result of the fact that the Northern Region hosts a number of NGOs and missionaries working to bring relief to the generally deprived populations of northern Ghana. In addition, small-scale mining of gold has gained prominence in recent times in that part of the country and could be another factor in attracting non-Ghanaians.

Table 10.1: Ghanaian population, Ghanaians by birth, naturalisation, by region and sex

Region	Ghanaians and non-Ghanaians			Ghanaians by birth			Ghanaians by naturalization		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Western	9.64	9.88	9.41	9.81	10.06	9.58	5.82	5.97	5.68
Central	8.93	8.73	9.12	9.07	8.87	9.26	5.78	5.72	5.84
Greater Accra	16.26	16.12	16.40	16.15	15.96	16.33	16.49	16.58	16.41
Volta	8.59	8.48	8.70	7.88	7.78	7.97	24.56	24.12	24.97
Eastern	10.68	10.73	10.63	10.87	10.92	10.82	7.67	7.95	7.41
Ashanti	19.39	19.26	19.51	19.67	19.55	19.78	14.60	14.54	14.65
Brong-Ahafo	9.37	9.52	9.23	9.43	9.59	9.28	7.89	8.06	7.73
Northern	10.06	10.23	9.89	10.07	10.26	9.90	9.48	9.58	9.38
Upper East	4.24	4.21	4.28	4.21	4.19	4.23	5.11	4.95	5.27
Upper West	2.85	2.84	2.86	2.84	2.84	2.85	2.60	2.53	2.67
All Regions	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
N	24,658,823	12,024,845	12,633,978	23,113,231	11,252,043	11,861,188	235,180	113,908	121,272

Source: Ghana Statistical Service, 2010 Population and Housing Census.

Table 10.2: Non Ghanaian population, by region, sex and origin

Region	Non Ghanaian			ECOWAS			African, non ECOWAS			Non-African		
	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female
Western	8.01	8.27	7.71	7.08	7.31	6.8	9.74	10.14	9.33	10.38	11.05	9.69
Central	8.89	8.55	9.27	8.88	8.56	9.28	8.77	8.61	8.93	9.08	8.46	9.71
Greater Accra	20.24	21.23	19.11	21.07	22.01	19.94	17.46	17.92	17	19.74	21.31	18.14
Volta	8.6	8.61	8.58	11.54	11.26	11.87	2.66	2.81	2.5	1.73	1.77	1.7
Eastern	7.60	7.70	7.50	7.34	7.55	7.08	8.26	8.20	8.32	8.06	7.83	8.29
Ashanti	16.69	16.31	17.12	14.74	14.62	14.88	20.91	20.39	21.43	20.9	20.21	21.61
Brong-Ahafo	10.07	10.01	10.14	9.58	9.54	9.63	11.59	11.73	11.46	10.49	10.33	10.66
Northern	11.37	11.17	11.59	11.13	10.95	11.35	12.27	12.14	12.39	11.33	11.07	11.6
Upper East	5.10	4.87	5.36	5.17	4.89	5.5	4.97	4.83	5.11	4.89	4.76	5.03
Upper West	3.44	3.27	3.63	3.46	3.3	3.66	3.38	3.22	3.53	3.39	3.21	3.57
All Regions	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
N	600,049	319,543	280,506	409,910	224,414	185,496	108,328	53,756	54,572	81,811	41,373	40,438

Source: Ghana Statistical Service, 2010 Population and Housing Census.

10.4.3 Population Redistribution

Table 10.3 presents the population classified by place of birth, locality and sex. The table shows that in the 2010 PHC, 65 percent of Ghanaians were enumerated in their places of birth. The rest (35%) were enumerated outside their places of birth and could therefore be classified as migrants. Of those that had migrated, over half of the moves were inter regional; and with XX% migrating within region (intra-regional). Only 1.3 percent Ghanaians enumerated in the 2010 PHC were living outside the country. The table further revealed that females far outnumbered males in intra-regional migration at both the rural and urban levels. In inter-regional migration, however, there were more males than females among rural migrants and the reverse was the case for urban migrants. This conforms to one of the factors known about female migration: Females dominated in migration at the rural level mainly for the purpose of marriage (Tanle, 2003). For migration outside the country, males outnumber females (Tanle, 2012).

Table 10.3: Population data classified by place of birth, locality and sex

Place of Birth	Rural		Urban				
	Total Country	Total	Male	Female	Total	Male	Female
Total	24,658,823	12,113,594	6,008,786	6,104,808	12,545,229	6,016,059	6,529,170
Born in place enumeration	16,025,827	8,753,251	4,394,453	4,358,798	7,272,576	3,519,345	3,753,231
Born elsewhere in the region of enumeration	3,694,478	1,595,548	699,450	896,098	2,098,930	960,093	1,138,837
Elsewhere in other regions	4,615,329	1,640,124	849,136	790,988	2,975,205	1,427,863	1,547,342
Others	323,189	124,671	65,747	58,924	198,518	108,758	89,760
Percentages							
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Born in place enumeration	65.0	72.3	73.1	71.4	58.0	58.5	57.5
Born elsewhere in the region of enumeration	15.0	13.2	11.6	14.7	16.7	16.0	17.4
Elsewhere in other regions	18.7	13.5	14.1	13.0	23.7	23.7	23.7
Others	1.3	1.0	1.1	1.0	1.6	1.8	1.4

Source: Ghana Statistical Service, 2010 Population and Housing Census.

Table 10.4 presents a matrix of the Ghanaian population by place of enumeration and place of birth, and shows migration streams²³ on the basis of specific places of birth and specific places of residence and also lifetime migrants²⁴. For example, column 1 shows all the people enumerated in the Western Region in the 2010 census. Out of the total of 2,346,713 people enumerated in the region, 1,785,200 were born in the same region and are therefore, non-migrants. The first row of

²³ A migration stream is defined as the total number of moves made during a given migration interval that have a common area of origin and a common area of destination. That is, migrants who move from a particular origin to a particular destination over the same migration interval.

²⁴ A lifetime migrant is a person whose area of residence at the census date differs from his area of birth.

Table 10.4 shows that in 2010, Western Region had a total of 561,513 lifetime in-migrants²⁵ and 279,394 lifetime out-migrants²⁶. The diagonal cells of the table give the number of lifetime non-migrants for each region and the sum of them represents the total lifetime non-migrants (people enumerated in their places of birth) in the 2010 census. From the data, about 4.6 million Ghanaians moved from one region to another (Table 10.5). These movers represented about 19% of the total population. In other words, they were inter-regional migrants (Table 10.5). Absolute figures, indicating the size of the flows, constitute the first step in identifying any policy responses to emerging internal migration trends (Australian Government, 2000). The next step is calculating internal migration relativities (e.g. in-migration and out-migration rates) which provide some insights into the impacts of the mobility on population redistribution.

The in-migration rate is the rate at which people move into an area between two periods, and out-migration rate is the reverse. From Table 10.4, 40.7 percent of the migrants went to the Greater Accra region, followed by Western (23.9%), Brong-Ahafo (20.0%) and Ashanti (18.0%) regions. The three northern regions recorded the lowest rates of migration. The northern regions also recorded the highest out-migration rates in the country between the 2000 and 2010 intercensal period. Specifically, the Upper West region recorded the highest out-migration rate of 28 percent, followed by the Volta region (26.2%), Central region (25.5%), Eastern region (25.5%) and Upper East region (25.14%). The regions with the lowest rates of out-migration were Greater Accra (12.2%), Western (13.5%) and Ashanti (13.6%).

Net migration represents the balance between incoming and outgoing flows in a particular region and these are presented in Table 10.6. Four regions, Greater Accra, Western, Ashanti and Brong Ahafo, showed positive net-migration, which means they gained population through migration during the 2000 – 2010 intercensal period (Figure 10.1). Of the four regions, Greater Accra gained the highest of over one million people and both Western and Ashanti gained over 200,000 people each. Brong Ahafo gained over 100,000 people. These regions have consistently been gaining population through migration in almost all previous censuses. In the case of Greater Accra, it contains the nation's capital and all the ministries and major organisations, both governmental and non-governmental, have their headquarters there. The other three regions are areas endowed with industry, mining and agricultural land and therefore attract people. It is predicted that with the development of oil industry in the country, the Western Region will pull in a lot more migrants in subsequent years.

25 Lifetime in-migrants are the total number of people enumerated in an area different from their place of birth. In the case of Western Region, the lifetime migrants is the total number of people enumerated in the region minus the non-migrants in the region, i.e.: $2,346,713 - 1,785,200 = 561,513$.

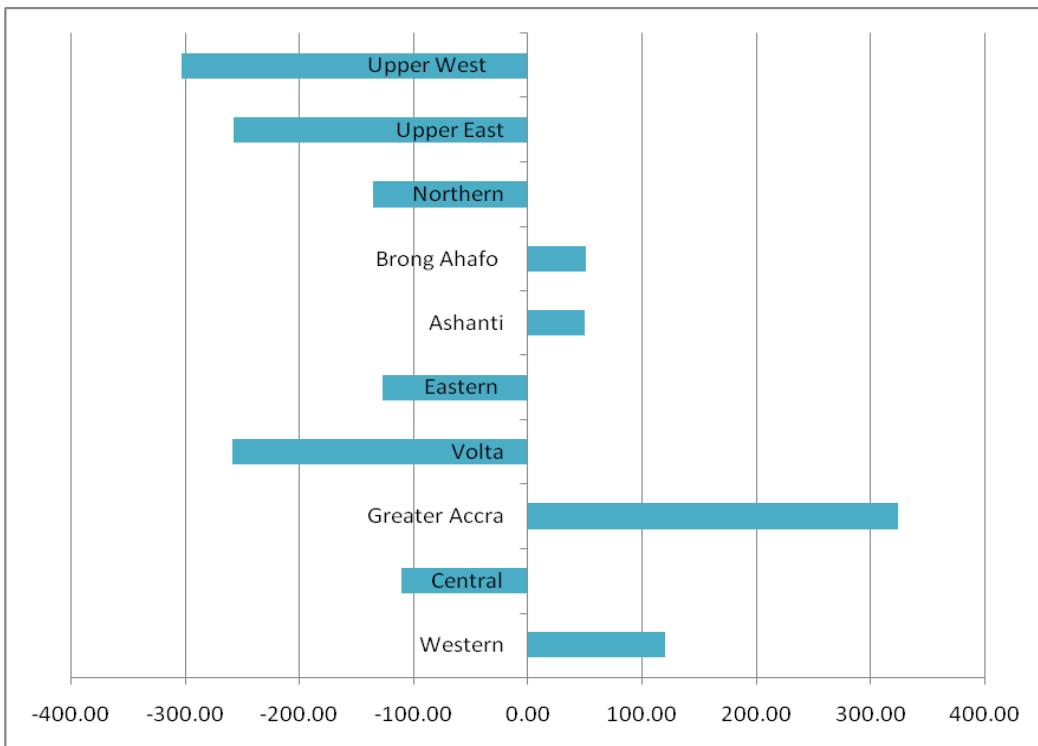
26 Lifetime out-migrants are, the total number of people born in an area but enumerated elsewhere. In the case of the Western Region, this represents the total number of people born in the region minus the non-migrants in the region, i.e., $2,064,594 - 1,785,200 = 279,394$.

Table 10.4: Population by place of enumeration and place of birth

Place of birth	Place of enumeration												Out-Migration Rate (%)	In-Migration rate (%)
	Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brong-Ahafo	Northern	Upper East	Upper West	Total			
Total	2,346,713	2,161,896	3,924,869	2,071,445	2,611,041	4,744,033	2,288,839	2,453,825	1,040,697	692,276	24,335,634			
Western	1,785,200	58,122	82,855	6,864	23,031	77,264	22,593	2,394	3,466	2,805	2,064,594	13.53	23.93	
Central	143,606	178,7453	255,637	9,354	68,151	112,583	16,686	3,866	1,360	1,215	2,399,911	25.52	17.32	
Greater Accra	34,977	86,072	2,326,543	39,441	75,631	53,690	16,500	7,402	5,825	3,336	2,649,417	12.19	40.72	
Volta	50,104	47,044	345,729	1925283	128,163	57,384	33,423	16,560	1,786	1,640	2,607,116	26.15	7.06	
Eastern	63,161	76,265	454,571	30,897	2192727	95,641	21,893	3,570	2,519	1,883	2,943,127	25.50	16.02	
Ashanti	93,034	61,861	246,564	14,173	56,196	3890282	90,621	14,247	25,770	11,265	4,504,013	13.63	18.00	
Brong-Ahafo	61,904	17,388	61,995	7,796	18,103	146,011	1831268	11,810	4,987	9,693	2,170,955	15.65	19.99	
Northern	38,688	13,864	93,677	34,637	24,900	119,585	88,980	2353301	10,963	7,827	2,786,422	15.54	4.10	
Upper East	48,172	8,991	40,809	1,795	12,936	133,302	61,469	17,753	979399	3,763	1,308,389	25.14	5.89	
Upper West	27,867	4,836	16,489	1,205	11,203	58,291	105,406	22,922	4,622	648849	901,690	28.04	6.27	

Source: Ghana Statistical Service, 2010 Population and Housing Census.

Figure 10.1: Net migration rate, per 1000, by region



Source: Ghana Statistical Service, 2010 Population and Housing Census.

Table 10.5: Lifetime out-migrants by region

Region	Persons born in Region	Non-Movers: Born & Enumerated in Region	Lifetime out-migrants: born in region, enumerated in another region	Percentage of life time migrants (%)
Total	24,335,634	19,720,305	4,615,329	19.0
Western	2,064,594	1,785,200	279,394	13.5
Central	2,399,911	1,787,453	612,458	25.5
Greater Accra	2,649,417	2,326,543	322,874	12.2
Volta	2,607,116	1,925,283	681,833	26.2
Eastern	2,943,127	2,192,727	750,400	25.5
Ashanti	4,504,013	3,890,282	613,731	13.6
B/Ahafo	2,170,955	1,831,268	339,687	15.6
Northern	2,786,422	2,353,301	433,121	15.5
U/East	1,308,389	979,399	328,990	25.1
U/West	901,690	648,849	252,841	28.0

Source: Ghana Statistical Service, 2010 Population and Housing Census.

Table 10.6: In-migration, out-migration and net migration by birth, by region

Region	In-migration	Out-migration	Net migration	Total Population	Net Migration Rate (per 1000)	Migration Effectiveness Ratio
Western	561,513	279,394	282,119	2,376,021	120.22	33.5
Central	374,443	612,458	-238,015	2,201,863	-110.10	-24.1
Greater Accra	1,598,326	322,874	1,275,452	4,010,054	324.97	66.4
Volta	146,162	681,833	-535,671	2,118,252	-258.60	-64.7
Eastern	418,314	750,400	-332,086	2,633,154	-127.19	-28.4
Ashanti	853,751	613,731	240,020	4,780,380	50.59	16.4
Brong-Ahafo	457,571	339,687	117,884	2,310,983	51.50	14.8
Northern	100,524	433,121	-332,597	2,479,461	-135.54	-62.3
Upper East	61,298	328,990	-267,692	1,046,545	-257.22	-68.6
Upper West	43,427	252,841	-209,414		-302.50	-70.7

Source: Ghana Statistical Service, 2010 Population and Housing Census.

The six remaining regions - Volta, Northern, Eastern, Upper East, Central and Upper West - experienced net-migration. The observed pattern was similar to what was identified in the 2000 PHC (Ghana Statistical Service, 2005). Apart from the Eastern Region, the regions which experienced negative net migration are among the least developed in the country (Ghana Statistical Service, 2007: GLSS). In the 1984 census, the Northern Region recorded a positive net migration. This development was partly attributed to the government's attempt to popularise the growing of rice in the region which is believed to have attracted people into the region to take advantage of the opportunity. However, the momentum was not sustained and the region reverted to the status quo of negative net migration. Perhaps, the Savannah Accelerated Development Authority (SADA) initiative can help to invigorate the three regions in the northern part of the country as was done with rice production in the 1970s and 1980s. The case of Eastern Region although not easy to explain, can be attributed to the decline of the cocoa and diamond winning industries as well as the closure of factories in the region such as the cannery at Nsawam and the match factory at Kade (Dickson and Benneh, 1990).

Migration essentially leads to the redistribution of population in a country. How effective migration does this is measured using the migration effectiveness ratio (MER), which relates net migration (the difference between arrivals and departures in any area) to total or gross migration (the sum of arrivals and departures in any area), expressed as a percentage. A value of 100 would indicate that the number of arrivals during a defined period was the same as departures. Therefore, for every 100 migrants, the net gain would be 100. In contrast, a MER of negative 100 indicates that the area experienced only departures from it during the period, and its interpretation would be that for every 100 migrants the net loss would be 100. Generally, MERs less than 15 are considered to indicate relatively ineffective population redistribution through migration, and values greater than 15 indicate that migration has a significantly effect in redistributing population. Thus, the higher the ratio (positive or negative), the greater the net gain or net loss in the particular region (Hugo & Harris, 2011). The concept of effectiveness is due to the fact that the MER is a ratio or percentage, which allows areas to be compared to determine whether migration in one area is more effective than others, or whether migration is the same in two areas, regardless of the fact that the actual numbers in each area may be different.

The last column of Table 10.6 shows internal migration relativities for each of the regions. Four regions showed positive net migration MERs: Greater Accra recorded the highest positive net migration MER of 66.4, indicating a net gain of 66.4 percent from all internal migrants during 2000-2010. The Western Region came second with a rate of 33.5, about half that of Greater Accra. Thus, compared with the net migration rate, the MER indicates that migration in Western Region is more effective than the net migration rate appears to show. Similarly, on the basis of the MER, Ashanti Region migration was more effective in causing population redistribution than Brong-Ahafo, although the migration rate was higher in the latter than the former.

Four of the six regions with negative out-migration recorded MERs of over 60 percent, indicating strong negative impact on population redistribution in these regions. In each of these regions, the existence of characteristics, most typically related to environment, acts as an important factor in the internal migration process. The MER of Upper West was negative 70.7, indicating that 70.7 percent of all internal migrants were departures. This is closely followed by Upper East (68.6%), which makes them the two regions that are losing population through migration at the fastest rate. Thus, for Greater Accra, migration is predominantly from other regions into the region whereas it is the reverse in the Upper West, Upper East, Northern and Volta regions. The two situations have serious implications for policy and planning. In the case of the net-gain region, Greater Accra, there will continue to be increasing pressure on existing facilities and in the case of the net loss regions - Upper East, Upper West, Northern and Volta - there will be the need for policies and programmes which will help to retain population (e.g. SADA).

10.4.5 Lifetime Migration

The 2010 census also collected data on the duration of residence in the place of enumeration. These data give information on the timing of the last moves of lifetime migrants or the recent migration history of the country (Table 11.7). Thus, for Ghana as a whole, a little over 15 percent of lifetime migrants moved to their destinations during the twelve months prior to the census (Table 11.8) while about 46 percent of all lifetime migrants moved to their destinations less than five years prior to the census and 64 percent did so less than ten years before the census. The proportions are about the same for both intra-regional and inter-regional migrants. Table 11.9 indicated that 53.5 percent of the total migration was inter-regional.

Table 10.7: Migration by place of birth and duration of residence, Ghana 2010

Place of Birth	Total	Duration of residence of migrants at place of enumeration					
		Less than					
		1 year	1-4	5-9	10-19	20+	
Total	8,632,996	1,311,605	2,617,353	1,559,790	1,613,867	1,530,381	
Born elsewhere in region of enumeration	3,694,478	550,845	1,129,159	675,401	684,378	654,695	
Elsewhere in other regions	4,615,329	707,875	1,379,166	825,920	872,418	829,950	
Others	323,189	52,885	109,028	58,469	57,071	45,736	

Source: Ghana Statistical Service, 2010 Population and Housing Census.

Table 10.8: Duration of Residence at Place of Enumeration

Place of Birth	Total	Duration of residence of migrants at place of enumeration				
		Less than 1 year	1-4	5-9	10-19	20+
Born elsewhere in the region of enumeration	100.0	14.9	30.6	18.3	18.5	17.7
Elsewhere in other regions	100.0	15.3	29.9	17.9	18.9	18.0
Others	100.0	16.4	33.7	18.1	17.7	14.1
Average	100.0	15.2	30.3	18.1	18.7	17.7

Source: Ghana Statistical Service, 2010 Population and Housing Census.

Table 10.9: Percentage of Migrants of any place of birth

Place of Birth	Total	Duration of residence of migrants at place of enumeration				
		Less than 1 year	1-4	5-9	10-19	20+
Total	100.0	100.0	100.0	100.0	100.0	100.0
Born elsewhere in the region of enumeration	42.8	42.0	43.1	43.3	42.4	42.8
Elsewhere in other regions	53.5	54.0	52.7	53.0	54.1	54.2
Others	3.7	4.0	4.2	3.7	3.5	3.0

Source: Ghana Statistical Service, 2010 Population and Housing Census.

10.5. International migration

10.5.1 Socio-economic Characteristics of Immigrants

According to the 2010 census, there were 398,585 immigrants in the country. The immigrant population was made up of 54.5 percent males and 45.5 percent females. That gives a general sex ratio of 119.7 males per 100 females, which is characteristic of most immigrant populations. The population is fairly young, with about 45 percent aged between 15 and 29 years. About 93 percent of the immigrant population was within the economically active age group of 15 – 64 years.

Nearly four out of ten immigrants in Ghana had never attended school (see Appendix Table A10.1). This is much higher than the national population of 28.5 percent (See Chapter 7). The proportion of the immigrant population with no education increases with age: 18.6 percent of those aged 15-19 years and 25.8 percent of those aged 20-24 years have had no education. The proportions of immigrants with primary to post-secondary education were very similar to those of the Ghanaian population. The proportion at the tertiary level was higher than that of the Ghanaian population. For example, nearly twice as many immigrants had had a bachelor degree compared with the Ghanaian population (4.7% versus 2.5%), and more than twice had had a

post-graduate qualification as their Ghanaian counterparts (1.1% versus 0.5%). The pattern is repeated between the sexes, but with a stronger difference among females.

About 67.8 percent of the immigrant population was employed and only 3.9 percent unemployed. Twenty-eight percent were not economically active. They were far more economically active in the rural areas than the urban areas (76.0% and 62.6% employed, and 2.2% and 4.9% unemployed respectively) [See Appendix Table A10.2]. The proportions employed increased steadily with age and reach a peak at the age group 45–49 years and decreased thereafter. Male immigrants were more likely to be employed than their female counterparts (73.1% versus 61.4%). Fifty-seven percent of the economically active immigrants were working as skilled agricultural, forestry and fisheries workers (34.8%) or services and sales workers (22.9%) whilst 5.3 percent and 3.4 percent were engaged as professionals and managers respectively (Appendix Table A 10.3). Male immigrants were more likely than their female counterparts to work as skilled agricultural, forestry and fisheries workers (35.4% and 33.9% respectively) and the reverse is the case of services and sales workers (17.0% and 32.3% respectively). Similarly, male immigrants were almost twice as likely to be professionals as their female counterparts (6.2% versus 4.0%) and more likely to be managers (3.9% versus 2.7%).

Fifty-seven percent of the immigrants were working as sole proprietors (self-employed without employees) (Table 10.10). Employees were 18.9 percent and another 5.4 percent were self-employed with employees. That is, about five percent of the immigrant population had employed others. About three percent of the immigrants were seeking work for the first time at the time of the census. About eight percent of such people were aged between 15-19 years, another nine percent were aged 20–24 years.

Female immigrants were more likely than their male counterparts to be self-employed without employees (61.4% versus 53.8%). On the other hand, male immigrants appeared to have a higher propensity to employ others than their female counterparts. While a little over six percent of the males were self-employed with employees, only a little over four percent of their female counterparts were in the same category. Eighty-three percent of the immigrants were working in the private informal sector (Table 10.11). Just about eight percent were working in the private formal sector and another five percent were in the public sector. Similarly, more female immigrants (87.9%) worked in the private informal sector than their male counterparts (79.7%), but was the reverse in the private formal (10.8% for males and 3.5% for females) and public (5.5% for males and 3.5% for females) sectors.

Table 10.10: Economically active foreign nationals 15 years and older by age, sex and employment status

Both Sexes	All Statuses	Employee	Self-employed without employees	Self-employed with employees	Casual worker	Contributing family worker	Apprentice	Domestic employee	Other	Persons seeking work for the first time
Age										
Total	285,655	53,860	162,726	15,296	6,861	29,019	6,612	1,986	744	8,551
Percent	100.0	18.9	57.0	5.4	2.4	10.2	2.3	0.7	0.3	3.0
15-19	100.0	8.8	26.9	1.4	3.9	41.3	7.7	1.2	0.6	8.2
20-24	100.0	18.0	42.0	2.4	3.8	15.9	8.1	0.8	0.4	8.6
25-29	100.0	21.0	52.9	4.3	3.0	9.8	2.9	0.7	0.3	5.3
30-34	100.0	20.7	59.7	5.9	2.2	6.9	0.8	0.7	0.2	2.9
35-39	100.0	20.2	63.5	7.1	2.1	6.0	0.4	0.6	0.2	0.0
40-44	100.0	19.7	64.6	7.4	1.8	5.4	0.2	0.7	0.2	0.0
45-49	100.0	20.3	65.0	7.2	1.6	5.1	0.1	0.6	0.2	0.0
50-54	100.0	21.1	65.1	6.6	1.3	5.0	0.1	0.6	0.2	0.0
55-59	100.0	22.7	63.9	6.7	1.4	4.3	0.1	0.6	0.3	0.0
60-64	100.0	15.7	69.4	6.4	1.4	6.0	0.1	0.7	0.3	0.0
65-69	100.0	14.1	71.7	6.8	1.1	4.9	0.1	1.1	0.2	0.0
70-74	100.0	9.7	76.7	5.8	1.3	5.7	0.2	0.4	0.2	0.0
75-79	100.0	10.8	73.4	6.0	1.8	6.5	0.3	0.9	0.3	0.0
80-84	100.0	10.4	75.8	6.5	1.3	5.8	0.1	0.0	0.1	0.0
85-89	100.0	12.9	71.1	6.6	1.7	7.3	0.1	0.0	0.2	0.0
90-94	100.0	14.0	72.1	4.7	2.1	6.8	0.2	0.0	0.0	0.0
95+	100.0	9.0	77.8	3.7	1.1	6.3	2.1	0.0	0.0	0.0

Table 10.10: Economically active foreign nationals 15 years and older by age, sex and employment status (Cont'd)

Males	All Statuses	Employee	Self- employed without employees	Self- employed with employees	Casual worker	Contributing family worker	Apprentice	Domestic employee	Other	Persons seeking work for the first time
Age										
Total	166,284	40,840	89,456	10,318	5,134	11,500	3,219	1,054	427	4,336
Percent	100.0	24.6	53.8	6.2	3.1	6.9	1.9	0.6	0.3	2.6
15-19	100.0	10.5	27.0	1.3	4.7	42.1	6.2	0.9	0.6	6.6
20-24	100.0	22.3	40.2	2.3	5.3	13.9	7.2	0.7	0.3	7.7
25-29	100.0	26.1	49.4	4.6	4.1	6.9	2.7	0.6	0.3	5.3
30-34	100.0	27.2	55.4	6.5	2.9	3.6	0.8	0.6	0.2	2.8
35-39	100.0	26.9	58.6	8.3	2.6	2.3	0.4	0.6	0.2	0.0
40-44	100.0	26.4	59.6	8.6	2.4	2.0	0.2	0.6	0.2	0.0
45-49	100.0	26.5	60.3	8.5	2.0	1.7	0.1	0.6	0.2	0.0
50-54	100.0	27.7	60.2	8.0	1.5	1.6	0.1	0.6	0.2	0.0
55-59	100.0	30.0	58.3	7.6	1.7	1.4	0.1	0.5	0.3	0.0
60-64	100.0	22.0	65.5	8.0	1.7	1.8	0.1	0.7	0.3	0.0
65-69	100.0	19.7	68.1	8.0	1.2	1.7	0.1	1.0	0.1	0.0
70-74	100.0	14.0	74.3	6.9	1.4	2.3	0.3	0.5	0.2	0.0
75-79	100.0	14.7	72.4	7.2	2.0	2.3	0.2	0.8	0.3	0.0
80-84	100.0	13.4	74.5	7.4	1.6	3.0	0.0	0.0	0.1	0.0
85-89	100.0	16.8	68.9	7.7	1.5	4.8	0.0	0.0	0.4	0.0
90-94	100.0	17.8	70.7	5.1	2.4	3.7	0.3	0.0	0.0	0.0
95+	100.0	9.8	78.8	4.5	1.5	3.0	2.3	0.0	0.0	0.0

Table 10.10: Economically active foreign nationals 15 years and older by age, sex and employment status (Cont'd)

Females	All Statuses	Employee	Self- employed without employees	Self- employed with employees	Casual worker	Contributing family worker	Apprentice	Domestic employee	Other	Persons seeking work for the first time
Age										
Total	119,371	13,020	73,270	4,978	1,727	17,519	3,393	932	317	4,215
Percent	100.0	10.9	61.4	4.2	1.4	14.7	2.8	0.8	0.3	3.5
15-19	100.0	6.8	26.8	1.4	2.9	40.5	9.5	1.7	0.6	10.1
20-24	100.0	13.2	44.0	2.5	2.2	18.2	9.2	0.9	0.4	9.5
25-29	100.0	14.4	57.4	3.8	1.6	13.4	3.2	0.7	0.2	5.2
30-34	100.0	11.1	66.1	5.0	1.2	11.8	0.8	0.8	0.2	3.0
35-39	100.0	9.7	70.9	5.4	1.2	11.6	0.4	0.6	0.1	0.0
40-44	100.0	9.5	72.4	5.5	0.9	10.6	0.1	0.7	0.2	0.0
45-49	100.0	10.9	72.0	5.2	0.9	10.2	0.1	0.6	0.2	0.0
50-54	100.0	11.4	72.4	4.5	0.9	10.0	0.1	0.5	0.2	0.0
55-59	100.0	11.2	72.7	5.4	0.9	8.8	0.1	0.7	0.2	0.0
60-64	100.0	6.5	75.2	4.2	0.9	12.2	0.1	0.7	0.2	0.0
65-69	100.0	5.4	77.3	4.8	0.8	9.9	0.1	1.4	0.3	0.0
70-74	100.0	2.9	80.5	4.0	0.9	11.0	0.1	0.4	0.3	0.0
75-79	100.0	3.7	75.2	3.8	1.4	14.3	0.3	1.1	0.2	0.0
80-84	100.0	5.0	78.0	4.9	0.8	10.7	0.3	0.0	0.2	0.0
85-89	100.0	5.2	75.6	4.4	2.2	12.2	0.4	0.0	0.0	0.0
90-94	100.0	7.5	74.6	4.0	1.7	12.1	0.0	0.0	0.0	0.0
95+	100.0	7.0	75.4	1.8	0.0	14.0	1.8	0.0	0.0	0.0

Source: Ghana Statistical Service, 2010 Population and Housing Census.

Table 10.11: Economically active foreign nationals 15 years and older by age, sex and area of employment

Both Sexes	All Sectors	Public	Private formal	Private informal	Semi-public Parastatal	NGO	Other International Organisation	Persons seeking work for the first time
Age								
Total	285,655	13,415	22,950	237,451	401	2,111	776	8,551
Percent	100.0	4.7	8.0	83.1	0.1	0.7	0.3	3.0
15-19	100.0	0.4	2.0	88.9	0.0	0.4	0.1	8.2
20-24	100.0	3.1	7.2	80.3	0.1	0.6	0.1	8.6
25-29	100.0	5.0	8.7	80.2	0.1	0.5	0.2	5.3
30-34	100.0	5.0	9.3	81.7	0.1	0.7	0.3	2.9
35-39	100.0	4.9	9.4	84.5	0.2	0.8	0.2	0.0
40-44	100.0	5.4	9.2	83.9	0.2	0.9	0.4	0.0
45-49	100.0	6.5	9.1	82.8	0.2	1.0	0.4	0.0
50-54	100.0	7.7	8.5	81.9	0.3	1.0	0.5	0.0
55-59	100.0	9.3	9.1	79.6	0.2	1.2	0.6	0.0
60-64	100.0	4.0	7.7	86.6	0.1	1.1	0.5	0.0
65-69	100.0	3.0	7.1	88.6	0.1	1.0	0.1	0.0
70-74	100.0	1.7	4.8	93.0	0.0	0.5	0.0	0.0
75-79	100.0	0.1	0.2	99.0	0.0	0.7	0.0	0.0
80-84	100.0	0.3	0.3	99.2	0.0	0.2	0.0	0.0
85-89	100.0	0.1	0.0	99.4	0.0	0.5	0.0	0.0
90-94	100.0	0.2	0.0	98.7	0.0	1.1	0.0	0.0
95+	100.0	0.5	0.0	98.9	0.0	0.5	0.0	0.0
Males								
Total	166,284	9,185	17,949	132,514	307	1,445	548	4,336
Percent	100.0	5.5	10.8	79.7	0.2	0.9	0.3	2.6
15-19	100.0	0.5	2.4	90.2	0.0	0.3	0.0	6.6
20-24	100.0	3.1	8.9	79.3	0.1	0.7	0.1	7.7
25-29	100.0	5.3	11.0	77.5	0.1	0.6	0.3	5.3
30-34	100.0	5.9	12.4	77.6	0.2	0.9	0.4	2.8
35-39	100.0	6.0	12.8	79.8	0.2	1.0	0.3	0.0
40-44	100.0	6.7	12.7	78.8	0.3	1.2	0.4	0.0
45-49	100.0	7.6	12.6	77.8	0.3	1.1	0.5	0.0
50-54	100.0	9.2	12.2	76.4	0.4	1.1	0.7	0.0
55-59	100.0	11.1	12.9	73.4	0.3	1.4	0.8	0.0
60-64	100.0	5.3	11.1	81.7	0.2	1.2	0.5	0.0
65-69	100.0	4.1	10.2	84.3	0.1	1.1	0.2	0.0
70-74	100.0	2.4	7.0	90.2	0.0	0.4	0.1	0.0
75-79	100.0	0.1	0.2	98.6	0.0	1.0	0.0	0.0
80-84	100.0	0.3	0.5	99.1	0.0	0.2	0.0	0.0
85-89	100.0	0.2	0.0	99.3	0.0	0.6	0.0	0.0
90-94	100.0	0.0	0.0	99.0	0.0	1.0	0.0	0.0
95+	100.0	0.0	0.0	99.2	0.0	0.8	0.0	0.0

Table 10.11: Economically active foreign nationals 15 years and older by age, sex and area of employment (Cont'd)

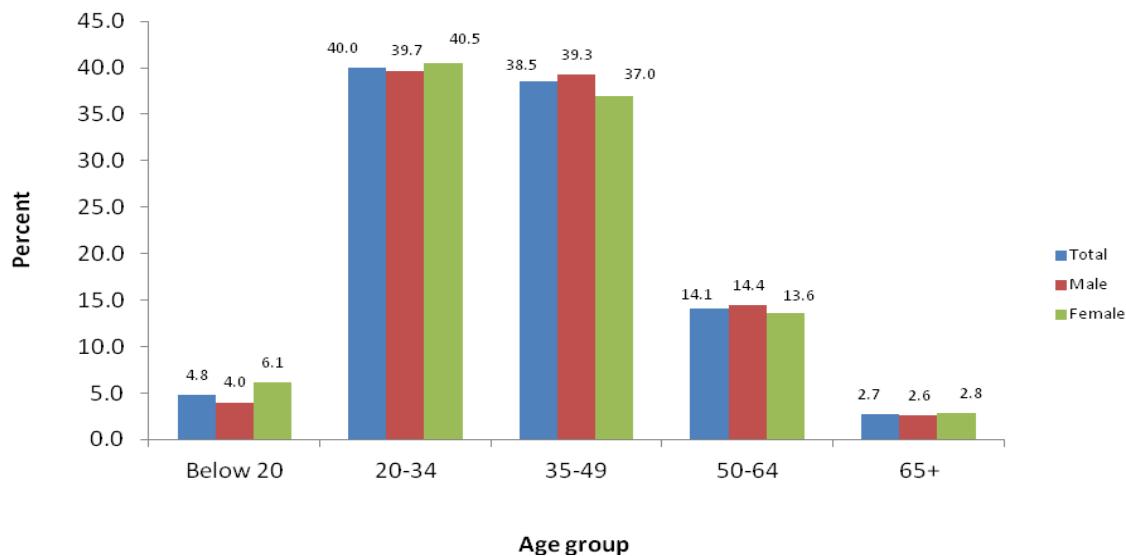
Females	All Sectors	Public	Private formal	Private informal	Semi-public Parastatal	NGO	Other International Organisation	Persons seeking work for the first time
Age								
Total	119,371	4,230	5,001	104,937	94	666	228	4,215
Percent	100.0	3.5	4.2	87.9	0.1	0.6	0.2	3.5
15-19	100.0	0.4	1.6	87.4	0.0	0.5	0.1	10.1
20-24	100.0	3.1	5.4	81.4	0.1	0.5	0.1	9.5
25-29	100.0	4.5	5.8	83.6	0.1	0.5	0.2	5.2
30-34	100.0	3.7	4.8	87.7	0.1	0.5	0.2	3.0
35-39	100.0	3.3	4.1	91.8	0.1	0.5	0.2	0.0
40-44	100.0	3.5	3.8	91.7	0.1	0.6	0.3	0.0
45-49	100.0	4.9	3.8	90.3	0.1	0.7	0.2	0.0
50-54	100.0	5.6	3.1	90.0	0.2	0.8	0.3	0.0
55-59	100.0	6.6	3.2	89.2	0.1	0.7	0.3	0.0
60-64	100.0	2.1	2.7	93.9	0.0	1.0	0.3	0.0
65-69	100.0	1.4	2.4	95.3	0.1	0.8	0.0	0.0
70-74	100.0	0.5	1.3	97.5	0.1	0.7	0.0	0.0
75-79	100.0	0.0	0.1	99.8	0.0	0.1	0.0	0.0
80-84	100.0	0.3	0.0	99.3	0.0	0.3	0.0	0.0
85-89	100.0	0.0	0.0	99.6	0.0	0.4	0.0	0.0
90-94	100.0	0.6	0.0	98.3	0.0	1.2	0.0	0.0
95+	100.0	1.8	0.0	98.2	0.0	0.0	0.0	0.0

Source: Ghana Statistical Service, 2010 Population and Housing Census.

10.5.2 Emigration

The 2010 census recorded a total of 250,624 former household members 15 years and older who were resident outside Ghana at the time of the census. Two-thirds (64%) were males and one-third (36%) females. (Figure 10.2) Of the emigrants, 78.5 percent were between the ages of 20 and 49 years, with the proportions for males being 79.0 percent and females 77.5 percent. Although the emigrants included people aged 95–99 years, they were mainly concentrated in the economically active, with those aged 15–64 years accounting for 97.3 percent, point to the fact that the active population dominate in emigration (Tanle, 2012).

Figure 10.2: Age Distribution of Emigrants



Source: Ghana Statistical Service, 2010 Population and Housing Census.

The emigrants originated from all the ten regions of Ghana but 52.8 percent were from Ashanti (27.6%) and Greater Accra (25.2%) regions [Appendix Table A10.4]. These are also the regions with high internal migration rates. The rates for Brong-Ahafo and Western regions were 13.4 percent and 8.7 percent respectively. The regions with the least proportions of emigrants were the Northern, Upper East and Upper West regions, also the regions with the highest out-migration rates.

The main destinations of Ghanaian emigrants were Europe (37.7%) and the Americas (23.6%) (Appendix Table A10.4). Historical and cultural affinity may explain the importance of these migration streams (Anarfi, Awusabo-Asare & Nsowah-Nuamah, 2000). Cote d'Ivoire is the second most important destination for emigrants from the Western Region (30.1%) and Togo is the most important destination for those from the Volta Region (26.8%). These regions share common borders with the countries involved and have family and kinship ties across the borders. For the same reason, Burkina Faso is an important destination for emigrants from Upper West and Upper East regions. For emigrants from the Northern region, Nigeria is the most important destination. The link may be explained by cultural and religious reasons, as the Northern region is home to Hausas who originally migrated from Northern Nigeria. The region is also predominantly Islam, which is an important religion in Nigeria. The presence of Ghanaian fishermen has been observed in many countries in West Africa and that may explain why Nigeria is a major destination for people from the Volta region and Cote d'Ivoire, a destination for emigrants from the Central region. The presence of people from the Northern and Upper East regions in Asia and Oceania respectively is worth mentioning. Similarly, the large proportion of Brong Ahafo emigrants who now reside in other African countries outside ECOWAS is not easy to explain. Evidence suggests the use of Libya as a major transit point for people from the Brong Ahafo Region en route to Europe (Tanle, 2012).

The patterns described above were generally similar among the sexes. Europe and the Americas remain the most important destinations for both males and females in almost equal proportions. Outside these areas, there were some sex differences, with a higher proportion of male emigrants now residing in other ECOWAS countries than female emigrants (33.2% and 24.4% respectively), and similarly in other African countries (13.2% and 5.5% respectively). For the males, Nigeria was a more important destination in the ECOWAS region than Cote d'Ivoire (7.4% and 6.2% respectively), but the reverse for females (5.9% and 10.6% respectively). Cote d'Ivoire has been a major destination for Ghanaian women over the years and their activities in the country have attracted both media and academic attention (Anarfi, 1990). At the regional level, the proportions of females that had emigrated to particular destinations were much higher than that of their male counterparts: Greater Accra to Europe (42.6% versus 39.0%), Ashanti to Europe (51.0% versus 45.6%), Western Region to Cote d'Ivoire (43.4% versus 21.3%) and Northern Region to Nigeria (30.8% versus 25.5%). Perhaps the differences are indications that more Ghanaian females are emigrating independently in recent times.

10.5.3 Economic activity of emigrants

Table 10.12 shows that a little over three quarters (76.2%) of Ghanaians reported to be living abroad were employed. Just about 6 percent were unemployed and 14 percent were students. The proportion employed increases from 42.8 percent at age 15-19 years to a peak of 85.4 percent at age 50-54 years before declining again into the older ages. Fifty-two percent of Ghanaian emigrants between 15 and 29 years were students and over 78 percent were aged less than 45 years.

Table 10.12: Emigration of Ghanaians 15 years and older by age and activity abroad

Age	Total	Employed	Unemployed	Student	Other
15 – 19	100.0	42.8	9.0	43.3	4.8
20 – 24	100.0	58.7	9.0	27.8	4.5
25 – 29	100.0	70.0	7.8	18.8	3.4
30 – 34	100.0	78.1	6.0	12.8	3.2
35 – 39	100.0	81.4	5.4	10.1	3.1
40 – 44	100.0	84.2	4.6	8.2	3.0
45 – 49	100.0	85.3	4.0	7.8	2.9
50 – 54	100.0	85.4	4.1	7.0	3.5
55 – 59	100.0	84.8	4.8	7.2	3.2
60 – 64	100.0	81.8	6.2	6.4	5.7
65 – 69	100.0	76.1	8.6	6.1	9.1
70 – 74	100.0	68.1	12.9	7.0	12.1
75 +	100.0	70.8	10.2	8.6	10.4
Total	100.0	76.2	6.1	14.0	3.6

Source: Ghana Statistical Service, 2010 Population and Housing Census.

In terms of destination, 81.1 percent of Ghanaian emigrants in African countries other than ECOWAS were employed as well as over three quarters of those in Europe and the Americas (Table 10.13). The lowest proportion of employed Ghanaian emigrants, 57.5 percent, was found in Togo followed by those in Oceania (63.4%), and Burkina Faso (64.4%). In Cote d'Ivoire the employment rate was 72 percent. Cote d'Ivoire's stronger economy may have attracted Ghanaians, especially females, who have found a niche in easy entry jobs like trading, selling of

food and other social services (Anarfi, 1990). The lowest unemployment rate of below 5 percent was found among Ghanaians who were in Europe, the Americas and Asia.

Table 10.13: Emigrant of Ghanaians 15 years and older by Destination and activity status

	Total	Employed	Unemployed	Student	Other
Nigeria	100.0	74.1	8.3	10.5	7.1
Liberia	100.0	74.8	7.6	12.8	4.7
Sierra Leone	100.0	78.5	5.9	13.8	1.9
Gambia	100.0	79.1	5.2	13.4	2.3
Togo	100.0	57.5	12.6	19.3	10.6
Burkina Faso	100.0	64.4	13.3	12.7	9.6
Cote d'Ivoire	100.0	72.0	10.6	9.9	7.6
Other ECOWAS states	100.0	75.1	7.8	11.8	5.3
African, other than ECOWAS	100.0	81.1	8.3	7.5	3.1
Europe	100.0	78.8	4.7	14.3	2.3
Americas (North, South/Caribbean)	100.0	75.4	4.0	18.2	2.4
Asia	100.0	74.2	4.7	17.2	3.8
Oceania	100.0	63.4	13.1	21.4	2.1
Total	100.0	76.2	6.1	14.0	3.6

Source: Ghana Statistical Service, 2010 Population and Housing Census.

The proportions of Ghanaian students outside were 21.4 percent in Oceania, 18.2 percent in the Americas and 17.2 percent in Asia. Within ECOWAS, Togo hosted 19.3 percent, more than any other country. Togo has been a preferred destination to Cote d'Ivoire for Ghanaians who are studying French in recent times because of the unstable socio-political conditions in the latter country in the last ten years.

10.6 Urbanisation

Since 1960, Ghana has experienced increasing proportions of its urban population. While at the national level, the growth of the population is the result of decreasing but still high fertility and declining mortality, the general movement of the population from the rural to urban areas redistributes the population internally and affects the process of urbanisation in the country. According to Songsore (2009), the driving forces of Ghana's urbanisation include rural-urban migration, natural increase in towns and cities and reclassification of villages as they attain the threshold population of 5,000.

10.6.1 Levels and trends of urbanisation

According to the 2010 census, the urban population in Ghana grew from 8.3 million in 2000 to 12.5 million in 2010, showing a growth rate of 4.2 percent per annum during the period, higher than the national average of 2.5 percent (Chapter 4). The level of urbanisation in the country increased from 43.8 percent in 2000 to 50.9 percent in 2010, an increase of 7.1 percentage points during that period. Thus, the country was more urban than rural as at 2010. Table 10.14 shows that in 1960, Ghana had an urban population of about 1.6 million, constituting 23.1 percent of the total population. This more than doubled to 3.9 million in 1984, then to 8.3 million in 2000, and

to 12.5 million in 2010. The average growth rate of the urban population between 1960 and 1970 was 4.7 percent. This decreased to 3.3 percent during 1970 to 1984 but increased again to 4.6 percent between 1984 and 2000, and 4.2 percent between 2000 and 2010.

Table 10.14: Trends in urbanisation, 1960 – 2010

Census Year	Urban population	Percentage Urban	Annual exponential growth rate
1960	1,551,178	23.1	-
1970	2,472,456	28.9	4.7
1984	3,934,796	32.0	3.3
2000	8,274,270	43.8	4.6
2010	12,545,229	50.9	4.2

Sources: Ghana Statistical Service, 1960, 1970, 1984, 2000, 2010 Population Censuses

Trends in urban growth rates of regions reveal differences in the pace of growth at different periods. Generally, all regions experienced rapid urban growth in the immediate post-independence decade (1960 to 1970) [Table 10.15]. This has been largely attributed to inter-regional migration following the relaxation of the restrictive rural-urban migration laws of the colonial period (Ghana Statistical Service, 2005). For instance, Greater Accra (6.1%), Northern (7.6%), Upper East (7.7%) and Brong-Ahafo (6.1%) recorded annual growth rates beyond the national average of 4.7 percent over the period 1960 to 1970. However, most regions could not maintain the momentum in subsequent years.

Table 10.15: Proportion urban and annual growth rate, national and regional

Region	Urban Population					Annual growth rate					
	1960	1970	1984	2000	2010	1960 -1970	1970 -1984	1984 -2000	2000 -2010	1960 -2000	1960 -2010
All Regions	23.1	28.9	32.1	43.8	50.9	4.7	3.3	4.6	4.2	4.2	4.2
Western	24.7	26.9	22.6	36.3	42.4	2.9	1.7	6.1	3.7	3.8	3.7
Central	28.0	29.1	28.8	37.5	47.1	2.1	1.7	3.7	5.5	2.6	3.2
Greater Accra	72.6	85.3	83.0	87.7	90.5	6.1	3.5	4.8	3.5	4.7	4.4
Volta	13.1	16.0	20.8	27.0	33.7	3.9	3.5	3.6	4.8	3.7	3.9
Eastern	21.1	24.6	27.7	34.6	43.4	3.4	2.9	2.8	4.5	3.0	3.3
Ashanti	25.0	29.7	32.5	51.3	60.6	4.6	3.1	6.3	4.5	4.8	4.7
Brong Ahafo	15.6	22.1	26.6	37.4	44.5	6.1	4.6	4.7	4.2	5.0	4.8
Northern	13.0	20.4	25.2	26.6	30.3	7.6	4.9	3.1	4.4	4.9	4.8
Upper East	3.9	7.3	12.9	15.7	21.0	7.7	6.6	2.3	4.2	5.2	5.0
Upper West	5.0	6.7	10.9	17.5	16.3	4.0	5.7	4.7	1.3	4.9	4.2

Sources: Ghana Statistical Service, 1960, 1970, 1984, 2000, 2010 Population Censuses

From the 2010 census, the least urbanised regions were Upper East (21%) and Upper West (16.3%) regions with Greater Accra (90.0%) and Ashanti (60.6%) being the most urbanised (Table 10.15). The two major cities of the country, Accra and Kumasi, are located in the two regions with the highest growth and they accounted for 52 percent of the urban population in the country. The dominance of these two cities in the urban landscape has persisted over the years.

Since 1960, Greater Accra and Ashanti regions have remained the most urbanised regions in the country, reporting urban populations above the national average. This high urban growth is mostly fuelled by rural-urban migration and the transformation of rural settlements around the fringes of Accra and Kumasi into towns. The process of urbanisation is closely linked with industrialisation, commercialisation and economic growth (UN-Habitat, 2012). The rate of urbanisation rises steeply at the early stages of urbanisation and then gradually tapers off when the proportion urban begins to reach a saturation point (UN-Habitat, 2012). Greater Accra region appears to have reached saturation point as it has shown consistent declines in the annual growth of its urban population from 6.1 percent in 1960 to 3.5 percent in 2010.

Central region recorded an annual growth in its urban population of 3.7 percent in 1984 to 2000 and 5.5 percent in 2000 and 2010. The growth of the urban population in the Central Region could be attributed to the increase in towns in the region which are at the periphery of Accra. Among them are Odupon Kpehe (Kasoa) and the refugee population in Buduburam (see Table 10.17). Western region recorded an annual growth rate of 1.7 percent between 1970 and 1984, 6.1 percent between 1984 and 2000, and 3.7 percent between 2000 and 2010. The decline in growth rate in the 1970s has been attributed to the overall decline in the contribution of rural-urban migration to urban growth within the period (Anarfi, Kwankye, Ababio, & Tiemoko, 2003 2003). Some of the reasons that have been associated with the decline are the structural adjustment programme (SAP) and the subsequent low economic growth in urban areas from the 1970s to 1980s (Anarfi et al., 2003). The improvements in the economic conditions of the region such as the rehabilitation of the Takoradi port in the early 1980s may have accounted for the increase in the urban population from 1984 to 2000 (Anarfi, 2003). However, the slower growth between 2000 and 2010 cannot be easily explained and will require further studies. The Upper West region had a growth rate in urban population, of 4.7 percent between 1984 and 2000 and 1.3 percent between 2000 and 2010.

Historically, urbanisation has been associated with growth in economic and social development as in the case of more developed countries such as United Kingdom (UN-Habitat, 2010). In Ghana, urban growth has not been associated with economic transformation making it difficult for the country to take advantage of the opportunities associated with urbanization. As a result, the major cities and towns are unable to cope with the rapid population increase they are experiencing leading to inadequate housing stock which in turn has contributed to the growth of squatter settlements such as Sodom and Gomorrah in Accra where migrants live in squalid conditions with minimal access to basic social amenities (United Nations Development Programme (UNDP), Ghana, 2007). The situation is part of the development which has been described as the slumisation of African cities (UN-Habitat, 2012). It is hoped that the development of a comprehensive National Urban Policy, launched by the President on 28th March 2013, will deal with issues of urbanisation in an integrated manner.

10.6.3 Size of Urban Population

In the 1970 census, there were 15 settlements with population of 20,000 or more. These localities represented 61.8 percent of the urban population and accounted for 18 percent of the total population. Between 1970 and 2010, the population in these 15 urban towns increased from 1.5 million to 6.1 million, representing 48.8 percent of the total urban population and 24.8 percent of

the total population in 2010 (Table 10.16). The decrease in the relative share to the urban population of these fifteen towns from 61.8 percent in 1970 to 48.8 percent in 2010 is indicative of the growth of other towns over the period. But while the relative share in the urban population declined, the proportion of these settlements in the total population increased from 18 percent to 24 percent, pointing to the dominance of such settlements in the country.

Over the 40-year period, there have been rapid increases in the population of these urban localities. In 1970, only Kumasi (346,336) and Accra (624,091) had populations above 100,000. By 2010, eleven out of the 15 towns had populations well above 100,000. The exceptions were Bawku (61,151), Agona Swedru (54,417), Nkawkaw (47,968) and Sunyani (74,240). Between 2000 and 2010, Kumasi Metropolis contributed 20.2 percent to urban growth, the highest in the country, while the contribution of Tema Municipality was zero (Table 10.16). The low growth of Tema points to the decline in the status of the municipality over the years as the industrial centre in the country (Dickson & Benneh, 1988). The Sekondi and Takoradi Sub Metros recorded increases in their urban population between 2000 and 2010: from 114,157 to 228,342 and 175,436 to 311,206 respectively (Table 10.16). The rapid increases in the population of these twin cities is largely attributed to in-migration to the Western Region due to the oil find in the late 2000s.

Urban agglomeration is a continuously built up landmass of urban development that is within a metropolitan area. There are no generally accepted international principles for delineating a metropolitan area or municipality. The demarcation of these areas is often political and usually includes parts of urban areas. A metropolitan area or municipality may be considerably larger than an urban area and may contain some rural area. In Ghana, as in many other countries, the phenomenon of urban agglomeration is largely a result of inter-regional migration coupled with political and administrative processes, thus resulting in the rapid transformation of rural communities into urban centres.

**Table: 10.16: Urban population size and the contribution of the fifteen largest town to overall urban growth
1970, 1984, 2000 and 2010**

City/Town	Population				Population change			Contribution to urban growth			
	1970	1984	2000	2010	1970-1984	1984-2000	2000-2010	1970-1984	1984-2000	2000-2010	
Total population	8,559,313	12,296,081	18,912,079	24,658,823	3,736,768	6,615,998	5,746,744	-	-	-	-
Total urban population	2,472,456	3,934,796	8,274,270	12,545,229	1,462,340	4,339,474	4,270,959	-	-	-	-
Proportion urban	28.9	32.0	43.8	50.9	39.1	65.6	74.3	-	-	-	-
Bawku	20,567	34,074	51,379	61,151	13,507	17,305	9,772	0.9	0.4	0.2	
Agona Swedru	21,522	31,226	45,614	54,417	9,704	14,388	8,803	0.7	0.3	0.2	
Ashiaman	22,549	50,918	150,312	190,972	28,369	99,394	40,660	1.9	2.3	1.0	
Nkawkaw	23,219	31,785	43,703	47,968	8,566	11,918	4,265	0.6	0.3	0.1	
Sunyani	23,780	38,834	61,992	74,240	15,054	23,158	12,248	1.0	0.5	0.3	
Ho	24,199	37,777	61,658	104,532	13,578	23,881	42,874	0.9	0.6	1.0	
Obuasi	31,005	60,617	115,564	143,644	29,612	54,947	28,080	2.0	1.3	0.7	
Koforidua	46,235	58,731	87,315	120,971	12,496	28,584	33,656	0.9	0.7	0.8	
Cape Coast	56,601	65,763	82,291	169,894	9,162	16,528	87,603	0.6	0.4	2.1	
Tema Municipality	60,767	100,052	141,479	139,784	39,285	41,427	(1,695)	2.7	1.0	(0.0)	
Sekondi Sub Metro	63,673	70,214	114,157	228,342	6,541	43,943	114,185	0.4	1.0	2.7	
Takoradi Sub Metro	80,309	117,989	175,436	311,206	37,680	57,447	135,770	2.6	1.3	3.2	
Tamale Municipality	83,653	135,952	202,317	371,351	52,299	66,365	169,034	3.6	1.5	4.0	
Kumasi Metropolis	346,336	496,628	1,170,270	2,035,064	150,292	673,642	864,794	10.3	15.5	20.2	
Accra Metropolis	624,091	969,195	1,658,937	2,070,463	345,104	689,742	411,526	23.6	15.9	9.6	
Total	1,528,506	2,299,755	4,162,424	6,123,999	771,249	1,862,669	1,961,575	52.7	42.9	45.9	
Prop. of total urban	61.8	58.4	50.3	48.8	52.7	42.9	45.9				
Prop. of total population	17.9	18.7	22.0	24.8	20.6	28.2	34.1				

Source: Ghana Statistical Service, 2010 Population and Housing Census.

Table 10.17 presents growth in the urban population size and contribution of sixteen localities with populations above 40,000 in 2010. The threshold of 40,000 was used in this analysis to ascertain how many additional towns/localities have emerged since 2000. From the results, the growth of urban towns has primarily been in the Central, Eastern and Greater Accra regions. Between 1970 and 1984, most of these localities were rural communities with a population below 5000. Between 1970 and 2010, the population of settlements such as Amanfrom increased from 112 to 119,467, that of Odupon Kpehe (Kasoa) from 863 to 69,384, Gbawe from 608 to 69,356 and Budumburam from 380 to 50,560. Mandela which did not exist in 1984, had a population of 8,458 in 2000 which then increased to 61,880 in 2010. Other localities which substantially increased their share of urban populations, and which were below 40,000 in 2000, include Kintampo (42,957), Madina (79,832), Wa (71,051), Berekum (56,414), Hohoe (73,641), Yendi (51,727), and Asamankese (46,061).

Table 10.17: Urban population trends and growth rates of sixteen towns with populations above 40,000 in 2010 (1970 – 2010)

City/Town	Population				Population change		
	1970	1984	2000	2010	1970-1984	1984-2000	2000-2010
Mandela	0	0	8,458	61,880	-	8,458	53,422
Amanfrom	112	293	12,803	119,467	181	12,510	106,664
Budumburam	380	40	18,713	50,560	(340)	18,673	31,847
Gbawe	608	837	28,989	69,356	229	28,152	40,367
Odupon Kpehe (Kasoa)	863	2,597	34,719	69,384	1,734	32,122	34,665
Kintampo	7,149	13,943	28,276	42,957	6,794	14,333	14,681
Madina	7480	28364	76697	79832	20,884	48,333	3,135
Wa	13740	36067	66644	71051	22,327	30,577	4,407
Berekum	14,296	22,264	39,649	56,414	7,968	17,385	16,765
Hohoe	14,775	20,994	35,277	73,641	6,219	14,283	38,364
Yendi	15,346	31,633	40,336	51,727	16,287	8,703	11,391
Asamankese	16,905	23,077	34,855	46,061	6,172	11,778	11,206
Bolgatanga	18896	32495	49162	65549	13,599	16,667	16,387
Akim Oda	20,957	24,629	38,741	51,231	3,672	14,112	12,490
Winneba	30,778	27,105	40,017	57,015	(3,673)	12,912	16,998
Techiman	12,068	25,264	56,187	67,241	(30,923)	(13,196)	55,173

Source: Ghana Statistical Service, 2010 Population and Housing Census

Reasons advanced for the growth of urban towns have varied over the period. In the early 1960s and 1970s when migration was towards rural-based economic activities, employment in the industrial, service and mining sectors was the predominant reason for the movement of people from rural to urban areas (Dickson & Benneh, 1988). The decentralisation policy as well as infrastructural development could have contributed to the urban growth in the 1980s and 1990s. In the 2000s, however, the spill-over effect of the populations of large urban settlements to peripheral towns has contributed to the rapid increase in the populations of towns at the fringes

of the cities. In addition to improved transportation, challenges with accommodation in the urban core have influenced urban workers to take up residence in peri-urban and other nearby settlements and to commute to their places of work (Yankson, 2012).

10.7 Summary, Conclusions and Recommendations

10.7.1 Summary and Conclusions

In 2010, Ghana's urban population passed the 50 percent mark (50.9%). The results showed a pattern of uneven distribution of the population, with four regions, Ashanti, Greater Accra, Eastern and Northern regions, accounting for about 60 percent over the last forty years.

Ninety eight percent of the people in the 2010 census were either Ghanaians by birth (94%), naturalization (1%) or dual citizenship (3%). Of the non-Ghanaian population, 55.7 percent could be found in three regions: Volta region (24.6%), Greater Accra (16.5%), and Ashanti Region (14.6%). Females accounted for 51 percent of both the Ghanaian population by birth and by naturalization. The non-Ghanaian population consisted of 86.4 percent African nationals, with 68.3 percent from other ECOWAS countries. Unlike the Ghanaian population, there were more males than females in the non-Ghanaian population (53.3% versus 46.7%). Among the ECOWAS nationals, 55 percent were males, indicating the predominance of males in the immigration of ECOWAS nationals to Ghana.

About 4.6 million Ghanaians changed their usual place of residence from one region to the other, representing 18.7 percent of the total population. Among the migrants, lifetime inter-regional movements were higher (18.7%) than intraregional migrant (15%). Females outnumbered males in intra-regional migration at both the rural and urban levels while males dominated in inter-regional migration but at the rural level only.

The measurement of migration effectiveness showed that Greater Accra Region had a net gain of 66.4 percent from all internal migrants while Upper West Region had a net loss of 71 percent between 2000 and 2010. Other regions which experienced net out-migration were Upper East, Northern and Volta regions. If the trend continues, Greater Accra Region will be a net immigration area while Upper West Region and the others will be out-migration areas which will lose population. A little over 15 percent of lifetime migrants moved to their destinations during the twelve months prior to the census and more than 50 percent did so in the last ten years.

The immigrant population in Ghana is fairly young: over 90 percent were in the age group 15-64 years, implying that most of the immigrant population were in the economically-active age group. In relative terms, the immigrant population had high proportions of people with no formal education and those with tertiary education. With most of the immigrants working as skilled agricultural, forestry and fisheries workers, and services and sales workers, were more active in rural than in urban areas. The immigrants were mainly self-employed. Only about five percent employed others.

Only 1.3 percent of Ghanaians were reported to be emigrants. Of the 250,624 household members who were resident outside Ghana at the time of the census, nearly 60 percent were males, and with 97 percent were aged 15-64 years. Available evidence indicates that the emigrant population from Ghana include some of the highly trained and skilled personnel, especially from the health sector, constituting a loss to the country (Anarfi et al., 2003). The regions with the highest in-migration rates (Greater Accra and Ashanti) are at the same time those from which most emigrants originated from, suggesting a possible link between internal migration and international migration where the former is used as springboard for the latter. Europe and the Americas were the main destinations for Ghanaians, which may be for historical, economical, and cultural reasons. Similarly, perhaps for geo-political reasons the countries that share boundaries with Ghana were the main destinations for people from the regions that are contiguous to these countries. The exception was the Northern Region whereby Nigeria was the major destination instead of Cote d'Ivoire and Togo. Cultural and religious factors may explain the relationship between Northern Region and Nigeria. The relatively high proportion of people from the Northern and Upper East regions now resident in Asia and Oceania appears to be a revelation. Most Ghanaians living abroad as students were in Europe and North America. Within ECOWAS, Togo hosted more students in relative terms than all other countries.

10.7.2 Recommendations

The results from the 2010 PHC have indicated internal re-distribution of the population, both within and between regions. For instance, the country's urban population surpassed its rural population for the first time in 2010. That has implications for the country's development and demographic dynamics and must, therefore, be factored into any future development strategies.

The ECOWAS protocol seeks to ensure among other things, the free movement of citizens in the sub-region as one of the steps towards eventual economic integration. This implies that the country should be able to receive non-Ghanaians from the sub-region. Ghana was once a preferred destination for many nationals within the ECOWAS fraternity and beyond, but that is not the case now. The proportion of non-Ghanaians in the country has gradually declined since 1960, especially after the Alien's Compliance Order of 1969. The Government of Ghana, together with governments of other member states, should have the necessary political will to work to remove all bottlenecks and for the country to position itself to be able to take full advantage of the wider community and become a destination of choice.

Migration has played a major role in the economic development of the country in the past and can continue to do so if government takes steps to manage it. The first step towards an effective management of migration in a country is to have a national migration policy. No effort must therefore be spared to ensure that the on-going process to develop a migration policy for the country comes to a successful conclusion in the shortest possible time. With female migration increasingly becoming important, the concerns and experiences of females must be factored into the prospective policy to ensure that their vulnerability is reduced to the barest minimum.

The regions where movement of people into or out of them has almost become one-way-traffic must be a cause of concern. The situation requires a comprehensive approach which will address the high influx of people into Greater Accra Region while at the same time, attempting to halt the

drain in the Upper West, Upper East, Northern and Volta regions with policies designed to both retain population in, and attract population to these regions. Every effort must therefore be made to ensure that the Savannah Accelerated Development Authority (SADA) project succeeds and the lessons learnt applied to other deprived regions of the country.

It was observed that the majority of lifetime migrants moved into their current destinations in the last decade. This development could be linked to the improvement in the country's economic development in recent times since historically, some relationship has been found between economic development and migration in the country. When the economy is healthy and the country's development is improving, both international and internal migrations intensify. Given the current economic climate in the country, we should expect the migration trend to continue. All effort must be made to create more jobs to prevent the situation where tension would rise as migrants and local people compete for the few jobs available.

Urban development and management in Ghana has met a number of challenges. Key among them is the absence of well-coordinated and properly integrated policies and plans on urbanization. In the last few years, efforts have been made in drafting policies that seek to enhance the provision of services for the urban population. These include, among others, the drafting of a National Urban Policy, a National Housing Policy, a National Urban Transport Policy, Water and Sanitation policy, as well as a National Migration Policy. It is important that these policies are informed by available data and must consider the multifaceted nature of migration and urbanization and address the key issues of their inter-linkages with population dynamics. Furthermore, structures must be put in place at all levels to support the implementation of the various policies and plans to achieve the desired goal.

Defining an urban settlement only by the numbers of residents in that area poses serious challenges in addressing the issue of urbanisation. Indeed, in a number of developed countries, more robust measurements have been employed. Instead of relying solely on legal boundaries and population size, other factors like density and self-identification of a place are taken into consideration (Siegel, 2004). It is imperative for Ghana to consider the re-classification of an urban settlement in the face of rapid urbanisation for effective urban planning and reduction in overlaps in metropolitan and peri-urban areas.

References

- Anarfi, J. K. (1989). *International Migration of Ghanaian Women to Abidjan, Cote d'Ivoire: A Demographic and Socio-Economic Study*. Thesis submitted for the Degree of Doctor of Philosophy in Population Studies, University of Ghana, Legon.
- Anarfi, J. K., Awusabo-Asare, K., & Nsowah-Nuamah, N. N. (2000). *Push and pull factors of international migration. Country report: Ghana*. Eurostat Working papers 2000/E(10).
- Anarfi, J., Kwankye, S., Ofosu-Mensah, A. & Tiemoko, R. (2003). *Migration from and to Ghana: A background paper*. DFID Working Paper C4. DFID, London, UK.
- Dickson, K. B., & Benneh, G. (1988). *A new geography of Ghana*. Longman Group UK Limited. Longman House, Burnt Mill, Harlow, Essex, England.
- Edmonton, B. & Fong, E. (eds.) (2011). *The Changing Canadian Population*. Montreal and Kingston: McGill-Queen's University Press.
- Hugo, G. & Harris, T. (2011). *Population Distribution Effect of Migration in Australia*. The National Centre for Social Application of Geographic Information Systems and Department of Immigration and Citizenship, Australia.
- Mitra, A. and Murayama, M. (2001). *Rural to Urban Migration: A District Level Analysis for India*. IDE Discussion Paper No. 137.
- Owusu G. (2008). Small Towns in Ghana: Justification for Their Promotion Under Ghana's Decentralisation Programme. *African Studies Quarterly* 8(2).
- Owusu G. (2008). The Role of Small Towns in Regional Development and Poverty Reduction in Ghana. *International Journal and Regional Research*, 32(2).
- Songsore, J. (1979). *Structural Crisis, Dependent Capitalist Development and Regional Inequality in Ghana*. ISS Occasional Papers, No. 71, The Hague.
- Songsore, J. (2009). *The Urban Transition in Ghana: Urbanisation, National Development and Poverty Reduction*. Report for IIED-UNFPA Research Meeting on Population and Urbanization issues, London.
- Statistics South Africa, (2006). *Migration and Urbanisation in South Africa*. Report Number 03-04-02 (2006).
- Tanle, A. (2003). *Rural-urban Migration of Females from the Wa District to Kumasi and Accra: A Case Study of the kaya yei Phenomenon*. Unpublished M.Phil. Thesis, University of Cape Coast, Cape Coast, Ghana.

- Tanle, A. (2012). Everybody has his/her luck: Irregular migration of young people from Ghana to Libya and beyond. *Journal of Arts and Social Sciences*, 1(1), 43-64.
- UN-Habitat (2012). *State of the World Cities 2010/2011: Bridging the Urban Divide*. UN, New York.
- United Nation, 1970. *Methods of Measuring Internal Migration*. Manual VI, ST/SOA/Series A/47, New York.
- Vietnam General Statistics Office (2011). *Migration and Urbanisation in Vietnam: Patterns, Trends and Differentials*. Vietnam Population and Housing Census 2009.
- Yankson, P.W.K, (2012). Landlordism and housing production in Greater Accra Metropolitan Accra. In: Ardayfio-Schandorf, Yankson, PWK & Bertrand, M. (Eds.). *The mobile city of Accra: urban families, housing and residential practices*. Dakar, Senegal, CODESRIA.

Appendix

Table A10.1: Foreign nationals 15 years and older by age, sex and level of education

Male	All levels	No Schooling	Primary	JSS/JHS	Middle	SSS/SHS	Secondary	Vocational/ Technical/ Commercial	Post Secondary Cert.	Middle/ Post- Secondary	Post - Secondary Diploma	Bachelor Degree	Post Graduate
Age													
Total	217,193	69,170	22,453	38,570	19,318	28,707	5,956	4,174	3,564	9,687	12,416	3,178	
Percent	100.0	31.8	10.3	17.8	8.9	13.2	2.7	1.9	1.6	4.5	5.7	1.5	
15-19	100.0	18.0	16.6	40.9	0.0	20.0	0.0	0.6	0.4	0.7	2.9	0.0	
20-24	100.0	22.8	9.9	23.5	0.4	23.5	1.1	1.8	1.9	6.3	8.8	0.1	
25-29	100.0	26.9	9.8	22.9	0.9	17.8	1.6	2.2	2.2	7.3	7.5	0.9	
30-34	100.0	29.8	9.7	21.3	2.9	15.5	2.4	2.1	1.6	5.8	6.8	1.9	
35-39	100.0	31.4	10.5	14.6	11.0	2.5	3.4	1.4	0.9	2.2	2.9	1.7	
40-44	100.0	35.2	9.1	6.3	21.4	6.6	5.4	2.2	1.7	4.2	5.2	2.7	
45-49	100.0	37.2	9.3	3.7	24.2	4.2	5.8	2.4	1.6	3.8	4.9	3.0	
50-54	100.0	41.5	7.9	2.5	24.2	2.5	5.2	2.7	2.3	3.9	4.6	2.8	
55-59	100.0	39.5	7.7	1.7	26.8	2.1	4.8	2.9	2.6	3.9	4.7	3.3	
60-64	100.0	48.8	8.4	1.2	22.1	1.3	4.2	1.7	2.9	3.0	4.2	2.3	
65-69	100.0	54.5	8.0	1.2	18.2	1.2	4.1	1.9	2.3	3.0	3.0	2.6	
70-74	100.0	65.4	7.3	1.5	14.8	1.2	2.7	1.5	1.4	1.4	1.6	1.1	
75-79	100.0	67.8	6.4	1.7	13.4	1.4	2.9	1.0	1.3	1.0	2.2	0.8	
80-84	100.0	71.2	9.5	3.1	8.0	1.4	2.1	1.2	1.3	0.7	1.2	0.3	
85-89	100.0	70.0	10.4	2.2	8.6	1.9	2.2	0.6	0.9	1.3	1.0	0.9	
90-94	100.0	75.8	6.9	2.9	7.6	2.6	1.2	0.2	0.3	0.8	1.4	0.3	
95+	100.0	72.8	6.7	5.6	6.0	3.4	2.6	0.0	1.5	0.7	0.4	0.4	

Table A10.1: Foreign nationals 15 years and older by age, sex and level of education (Cont'd)

Male	All levels	No Schooling	Primary	JSS/JHS	Middle	SSS/SHS	Secondary	Vocational/ Technical/ Commercial	Post Middle/ Post- Secondary Cert.	Post- Secondary Diploma	Bachelor Degree	Post Graduate
Age												
Total	217,193	69,170	22,453	38,570	19,318	28,707	5,956	4,174	3,564	9,687	12,416	3,178
Percent	100.0	31.8	10.3	17.8	8.9	13.2	2.7	1.9	1.6	4.5	5.7	1.5
15-19	100.0	18.0	16.6	40.9	0.0	20.0	0.0	0.6	0.4	0.7	2.9	0.0
20-24	100.0	22.8	9.9	23.5	0.4	23.5	1.1	1.8	1.9	6.3	8.8	0.1
25-29	100.0	26.9	9.8	22.9	0.9	17.8	1.6	2.2	2.2	7.3	7.5	0.9
30-34	100.0	29.8	9.7	21.3	2.9	15.5	2.4	2.1	1.6	5.8	6.8	1.9
35-39	100.0	31.4	10.5	14.6	11.0	2.5	3.4	1.4	0.9	2.2	2.9	1.7
40-44	100.0	35.2	9.1	6.3	21.4	6.6	5.4	2.2	1.7	4.2	5.2	2.7
45-49	100.0	37.2	9.3	3.7	24.2	4.2	5.8	2.4	1.6	3.8	4.9	3.0
50-54	100.0	41.5	7.9	2.5	24.2	2.5	5.2	2.7	2.3	3.9	4.6	2.8
55-59	100.0	39.5	7.7	1.7	26.8	2.1	4.8	2.9	2.6	3.9	4.7	3.3
60-64	100.0	48.8	8.4	1.2	22.1	1.3	4.2	1.7	2.9	3.0	4.2	2.3
65-69	100.0	54.5	8.0	1.2	18.2	1.2	4.1	1.9	2.3	3.0	3.0	2.6
70-74	100.0	65.4	7.3	1.5	14.8	1.2	2.7	1.5	1.4	1.4	1.6	1.1
75-79	100.0	67.8	6.4	1.7	13.4	1.4	2.9	1.0	1.3	1.0	2.2	0.8
80-84	100.0	71.2	9.5	3.1	8.0	1.4	2.1	1.2	1.3	0.7	1.2	0.3
85-89	100.0	70.0	10.4	2.2	8.6	1.9	2.2	0.6	0.9	1.3	1.0	0.9
90-94	100.0	75.8	6.9	2.9	7.6	2.6	1.2	0.2	0.3	0.8	1.4	0.3
95+	100.0	72.8	6.7	5.6	6.0	3.4	2.6	0.0	1.5	0.7	0.4	0.4

Table A10.1: Foreign nationals 15 years and older by age, sex and level of education (Cont'd)

Female	All levels	No Schooling	Primary	JSS/JHS	Middle	SSS/SHS	Secondary	Vocational/ Technical/ Commercial	Post Middle/ Post - Secondary Cert.	Post- Secondary Diploma	Bachelor Degree	Post Graduate
Age												
Total	181,392	74,357	22,201	33,622	12,277	18,079	2,590	3,241	2,508	4,872	6,384	1,264
Percent	100.0	41.0	12.2	18.5	6.8	10.0	1.4	1.8	1.4	2.7	3.5	0.7
15-19	100.0	19.3	15.8	40.2	0.0	20.1	0.0	0.6	0.2	0.8	2.9	0.0
20-24	100.0	29.0	11.6	25.0	0.3	17.9	0.8	2.0	2.1	4.6	6.5	0.1
25-29	100.0	34.8	12.5	24.7	0.7	11.9	0.9	2.5	2.1	4.5	4.8	0.7
30-34	100.0	40.6	13.0	21.6	3.0	9.1	1.4	2.1	1.2	3.2	3.5	1.1
35-39	100.0	44.6	13.7	12.2	12.4	5.2	2.5	1.9	1.0	2.3	3.0	1.1
40-44	100.0	49.2	12.1	3.5	20.6	2.6	3.0	2.0	1.1	2.0	2.6	1.3
45-49	100.0	49.5	11.6	3.0	21.1	2.3	2.9	2.7	1.5	2.0	2.1	1.3
50-54	100.0	54.5	9.8	1.8	20.7	1.3	2.8	2.4	1.8	1.9	1.9	1.1
55-59	100.0	55.0	10.1	1.6	21.1	0.9	2.7	2.0	1.9	2.0	1.5	1.3
60-64	100.0	69.6	9.0	0.9	10.9	1.0	1.9	1.1	1.5	1.7	1.4	1.1
65-69	100.0	73.2	8.4	1.0	9.6	0.6	1.6	1.1	1.8	1.1	1.0	0.7
70-74	100.0	82.1	6.9	0.7	5.4	0.4	1.2	0.6	0.9	0.6	0.7	0.4
75-79	100.0	82.3	6.3	1.5	4.9	0.4	1.5	0.5	0.9	0.4	1.1	0.2
80-84	100.0	84.5	6.6	1.4	3.1	1.2	0.8	0.4	0.6	0.4	0.8	0.4
85-89	100.0	81.1	8.1	2.1	4.1	1.5	1.7	0.1	0.5	0.3	0.5	0.1
90-94	100.0	83.7	5.6	2.5	3.4	1.6	0.8	0.8	0.2	0.9	0.3	0.3
95+	100.0	82.8	5.1	2.0	2.7	1.7	2.4	0.0	0.0	1.4	1.7	0.3

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table A10.2: Foreign nationals 15 years and older by age, sex and activity status

Both Sexes	All Localities				Urban				Rural			
	Economically Active			Not Economically Active	Economically Active			Not Economically Active	Economically Active			Not Economically Active
	All Statuses	Employed	Unemployed		All Statuses	Employed	Unemployed		All Statuses	Employed	Unemployed	
Age												
Total	398,585	270,213	15,442	112,930	243,745	152,591	12,059	79,095	154,840	117,622	3,383	33,835
Percent	100.0	67.8	3.9	28.3	100.0	62.6	4.9	32.4	100.0	76.0	2.2	21.9
15-19	100.0	30.2	2.9	66.9	100.0	19.8	3.3	76.8	100.0	44.3	2.3	53.5
20-24	100.0	54.9	6.8	38.3	100.0	47.3	8.0	44.7	100.0	68.9	4.5	26.6
25-29	100.0	73.1	6.2	20.7	100.0	68.0	7.7	24.3	100.0	82.7	3.3	14.0
30-34	100.0	82.0	4.2	13.8	100.0	78.5	5.4	16.2	100.0	88.2	2.2	9.6
35-39	100.0	86.0	3.1	10.9	100.0	83.5	4.0	12.5	100.0	90.2	1.6	8.2
40-44	100.0	87.3	2.5	10.2	100.0	84.2	3.5	12.3	100.0	92.2	1.1	6.8
45-49	100.0	88.0	2.2	9.8	100.0	85.2	3.1	11.7	100.0	92.0	1.0	7.1
50-54	100.0	85.2	2.0	12.9	100.0	81.8	2.8	15.4	100.0	89.5	0.9	9.6
55-59	100.0	83.0	1.7	15.3	100.0	79.1	2.1	18.8	100.0	88.6	1.1	10.3
60-64	100.0	69.8	3.4	26.8	100.0	62.7	4.0	33.2	100.0	78.6	2.6	18.9
65-69	100.0	63.2	1.7	35.1	100.0	55.0	2.3	42.6	100.0	74.1	0.9	25.1
70-74	100.0	55.0	0.4	44.6	100.0	45.5	0.6	53.9	100.0	65.5	0.1	34.3
75-79	100.0	48.4	0.2	51.4	100.0	38.5	0.4	61.2	100.0	59.8	0.0	40.2
80-84	100.0	42.1	0.3	57.6	100.0	34.8	0.4	64.7	100.0	49.6	0.1	50.3
85-89	100.0	38.8	0.3	60.9	100.0	33.0	0.6	66.4	100.0	45.3	0.0	54.7
90-94	100.0	36.0	0.4	63.6	100.0	33.3	0.7	66.0	100.0	38.3	0.1	61.5
95+	100.0	33.5	0.0	66.5	100.0	26.2	0.0	73.8	100.0	41.0	0.0	59.0

Table A10.2: Foreign nationals 15 years and older by age, sex and activity status (Cont'd)

Males	All Localities				Urban				Rural			
	Economically Active			Not Economically Active	Economically Active			Not Economically Active	Economically Active			Not Economically Active
	All Statuses	Employed	Un-employed		All Statuses	Employed	Un-employed		All Statuses	Employed	Un-employed	
Age												
Total	217,193	158,844	7,440	50,909	133,481	91,584	5,879	36,018	83,712	67,260	1,561	14,891
Percent	100.0	73.1	3.4	23.4	100.0	68.6	4.4	27.0	100.0	31.0	0.7	6.9
15-19	100.0	32.5	2.4	65.1	100.0	20.8	3.0	76.3	100.0	21.0	0.8	22.8
20-24	100.0	57.2	6.0	36.8	100.0	49.8	7.0	43.1	100.0	24.3	1.3	8.4
25-29	100.0	77.4	5.8	16.8	100.0	72.7	7.1	20.2	100.0	29.0	1.0	3.4
30-34	100.0	87.1	3.8	9.1	100.0	84.3	4.7	11.0	100.0	32.2	0.7	1.9
35-39	100.0	91.1	2.7	6.1	100.0	89.5	3.5	7.0	100.0	33.0	0.5	1.6
40-44	100.0	91.2	2.4	6.4	100.0	89.2	3.2	7.6	100.0	36.8	0.4	1.7
45-49	100.0	92.3	1.9	5.8	100.0	90.3	2.8	7.0	100.0	39.9	0.3	1.7
50-54	100.0	89.9	1.8	8.3	100.0	87.3	2.4	10.3	100.0	40.7	0.4	2.5
55-59	100.0	89.0	1.5	9.5	100.0	86.3	1.9	11.8	100.0	38.5	0.4	2.6
60-64	100.0	76.2	2.9	20.9	100.0	69.6	3.5	26.9	100.0	37.7	1.0	6.0
65-69	100.0	70.2	1.4	28.4	100.0	62.1	2.1	35.8	100.0	34.8	0.2	7.9
70-74	100.0	64.7	0.5	34.8	100.0	54.3	0.8	44.9	100.0	36.2	0.0	11.1
75-79	100.0	59.1	0.1	40.8	100.0	49.4	0.3	50.4	100.0	34.3	0.0	15.5
80-84	100.0	52.7	0.4	47.0	100.0	44.1	0.6	55.3	100.0	31.5	0.1	20.4
85-89	100.0	51.2	0.1	48.7	100.0	45.3	0.2	54.5	100.0	28.8	0.0	21.7
90-94	100.0	45.7	0.2	54.2	100.0	41.7	0.3	57.9	100.0	27.0	0.0	28.2
95+	100.0	49.3	0.0	50.7	100.0	40.8	0.0	59.2	100.0	31.0	0.0	24.3

Table A10.2: Foreign nationals 15 years and older by age, sex and activity status (Cont'd)

Females	All Localities				Urban				Rural			
	Economically Active			Not Economically Active	Economically Active			Not Economically Active	Economically Active			Not Economically Active
	All Statuses	Employed	Un-employed		All Statuses	Employed	Un-employed		All Statuses	Employed	Un-employed	
Age												
Total	181,392	111,369	8,002	62,021	110,264	61,007	6,180	43,077	71,128	50,362	1,822	18,944
Percent	100.0	61.4	4.4	34.2	100.0	55.3	5.6	39.1	100.0	70.8	2.6	26.6
15-19	100.0	27.8	3.3	68.9	100.0	18.9	3.7	77.4	100.0	41.1	2.8	56.1
20-24	100.0	52.4	7.6	39.9	100.0	44.5	9.1	46.4	100.0	66.3	5.1	28.6
25-29	100.0	68.2	6.6	25.2	100.0	62.4	8.4	29.3	100.0	78.4	3.6	18.0
30-34	100.0	75.3	4.9	19.9	100.0	70.5	6.3	23.1	100.0	83.1	2.5	14.5
35-39	100.0	78.9	3.7	17.4	100.0	74.7	4.9	20.4	100.0	85.5	1.9	12.7
40-44	100.0	81.9	2.7	15.4	100.0	77.1	3.9	19.0	100.0	89.1	0.9	10.0
45-49	100.0	82.2	2.6	15.2	100.0	78.5	3.5	18.0	100.0	87.6	1.1	11.2
50-54	100.0	78.9	2.3	18.8	100.0	74.8	3.3	21.8	100.0	84.4	1.0	14.7
55-59	100.0	75.0	1.9	23.1	100.0	69.7	2.3	28.0	100.0	82.9	1.4	15.8
60-64	100.0	62.0	4.0	34.0	100.0	54.2	4.7	41.0	100.0	71.5	3.1	25.4
65-69	100.0	54.6	2.1	43.4	100.0	46.5	2.6	50.9	100.0	65.5	1.3	33.2
70-74	100.0	44.4	0.3	55.3	100.0	35.9	0.4	63.7	100.0	53.7	0.1	46.1
75-79	100.0	36.3	0.3	63.4	100.0	27.5	0.5	72.0	100.0	47.9	0.0	52.1
80-84	100.0	31.1	0.2	68.8	100.0	26.1	0.3	73.6	100.0	36.7	0.0	63.3
85-89	100.0	25.9	0.6	73.5	100.0	21.8	1.0	77.1	100.0	31.2	0.0	68.8
90-94	100.0	26.2	0.6	73.1	100.0	25.6	0.9	73.4	100.0	26.8	0.3	72.9
95+	100.0	19.3	0.0	80.7	100.0	15.7	0.0	84.3	100.0	23.8	0.0	76.2

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table A10.3: Percentage distribution of economically active foreign nationals 15 years and older by age, sex and occupation

Both Sexes	All occupations	Managers	Professionals	Technicians & Associate Professionals	Clerical support workers	Services and sales workers	Skilled Agric. Forestry & Fisheries workers	Craft & Related Trade workers	Plant & machine operators & Assemblers	Elemen-tary occupa-tions	Other occupa-tions	Persons seeking work for the first time
Age												
Total	285,655	9,752	15,009	6,687	3,501	66,722	99,326	38,160	13,602	23,825	520	8,551
Percent	100.0	3.4	5.3	2.3	1.2	23.4	34.8	13.4	4.8	8.3	0.2	3.0
15-19	100.0	0.0	0.0	0.9	0.2	18.1	50.7	11.7	1.9	8.3	0.0	8.2
20-24	100.0	1.4	3.9	1.8	1.1	24.0	29.4	16.3	3.9	9.6	0.1	8.6
25-29	100.0	2.7	6.1	2.4	1.5	25.3	26.0	16.0	4.8	9.8	0.3	5.3
30-34	100.0	3.9	6.1	2.5	1.5	25.4	28.1	14.6	5.6	9.2	0.2	2.9
35-39	100.0	4.5	6.0	2.7	1.3	25.7	30.2	14.5	6.2	8.8	0.2	0.0
40-44	100.0	4.9	5.9	2.5	1.2	23.8	35.0	12.4	6.1	7.9	0.2	0.0
45-49	100.0	4.9	6.4	2.7	1.4	23.2	38.1	11.0	5.2	6.9	0.2	0.0
50-54	100.0	5.2	6.5	2.9	1.5	21.0	41.7	10.2	4.9	6.2	0.1	0.0
55-59	100.0	5.4	7.2	3.2	1.3	20.7	41.5	9.1	4.8	6.6	0.2	0.0
60-64	100.0	4.1	5.2	2.0	1.1	18.3	51.5	8.4	3.7	5.8	0.0	0.0
65-69	100.0	3.8	4.5	2.5	0.9	18.5	52.5	8.4	2.6	6.3	0.1	0.0
70-74	100.0	2.1	1.8	2.5	0.6	17.5	60.2	8.1	1.9	5.3	0.0	0.0
75-79	100.0	1.8	2.3	1.8	0.8	17.3	61.2	8.1	1.9	4.9	0.0	0.0
80-84	100.0	2.0	1.9	1.8	0.8	16.9	60.5	8.5	2.7	4.8	0.1	0.0
85-89	100.0	2.0	3.3	4.3	0.9	17.7	57.1	8.6	2.5	3.7	0.0	0.0
90-94	100.0	2.6	4.3	2.6	0.9	18.1	53.0	8.9	1.5	8.3	0.0	0.0
95+	100.0	1.6	2.6	1.1	1.1	16.4	60.8	11.1	0.5	4.2	0.5	0.0

Table A 10.3: Percentage distribution of economically active foreign nationals 15 years and older by age, sex and occupation (Cont'd)

Male	All occupations	Managers	Professionals	Technicians and Associate Professionals	Clerical support workers	Services and sales workers	Skilled Agric. Forestry and Fisheries workers	Craft & Related Trade workers	Plant and machine operators and Assemblers	Elementary occupations	Other occupations	Persons seeking work for the first time
Age												
Total	166,284	6,574	10,313	5,582	2,202	28,212	58,868	22,936	12,940	13,851	470	4,336
Percent	100.0	4.0	6.2	3.4	1.3	17.0	35.4	13.8	7.8	8.3	0.3	2.6
15-19	100.0	0.0	0.0	1.5	0.2	12.4	56.6	10.5	3.0	9.1	0.0	6.6
20-24	100.0	1.5	4.2	2.6	0.8	17.7	30.2	16.8	6.6	11.7	0.1	7.7
25-29	100.0	2.8	6.7	3.3	1.4	19.1	25.4	17.0	8.0	10.7	0.4	5.3
30-34	100.0	4.3	7.3	3.6	1.5	19.0	27.3	15.6	9.0	9.2	0.4	2.8
35-39	100.0	5.0	7.5	3.9	1.5	19.2	29.1	15.6	9.9	8.0	0.3	0.0
40-44	100.0	5.9	7.2	3.6	1.5	16.5	35.2	13.0	9.6	7.3	0.4	0.0
45-49	100.0	5.7	7.5	3.7	1.7	15.4	39.6	11.5	8.4	6.2	0.4	0.0
50-54	100.0	6.1	7.5	3.9	1.9	14.2	43.0	10.3	7.9	5.1	0.2	0.0
55-59	100.0	6.4	8.1	4.4	1.6	14.8	42.1	9.2	7.7	5.6	0.3	0.0
60-64	100.0	5.0	6.5	2.9	1.5	13.2	52.6	8.1	5.9	4.3	0.1	0.0
65-69	100.0	4.6	5.5	3.4	1.2	14.3	54.2	7.8	4.0	4.9	0.2	0.0
70-74	100.0	2.4	2.0	3.6	0.8	14.0	62.7	7.1	2.9	4.6	0.0	0.0
75-79	100.0	2.2	2.8	2.3	1.0	14.0	63.7	7.1	2.8	4.1	0.0	0.0
80-84	100.0	2.0	2.0	1.8	1.1	12.5	65.2	7.7	3.7	3.9	0.1	0.0
85-89	100.0	2.2	3.5	5.5	0.9	9.9	63.2	7.9	3.7	3.1	0.0	0.0
90-94	100.0	3.4	5.4	2.4	0.3	12.1	57.2	7.4	2.4	9.4	0.0	0.0
95+	100.0	1.5	3.0	1.5	0.0	12.1	62.9	13.6	0.8	4.5	0.0	0.0

Table A10.3: Percentage distribution of economically active foreign nationals 15 years and older by age, sex and occupation (Cont'd)

Female	All occupations	Managers	Professionals	Technicians & Associate Professionals	Clerical support workers	Services and sales workers	Skilled Agric. Forestry & Fisheries workers	Craft & Related Trade workers	Plant & machine operators & Assemblers	Elemen-tary occupa-tions	Other occupa-tions	Persons seeking work for the first time
Age												
Total	119,371	3,178	4,696	1,105	1,299	38,510	40,458	15,224	662	9,974	50	4,215
Percent	100.0	2.7	3.9	0.9	1.1	32.3	33.9	12.8	0.6	8.4	0.0	3.5
15-19	100.0	0.0	0.0	0.1	0.2	24.8	43.9	13.0	0.7	7.3	0.0	10.1
20-24	100.0	1.4	3.6	0.8	1.4	31.1	28.5	15.7	0.8	7.3	0.0	9.5
25-29	100.0	2.5	5.3	1.1	1.7	33.4	26.9	14.6	0.6	8.6	0.1	5.2
30-34	100.0	3.2	4.2	1.0	1.5	34.8	29.4	13.2	0.5	9.2	0.0	3.0
35-39	100.0	3.6	3.8	0.8	0.9	35.8	31.8	12.8	0.5	10.0	0.0	0.0
40-44	100.0	3.5	3.9	0.9	0.7	35.1	34.9	11.5	0.6	8.9	0.0	0.0
45-49	100.0	3.7	4.8	1.2	0.8	34.8	35.7	10.3	0.5	8.0	0.0	0.0
50-54	100.0	3.9	5.2	1.3	0.9	31.0	39.7	10.0	0.4	7.7	0.0	0.0
55-59	100.0	4.0	5.7	1.3	0.8	30.0	40.5	9.1	0.2	8.2	0.2	0.0
60-64	100.0	2.8	3.3	0.7	0.6	25.8	49.9	8.8	0.3	7.9	0.0	0.0
65-69	100.0	2.5	3.0	1.1	0.3	25.0	50.0	9.3	0.4	8.4	0.0	0.0
70-74	100.0	1.6	1.6	0.9	0.2	23.2	56.3	9.7	0.3	6.2	0.0	0.0
75-79	100.0	1.0	1.4	0.8	0.3	23.4	56.6	9.9	0.3	6.3	0.0	0.0
80-84	100.0	2.0	1.8	1.6	0.3	24.7	52.2	9.9	1.0	6.5	0.0	0.0
85-89	100.0	1.5	3.0	1.9	0.7	33.3	44.8	10.0	0.0	4.8	0.0	0.0
90-94	100.0	1.2	2.3	2.9	1.7	28.3	45.7	11.6	0.0	6.4	0.0	0.0
95+	100.0	1.8	1.8	0.0	3.5	26.3	56.1	5.3	0.0	3.5	1.8	0.0

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table A10.4: Emigration of Ghanaians 15 years and older by place of destination, activity status, sex and region

All regions Emigration status	Percent	Number	Western	Central	Greater Accra	Volta	Eastern	Ashanti	Bron- Ahafo	Northern	Upper East	Upper West
Both sexes												
Number of emigrants		250,623	21,730	18,056	63,136	13,715	19,980	69,148	33,478	4,674	5,378	1,328
Destination of emigrants												
Nigeria	6.8	17,092	5.0	13.0	4.2	21.6	8.6	4.0	4.8	26.8	10.1	11.7
Liberia	1.5	3,669	1.3	5.5	1.4	1.3	0.9	0.7	1.2	2.3	1.2	2.3
Sierra Leone	0.6	1,556	0.6	0.5	0.7	0.3	0.8	0.7	0.5	0.4	0.6	0.2
Gambia	1.7	4,341	1.4	2.5	1.6	0.9	2.6	1.9	1.4	1.1	1.3	0.9
Togo	3.1	7,825	0.9	1.9	2.3	26.8	2.8	1.0	0.6	5.5	7.9	1.2
Burkina Faso	0.9	2,376	0.4	0.4	0.3	0.4	0.6	0.8	1.0	3.9	10.9	13.0
Cote d'Ivoire	7.8	19,483	30.1	25.3	1.3	10.0	2.3	2.7	7.9	4.9	15.6	10.5
Other ECOWAS states	3.0	7,577	2.3	2.7	2.8	5.1	2.5	2.8	3.6	4.0	4.5	4.7
Africa, other than ECOWAS	10.4	26,110	7.2	4.5	6.4	4.3	9.5	8.7	29.6	14.1	8.4	13.4
Europe	37.7	94,471	32.5	24.5	40.4	13.1	38.2	47.7	38.8	18.2	17.0	22.5
Americans(North, South/Caribbean)	23.6	59,106	16.1	17.1	34.5	14.5	28.5	26.6	9.0	12.4	16.0	16.2
Asia	2.3	5,672	1.9	1.7	3.4	1.5	2.3	1.9	1.2	5.6	2.4	3.2
Oceania	0.5	1,345	0.4	0.4	0.6	0.1	0.5	0.4	0.4	0.7	4.1	0.1
Total	100.0		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Activity abroad												
Employed	76.2	191,019	73.4	78.3	72.5	63.2	80.5	81.2	82.2	66.4	53.3	57.2
Unemployed	6.1	15,345	8.0	5.5	3.9	11.1	4.3	3.9	9.6	11.9	19.8	17.1
Student	14.0	35,184	14.2	11.5	19.5	15.3	12.5	13.2	5.8	14.8	20.6	16.0
Other	3.6	9,075	4.4	4.7	4.1	10.4	2.7	1.6	2.4	6.9	6.3	9.7
Total	100.0		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table A10.4: Emigration of Ghanaians 15 years and older by place of destination, activity status, sex and region (cont'd)

Male												
Number of emigrants	100.0	160,276	13,055	10,948	37,933	7,733	12,297	42,869	27,012	3,509	3,929	991
Destination of emigrants												
Nigeria	7.4	11,803	5.8	14.5	4.5	24.9	9.4	4.3	5.1	25.5	10.4	13.2
Liberia	1.6	2,520	1.6	5.1	1.6	1.5	1.0	0.8	1.3	2.6	1.5	2.6
Sierra Leone	0.6	1,003	0.5	0.6	0.7	0.5	0.8	0.7	0.5	0.4	0.4	0.2
Gambia	1.7	2,654	1.4	2.8	1.5	1.0	2.8	1.8	1.1	1.3	1.5	0.9
Togo	2.4	3,904	0.8	1.8	2.2	20.3	2.3	0.9	0.5	4.5	6.2	1.0
Burkina Faso	1.0	1,556	0.5	0.5	0.4	0.5	0.5	0.9	0.9	3.0	8.2	10.2
Cote d'Ivoire	6.2	9,948	21.3	20.4	1.4	8.9	2.3	2.8	5.2	3.4	15.1	9.7
Other ECOWAS states	3.5	5,596	2.8	3.3	3.2	5.2	2.5	3.5	3.9	4.6	5.2	5.4
Africa, other than ECOWAS	13.2	21,165	9.0	5.2	7.5	5.5	10.5	10.3	34.3	16.8	9.9	16.4
Europe	37.0	59,369	36.2	25.9	39.0	14.1	37.0	45.6	38.0	18.5	17.3	21.2
Americas(North, South/Caribbean)	22.1	35,496	17.2	17.3	33.2	15.6	27.5	25.4	7.5	12.3	16.6	14.9
Asia	2.7	4,336	2.6	2.0	4.1	1.7	2.7	2.5	1.2	6.3	2.9	4.0
Oceania	0.6	926	0.4	0.4	0.7	0.2	0.5	0.4	0.3	0.8	5.0	0.1
Total	100.0		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Activity abroad												
Employed	78.4	125,637	75.5	80.6	74.2	67.1	82.8	83.1	84.1	68.0	53.0	61.5
Unemployed	5.5	8,828	6.5	4.5	3.1	9.1	3.3	3.1	9.2	11.2	20.5	15.4
Student	13.0	20,863	14.1	10.7	19.1	14.7	11.7	12.3	4.7	14.4	21.3	14.9
Other	3.1	4,948	3.8	4.1	3.5	9.1	2.3	1.5	2.0	6.4	5.2	8.2
Total	100.0		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Table A10.4: Emigration of Ghanaians 15 years and older by place of destination, activity status, sex and region (cont'd)

Female											
Number of emigrants	100.0	90,347	8,675	7,108	25,203	5,982	7,683	26,279	6,466	1,165	1,449
Destination of emigrants											337
Nigeria	5.9	5,289	3.9	10.6	3.8	17.5	7.3	3.4	3.4	30.8	9.4
Liberia	1.3	1,149	0.9	6.2	1.1	0.9	0.8	0.6	0.8	1.2	0.6
Sierra Leone	0.6	553	0.8	0.2	0.7	0.1	0.7	0.7	0.5	0.2	1.0
Gambia	1.9	1,687	1.2	2.0	1.7	0.7	2.3	2.2	2.8	0.8	1.0
Togo	4.3	3,921	1.1	2.1	2.6	35.2	3.6	1.1	1.2	8.4	12.6
Burkina Faso	0.9	820	0.3	0.3	0.2	0.4	0.7	0.6	1.1	6.4	18.1
Cote d'Ivoire	10.6	9,535	43.4	32.9	1.1	11.3	2.2	2.5	19.2	9.6	17.0
Other Ecowas states	2.2	1,981	1.5	1.7	2.2	4.9	2.4	1.8	2.1	2.2	2.6
Africa, other than Ecowas	5.5	4,945	4.4	3.4	4.7	2.7	7.8	6.1	9.9	5.8	4.4
Europe	38.9	35,102	26.9	22.4	42.6	11.9	40.0	51.0	42.0	17.5	16.1
Americas (North, South/Caribbean)	26.1	23,610	14.4	16.7	36.3	13.1	30.1	28.5	15.5	12.8	14.6
Asia	1.5	1,336	0.9	1.1	2.4	1.3	1.6	1.0	0.9	3.6	1.2
Oceania	0.5	419	0.3	0.4	0.6	0.1	0.4	0.4	0.5	0.6	1.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Activity abroad											
Employed	72.4	65,382	70.2	74.8	69.8	58.2	76.7	78.2	74.6	61.6	54.2
Unemployed	7.2	6,517	10.4	7.0	4.9	13.7	6.0	5.3	11.1	14.0	17.7
Student	15.9	14,321	14.3	12.7	20.2	16.0	13.9	14.7	10.7	15.9	18.7
Other	4.6	4,127	5.2	5.5	5.1	12.2	3.4	1.9	3.7	8.5	9.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Ghana Statistical Service, 2010 Population and Housing Census

CHAPTER ELEVEN

ECONOMIC CHARACTERISTICS/ACTIVITIES²⁷

11.1 Introduction

11.1.1 Background

The overall development of a country is based on the production of goods and services. Critical to the production process is the human capital of the country. Although all persons irrespective of age and sex consume goods and services produced, only a section of the total population produces them: a working population often referred to as the “employed”. The type of economic activity pursued is influenced by nature of the economy and level of socio-economic development (Hull, 2009). Generally, the larger the employed population, the more wealth is created leading to the general well-being of the population. In Ghana, over the years, a number of job opportunities have been created in the public and private sectors in a wide range of economic activities.

Contributing to employment opportunities in any country or area are factors such as the structure of the population, proportion of the economically active population and the labour market. A detailed study of the dynamics of the population and the labour market, helps to identify the employment opportunities available and the structure of the economy.

The population census results for various years provide data on the labour force and economic characteristics of the population. This chapter analyses the economic activities pursued, economically active and economically not active, the employed and the unemployed population. Each of these population characteristics are analysed by age, sex, locality of residence (urban or rural area), marital status, level of education, region, sector and status of employment.

11.2 Sources of Data

The main data sources for this analysis are the five censuses of 1960, 1970, 1984, 2000 and 2010 with emphasis on the 2010 census.

11.2.1 Concepts and definitions

The censuses conducted over the years have adopted standard internationally accepted definitions and concepts for economic activity. In the 1960, 1970 and 1984 censuses, for instance, the economic activity questions were administered to persons aged ten years and above. For the 2000 census, the data were collected on persons aged seven years and above while in 2010 the questions were administered to people five years and above in order to meet current international standards. All persons aged five years and above were asked the economic activity questions, irrespective of whether the person was attending school or not, but in the earlier

²⁷ George Botchie and Johnson Owusu Kagya prepared this chapter

censuses, the economic activity questions were administered to only those who were not attending school within the reference period.

Economic Activity

The question on economic activity was asked of all persons five years and above who engaged in any activity for pay (cash or kind) or profit or family gain for at least one hour during the seven days preceding census night.

Economically Active Population

The economically active population was defined as persons who:

- Worked for pay or profit or family gain for at least one hour within the seven days preceding census night. This category of persons included those who were in paid employment or self-employment or contributing family workers;
- Did not work, but had job to return to;
- Were unemployed and actively looking for work.

Economically Not Active Population

The economically not active persons were those who did not work and were not seeking for work. The category included homemakers, full time students, retired persons, the disabled and persons who were unable to work because of their age or ill-health.

Labour force

The labour force comprised employed persons who had jobs or businesses and the unemployed. The term economically active population by the census definition was the same as the labour force. Therefore, these terms are used interchangeably in the chapter as appropriate.

Workforce (the employed)

Workforce represents the total number of workers actively employed, or available for work. It consisted of all persons aged 15 years and above, who during the reference period, were in the following categories:

- At work, that is, persons who during the reference period performed some work for wage or salary either in cash or in kind or worked without pay.
- Had a job to go back to, but did not work within the reference period.

The Unemployed

This comprises all persons aged 15 years and above, who during the reference period were:

- Without work and had no fixed jobs;
- Currently available for work;
- Seeking for work by taking specific steps to look for work (e.g. writing applications, visiting job sites, visiting employment agencies and seeking help from friends and relatives in the search for jobs).

Occupation

Occupation refers to the type of work the person is engaged in at the establishment where the person works. In the census, this was asked only of persons who worked for at least one hour during the seven days before census night, and those who did not work but had a job to return to as well as those who were unemployed but had worked before. All persons who worked during the seven days before the census night were classified by the kind of work they were engaged in. The emphasis was on the work the person did during the reference period.

For those who did not work but had a job to return to, their occupation was the job they would go back to after the period of absence. Also, for persons who had worked before and were seeking for work and/or available for work, the question was on previous occupation.

Industry

Industry referred to the type of product produced or services rendered at the respondent's workplace. Information was collected only on the main product produced or service rendered in the establishment during the reference period.

Employment Status

Employment status referred to the position of a person in the establishment where he/she currently works or previously worked. Eight employment status categories were provided: employee, self-employed without employees, self-employed with employees, casual worker, contributing family worker, apprentice and domestic employee (house-help). Persons who could not be classified under any of the above categories were classified as "other".

Employment Sector

Employment sector refers to the sector in which a person works. The sectors covered in the census were Public, Private formal, Private informal, Semi-public/parastatal, NGOs and International organizations.

Working children

International labour regulations stipulate 15 years as the minimum working age. According to the 1998 Children's Act of Ghana, children under 15 years of age are not expected to be employed. However, children aged 13 and 14 can do light work. Therefore, a child below 13 years is not expected to engage in any economic activity.

11.2.2 Data limitations

The 1960 and 1970 censuses collected information on all those who worked for at least one day for pay or profit during the four weeks preceding census night. However, in the 1984, 2000 and 2010 censuses, this reference period of work was shortened to a minimum time of at least one hour within the seven days prior to the census night. These variations in the reference period, and length of work, may affect the various classifications of the economically active population since a higher number may report have worked for one day in a four-week period than for one hour in a seven-day period.

The issue of timing of the censuses is also noteworthy. Except the 2010 census which was conducted in the months of September and October, all the other censuses in the post-independence era were carried out in the month of March. This is worthy of note because it might also affect the classifications of the economically active population as well as the type of activity in which they are engaged given seasonal differences in employment opportunities.

The categories of occupation and industry in the 1960, 1970, 1984 and 2000 censuses were different from those in the 2010 census given recent revisions and the introduction of new categories. In the 2010 census for example, occupation categories such as “elementary occupation” and “craft and related trade workers” were introduced. Similarly, industry groups such as “accommodation and food service activities” and “information and communication” were introduced to reflect changes in the economy. For this reason, there are differences in the categories in the occupation and industrial sectors between the 2010 census and the previous ones.

11.2.3 Measures of Economic Activity

The measures of economic activity used in the analysis are the crude, general, refined and age-sex economic activities

Crude Economic Activity Rate

The crude activity rate is measured as the number of persons in the potentially working age group (15-64 years) over the total population and expressed in percentages.

General Economic Activity Rate

General activity is the relationship between the number of persons in the economically active population and the population aged 15 years and older. This also expressed in percentages. .

Refined Economic Activity Rate

The refined activity rate is measured as the proportion between the economically active population and the potentially working population (15-64 years).

Age-Specific Economic Activity Rate

Age-specific activity rate is computed by dividing the economically active population in a particular age-sex group by the population in that age-sex group.

11.3 Economic activity status of the population

Table 11.1 shows that, in 2010, 71.1 percent of the population aged 15 years and older were economically active within the seven days preceding the census night and 28.9 per cent were economically not active (Table 11.1). The proportion of economically active persons has been declining since 1984: from 82.5 percent in 1984 to 74.7 percent in 2000 and to the current figure of 71.1 percent. That is, the proportion of the population economically not active (neither

employed nor seeking or available for work) increased over the years. This general trend was the same for both males and females. However, within the period, relatively higher proportions of males were economically active compared with females.

Table 11.1: Percentage distribution of population aged 15 years and above by sex, and activity status: 1984, 2000 and 2010

Characteristics All localities	Year	Economically active	Economically not active	All statuses N
Both sexes	1984	82.5	17.5	6,760,967
	2000	74.7	25.3	11,105,236
	2010	71.1	28.9	15,208,425
Male	1984	83.5	16.5	3,261,069
	2000	76.7	23.3	5,435,829
	2010	72.8	27.2	7,225,901
Female	1984	81.6	18.4	3,499,898
	2000	72.7	27.3	5,669,407
	2010	69.6	30.4	7,982,524

Source: Ghana Statistical Service, 1984, 2000 and 2010 Population Censuses.

11.3.1 Sex ratio by economic activity status

Table 11.2 shows the sex ratio for the population aged 15 years and older by economic activity status: For every 100 economically active females in 2010, there were 95 economically active males; and for every 100 economically not active females there were 81 males. In these census years, there were more economically active males than females. Furthermore, with regard to the Sex ratios among economically active population declined from 160.3 in 1960 to 95.4 in 1984 but increased to 101.2 in 2000 and then decreased to 94.6 in 2010. That is, higher sex ratios for the economically active population were recorded in 1960, 1970 and 2000 than in 2010. For the economically not active population, sex ratios increased steadily from 25.9 in 1960 to 85.7 in 2000 but declined slightly to 81.1 percent in 2010. The highest sex ratio for the economically not active population was 85.7 in 2000. The sex ratios among the economically active and the economically active populations in 1960 and 1970 appear to be unusual and worth exploring as it could also be due to differences in the reporting of economic activities in these two earlier censuses and in the subsequent ones.

Table 11.2: Sex ratio of population aged 15 years and older by economic activity status: 1960, 1970, 1984, 2000 and 2010

Activity type	1960	1970	1984	2000	2010
Total population	102.2	98.5	97.3	97.9	95.2
Economically active population	160.3	126.3	95.4	101.2	94.6
Economically not active population	25.9	43.5	83.3	85.7	81.1

Source: Central Bureau of Statistics (1960; 1970), Ghana
Ghana Statistical Service (1984; 2000; 2010)

11.3.2 Economic activity rate

In 2010, 43.9 percent of the total population was economically active. The rates were 40.5 percent in 1960, 38.9 percent in 1970, 45.4 percent in 1984 and 43.8 percent in 2000. Among males, the proportion of economically active was 49.3 percent in 1960 and 44.9, 44.6 and 43.7 percent respectively in 1984, 2000 and 2010, while the economically active females were 31.4 percent in 1960, 45.8 percent in 1984, 43.1 percent in 2000, and 44.0 percent in 2010. The results indicate that from 1984, the proportions of males and females who were economically active were about the same.

The increase in the proportion of economically active females could be due to better recording of female activities especially in the 1984, 2000 and 2010 censuses, since females in Ghana have always been economically active (Ghana Statistical Service, 2005). The proportion of economically not active population was 22.4 percent in 2000. The corresponding proportions for males and females were 20.9 percent and 23.9 percent respectively in 2000 and 16.3 percent for males and 19.2 percent for females in 2010 (Table 11.3).

Table 11.3: Percentage of the economically active population and economically not active population of the total population: 1960, 1970, 1984, 2000 and 2010

Activity type	1960	1970	1984	2000	2010
Economically active population					
Both sexes	40.5	38.9	45.4	43.8	43.9
Male	49.3	43.8	44.9	44.6	43.7
Female	31.4	34.1	45.8	43.1	44.0
Economically not active population					
Both sexes	15.0	14.2	9.6	22.4	17.8
Male	6.1	8.7	8.8	20.9	16.3
Female	24.0	28.5	10.3	23.9	19.2
Total population	6,726,815	8,559,313	12,296,081	18,912,079	24,658,823
Male population	3,400,270	4,247,809	6,063,848	9,357,382	12,024,845
Female population	3,326,545	4,311,504	6,232,233	9,554,697	12,633,978

Sources: Ghana Statistical Service, 1960; 1970, 1984, 2000 and 2010 Population Censuses

11.3.3 Growth rates of the economically active population

The growth rates of the population and the economically active population by sex from 1960 to 2010 are presented in Table 11.4. The average annual growth rate of the population remained relatively stable in the 1960-1970 and 2000-2010 inter-censal periods. The growth of the economically active and economically not active populations showed fluctuating trends in the periods 1960-1970 and 2000-2010.

The growth rate for the economically active population was 3.8 percent compared to the population growth of 2.6 percent in 1970-1984. The economically active female population grew at a rate of 4.8 percent and that of males was 2.8 percent. For the 1984-2000 and the 2000-2010 periods, the rates of growth of the total population and the economically active populations were close. The rates of growth of the economically not active population low in the 1960-1970 period, negative for females and the total population in the 1970-1984 period, very high in 1984-2000 declined by about 50 percent between 2000 and 2010.

Table 11.4: Growth rates of the economically active population, economically not active population and total population by sex, 1960, 1970, 1984, 2000 and 2010

Activity type	1960-1970	1970-1984	1984-2000	2000-2010
Economically active population				
Both sexes	2.1	3.8	2.5	2.5
Male	1.0	2.8	2.7	2.2
Female	3.5	4.8	2.3	2.8
Economically not active population				
Both sexes	1.9	-0.3	8.3	4.2
Male	5.9	3.6	8.4	4.2
Female	0.5	-2.6	8.2	4.3
Population growth rates				
Both sexes	2.5	2.6	2.7	2.5
Male	2.3	2.6	2.7	2.4
Female	2.6	2.7	2.7	2.7

Source: Ghana Statistical Service, 1960; 1970, 1984, 2000 and 2010 Population Censuses

11.4 The economically active population

11.4.1 Regional distribution of the economically active population

The distribution of both the total population and the economically active population is presented in Table 11.5. Generally, the regional distribution of the economically active population is about the same as that of the total population for all the years specified and for all the regions. For instance, in 2000 and 2010, Ashanti Region accounted for 19.4 percent and 19.1 percent respectively of the economically active population followed by Greater Accra (16.6% and 18.1% respectively) as in the total population (Chapter Four). The proportion of the economically active population in the Northern Region increased from 8.4 percent in 1984 to 9.4 percent in 2010. However, Upper East and Upper West Regions experienced declines in their share of the economically active population: from 6.4 percent in 1984 to 4.2 percent in the Upper East Region and from 3.6 percent to 2.6 percent in the Upper West Region between 2000 and 2010.

Table 11.5: Percentage distribution of population aged 15 years and above and economically active population by sex and region, 1984 - 2010

Region		1984			2000			2010		
		Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
All Regions	Population	12,296,081	6,063,848	6,232,233	18,912,079	9,357,382	9,554,697	24,658,823	12,024,845	12,633,978
N	Economically Active Population	5,580,104	2,724,481	2,855,623	8,292,114	4,170,609	4,121,505	10,876,470	5,288,880	5,587,590
Western	Population	9.4	9.7	9.2	10.2	10.5	9.9	9.6	9.9	9.4
	Economically Active Population	9.8	10.1	9.5	10.3	10.8	9.9	9.4	9.8	9.0
Central	Population	9.3	9.2	9.4	8.4	8.1	8.7	8.9	8.7	9.1
	Economically Active Population	9.3	8.8	9.8	8.1	7.4	8.8	8.6	8.1	9.0
Greater Accra	Population	11.6	11.6	11.7	15.4	15.3	15.4	16.3	16.1	16.4
	Economically Active Population	11.6	12.2	11.0	16.6	17.0	16.3	18.1	17.8	17.8
Volta	Population	9.9	9.7	10.0	8.6	8.5	8.8	8.6	8.5	8.7
	Economically Active Population	10.0	9.2	10.8	8.4	7.9	8.9	8.4	8.2	8.6
Eastern	Population	13.7	13.8	13.6	11.1	11.1	11.2	10.7	10.7	10.6
	Economically Active Population	14.0	13.7	14.3	11.2	10.9	11.5	10.8	10.8	10.9
Ashanti	Population	17.0	17.0	17.0	19.1	19.4	18.8	19.4	19.3	19.5
	Economically Active Population	17.1	16.7	17.4	19.4	19.9	19.0	19.1	18.9	19.1
Brong Ahafo	Population	9.8	10.1	9.5	9.6	9.7	9.5	9.4	9.5	9.2
	Economically Active Population	9.8	6.7	6.5	9.9	10.0	9.8	9.5	9.8	9.3
Northern	Population	9.5	9.5	9.4	9.6	9.7	9.6	10.1	10.2	9.9
	Economically Active Population	8.4	9.4	7.5	8.8	9.2	8.3	9.4	9.8	9.2
Upper East	Population	6.3	6.1	6.5	4.9	4.7	5.0	4.2	4.2	4.3
	Economically Active Population	6.4	6.2	6.6	4.3	4.2	4.5	4.2	4.1	4.3
Upper West	Population	3.6	3.4	3.7	3.0	3.0	3.1	2.8	2.8	2.9
	Economically Active Population	3.6	3.3	3.9	2.9	2.8	3.0	2.6	2.6	2.7

Source: Ghana Statistical Service, 1984, 2000 and 2010 Population Censuses.

11.4.2 Rural-urban distribution of the economically active population

As was the trend in the total population, 51.2 percent of the economically active population was in urban areas. This could be attributed to the fact that in 2010 there were more people living in urban areas than in rural areas (see Chapter Four). In all the regions except Greater Accra and Ashanti Regions, the proportions of the economically active population in rural areas were higher than the proportions in urban areas (Table 11.6). This was the case for both males and females. The high urban proportions of the economically active populations in Greater Accra and Ashanti Regions are expected since the two primate cities in Ghana, Accra and Kumasi are located in these regions. These primate cities are relatively more attractive in terms of economic opportunities, serving as magnet for the economically active population.

The proportion of the economically active population in urban areas in the Northern, Upper West and Upper East regions were lower than those in urban areas, reflecting the rural character of the three regions. For instance, between 2000 and 2010 the proportion of economically active population in the Upper East region declined from 15.9 percent to 14.8 percent. Furthermore, in the three regions the proportions of economically active males were slightly higher than those of females in 2010, with the decline in proportions occurring for both males and females in the region.

Table 11.6: Distribution of economically active population 15 years and older by region, sex and locality of residence, 2000 and 2010

Sex/ Type of residence		Total		Western %	Central %	Greater Accra %		Volta %	Eastern %	Ashanti region %	Brong Ahafo %	Northern %	Upper East %	Upper West %
		N	%			%	%							
2000														
Both Sexes	Total	8,292,112	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Urban	3,631,768	43.8	34.8	36.0	88.3	26.0	33.4	50.7	36.3	23.9	15.4	15.9	15.9
	Rural	4,660,344	56.2	65.2	64.0	11.7	74.0	66.6	49.3	63.7	76.1	84.6	84.1	84.1
Male	Total	4,170,607	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Urban	1,831,516	43.9	34.2	36.1	88.6	25.9	32.4	51.1	34.7	24.0	16.0	17.0	17.0
	Rural	2,339,091	56.1	65.8	63.9	11.4	74.1	67.6	48.9	65.3	76.0	84.0	83.0	83.0
Female	Total	4,121,505	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Urban	1,800,253	43.7	35.6	36.0	88.1	26.1	34.4	50.4	38.0	23.8	14.9	14.9	14.9
	Rural	2,321,253	56.3	64.4	64.0	11.9	73.9	65.6	49.6	62.0	76.2	85.1	85.1	85.1
All localities	Total	8,292,112	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Male	4,170,606	50.3	52.4	45.9	51.4	47.5	48.8	51.4	50.8	52.7	49.1	48.2	48.2
	Female	4,121,506	49.7	47.6	54.1	48.6	52.5	51.2	48.6	49.2	47.3	50.9	51.8	51.8
Urban	Total	3,631,768	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Male	1,831,515	50.4	51.4	46.0	51.5	47.3	47.3	51.8	48.5	52.9	50.8	51.5	51.5
	Female	1,800,253	49.6	48.6	54.0	48.5	52.7	52.7	48.2	51.5	47.1	49.2	48.5	48.5
Rural	Total	4,660,344	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Male	2,339,091	50.2	52.9	45.9	50.4	47.5	49.5	51.1	52.1	52.7	48.7	47.6	47.6
	Female	2,321,253	49.8	47.1	54.1	49.6	52.5	50.5	48.9	47.9	47.3	51.3	52.4	52.4

Table 11.6: Distribution of economically active population 15 years and older by region, sex and locality of residence, 2000 and 2010 (Cont'd)

Sex/ Type of residence		Total	Western	Central	Greater Accra	Volta	Eastern	Ashanti region	Brong Ahafo	Northern	Upper East	Upper West
		N	%	%	%	%	%	%	%	%	%	%
2010												
Both Sexes	Total	10,876,470	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Urban	5,571,202	51.2	41.6	46.2	91.4	32.5	42.3	60.7	43.2	28.0	20.2
	Rural	5,305,268	48.8	58.4	53.8	8.6	67.5	57.7	39.3	56.8	72.0	79.8
Male	Total	5,587,590	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Urban	2,893,699	50.6	39.9	45.8	91.3	32.1	40.4	60.0	41.1	28.4	20.5
	Rural	2,693,891	49.4	60.1	54.2	8.7	67.9	59.6	40.0	58.9	71.6	79.5
Female	Total	5,288,880	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Urban	2,677,503	51.8	43.3	46.5	91.5	33.0	44.1	61.4	45.3	27.6	19.9
	Rural	2,611,377	48.2	56.7	53.5	8.5	67.0	55.9	38.6	54.7	72.4	80.1
All localities	Total	10,876,470	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Male	5,288,880	48.6	50.7	45.9	49.3	47.1	48.5	48.6	49.4	49.7	46.9
	Female	5,587,590	51.4	49.3	54.1	50.7	52.9	51.5	51.4	50.6	50.3	52.8
Urban	Total	5,571,202	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Male	2,677,503	48.1	48.6	45.5	49.3	46.4	46.3	48.0	46.9	50.4	47.7
	Female	2,893,699	51.9	51.4	54.5	50.7	53.6	53.7	52.0	53.1	49.6	52.3
Rural	Total	5,305,268	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	Male	2,611,377	49.2	52.2	46.2	49.7	47.4	50.2	49.4	51.3	49.5	46.8
	Female	2,693,891	50.8	47.8	53.8	50.3	52.6	49.8	50.6	48.7	50.5	53.2

Source: Ghana Statistical Service, 2010 Population and Housing Census

11.4.3 Activity rates of the economically active population

Measures that are related to the economically active population are generally referred to as economic activity rates. In Table 11.7, crude, general and refined activity rates have been computed by sex based on data from the 1960 to 2010 censuses. The crude economic activity rate was 38.9 percent in 1970, increased to 45.4 percent in 1984 and then fell to 43.9 percent in 2010. The rates for males were above 40 percent over the period between 1960 and 2010, but declined from 49.3 percent in 1960 to 43.7 percent in 2010. The female crude activity rate declined from 45.8 percent in 1984 to 44.0 percent in 2010.

The general economic activity rates for males were over 80 percent in 1960, 1970 and 1984, and below 70 percent for females in 1960 and 1970. The reported male general economic activity rates decreased from 89.0 percent in 1960 to 72.8 percent in 2010. The female general activity rate, on the other hand, increased from 56.7 percent in 1960 to 81.9 percent in 1984 and then declined to 69.6 percent in 2010.

The refined economic activity rates for both sexes were above 70 percent between 1960 and 2010. The highest rate of 83.2 percent was recorded in 1984. For the sexes, the highest refined activity rate for males was 90.1 percent in 1960, but this declined in the subsequent censuses to 78.2 percent in 2010, while the rates for females increased from 57.5 percent in 1960 to 82.9 percent in 1984, declining to 74.7 percent in 2000 and rising slightly to 76.0 percent in 2010.

Male activity rates were higher than those for females in all census years for the general and refined activity rate and all years except 1984 and 2010 for the crude activity rate. From the 1984 census to the 2010 PHC, the rates for males and females in all the indices were about the same, and could possibly reflect the methods used in data collection, and and/or changes in the structure of the economy of the country. The results indicate no systematic patterns in the indices calculated over the five censal years. This could be partly due to differences in the time frame for the collection of economic activity data. The differences between males and females in the rates also reflect the differences in reporting of economic activities (see also Ghana Statistical Service, 2005).

Table 11.7: Activity rates of the economically active population 15 years and above by sex, 1960, 1970, 1984, 2000 and 2010

Sex	Crude					General					Refined				
	1960	1970	1984	2000	2010	1960	1970	1984	2000	2010	1960	1970	1984	2000	2010
Both sexes	40.5	38.9	45.4	43.8	43.9	73.0	73.7	82.5	74.7	71.1	73.9	74.2	83.2	76.2	77.1
Male	49.3	43.8	44.9	44.6	43.7	89.0	83.5	83.5	76.7	72.8	90.1	84.1	83.6	77.7	78.2
Female	31.4	34.1	45.8	43.1	44.0	56.7	63.6	81.9	72.7	69.6	57.5	64.7	82.9	74.7	76.0

Sources: Ghana Statistical Service, 1960; 1970, 1984, 2000 and 2010 Population Censuses

11.4.4 Regional distribution of general activity rates

The regional distribution of general activity rates is shown in Table 11.8. All the regions show declining general economic activity rates between 1984 and 2010, with the exception of Greater Accra, Northern and Upper East Regions which showed a decline between 1984 and 2000, and increased slightly in 2010. The general economic activity rates for both males and females declined from the 1984 levels to below 75 percent in 2010 in all the regions.

The male general activity rates were consistently higher than that of females in all regions in 2000 and 2010. In 1984, the female general activity rates were higher than the male general activity rates in Western, Central, Volta, Eastern and Ashanti Regions. In the other regions, however, the male general activity rates were higher than that of females. Upper East, Brong Ahafo and Northern Regions reported the highest male general activity rates in 1984, 2000 and 2010 respectively and for females this was, respectively, Western, Brong Ahafo and Upper East Regions.

Table 11.8: General activity rates by sex and region, 1984, 2000 and 2010

Region	1984			2000			2010		
	Both sexes	Male	Female	Both sexes	Male	Female	Both sexes	Male	Female
Total	82.5	83.5	81.6	74.7	76.7	72.7	71.5	73.2	70.0
Western	85.2	84.7	85.7	77.3	79.1	75.4	70.4	72.1	68.7
Central	82.8	80.9	84.4	74.2	74.4	74.0	70.0	70.3	69.8
Greater Accra	77.4	81.0	73.9	70.8	73.1	68.6	71.2	73.4	69.2
Volta	82.6	79.7	85.0	72.4	73.1	71.7	69.9	70.9	69.0
Eastern	83.2	81.4	84.9	75.6	76.7	74.5	72.7	74.2	71.3
Ashanti	83.9	82.9	84.7	76.9	78.6	75.2	69.6	71.7	67.8
Brong Ahafo	84.5	84.6	84.3	79.3	80.3	78.2	74.7	76.1	73.4
Northern	78.4	89.5	68.2	74.3	79.3	69.4	74.8	77.2	72.6
Upper East	83.8	89.7	80.6	69.2	74.5	64.8	74.3	75.7	73.2
Upper West	86.2	89.0	84.1	73.9	78.1	70.4	70.2	71.4	69.2

Sources: Ghana Statistical Service, 1984, 2000 and 2010 Population Censuses.

11.4.5 Age-sex specific economic activity rate

The age-sex specific economic activity rates, presented in Table 12.9, show high rates among the 25-29 to 54-59 age groups as expected. Generally, the activity rates of males in the age groups 25-54 years are higher than that of their female counterparts. Male age specific rates for ages 25 to 54 years were above 95 percent in 1960, 1970 and 1984 but declined slightly to within 80 percent in 2000 and 2010.

Comparatively, the female age specific activity rates for ages 25-54 years were lower than that of the males in 1960 and 1970, rising to beyond 90 percent in 1984 before falling back to just under 90 percent in 2000 and 2010. The age-sex specific activity rates for both males and females for the 15-19 years were relatively low over the years and have shown an overall decline. This pattern is expected, as increasing numbers of males and females in this age group become either students or apprentices.

Table 11.9: Age-sex specific activity rates, 1960, 1970, 1984, 2000 and 2010

Age-group	Male					Female				
	1960	1970	1984	2000	2010	1960	1970	1984	2000	2010
15 -19	61.0	42.3	42.8	39.7	28.9	53.3	39.2	52.9	40.3	28.8
20 -24	90.9	82.6	83.0	69.5	60.4	52.7	61.4	85.4	70.5	64.1
25 -29	96.5	95.5	96.3	85.3	84.7	51.6	65.0	90.1	81.8	82.0
30- 34	97.5	97.5	97.7	92.6	92.3	57.4	71.5	91.3	86.7	86.9
35- 39	97.6	98.0	98.3	94.2	94.5	59.7	73.9	92.1	88.3	89.1
40- 44	97.4	97.8	98.4	94.4	94.8	65.6	77.9	92.7	88.6	89.9
45- 49	96.8	97.5	98.4	94.4	94.7	66.7	78.0	93.0	88.4	89.8
50- 54	95.8	96.6	97.6	93.4	93.2	70.1	79.0	91.8	85.4	86.6
55- 59	94.2	95.2	96.3	91.0	90.8	70.5	75.5	90.2	82.0	82.1
60- 64	89.5	91.6	94.2	80.3	78.9	64.3	71.1	85.9	71.7	70.2
65+	71.3	75.4	83.6	75.5	59.3	42.6	47.6	64.3	65.8	44.5

Sources: Ghana Statistical Service, 1960; 1970, 1984, 2000 and 2010 Population Censuses

11.5 The economically not active population

The proportion of the population aged 15 years and over that is economically not active decreased from 27.0 percent in 1960 to 17.5 percent in 1984, increased to 25.3 percent in 2000 and again to 28.9 percent in 2010. The proportion not economically active has remained around a quarter of the population over the past 50 years. Among males, the proportion increased from 11.0 percent in 1960 to 27.2 percent in 2010 and for females the proportion decreased from 43.3 percent in 1960 to 18.4 percent in 1984 and then increasing to 30.4 percent in 2010 (Table 11.10). The pattern in the female economically not active population could reflect socio-economic and cultural changes over time, including for example, declining emphasis on the homemaker role and increased opportunities for further study (see Table 11.12).

Table 11.10: Percentage of the economically not active population aged 15 years and above of the total population by sex, 1960, 1970, 1984, 2000 and 2010

Sex	Year	Population	Economically not active population	Not active population as a per cent of popn 15 yrs +
Both Sexes	1960	3,730,309	1,007,283	27.0
	1970	4,543,348	1,211,730	26.7
	1984	6,760,967	1,180,863	17.5
	2000	11,105,236	2,813,122	25.3
	2010	15,208,425	4,389,142	28.9
Male	1960	1,884,552	207,494	11.0
	1970	2,227,000	367,605	16.5
	1984	3,261,069	536,588	16.5
	2000	5,435,829	1,265,220	23.3
	2010	7,225,901	1,965,412	27.2
Female	1960	1,845,757	799,789	43.3
	1970	2,316,348	844,125	36.4
	1984	3,499,898	644,275	18.4
	2000	5,669,407	1,547,902	27.3
	2010	7,982,524	2,423,730	30.4

Sources: Ghana Statistical Service, 1960, 1970, 1984, 2000 and 2010 Population Censuses

11.5.1 Regional distribution of economically not active population

The proportions of the economically not active population in regions fluctuated within the 20-29 percentage band in 2000 and 2010. For 2010, the rates for Ashanti, Volta, Greater Accra and Central Regions were about 30 percent, the highest, and lowest in the Northern, Upper East and Brong Ahafo Regions at around 25 percent. Between 2000 and 2010, the rates increased in all the regions except in the Greater Accra, Northern and Upper East regions where they declined. In each of the regions, females were more likely to be economically not active than males (Table 11.11).

Table 11.11: Percentage of economically not active population aged 15 years and above by sex and region, 2000 and 2010

Region	2000			2010		
	Both sexes	Male	Female	Both sexes	Male	Female
Total	25.3	23.3	27.3	28.9	27.2	30.4
Western	22.7	20.9	24.6	29.8	28.1	31.5
Central	25.8	25.6	26.0	30.3	30.1	30.5
Greater Accra	29.2	26.9	31.4	29.1	26.9	31.1
Volta	27.6	26.9	28.3	30.4	29.4	31.3
Eastern	24.4	23.3	25.5	27.8	26.4	29.2
Ashanti	23.1	21.4	24.8	30.6	28.6	32.4
Brong Ahafo	20.7	19.7	21.8	25.6	24.2	26.9
Northern	25.7	20.7	30.6	25.7	23.4	27.9
Upper East	30.8	25.5	35.2	26.1	24.8	27.2
Upper West	26.1	21.9	29.6	30.5	29.3	31.5
N	2,813,122	1,265,220	1,547,902	4,389,142	1,965,412	2,423,730

Source: Ghana Statistical Service, 2010 Population and Housing Census

11.5.2 Functional Status of Economically not Active Population

The economically not active population is also analysed in terms of functional status (Table 11.12). The proportion of homemakers who were not economically active decreased from 68.3 percent in 1960 to 21.6 percent in 2010, and for females, the proportion decreased from 84.6 percent in 1960 to 28.8 percent in 2010. For males those who were economically not active and were homemakers increased from 5.4 percent in 1960 to 18.1 percent in 2000 and declined further to 12.7 percent in 2010 (Table 12.12). These results are expected because, traditionally, females were regarded as homemakers. But it appears the practice is changing hence the decrease in the proportion of female homemakers over time.

The proportion of the economically not active who were students was 57.0 percent in 1984, the highest within the period, and 51.3 percent in 2010. The male student proportion increased from 59.8 percent in 1960 to 79.4 percent in 1984 but decreased to 62.4 percent in 2010. On the other hand, the female student proportion increased about 10 times between 1960 and 2010, rising from 4.3 percent in 1960 to 42.4 percent in 2010. It would appear that the declining proportion of economically not active women who were homemakers could be related to the increase in the proportion of females in formal education.

The proportions of the economically not active population who could not work as a result of either some form of disability or too sick to work or old age, were relatively low during the period. The male proportion decreased from 29.7 percent in 1960 to 11.9 percent in 2010²⁸. However, the female proportion increased from 10.8 percent in 1960 to 19.6 percent in 2010.

²⁸In 1960, 1970 and 1984 “old age” was included with the category “persons with disability/ too sick” but was made a separate category in 2000 and 2010. For the purposes of this analysis the proportion old age has been added to the persons with disability/ sick.

Table 11.12: Percentage distribution of economically not active population aged 15 years and above by sex and functional category, 1960, 1970, 1984, 2000 and 2010

Status	Sex	1960	1970	1984	2000	2010
Home maker	Total	68.3	51.6	26.1	27.7	21.6
	Male	5.4	5.9	5.7	18.1	12.7
	Female	84.6	71.5	43.1	35.5	28.8
Students	Total	15.8	32.7	57.0	33.3	51.3
	Male	59.8	72.5	79.4	42.4	62.4
	Female	4.3	15.4	16.6	25.8	42.4
Old age	Total	-	-	-	11.8	11.5
	Male	-	-	-	9.0	7.5
	Female	-	-	-	14.2	14.8
Persons with disability/too sick*	Total	14.7	13.7	13.5	3.4	4.7
	Male	29.7	16.9	9.9	3.6	4.4
	Female	10.8	12.4	16.6	3.1	4.8
Income recipient/retired/pensioner	Total	0.3	0.7	1.5	3.4	3.3
	Male	1.4	1.8	2.6	5.0	4.8
	Female	0.0	0.2	0.6	2.1	2.0
Others	Total	0.9	1.3	1.9	20.4	7.6
	Male	3.6	3.0	2.4	21.9	8.1
	Female	0.3	0.5	1.4	19.2	7.2
N	Total	1,007,238	1,221,730	1,180,863	2,813,122	4,389,142
	Male	207,494	367,605	536,588	1,265,220	1,965,412
	Female	799,789	844,125	644,275	1,547,902	2,423,730
Sex ratio		25.9	43.5	83.3	81.7	81.1

Sources: Ghana Statistical Service, 1960; 1970, 1984, 2000 and 2010 Population Censuses

Note: * includes old age for 1960, 1970 and 1984

11.6 Employed population

11.6.1 Size of the employed population

The proportions of the population aged 15 years and older who were employed in 1960, 1970 and 2000 were below 40.0 percent and slightly above 40.0 percent for 1984 and 2010. Over the period, the highest proportion was 44.1 percent in 1984. The proportion of the male population employed declined from 46.1 percent in 1960 to 41.6 percent in 2010, while that of females increased slightly from 29.8 percent in 1960 to 32.8 percent in 1970 and then to 44.7 percent in 1984 before declining to 41.5 percent in 2010. Nearly 42 percent of males and females aged 15 years and older were employed in 2010 (Table 11.13). Of the population employed in 2010, over 90 percent of those who were economically active was employed and the proportions were 95.2 percent for males and 94.2 females.

Table 11.13: Percentage of the employed persons of the total population and economically active population and sex ratio of the employed persons aged 15 years and above by sex: 1960, 1970, 1984, 2000 and 2010

Selected indicator	Sex	1960	1970	1984	2000	2010
Employed as % of total population	Both					
	Sexes	38.0	36.6	44.1	39.2	41.5
	Male	46.1	40.4	43.5	40.1	41.6
Employed as % of economically active population	Female	29.8	32.8	44.7	38.5	41.5
	Both					
	Sexes	94.0	94.0	97.2	89.6	94.7
Sex ratio of the employed	Male	93.5	92.3	96.8	89.9	95.2
	Female	94.8	96.1	97.5	89.3	94.2
		158.2	121.4	94.7	101.9	95.6
N	Both					
	Sexes	2,559,383	3,133,049	5,422,480	7,428,374	10,243,476
	Male	1,567,965	1,717,928	2,637,029	3,748,887	5,005,534
	Female	991,418	1,415,119	2,785,451	3,679,487	5,237,942

Sources: Ghana Statistical Service, 1960; 1970, 1984, 2000 and 2010 Population Censuses

11.6.2 Regional distribution of the employed population

The 2010 census results show that 57.0 percent of the workforce was in Ashanti, Greater Accra, Northern and Eastern Regions, a reflection of the distribution of population in the country. The shares of the workforce in the Upper East and Upper West Regions were 2.8 percent and 3.9 percent respectively in 2000 and 4.3 percent and 2.7 percent respectively in 2010, similar to their proportions in the total population (Table 11.14).

Table 11.14: Percentage distribution of employed persons aged 15 years and above by sex and region, 2000 – 2010

Region	2000			2010		
	Total	Male	Female	Total	Male	Female
Western	10.5	10.9	10.1	9.4	9.8	9.0
Central	8.3	7.6	9.0	8.6	8.1	9.1
Greater Accra	16.1	16.4	15.7	17.6	17.8	17.4
Volta	8.7	8.2	9.2	8.5	8.2	8.8
Eastern	11.4	11.1	11.8	10.9	10.8	10.9
Ashanti	19.3	19.7	18.8	18.8	18.9	18.7
Brong Ahafo	10.2	10.4	10.1	9.6	9.8	9.5
Northern	8.9	9.3	8.4	9.6	9.8	9.4
Upper East	3.9	3.8	4.0	4.3	4.1	4.5
Upper West	2.8	2.6	2.9	2.7	2.6	2.8
Total (%)	100.0	100.0	100.0	100.0	100.0	100.0
N	7,428,374	3,748,887	3,679,487	10,243,476	5,005,534	5,237,942

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses.

11.6.3 Sex and age composition of the employed population

The age structure of the population employed indicated that the age group 25-44 years accounted for over 50 percent of the employed persons in both 2000 and 2010 (Table 11.15). The proportion declines sharply to 23.1 percent among the age group 45-64 years in 2010. By age 65 years and above, about six percent were reportedly employed in 2010. The proportion employed among the 15-24 year-age group was 20 percent for both 2000 and 2010. This is expected as it is the period of schooling and apprenticeship. The proportions of the workforce aged 15-24 years and 65 years and above declined slightly between 2000 and 2010.

Table 11.15: Percentage of employed persons aged 15 years and above by age and sex: 2000 and 2010

Age group	Sex	2000	2010
15 – 24	Total	21.0	19.1
	Male	20.3	18.7
	Female	21.8	19.4
25 – 44	Total	50.3	52.1
	Male	49.2	51.8
	Female	51.5	52.5
45 – 64	Total	21.8	23.1
	Male	22.9	23.7
	Female	20.6	22.5
65+	Total	6.8	5.7
	Male	7.6	5.8
	Female	6.1	5.6
All Ages	Total	100.0	100.0
	Male	100.0	100.0
	Female	100.0	100.0
N	Total	7,428,374	10,243,476
	Male	3,748,887	5,005,534
	Female	3,679,487	5,237,942

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses.

11.6.4 Educational level of the employed population

The level of education among the Ghanaian workforce has varied considerably over the last five decades. In 1960, 81.6 percent of the employed person had no formal education. By 2010, the proportion employed who had no formal education was 33 percent. This is one area where there has been considerable change in the country. The change is particularly noticeable among females. In 1960, 90.6 percent of the employed females had no formal education, by 2010, the proportion was 39.2 percent (Table 11.16).

Table 11.16: Percentage distribution of employed persons aged 15 years and above by level of school attended: 1960, 1970, 1984, 2000 and- 2010

Educational attainment	Sex	1960	1970	1984	2000	2010
None	Total	81.6	72.2	55.1	49.2	33.0
	Male	75.9	63.5	45.5	42.1	26.4
	Female	90.6	82.7	64.3	56.6	39.2
Primary	Total	6.2	7.9	8.5	5.6	11.4
	Male	7.1	8.2	7.9	5.1	9.9
	Female	4.7	7.4	9.1	6.1	12.8
Middle/JSS/JHS	Total	10.3	14.9	30.1	28.9	36.5
	Male	14.3	20.4	37.3	32.6	39.5
	Female	4.0	8.3	23.3	25.0	33.6
Secondary/SSS/SHS	Total	0.9	2.8	3.2	6.6	9.8
	Male	1.4	4.8	4.9	8.6	12.4
	Female	0.2	0.5	1.6	4.7	7.3
Commercial/Technical/ Vocational	Total	0.5	0.7	1.5	3.9	2.6
	Male	0.6	1.1	2.1	4.8	2.8
	Female	0.3	0.3	0.3	3.1	2.3
Teacher/Training/Post Secondary	Total	0.2	1.0	1.1	3.2	4.3
	Male	0.2	1.3	1.4	3.5	5.4
	Female	0.1	0.6	0.7	2.9	3.3
University / Tertiary	Total	0.2	0.4	0.5	2.5	2.5
	Male	0.2	0.6	0.8	3.4	3.5
	Female	0.0	0.2	0.1	1.5	1.4
All School Types	Total	100.0	100.0	100.0	100.0	100.0
	Male	100.0	100.0	100.0	100.0	100.0
	Female	100.0	100.0	100.0	100.0	100.0
N	Total	2,559,383	3,133,047	5,422,480	7,428,374	10,243,476
	Male	1,567,965	1,717,928	2,637,029	3,748,887	5,005,534
	Female	991,418	1,415,119	2,785,451	3,679,487	5,237,942

Source: Ghana Statistical Service, 1960; 1970, 1984, 2000 and 2010 Population Censuses

The proportion of the workforce with Middle/JSS/JHS education increased from 10.3 percent in 1960 to 36.5 percent in 2010, with the proportion for males increasing from 14.3 percent in 1960 to 39.5 percent in 2010 and that of females from 4.0 percent to 33.6 percent within the period. Nevertheless, of the male workforce, 49.4 percent had only up to Middle/JSS/JHS education and 12.4 percent with secondary school education in 2010. Among females who were employed, only 7.3 percent had had formal education up to secondary school level in 2010.

For both males and females, the proportions of the workforce that had had commercial or technical/vocational and university/tertiary education have been relatively low: the proportion of the workforce with tertiary education was 2.5 percent in both 2000 and 2010. The proportion of the employed males with tertiary education was 3.5 percent and that of females was 1.4 percent

2010. Although the proportion of the employed population with tertiary education increased from 0.8 percent for males and 0.1 percent for females in 1984, to the levels observed in 2010, these rates appeared to be low. This is one area where the country will have to pay attention to (also see section 7.7).

11.6.5 Occupation of the employed population

About 40 percent of workers were engaged as skilled agricultural, forestry and fishery workers (41.7%). This was followed by service and sales workers (21.0%), craft and related trade workers (15.2%). The two leading occupational categories do not require highly skilled expertise and therefore high educational training. The proportions of the occupations which required high skills and years of training such as professionals, managers and technicians accounted for 9.5 percent of the employed persons.

Table 11.17: Percentage distribution of employed persons by occupation, sex and locality of residence: 2010

Type of occupation	Both sexes	Male	Female	Urban	Rural
Managers	2.4	2.5	2.4	3.9	1.0
Professionals	5.3	6.7	4.1	8.1	2.6
Technicians and associate professionals	1.8	2.8	0.9	3.0	0.7
Clerical support workers	1.4	1.6	1.3	2.5	0.4
Service and sales workers	21.0	10.2	31.4	32.2	9.8
Skilled agricultural, forestry and fishery workers	41.7	45.3	38.3	14.0	69.5
Craft and related trades workers	15.2	16.8	13.6	20.5	9.9
Plant and machine operators, and assemblers	4.9	9.5	0.6	6.6	3.2
Elementary occupations	5.9	4.3	7.5	9.0	2.9
Other occupations	0.2	0.3	0.1	0.3	0.0
All occupations	100.0	100.0	100.0	100.0	100.0
N	10,243,476	5,005,534	5,237,942	5,125,635	5,117,841

Source: Ghana Statistical Service, 2010 Population and Housing Census

The proportion of males in the various occupational categories was higher than for females, the only exceptions being service and sales workers and elementary occupations. Skilled agricultural, forestry and fishery workers and Service and sale workers accounted for nearly seven in every ten employed females in 2010. Finally, in relative terms there are higher proportions of workers in all occupational categories in urban localities than rural localities, except in skilled agricultural, forestry and fishery category which accounts for 69.5 percent of employment in rural areas and 14 percent in urban areas (Table 11.17).

11.6.6 Industry of the employed population

Agriculture, including forestry and fishing, constituted the largest industry employing 42.0 percent of the workforce aged 15 years and above in 2010. Other major industries were wholesale and retail; repair of motor vehicles and motorcycles (18.7%), manufacturing (10.7%) and accommodation and food service activities (5.4%) (Table 11.18).

Forty-six percent of the employed males was 45.9 percent for agriculture, including forestry and fishing, 12.3 percent for wholesaling, retail and repair of motor vehicles and motorcycles and 8.8 percent in manufacturing. For females, the proportions were 38.3 percent in agriculture, 24.9 percent in wholesale and retail, 12.5 percent in manufacturing and 9.3 percent in accommodation and food service activities. Compared to males, higher proportions of the female workforce were engaged in the wholesale and retail, repair of motor vehicles and motorcycles, manufacturing and accommodation and food services sectors.

Table 11.18: Percentage distribution of employed persons aged 15 years and above by industry, sex and locality of residence, 2010

Major industry	Total	Male	Female	Urban	Rural
Agriculture forestry and fishing	42.0	45.9	38.3	14.7	69.4
Mining and quarrying	1.1	1.8	0.4	0.9	1.3
Manufacturing	10.7	8.8	12.5	13.7	7.7
Electricity gas stream and air conditioning supply	0.2	0.3	0.1	0.3	0.0
Water supply; sewerage waste management and remediation activities	0.2	0.3	0.2	0.4	0.1
Construction	3.0	6.0	0.2	4.5	1.6
Wholesale and retail; repair of motor vehicles and motorcycles	18.7	12.3	24.9	29.0	8.4
Transportation and storage	3.5	6.8	0.3	5.3	1.7
Accommodation and food service activities	5.4	1.3	9.3	7.9	2.9
Information and communication	0.4	0.6	0.2	0.7	0.1
Financial and insurance activities	0.7	0.9	0.5	1.2	0.1
Real estate activities	0.0	0.1	0.0	0.1	0.0
Professional scientific and technical activities	0.9	1.1	0.7	1.5	0.3
Administrative and support service activities	0.6	1.0	0.3	1.0	0.2
Public administration and defence	1.5	2.2	0.8	2.5	0.5
Education	3.9	4.5	3.3	5.6	2.2
Human health and social work activities	1.2	1.1	1.3	1.9	0.5
Arts entertainment and recreation	0.6	1.0	0.1	0.9	0.2
Other service activities	4.5	3.3	5.7	6.9	2.1
Activities of households as employers	0.7	0.7	0.8	0.9	0.6
Activities of extraterritorial organizations	0.0	0.0	0.0	0.1	0.0
All industries	100.0	100.0	100.0	100.0	100.0
N	10,243,476	5,005,534	5,237,942	5,125,635	5,117,841

Source: Ghana Statistical Service, 2010 Population and Housing Census

In the rural areas, agriculture, including forestry and fishing employed 69.4 percent of the workforce. Those employed in the wholesale and retail and the repair of motor vehicles and motorcycles sector were 8.4 percent and 7.7 percent in manufacturing in the rural economy. The wholesale and retail; repair of motor vehicles and motorcycles accounted for 29.0 percent and agriculture, including forestry and fishing for 14.7 percent and manufacturing, 13.7 percent of the employed populations in urban areas.

11.6.7 Employment status of the employed population

The employment status data presented in Table 11.19 show that 68.2 percent and 60.0 percent of the workforce were self-employed without employees in 2000 and 2010 respectively. The corresponding proportions for females were 73.9 and 65.3 percent and for males 62.5 and 54.6 percent, confirming the usual observation that females are more likely to be self-employed without employees than males in the country (Ghana Statistical service, 2005).

Given the drive by government for the private sector to generate employment on the country one would expect the proportion of the self-employed with employees to increase during the period 2000-2010 (National Development and Planning Commission, 2010). In 2000 and 2010, self-employed with employees accounted for 5.2 percent and 4.9 percent respectively in of the employed population in 2000 and 2010. The proportion of male who were self-employed with employees was 5.5 percent while that of females was 5.0 percent in 2000. In 2010, the proportion of self-employed with employees was 5.6 percent for males and 4.2 percent for females.

The proportion of employed people who were employees increased from 16.0 percent in 2000 to 18.2 percent in 2010. Relatively large proportions of males (25.3%) were employees in 2010 compared with females (11.2%). Contributing family workers comprised 6.7 percent while apprentices were 2.8 percent. In 2000 contributing female family workers constituted 7.8 percent of the employed population and 14.4 percent in 2010 while among males the proportions were 5.7 percent in 2000 and 8.8 percent in 2010.

Table 11.19: Percentage distribution of employed persons aged 15 years and above by employment status and sex, 2000 and 2010

Employment status	2000			2010		
	Both sexes	Male	Female	Both sexes	Male	Female
Employee	16.0	21.9	9.9	18.0	25.0	11.2
Self-employed without employees	68.2	62.5	73.9	60.1	54.6	65.3
Self-employed with employees	5.2	5.5	5.0	4.9	5.6	4.2
Casual worker*	-	-	-	2.0	2.7	1.2
Contributing family worker	6.7	5.7	7.8	11.7	8.8	14.4
Apprentice	2.8	3.2	2.4	2.7	2.5	2.9
Domestic employee (house-help)	0.7	0.6	0.7	0.6	0.6	0.7
Other	0.5	0.6	0.4	0.2	0.2	0.1
All statuses	100.0	100.0	100.0	100.0	100.0	100.0
N	7,428,374	3,748,887	3,679,487	10,243,476	5,005,534	5,237,942

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses.

Note: The 2000 Population and Housing Census did not have the starred category

11.6.8 Self-employment

The proportion of the employed population aged 15 years and over which was self-employed declined from 80.6 percent in 2000 to 65.9 percent in 2010 (Table 11.20). For females, the

proportion which was self-employed females was 86.8 percent in 2000 and 69.4 percent in 2010 and that of males were 74.5 percent in 2000 and 60.2 percent in 2010.

In 2010, 75.3 percent of the employed population in the Volta Region was self-employed, the highest in the country. This was followed by Eastern Region with 72.4 percent. The two regions which reported the lowest percentages of self-employed populations were Greater Accra region (55.7%) and Upper West (55.5%). Among males, Greater Accra region had the lowest proportion of self-employed persons (44.4%) and for females it was Upper West region (55.5%). Volta Region had the highest proportion of self-employed for males and females: over seven in every ten for males and nearly eight in every ten for females. The decline in the proportions of the employed that are self-employed between 2000 and 2010 observed at the national level occurred in all the regions and for both sexes.

Table 11.20: Percentage of self-employed persons of the total employed persons aged 15 years and above by sex and region, 2000 and 2010

Region	2000			2010		
	Both sexes	Male	Female	Both sexes	Male	Female
Total	80.6	74.5	86.8	64.9	60.2	69.4
Western	79.5	73.1	86.6	63.6	58.6	68.7
Central	86.1	77.8	93.2	69.2	61.8	75.6
Greater Accra	68.1	56.4	80.6	55.7	44.0	67.3
Volta	87.3	82.9	91.3	75.3	71.5	78.7
Eastern	88.7	83.0	94.1	72.4	67.6	77.0
Ashanti	80.0	73.0	87.5	65.5	59.6	71.3
Brong Ahafo	85.2	81.9	88.7	66.2	65.4	67.0
Northern	74.1	75.3	72.7	61.8	65.8	57.9
Upper East	96.2	95.2	97.2	64.3	65.7	63.1
Upper West	71.9	73.2	70.8	55.5	61.2	50.5
N	5,458,245	2,551,087	2,907,158	6,649,856	3,013,813	3,636,043

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses.

In 2000, the age group 15-34 years reported the highest proportion of self-employed with 47.6 percent, while in 2010 the age group with the largest proportion of self-employed persons was in the 35-59 years age group, which was 48.0 percent (Table 11.21). A little over (11.5%) of those self-employed were aged 60 years and over, for the total and males and females.

Table 11.21: Percentage distribution of self-employed aged 15 year and above by age and Sex, 2000 and 2010

Age Group	2000			2010		
	Both Sexes	Male	Female	Both Sexes	Male	Female
Total	100.0	100.0	100.0	100.0	100.0	100.0
15 – 34	47.6	45.7	49.3	40.5	38.4	42.2
35 – 59	41.0	41.7	40.4	48.0	49.1	47.1
60+	11.4	12.6	10.3	11.5	12.5	10.7
N	5,458,245	2,551,087	2,907,158	6,791,553	3,057,875	3,733,678

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses.

11.6.9 Employment sector of the employed population

The results show that the private informal sector was the largest employer in the country: 83.9 percent in 2000 and 86.2 percent in 2010. The proportions of employed females working in the private informal sector were 88.8 percent in 2000 and 91.0 percent in 2010 while that of males was 79.1 percent in 2000 and 81.2 percent in 2010. Thus, irrespective of sex, the private informal sector was the dominant employer of the workforce (Table 11.22). This could account for the relatively low levels of educational and professional training among the employed population, since these sectors do not require high levels of formal education.

Among the workforce 8.5 percent was employed in the private formal sector in 2010, but this declined to 6.8 percent in 2010. The public sector, covering Government Ministries, Departments and Agencies, employed 6.2 percent of the total employed population in 2010. The proportion of males and females employed in the public sector were 8.1 percent and 4.5 percent respectively in 2010 (Table 11.22).

Table 11.22: Percentage distribution of employed persons aged 15 years and above by sex and employment sector, 2000 – 2010

Employment sector	2000			2010		
	Both Sexes	Male	Female	Both Sexes	Male	Female
Public	6.4	8.3	4.5	6.2	8.1	4.5
Private formal	8.5	10.9	6.0	6.8	9.7	4.1
Private informal	83.9	79.1	88.8	86.2	81.2	91.0
Semi-public/Parastatal	0.8	1.2	0.4	0.1	0.2	0.1
NGO (Local and International)	0.4	0.5	0.2	0.5	0.7	0.3
International Organizations*	-	-	-	0.05	0.1	0.03
Other**	0.1	0.1	0.0	-	-	-
All sectors	100.0	100.0	100.0	100.0	100.0	100.0
N	7,428,374	3,748,887	3,679,487	10,243,447	5,005,522	5,237,925

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses.

Note: Whereas the 2000 Census did not have “International Organizations” as a category, the 2000 Census did not have “Other” as a category.

11.7 Unemployed population

In the 2010 census, the unemployed population was defined as any person 15 years and above who, during the reference period, had no fixed job, was not seeking for job and was not available for work. Although the reference period has varied over the last five censuses, the definition provides a reference point for measurement. The proportion defined as unemployed was 2.8 percent in 1984 and increased to 10.4 percent in 2000 and declined to 5.3 percent in 2010. The increase between 1984 and 2000 occurred in both urban and rural areas as well as among males and females. The unemployment rates were higher in the urban areas than the rural areas for the total as well as among males and females in the three last censuses: 1984, 2000 and 2010 (Table 11.23).

**Table 11.23: Unemployment rates of persons aged
15 years and above by sex and
locality of residence, 1984, 2000 and 2010**

Year	Locality	Both sexes	Male	Female
1984	Total	2.8	3.2	2.5
	Urban	6.0	6.6	5.5
	Rural	1.4	1.6	1.1
2000	Total	10.4	10.1	10.7
	Urban	12.8	12.4	13.1
	Rural	8.6	8.3	8.9
2010	Total	5.3	4.8	5.8
	Urban	7.4	6.9	7.9
	Rural	3.1	2.8	3.5

Sources: Ghana Statistical Service, 1984, 2000 and 2010 Population Censuses.

Generally, the unemployment rates in 2000 were higher than those in 2010 in all regions (Table 11.24). Upper East region reported the highest unemployment rate of 20.1 percent in 2000 but the lowest rate of 2.8 percent in 2010. Unemployment rates were consistently lower in the Brong-Ahafo and Volta regions in both 2000 and 2010 (Table 11.24). While the lowest rate for males was 2.7 percent in Northern region, the lowest for females was 2.9 percent in the Upper East region.

As indicated in the table, unemployment rates among females were higher than those of males, and in both urban and rural areas except for Upper East and Western regions where the rates were the same. Among the regions, unemployment rates were highest for both males (7.4%) and females (8.2%) in the Greater Accra region. For urban areas, the highest proportions were 8.9 percent for males and 10.3 percent for females in Upper West region. The Upper West region reported the highest urban unemployment rate in 2010 at 9.6 percent and the Northern region the lowest rural unemployment rate at 1.7 percent.

The highest rural unemployment rates were 5.4 percent and 6.9 percent for males and females respectively and these were in the Greater Accra region. The Northern region has the lowest unemployed males (1.4%) in the rural areas. The high unemployment rates for 2000 compared to 2010 could be due to the period within which the two censuses were conducted. In 2000, the census was held in March-April during the dry season while in 2010, it was in September-October, the peak of the rainy season in the northern part of the country. Thus, the data should be interpreted with care.

Table 11.24: Unemployment rates of persons aged 15 years and above by region, sex and locality of residence, 2000 and 2010

Regions	Total			Urban			Rural		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
				2000			2000		
Total	10.4	10.1	10.7	12.8	12.4	13.1	8.6	8.3	8.9
Western	8.8	8.8	8.7	12.4	12.9	11.8	6.8	6.7	7.0
Central	8.1	7.8	8.3	10.2	9.9	10.4	6.9	6.6	7.0
Greater Accra	13.4	13.0	13.8	13.9	13.4	14.3	9.7	9.3	10.2
Volta	7.5	7.2	7.7	9.0	8.9	9.1	7.0	6.7	7.3
Eastern	8.4	8.1	8.7	10.2	10.2	10.2	7.5	7.0	7.9
Ashanti	11.3	10.9	11.7	14.4	13.7	15.2	8.1	7.9	8.2
Brong Ahafo	7.3	6.7	8.0	10.0	9.0	10.8	5.8	5.4	6.3
Northern	9.5	8.9	10.1	12.7	11.9	13.6	8.5	8.0	9.0
Upper East	20.1	20.4	19.7	14.9	14.7	15.0	21.0	21.5	20.5
Upper West	15.0	14.8	15.2	18.6	17.1	20.1	14.3	14.3	14.3
				2010					
Total	5.3	4.8	5.8	7.4	6.9	7.9	3.1	2.8	3.5
Western	5.6	5.3	5.8	8.4	8.4	8.5	3.5	3.2	3.8
Central	5.2	5.0	5.3	6.8	6.6	7.0	3.7	3.5	3.9
Greater Accra	7.8	7.4	8.2	7.9	7.6	8.3	6.1	5.4	6.9
Volta	3.7	3.5	3.9	5.3	5.1	5.4	2.9	2.7	3.1
Eastern	5.0	4.5	5.4	6.7	6.5	6.9	3.7	3.2	4.3
Ashanti	6.6	5.5	7.5	8.0	6.8	9.2	4.3	3.6	4.9
Brong Ahafo	3.9	3.2	4.5	5.8	4.9	6.6	2.4	2.0	2.8
Northern	3.0	2.7	3.3	6.4	5.9	6.9	1.7	1.4	1.9
Upper East	2.8	2.8	2.9	6.7	6.4	7.0	1.9	1.8	1.9
Upper West	3.2	2.9	3.4	9.6	8.9	10.3	2.1	1.9	2.2

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses.

In 2010, about 59 percent of the unemployed persons were seeking for work for the first time and 41.0 percent had worked before. More than 60.0 percent of unemployed males and 55.0 percent of the unemployed females were first time job seekers. This pattern is reflected in all regions, for males and females, though with varying proportions: ranging from 56.1 percent in the Greater Accra Region to 47.4 percent and 47.4 percent in the Upper West and Northern Regions respectively (Table 11.25).

Table 11.25: Percentage distribution of unemployed persons aged 15 years and above by sex and region, 2010

Status	All Regions	Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brony Ahafo	Northern	Upper East	Upper West
Total unemployed											
Both Sexes	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Male	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Female	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Worked before											
Both Sexes	41.0	37.6	40.8	43.9	39.5	35.8	40.0	33.4	52.6	48.3	52.6
Male	37.1	35.5	36.7	40.2	36.5	32.1	34.7	30.0	46.6	45.2	48.4
Female	44.1	39.5	44.1	47.1	42.0	38.7	43.6	35.8	57.4	50.9	55.8
Seeking work first time											
Both Sexes	59.0	62.4	59.2	56.1	60.5	64.2	60.0	66.6	47.4	51.7	47.4
Male	62.9	64.5	63.3	59.8	63.5	67.9	65.3	70.0	53.4	54.8	51.6
Female	55.9	60.5	55.9	52.9	58.0	61.3	56.4	64.2	42.6	49.1	44.2
N								135,54			12,85
Both sexes	575,807	56,494	47,863	152,040	33,557	58,348	7	39,583	30,475	9	9,041
Male	254,955	27,229	21,082	71,139	14,922	25,679	55,387	16,167	13,561	5,863	3,926
Female	320,852	29,265	26,781	80,901	18,635	32,669	80,160	23,416	16,914	6,996	5,115

Source: Ghana Statistical Service, 2010 Population and Housing Census

11.7.1 Age structure of unemployed persons

Generally, the proportion unemployed decreased with increasing age. In 2010, 42.7 percent of the unemployed population were aged 15-24 years, 46.2 percent aged 25-44 years, 9.9 percent aged 45-64 years and 1.3 percent aged 65 years and older. In all the four censal years examined, the proportion of unemployed persons was highest among those aged 15-24 years except for 2000. In 1984, this proportion was nearly three-quarters, and with the same levels for both males and females (Table 11.26). These results are expected as the 15-24 year-olds are those who have completed one level of education or the other and are entering the job market for the first time.

Table 11.26: Percentage distribution of unemployed persons by broad age groups and sex: 1960, 1970, 1984, 2000 and 2010

Age Group	Sex	1960	1970	1984	2000	2010
Total		100.0	100.0	100.0	100.0	100.0
N	Both Sexes	163,643	198,571	157,646	863,740	632,994
	Male	109,093	141,467	87,452	421,722	283,346
	Female	54,550	57,107	70,194	442,018	349,648
15 – 24	Both Sexes	63.8	71.7	74.5	36.1	45.6
	Male	59.9	67.5	70.5	35.8	45.5
	Female	71.7	82.0	79.5	36.5	36.9
25 – 44	Both Sexes	28.2	24.6	21.8	38.4	42.0
	Male	32.5	28.2	25.9	37.0	41.8
	Female	19.5	15.6	16.7	39.7	42.2
45 – 64	Both Sexes	6.4	3.2	2.6	15.6	9.0
	Male	6.3	3.8	2.8	16.0	9.5
	Female	6.6	1.8	2.4	15.3	8.6
65+	Both Sexes	1.6	0.6	1.1	9.8	3.4
	Male	1.4	0.5	0.8	11.2	3.2
	Female	2.2	0.6	1.3	8.6	3.6

Sources: Ghana Statistical Service, 1960, 1970, 1984, 2000 and 2010 Population Censuses.

12.7.2 Educational level of unemployed persons

Table 11.27 shows that unemployment rates were highest among persons with secondary school education in both 2000 and 2010 at 9.6 percent and 19.7 percent respectively. The next group which recorded relatively high unemployment rates was persons with tertiary education: 2.7 percent in 2000 and 9.1 percent in 2010. Generally, female unemployment rates were higher than male unemployment rates at every level of education. Unemployment rates were lowest among those with no formal education (17.0% in 2010) with similar pattern for males and females. Given the unemployment rates by age and education, one can infer that unemployment is associated with the transition period for young people from the world of education to that of work.

**Table 11.27: Unemployment rates of persons aged 15 years and above
by educational level and sex, 2000 and 2010**

Level of Education	2000			2010		
	Both Sexes	Male	Female	Both Sexes	Male	Female
Total	100.0	100.0	100.0	100.0	100.0	100.0
None	44.7	39.2	49.9	17.0	12.7	20.4
Pre and primary school	5.9	5.4	6.4	13.9	12.2	15.3
Middle /JSS /JHS	29.5	31.6	27.4	35.4	34.2	36.4
Secondary/SSS/SHS	9.6	11.8	7.6	19.7	22.9	17.2
Vocational/Technical/Comm	4.8	5.6	4.0	3.7	3.9	3.5
Post Middle/Secondary	2.8	3.1	2.5	1.2	1.3	1.1
Tertiary	2.7	3.2	2.1	9.1	12.9	6.1
N	863,740	421,722	442,018	575,807	254,955	320,852

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses

11.7.3 Previous Occupation of Unemployed persons

Among the unemployed persons were those who had ever worked, of that proportion, 32.4 percent were previously employed in service and sales work, 16.7 percent were in craft and related trades workers while 9.9 percent were engaged in elementary occupations. The nature of unemployed varied by rural-urban location and by sex. For the unemployed males who ever worked, the highest proportion was 19.7 percent for those who were in craft and related trades followed by those in services and sales. Among females, half of the total unemployed persons were in service and sales, with the proportions being 48.9 percent in urban areas and 31.7 percent in rural areas (Table 12.28). The lowest unemployment rates were among those in skilled agriculture, forestry and related occupations. These are areas where people were more likely to be self-employed.

**Table 11.28: Percentage distribution of unemployed persons
(in previous employment) aged 15 years and older by occupation,
sex and locality of residence, 2010**

Occupation	Both sexes			Male			Female		
	All localities	Urban	Rural	All localities	Urban	Rural	All localities	Urban	Rural
Managers	5.5	6.0	4.2	5.7	6.4	3.7	5.4	5.7	4.6
Professionals	5.4	6.0	3.9	7.7	8.4	5.8	3.9	4.4	2.7
Technicians and associate professionals	2.5	3.0	1.1	4.3	5.2	1.8	1.2	1.5	0.7
Clerical support workers	2.8	3.5	0.9	2.7	3.4	1.1	2.8	3.5	0.7
Service and sales workers	32.4	36.1	22.7	14.9	17.1	9.1	44.1	48.9	31.7
Skilled agricultural, forestry and fishery workers	18.3	10.1	39.8	22.1	13.2	45.9	15.8	8.0	35.9
Craft and related trades workers	16.7	17.3	15.2	19.7	21.4	15.2	14.7	14.5	15.1
Plant and machine operators	6.4	6.7	5.6	14.9	15.9	12.5	0.7	0.6	1.0
Elementary occupations	9.9	11.3	6.5	7.7	8.8	4.9	11.4	12.9	7.5
Other occupation	0.1	0.1	0.0	0.2	0.3	0.1	0.0	0.0	0.0
All occupation	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	236,009	170,534	65,475	94,639	68,624	26,015	141,370	101,910	39,460

Source: Ghana Statistical Service, 2010 Population and Housing Census

11.8 Children in Employment

The 1998 Children's Act of Ghana stipulates that children under 15 years of age are not expected to be employed. However, children between 15 and 18 years can be engaged in 'light' family work. To obtain information about children in the labour force in the country, data were recorded for children aged 7-14 years in the 2000 census and 5-14 years in 2010. The change to 5-14 years as the points for data collection in the 2010 census was in response to the recommendation from the 2010 round of censuses (United Nations, 2010). Due to the differences in the data points the results from the two censuses cannot be compared.

From Table 11.29, 6,044,992 children aged 5-14 years were economically active in 2010. Of that number, 11.6 percent was economically active. The regions with the highest proportions of economically active children in 2010 were the Northern (31.6%), Upper West (25.6%) and Upper East (23.4%) regions. The lowest proportions of economically active children were in the Greater Accra (3.2%) and the Ashanti (4.8%) regions. The proportions of children aged 5-14 years who were economically active were higher in rural than urban areas in all the regions. For instance, in the Northern region, 39.3 percent of the children in rural areas were economically active compared to 10.6 percent in urban areas and in the Central region the proportions were 12.3 percent and 4.9 percent in rural and urban areas respectively.

Table 11.29: Percentage of population aged 5-14 years by type of locality, activity status and region: 2010

Region	All localities			Urban			Rural			
	Econo-		Econo-		Econo-		Econo-		Econo-	
	N	mically active population	Employed	N	mically active population	Employed	N	mically active population	Employed	
Total	6,044,968	11.6	11.5	2,780,865	3.9	3.9	3,264,103	18.1	18.1	
Western	593,138	6.3	6.2	232,737	2.7	2.7	360,401	8.6	8.6	
Central	558,352	9.0	8.9	247,287	4.9	4.8	311,065	12.3	12.2	
Greater Accra	783,781	3.2	3.1	694,969	2.6	2.5	88,812	7.9	7.8	
Volta	515,363	11.1	11.1	163,706	5.1	5.0	351,657	13.9	13.9	
Eastern	652,090	9.1	9.0	266,694	3.4	3.3	385,396	13.0	12.9	
Ashanti	1,165,454	4.8	4.7	657,042	2.1	2.1	508,412	8.2	8.2	
Brong Ahafo	605,140	13.3	13.2	254,859	5.9	5.8	350,281	18.7	18.6	
Northern	687,589	31.6	31.6	184,860	10.6	10.6	502,729	39.3	39.3	
Upper East	289,306	23.4	23.3	53,279	9.9	9.8	236,027	26.5	26.4	
Upper West	194,755	25.6	25.6	25,432	6.3	6.3	169,323	28.5	28.5	

Source: Ghana Statistical Service, 2010 Population and Housing Census

Overall, among the children aged 5-14 years, of which 14.5 was economically active, 11.5 percent were employed, which translates to 696,447 persons. In the rural areas, the proportion employed was 18.1 percent while in urban areas the proportion was 3.9 percent, indicating a big gap in the proportions of children engaged in rural and urban areas (Table 11.29). One of the interests was to explore the proportion of the employed children who combined school and work.

Table 11.30 shows that 65.3 percent of the children who reported to be employed were in school, with the proportions about equal (65%) for males and females. In terms of regions, the Central region's was 88.8 percent, the highest proportion of children combining schooling and work while that of the Northern Region was the lowest 47.2 percent. For all the regions, the proportions for males and females were about the same. That is, at the young ages, there appears to be no difference in the proportions of boys and girls who combine school and work. The differences which emerge are by region.

Table11.30: Economically active population 5-14 years, Employed population and currently in school by region and sex: 2010

Region	Both Sexes				Male				Female			
	Econo- mically active population 5-14 years	Employed population 5-14 years	Employed population 5-14 years and currently in school	%	Econo- mically active population 5-14 years	Employed population 5-14 years	Employed population 5-14 years and currently in school	%	Econo- mically active population 5-14 years	Employed population 5-14 years	Employed population 5-14 years and currently in school	%
Ghana	700,383	696,447	454,497	65.3	368,715	366,845	239,956	65.4	331,668	329,602	214,541	65.1
Western	37,329	37,062	29,987	80.9	18,672	18,543	15,264	82.3	18,657	18,519	14,723	79.5
Central	50,231	49,895	44,288	88.8	25,498	25,353	22,668	89.4	24,733	24,542	21,620	88.1
Greater Accra	25,083	24,147	15,986	66.2	10,563	10,108	7,074	70.0	14,520	14,039	8,912	63.5
Volta	57,312	57,117	39,391	69.0	31,518	31,447	21,298	67.7	25,794	25,670	18,093	70.5
Eastern	59,094	58,590	43,584	74.4	32,410	32,175	23,340	72.5	26,684	26,415	20,244	76.6
Ashanti	55,807	55,059	41,270	75.0	27,693	27,387	21,451	78.3	28,114	27,672	19,819	71.6
Brong Ahafo	80,503	80,157	56,826	70.9	42,893	42,704	30,540	71.5	37,610	37,453	26,286	70.2
Northern	217,379	217,099	102,572	47.2	114,738	114,585	55,206	48.2	102,641	102,514	47,366	46.2
Upper East	67,724	67,478	49,142	72.8	36,658	36,513	26,206	71.8	31,066	30,965	22,936	74.1
Upper West	49,921	49,843	31,451	63.1	28,072	28,030	16,909	60.3	21,849	21,813	14,542	66.7

Source: Ghana Statistical Service, 2010 Population and Housing Census

11.8.1 Industry of working children

Of the children aged 5-14 years who were working, 82.9 percent were engaged in agriculture, forestry and fishing, the proportion for males and females being 87.6 percent and 77.8 percent respectively (Table 11.31). The next sectors which employed children were wholesale and retail trade (6.9%) and manufacturing (4.4%). This general pattern, with differences in proportions, is can be observed in both urban and rural areas for both sexes. In the rural areas 88.9 percent of the children were engaged in agriculture, forestry and fishing, while in the urban areas 50.4 percent were engaged in agriculture and related activities and 23.9 percent in wholesale and retail trade (Table 11.31). These are sectors which make it possible for children to combine work and schooling. The high proportion in agriculture and related activities also reflect the ease with which children enter into farming, especially in rural areas.

Table 11.31: Percentage distribution of working children aged 5-14 years by industry, sex and locality of residence, 2010

Type of industry	Total			Urban			Rural		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Agriculture forestry and fishing	82.9	87.6	77.8	50.4	60.5	41.8	88.9	91.7	85.5
Mining and quarrying	0.2	0.3	0.2	0.3	0.4	0.1	0.2	0.3	0.2
Manufacturing	4.4	3.1	5.9	8.4	7.3	9.3	3.7	2.4	5.2
Construction	0.1	0.2	0.0	0.5	1.0	0.1	0.1	0.1	0.0
Wholesale and retail	6.9	4.9	9.2	23.9	18.2	28.6	3.9	2.9	5.0
Transportation and storage	0.2	0.3	0.1	0.8	1.3	0.3	0.1	0.1	0.0
Accommodation and food service activities	2.3	1.3	3.5	8.6	5.1	11.5	1.2	0.7	1.8
Other service activities	0.0	0.1	0.0	0.2	0.4	0.1	0.0	0.0	0.0
Activities of households as employers	0.7	0.4	0.9	2.8	1.8	3.7	0.3	0.2	0.3
All other industries	1.6	1.4	1.8	2.5	2.2	2.8	1.5	1.3	1.6
New workers seeking employment	0.5	0.4	0.5	1.6	1.6	1.6	0.3	0.3	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	696,447	366,845	329,602	107,071	48,808	58,263	589,376	318,037	271,339

Source: Ghana Statistical Service, 2010 Population and Housing Census

11.8.2 Employment status of working children

Over 95 percent of the children who were employed were contributing family workers, with similar proportions for males and females. This is expected as these are young persons, most of who cannot be on their own. The rest consisted of 3.6 percent of self-employed children: 3.8 percent for females and 3.4 percent for males. In rural areas, 96.4 percent of the working children compared to 89.1 percent among those in urban areas were contributing family workers (Table 11.32).

Table 11.32: Employment status of working children aged 5 - 14 years by sex and locality of residence, 2010

Employment status	Total	Male	Female	Total	Urban	Rural
Employee	0.6	0.7	0.4	0.6	2.5	0.2
Self-employed	3.6	3.4	3.8	3.6	7.2	2.9
Contributing family worker	95.2	95.3	95.2	95.2	89.1	96.4
Apprentice	0.1	0.1	0.1	0.1	0.4	0.0
Domestic employee	0.1	0.1	0.2	0.1	0.2	0.1
Casual worker	0.1	0.1	0.1	0.1	0.2	0.1
Other	0.3	0.3	0.3	0.3	0.4	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0
N	696,447	366,845	329,602	696,447	107,071	589,376

Source: Ghana Statistical Service, 2010 Population and Housing Census

11.9 Labour Force Participation of Non-Ghanaians

This section examines the participation of non-Ghanaians in the Ghanaian labour market. Of the employed non-Ghanaians, ECOWAS nationals accounted for 62.6 percent in 2000 and 70.6 percent in 2010. Employed male ECOWAS nationals were 61.1 percent in 2000 and 73.8 percent in 2010. The proportion of female ECOWAS nationals was 64.9 percent in 2000 and 65.9 percent in 2010. The proportions of employed non-ECOWAS Africans were 20.6 percent in 2000 and 16.4 percent in 2010 (Table 11.33). The rest, 13 percent, were from other parts of the world.

In 2000, 65.4 percent of the employed non-Ghanaians in rural areas were ECOWAS nationals and the proportion in urban areas was 59.4 percent. However, the situation changed in 2010 and employed non-Ghanaians who were ECOWAS nationals was 72.3 percent in urban areas and the proportion in for rural areas was 68.3 percent. The non-ECOWAS national accounted for 15.4 percent of those who were working in urban areas and 17.7 percent of those who were working in urban areas in 2010. The proportions for 2000 were 21.3 percent for urban and 19.9 percent for rural.

Table 11.33: Percentage distribution of employed non-Ghanaians aged 15 years and above by sex and type of residence, 2000 and 2010

Nationality	2000					2010				
	Total	Sex		Residence		Total	Sex		Residence	
		Male	Female	Urban	Rural		Male	Female	Urban	Rural
ECOWAS nationals	62.6	61.1	64.9	59.4	65.4	70.6	73.8	65.9	72.3	68.3
Non-ECOWAS African	20.6	21.2	19.6	21.3	19.9	16.4	14.2	19.5	15.4	17.7
Non-Africans	16.9	17.7	15.5	19.3	14.7	13.1	12.0	14.6	12.3	14.1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	46,986	30,518	16,468	25,291	21,695	270,213	158,844	111,369	152,591	117,622

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses

12.9.1 Occupation of employed non-Ghanaians

Thirty-six percent of the non-Ghanaians were in the skilled agricultural, forestry and fisheries sector. There were, however, urban and rural differences. In urban areas the skilled agricultural, forestry and fisheries constituted 10.9 percent of the employed non-Ghanaians while the proportion in rural areas was 69.2 percent.

The other major occupations of the non-Ghanaian workforce were service and sales (23.9%) and craft and related trades workers (13.7%). The proportion of service and sales workforce in the urban areas was 34.5 percent and 10.1 percent in rural areas. Similarly, the proportion of female non-Ghanaians engaged, as service and sales workers (33.1%) was higher than that of the male (17.5%) (Table 11.34).

Table 11.34: Percentage distribution of employed non-Ghanaians aged 15 years and above by occupation, sex and locality of residence, 2010

Major occupation	Total	Sex		Residence	
		Male	Female	Urban	Rural
Managers	3.5	4.0	2.7	5.4	1.0
Professionals	5.4	6.3	4.1	7.8	2.3
Technicians and associate professionals	2.4	3.4	0.9	3.5	0.9
Clerical support workers	1.2	1.3	1.1	2.0	0.3
Service and sales workers	23.9	17.5	33.1	34.5	10.1
Skilled agricultural forestry and fishery workers	36.3	36.6	35.8	10.9	69.2
Craft and related trades workers	13.7	14.1	13.1	18.0	8.1
Plant and machine operators and assemblers	4.9	7.9	0.6	6.1	3.2
Elementary occupations	8.6	8.6	8.6	11.4	4.8
other occupations	0.2	0.3	0.0	0.3	0.0
Total	100.0	100.0	100.0	100.0	100.0
N	270,213	158,844	111,369	152,591	117,622

Source: Ghana Statistical Service, 2010 Population and Housing Census

12.9.2 Industry of employed non-Ghanaians

In 2010, the non-Ghanaians were employed in two major industries: agriculture, forestry and fishing (37.3%) and wholesale and retail, repair of motor vehicles and motorcycles (24.5%). About 10 percent (9.7%) of the non-Ghanaian workforce was engaged in the manufacturing industry and 5.1 percent in the accommodation and food services industry (Table 12.36).

With regard to sex distribution, 38.1 percent of males and 36.1 percent of females were employed in the agriculture, forestry and fishing industry in 2010: 70.3 percent in rural areas and 11.7 percent in the urban areas.

In 2010, 22.9 percent of male and 26.7 percent of female non-Ghanaians were employed in the wholesale and retail; repair of motor vehicles and motorcycles industry. The locality of residence indicates that 35.5 percent of urban and 10.1 percent of rural non-Ghanaian workforce were employed in the wholesale and retail, repair of motor vehicles and motorcycles industry.

Table 11.35: Percentage distribution of employed non-Ghanaians aged 15 years and above by industry, sex and locality of residence: 2010

Major industry	Sex		Residence		
	Total	Male	Female	Urban	Rural
Agriculture forestry and fishing	37.3	38.1	36.1	11.7	70.3
Mining and quarrying	1.1	1.6	0.4	0.9	1.5
Manufacturing	9.7	8.1	11.9	12.5	6.1
Electricity gas steam and air conditioning supply	0.1	0.2	0.1	0.2	0.0
Water supply; sewerage waste management and remediation activities	0.3	0.3	0.2	0.4	0.1
Construction	2.8	4.7	0.2	3.7	1.6
Wholesale and retail; repair of motor vehicles and motorcycles	24.5	22.9	26.7	35.5	10.1
Transportation and storage	3.7	6.1	0.3	5.4	1.5
Accommodation and food service activities	5.1	1.3	10.6	7.2	2.5
Information and communication	0.6	0.8	0.2	0.9	0.1
Financial and insurance activities	0.8	1.0	0.4	1.3	0.1
Real estate activities	0.1	0.1	0.0	0.1	0.0
Professional scientific and technical activities	1.0	1.2	0.7	1.5	0.3
Administrative and support service activities	0.9	1.2	0.3	1.3	0.3
Public administration and defence; compulsory social security	1.1	1.5	0.6	1.8	0.3
Education	3.2	3.4	2.9	4.3	1.7
Human health and social work activities	1.3	1.2	1.4	1.9	0.6
Arts entertainment and recreation	0.7	1.0	0.1	1.0	0.2
Other service activities	4.8	4.2	5.6	6.9	1.9
Activities of households as employers	0.9	0.8	1.0	1.1	0.6
Activities of extraterritorial organizations and bodies	0.2	0.2	0.1	0.3	0.0
Total	100	100	100	100	100
N	270,213	158,844	111,369	152,591	117,622

Source: Ghana Statistical Service, 2010 Population and Housing Census

11.9.3 Employment status of non-Ghanaians

In the 2000 and 2010 censuses, the overall pattern in the employment status of non-Ghanaians remained the same: Fifty-eight percent in 2000 and 58.8 percent in 2010 were self-employed. The proportion of self-employed with employees was 6.8 percent in 2000 and 5.5 percent in 2010; and the proportion of male non-Ghanaians who were self-employed without employees was 54.4 percent in 2000 and 55.5 percent in 2010 while the proportion for female was 63.6 percent in the two censuses. The proportion of non-Ghanaian who were self-employed and

without employees in rural areas was 63.3 percent in 2000 and 63.6 percent in 2010. In urban areas the proportions were 51.4 percent in 2000 and 55.1 percent in 2010 (Table 11.36).

The proportion of non-Ghanaians who were employees increased from 16.0 percent in 2000 to 19.2 percent in 2010. Among males, the proportion of non-Ghanaians who were employees was 18.9 percent in 2000 and 24.9 percent in 2010. For females the proportions were around 11 percent in both censuses. In urban areas, non-Ghanaians who were employees was 21.5 percent in 2000 and 26.8 percent in 2010 while in rural areas, the proportions were 11.1 percent in 2000 and 9.5 percent in 2010. Among employed non-Ghanaians 15.5 percent of females and 7.2 percent of males were contributing family workers in 2010 compared with 11.1 percent of females and 24.9 percent of males in 2000.

Among the employed non-Ghanaians, 75.9 percent were engaged in the private informal sector in 2000 and 85.8 percent in 2010. Of the employed non-Ghanaians, 72.8 percent of males and 81.0 percent of females were in the private non formal in 2000. In 2010, the proportions for males and females were 82.0 percent and 91.2 percent respectively. Among those in urban areas, the proportion in the private informal sector increased from 68.2 percent in 2000 to 79.4 percent in 2010; in rural areas the increase was from 82.8 percent to 94.2 percent (Table 11.37).

Unemployment of non-Ghanaians

Unemployment rates among non-Ghanaians were 19.7 percent in 2000 and 5.0 percent in 2010. The change in the proportions also occurred among males and females and by locality. The rate of unemployed among ECOWAS nationals decreased from 14.8 percent in 2000 to 5.4 percent in 2010, among African non-ECOWAS it was 11.7 percent in 2000 and 5.5 percent in 2010. Among non-Africans, the percentages were 19.2 percent in 2000 and 5.4 percent in 2010 (Table 11.38).

Table 11.36: Employment status of employed non-Ghanaians aged 15 years and above by sex and locality of residence, 2000 and 2010

Employment status	2000					2010				
	Sex			Residence		Sex			Residence	
	Total	Male	Female	Urban	Rural	Total	Male	Female	Urban	Rural
Employee	16.0	18.9	11.3	21.5	11.1	19.2	24.9	11.1	26.8	9.5
Self-employed without employee(s)	57.9	54.4	63.6	51.4	63.7	58.8	55.5	63.6	55.1	63.6
Self-employed with employee(s)	6.8	7.2	6.1	8.6	5.2	5.5	6.4	4.3	7.6	2.9
Casual worker	-	-	-	-	-	2.4	3.1	1.5	2.3	2.7
Contributing family worker	9.5	9.2	10.1	6.2	12.5	10.6	7.2	15.5	3.9	19.2
Apprentice	4.9	5.1	4.6	6.7	3.3	2.4	2.0	2.9	3.3	1.1
Domestic employee (house help)	2.1	2.2	1.9	2.4	1.8	0.7	0.7	0.8	0.7	0.7
Other	2.8	3.1	2.3	3.2	2.4	0.3	0.3	0.3	0.3	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	46,986	30,518	16,468	25,291	21,695	270,213	158,844	111,369	152,591	117,622

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses

Table 11.37: Percentage distribution of employed non-Ghanaians aged 15 years and above by employment sector, sex and locality of residence, 2000 and 2010

Employment status	2000					2010				
	Total	Sex		Residence		Total	Sex		Residence	
		Male	Female	Urban	Rural		Male	Female	Urban	Rural
Public	4.8	5.2	4.1	6.5	3.2	4.8	5.6	3.7	6.7	2.3
Private Formal	13.7	15.5	10.6	18.3	9.6	8.2	10.9	4.2	12.2	3.0
Private Informal	75.9	72.8	81.0	68.2	82.8	85.8	82.0	91.2	79.4	94.2
Semi-public/Parastatal	2.9	3.3	2.1	3.4	2.4	0.1	0.2	0.1	0.2	0.1
NGOs (Local and International)	2.5	2.9	2.0	3.2	1.9	0.8	0.9	0.6	1.1	0.4
Other International Organisations						0.3	0.3	0.2	0.5	0.1
Other	0.3	0.3	0.2	0.4	0.2	4.8	5.6	3.7	6.7	2.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	46,986	30,518	16,468	25,291	21,695	270,213	158,844	111,369	152,591	117,622

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses

Table 11.38: Unemployment rate among non-Ghanaians aged 15 years and above by sex and locality of residence, 2000 and 2010

Nationality	2000					2010				
	Total	Sex		Residence		Total	Sex		Residence	
		Male	Female	Urban	Rural		Male	Female	Urban	Rural
ECOWAS nationals	14.8	14.1	15.8	18.0	11.7	5.4	4.5	6.7	7.3	2.8
African non ECOWAS	11.7	10.9	13.0	15.2	8.8	5.5	4.5	7.1	7.5	2.6
Non-Africans	19.2	18.8	19.8	22.1	16.1	5.4	4.7	6.1	7.3	3.1
Total	19.7	18.8	21.2	21.5	17.5	5.0	4.1	5.9	6.4	3.3
N	48,319	28,368	19,951	28,794	19,525	15,442	7,440	8,002	12,059	3,383

Sources: Ghana Statistical Service, 2000 and 2010 Population and Housing Censuses

11.10 Summary, Conclusion and Recommendations

11.10.1 Summary

The results indicate changes in the economic characteristics of the population of Ghana from the various censuses. For some of the indicators, it is not possible to compare the results for the five rounds of censuses due to the differences in the concepts used and the cut-off ages for the collection of data in some cases. For instance, the 2000 census collected data on children 7-14 years while that of the 2010 census was 5-14 years.

One of the factors which emerged is the increase in the absolute numbers in the economically active population: it increased from 5.6 million in 1984 to 10.9 million in 2010. The increase in the economically active population was due to the increase in the overall population which was basically from natural increase (see Chapter Ten). Of the numbers, females outnumbered males and this was reflected in the sex ratios which decreased from 101.2 in 1960 to 94.7 males per 100 females in 2010. The economically active population was concentrated in the Greater Accra, Ashanti and Eastern regions, the three regions with the highest populations in the country. Furthermore, the proportion of the economically active population in rural areas was more than those in urban areas in 2010, although the proportion of the population in urban areas was more than those in rural areas.

Over the 50-year period, the proportion of the labour force without formal education decreased from 81.6 percent in 1960 to 33 percent in 2010. Although the proportion with formal education in the labour force increased, the shift was from the dominance on those with no formal education to basic education. Thus, in 2010, 36 percent of the population in the work force had only basic education. Only 9.8 percent, 2.6 percent, 4.3 percent and 2.5 percent had had secondary, commercial/technical/vocational, post-secondary and tertiary education respectively. The dominance of persons with only basic education in the labour force presents a challenge to the country since the socio-economic development of any country depends on the quality of its work force (UNDP, 2011).

Skilled agriculture, forestry and fisheries employed more than 60 percent of those employed, with the proportion being higher in the rural areas. While the proportion of the workforce in the service sector has increased over the years, the share of the workforce in the agricultural sector has been declining. This should be the trend if the country is to transform the nature of its economy from subsistence agricultural base to a manufacturing base.

More than half of the self-employed persons were without employees, implying the dominance of single person enterprises. Only about 5 percent of the self-employed persons had employees. The situation is a reflection of the structure of the economy as about 8 in every 10 self-employed persons were in the private informal sector. The formal sector, whether private or public, engaged less than 10 percent of the workforce.

The unemployment rate increased between 1984 and 2000 but decreased between 2000 and 2010 for both males and females and among urban and rural dwellers. Unemployment rate was highest

among those with Secondary/SSS/SHS education followed by persons with tertiary education and for the population 15-29 years. The latter were people who were seeking for jobs for the first time. Thus, the transition from the world of education to the world of work would have to be managed better than it is at the moment.

The economically not active population increased from 2.8 million in 2000 to 4.3 million in 2010. The proportion of homemakers declined from 68.3 percent in 1960 to 21.9 percent in 2010 while that of students rose sharply from 15.8 percent to 51.0 percent during the same period, indicating improvements in both male and female education. The proportion of economically not active female population was higher than that of males in the three northern regions, particularly in the Northern and Upper West Regions.

Of the total number of children aged 5-14 years, about 11.5 percent were employed in 2010. Of that proportion, over 90 percent were contributing family workers. The highest proportion of children who were working were in the three northern regions and basically in the agricultural sector. Almost two-thirds (65.8%) of the working children combined work and schooling.

Among non-national working in the country, over 60 percent were self-employed without employees as is the case for Ghanaians. Furthermore, the majority of them were engaged in the agricultural sector. Thus, the employment structure of the non-Ghanaians in the labour force was not different from that of Ghanaians.

11.10.2 Conclusion

The working population of the country is dominated by people with no formal and those with primary and middle school (basic) education. Thus, nearly 70 percent of the workforce had no formal or only basic education. The educational background of the labour force is a reflection of the structure of the economy: Over 60 percent were engaged in agriculture and related activities. This was followed by those in retail and wholesaling. The structure of the economy and the background of the labour force are not in consonance with the status of the country as a lower middle income country. Therefore, there will be the need for strategies to transform the economy.

Furthermore, that two out of every three employed population were self-employed without employees implies that the economy is dominated by small scale enterprises with little avenues for employing other people. This is also due to the fact that over 80 percent of the employed persons are in the private informal sector.

The proportion of non-Ghanaian population in the labour force has declined over the five censal periods. Non-African in the labour force accounted for only 13 percent while the persons from the ECOWAS sub-region constituted over 60 percent of the workforce in 2010. This observation points to the fact that Ghana is not an attractive destination for non-Ghanaians as was the case in the 1960s (see Chapter Ten).

12.10.3 Recommendations

A major conclusion of this chapter is the low proportion of employed persons aged 15 years and above who have had commercial, technical and vocational as well as tertiary education. This proportion was 2.6 percent in 2010, a reduction from the 2000 level of 3.9 percent. This finding underpins a fundamental nature of the employment problem in the country. This problem is related to relatively low numbers of skilled people engaged in the middle-level and higher levels of the economy. There should be a conscious effort on the part of Government to improve the educational background of the workforce. The results point to the need for government to give equal attention to secondary and higher education as it does with basic education. People with high level training are needed to grow the economy.

The observation that in 2010, only 7.0 percent of the employed persons were in the formal private sector compared with 8.5 percent in 2000, provides a challenge which needs to be addressed. In spite of government policy which identifies the private sector as the medium through which the economy is to be developed, the proportion in that sector is declining. There will be the need for a comprehensive review of the government's policies and strategies for promoting the private sector. It appears that the policies pursued in the last few years are not yielding the expected results.

There is the need to improve agricultural activities so as to provide adequate employment for the growing rural population. This may require the infusion of technology into agricultural production. Part of the strategy will be to improve the educational background of the agricultural workforce. Furthermore, government should develop strategies aimed at processing agricultural produce into value-add products and packaged for the export market. The countries which have developed in the last twenty years have pursued export of products. Classic examples are China, Brazil and South Korea.

Unemployment among the youth emerged as one of the challenges which will need to be addressed. Unemployment was found to be high among those aged 15-29 years, most of whom were seeking for jobs for the first time. That age at which unemployment is highest coincides with the transition from various levels of education to the world of work. This is one area which would need to be managed with pragmatic policies such as apprenticeship and start-up capital so as to reduce the proportion of unemployed youth.

The north-south gap observed in various chapters (e.g. education in Chapter Seven) also occurs in the background of employed persons. The population in these regions are employed predominantly in agriculture and related activities. The current SADA project should be given all the attention it deserves to make it become a growth sector for the transformation of the area.

References

- Ghana Statistical Service (2010). *2010 Population and Housing Census*. Summary Report of Final Results. Accra, Ghana Statistical Service.
- Ghana Statistical Service (2010). *Unpublished data from 2010 Population and Housing Census*. Accra, Ghana Statistical Service.
- Ghana Statistical Service (2002). *2000 Population and Housing Census, Summary Report of Final Results*. Accra, Ghana Statistical Service.
- Ghana Statistical Service (1987, 1984). *Population Census, Demographic and Economic Characteristics of Ghana*. Accra, Ghana Statistical Service.
- Hull, K (2009). Understanding the Relationship between Economic Growth, Employment and Poverty Reduction. Available at <http://www.oecd.org/dac/povertyreduction/43280288.pdf> (Accessed on 18th April, 2013).

CHAPTER TWELVE

POPULATION IN AGRICULTURE²⁹

12.1 Introduction

Ghana's economy is regarded as agrarian, largely due to the sector's contribution to Gross Domestic Product (GDP) generally, labour absorption and to foreign exchange earnings. The contribution of agriculture to foreign exchange earnings averaged 45 percent in the 1990s but dropped to 40 percent in the 2000s (ISSER 2000, 2011). The sector's contribution to GDP also declined from over 40 percent in the 1990s to 30 percent in the 2000s (ISSER, 2000, 2011).

Within the sector itself, there have been shifts in the age and sex composition of those involved. For instance, there appears to a decline in the proportion of young adult males in the agriculture labour force over the last three decades. This has resulted in a situation whereby the sector is dominated by children and the elderly.

The objectives of this chapter are three-fold: to analyze socio-demographic characteristics of agricultural households, to analyze the types of farming activities, types of cropping methodologies, crops and trees grown and land size, livestock reared, and fish farming.

12.2 Data sources

In the 2010 Population and Housing Census (PHC), specific questions were asked, for the first time, on households in farming activities, namely, crop farming, tree growing, livestock rearing and fish farming. The data collected consisted of types of crops cultivated and trees crops grown, farm size and type of cropping; livestock types, numbers and keepers and fisheries.

For the census, an agricultural household was defined as where, at least, one person in the household was engaged in any type of farming activity, namely crop farming, tree growing, livestock rearing and fish farming (GSS, 2012). The definition then identified households in which various agricultural activities were undertaken.

12.3 Agricultural households

12.3.1 Population, household size and locality

The population of agricultural households in 2010 was 13,366,340 and accounted for 54.2 percent of the total population. The population was in 2,503,006 households out of the total of 5,467,136 households in the country, this translates to 45.8 percent of the total households in the country. Rural areas accounted for 73.5 percent of the agricultural households (Table 12.1). The

²⁹This chapter was contributed by Victor K. Nyanteng and Francis Dzah

high proportion of agricultural households in rural areas is basically due to fact that agriculture is essentially a rural activity.

Table 12.1 shows the distribution of agricultural households by region and type of locality urban-rural residence. Agricultural households constituted more than 50.0 percent of households in seven regions. The highest proportions were in Upper East (83.7%), Upper West (77.1%) and Northern regions (75.5%), the three regions in the northern savannah zone. The three exceptions were the Greater Accra (6.6%), Ashanti (36.6%) and Western regions (49.9%). In two regions, namely Brong Ahafo (51.6%) and Upper East, agricultural households accounted for 51.6 percent and 51.4 percent respectively of the total households in urban areas. And in another two regions, the proportions of the agricultural households in urban areas were less than 20.0 percent: Greater Accra region (4.4%) and Ashanti region (16.4%).

In rural areas, the proportion of agricultural households ranged from 93.7 percent in Upper East region to 31.3 percent in Greater Accra region. Other proportions were 89.9 percent in the Northern region (89.9%) and 88.6 percent in Upper West region. The proportion of rural agricultural households also exceeded 80 percent in Brong Ahafo region (84.2%). In the rest of the six regions, the proportions of the agricultural households to the total households in the rural areas range between 70.0 percent and 80.0 percent except Greater Accra Region which had the lowest proportion of 31.3 percent.

Table 12.1: Distribution of Agricultural households by region and type of locality

Region	Total Households			Urban Households			Rural Households		
	No	Agric	%	No	Agric	%	No	Agric	%
All regions	5,467,136	2,503,006	45.8	3,049,336	662,775	21.7	2,417,800	1,840,231	76.1
Western	553,635	275,975	49.9	248,919	55,341	22.2	304,716	220,634	72.4
Central	526,764	270,854	51.4	255,365	72,151	28.3	271,408	198,703	73.2
Greater Accra	1,036,426	68,715	6.6	950,336	41,734	4.4	86,090	26,981	31.3
Volta	495,603	291,224	58.8	178,814	59,487	33.3	316,789	231,737	73.2
Eastern	632,048	374,257	59.2	293,547	116,605	39.7	338,498	257,652	76.1
Ashanti	1,126,216	412,055	36.6	715,462	117,052	16.4	410,743	275,003	71.8
BrongAhafo	490,519	336,097	68.5	236,283	121,961	51.6	254,232	214,136	84.2
Northern	318,119	117,631	75.5	106,071	49,537	46.7	212,048	190,901	89.9
Upper East	177,631	148,660	83.7	41,941	21,578	51.4	135,688	127,082	93.7
Upper West	110,175	84,931	77.1	22,628	7,329	32.4	87,546	77,602	88.6

Source: Ghana Statistical Service, 2010 Population and Housing Census

Members of an agricultural household, like any other household, consists of a head, spouse, biological children, parents, brothers and sisters, parents/in-laws, grand, step, adopted and foster children, other relatives, non-relatives. The expectation is that agricultural households will be larger than the national average due to the use of family members in daily activities and the presence of extended family and non-family members to assist in farm work (Nukunya, 2003).

As indicated in Table 12.2, the number of persons in agricultural households ranged from one to over 20. Single persons household was 10.7 percent compared to the national proportion of 17.6 percent (Chapter 5). In 31.8 percent of the households, there were three or less members. At the national level, this percentage was 44.8. Households with 10 or more persons accounted for 10.3 percent of the total, compared to 6.3 percent in the total country (Chapter 5). Thus, agricultural households, on the average, tended to have more people than the national average.

Table 12.2: Distribution of agricultural households by size and type of locality (percentage)

Household Size (No. of members)	Total	Urban	Rural
1	10.7	11.9	10.3
2	9.6	10.2	9.4
3	11.5	11.9	11.4
4	13.3	13.6	13.2
5	13.3	13.3	13.3
6	11.6	11.3	11.7
7	8.9	8.4	9.0
8	6.4	5.8	6.6
9	4.4	4.5	4.5
10+	10.3	9.4	10.6
Total (%)	100.0	100.0	100.0
Number	2,503,006	662,775	1,840,231

Source: Ghana Statistical Service, 2010 Population and Housing Census

The proportion of agricultural households with one to three persons was 34.0% percent for urban areas and 31.1 percent for rural areas. While the proportion of households with four to six members was the same in both localities, the proportions of households with seven or more members was higher in rural (30.7%) than in urban areas (28.1%). Thus, the urban areas had relatively smaller agricultural households compared with rural areas.

12.3.2 Age and sex composition

Table 12.3 shows the age distribution of the population in agricultural households. About 42.3 percent were children below 15 years of age, 4 percentage points higher than the national proportion, suggesting relatively more children in agricultural households than that of the country. The proportion of agricultural household members in the 15-64 years age group (the economically active age group) was 52.2 percent, slightly lower than the national proportion (56.9%). The proportion of agricultural household members who were aged 65 years and older was slightly higher (5.2%) than the national proportion of 4.8 percent. Thus, agricultural households have proportionately more children and also slightly more elderly persons than in the total country. The results point to the dominance of children and older persons in agricultural populations.

Table 12.3: Age distribution of population of agricultural households: 2010

Age Group (Years)	All Household %	Agric. Household %
0-4	13.8	14.9
5-9	12.7	14.4
10-14	11.8	13.0
15-19	10.6	10.7
20-29	17.7	14.3
30-39	12.6	10.9
40-49	8.6	8.6
50-59	5.5	5.8
60-64	1.9	2.2
65+ <u>_</u>	4.8	5.2
Total %	100.0	100.0
Number	24,658,823	13,366,340

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 12.4 shows the age and sex distribution of the heads of agricultural households. Males comprised 71.4 percent of heads of agricultural households, with female heads constituting the rest. Less than 1 percent of heads were below 20 years of age and 1.5 percent was below 30 years. The highest proportion of heads of agricultural households was those aged 60 years and older which accounted for 23.9 percent total household heads. As noted earlier, the age structure of agricultural households is skewed towards older people.

Table 12.4: Age and Sex of Heads of Agricultural Households (percentage)

Age Group (Years)	Both	Male	Female
15-19	0.9	0.8	1.1
20-24	3.2	3.2	3.2
25-29	7.4	8.0	5.8
30-34	10.3	11.3	7.8
35-39	12.0	13.0	9.5
40-44	12.3	12.9	10.7
45-49	11.4	11.7	10.6
50-54	11.3	11.0	12.1
55-59	7.5	7.3	8.1
60-64	7.2	6.7	8.4
65+	16.7	14.3	22.7
Total %	100.0	100.0	100.0
Number	2,503,006	1,786,950	716,056

Source: Ghana Statistical Service, 2010 Population and Housing Census

Among the male heads, 57 percent were in the 25-49 years age group, compared to 44 percent of female heads in this age group. In the higher age-groups (50 years and older), female heads were 51 percent compared with 39 percent for male headed-households. Thus, the male heads were relatively younger than the female heads.

Table 12.5 shows the distribution of agricultural households by size and sex of the head. Generally, the sizes of the female-headed households were relatively smaller than the male-headed households. Households with six or less members comprise 78.4 percent of female-headed households compared with 66.4 percent of the male headed households. Households with seven or more members comprised 33.3 percent of male-headed households compared with 21.7 percent of the female-headed households. This variation in household size may be due in part to the female heads being older than male heads and the likelihood that children in these households would have left the household to form their own.

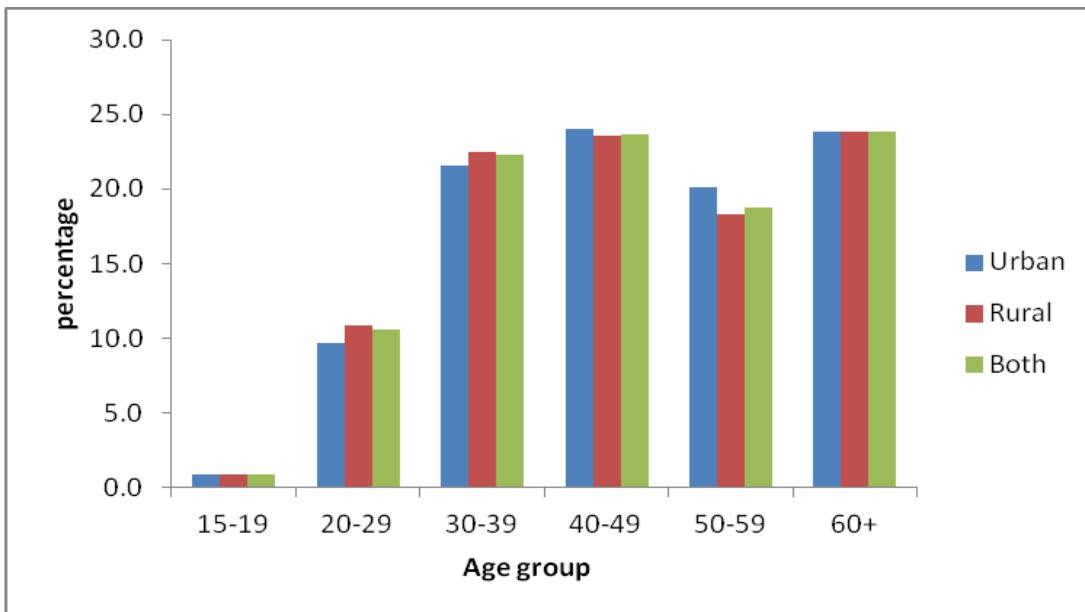
Table 12.5: Distribution of Heads of Agricultural Households by age, sex and size (percentage)

Household Size	Age group (years)				Sex		
	All	Under 30	30-59	60+	All	Male	Female
1-3	31.8	51.5	27.6	34.4	31.8	29.0	38.9
4-6	38.2	37.3	40.7	30.8	38.2	37.4	39.5
7-9	19.7	8.2	21.8	19.4	19.7	21.4	15.4
10+	10.3	3.0	9.9	15.4	10.3	11.9	6.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	2,503,006	285,941	1,620,507	596,558	2,503,006	1,786,950	716,056

Source: Ghana Statistical Service, 2010 Population and Housing Census

Figure 12.1 shows the distribution of agricultural households by age of heads and locality of the households. The proportions are quite similar across the different age groups and locality. However, in the 20-29 years and 30-39 years age groups, the proportions in the rural areas were slightly higher than that of the urban areas whilst in the 40-49 years and 50-59 years age groups the proportions were slightly higher in the urban areas than in the rural areas. In the 15-19 years and 60 and older age groups, the proportions were about the same.

Figure 12.1: Distribution of heads of agricultural household by age and locality: 2010



Source: Ghana Statistical Service, 2010 Population and Housing Census

12.4 Education and literacy among Agricultural Households

The educational levels of agricultural households are shown in Table 12.6. In the 2010 PHC, data on level of education were collected on population aged 3 years and older. Overall, 31.5 percent of the household members had no formal education, 60.3 percent had up to middle school level education and 8.2 percent had secondary school education or higher. Among the heads of households, 44.1 percent had no formal education, 35.2 percent had up to middle school education and the remaining 10.7 percent had post-middle school education. For the rest of the household members (other than head, spouse and children), 32.4 percent had no formal education, 60.5 percent had up to middle school level education. Only 7.1 percent had had secondary school education or higher. Generally, the educational levels in agricultural households were low compared to that of the total population (Chapter 7).

Table 12.6: Educational level of agricultural household member, 3 years and older (percentage): 2010

Education Level	All	Head	Spouse	Children	Other
No Education	31.5	47.1	55.5	18.9	32.4
Nursery /Kindergarten	9.3	0.0	0.0	14.9	11.5
Primary	27.1	13.8	12.8	37.3	29.4
JSS / JHS	16.5	12.9	13.9	19.4	16.4
Middle	7.4	13.7	13.0	1.1	3.2
SSS/ SHS	5.0	4.5	1.9	6.6	5.0
Secondary	0.6	1.9	0.6	0.2	0.4
Voc./Tech./Comm.	0.7	1.6	0.9	0.5	0.5
Post-Mid. /Sec. Certificate.	0.6	1.8	0.6	0.3	0.4
Post Sec. Diploma	0.7	1.5	0.5	0.5	0.5
Bachelor Degree	0.4	0.8	0.3	0.3	0.3
Post Graduate	0.1	0.4	0.1	*	*
Total (%)	100.0	100.0	100.0	100.0	100.0
Number	12,214,662	2,503,006	1,423,049	5,371,387	2,917,220

Source: Ghana Statistical Service, 2010 Population and Housing Census

* Less than 0.1%

Data on literacy of the population in the 2010 PHC were collected on persons aged 11 years and older (Chapter 7). Thirty-five percent of 11 years and older members of agricultural households were not literate in any language, 39.7 percent were literate in English and a Ghanaian language, 16.0 percent were literate in the English language only, and 7.9 percent were literate in a Ghanaian language only. Those who were literate in French along with English and or Ghanaian language constituted 0.6 percent (Table 12.7). The proportion of agricultural population not literate was high compared to the national average of 25.9 percent, but close to the level in rural areas which was 37.2 percent.

Among the heads of households, 44.1 percent were illiterate, the same proportion as those with no formal education. The proportion literate in English and a Ghanaian language was 36.3 percent, while 9.8 percent were literate in English language only, and 9.2 percent literate in a Ghanaian language only. Among their spouses, 55.5 percent was not literate, the same proportion as those with no formal education. The proportion of spouses literate in English and a Ghanaian language was 25.2 percent. Ten percent and 9.4 percent were respectively literate in English language only and a Ghanaian language only.

Of children in agricultural households, 17.7 percent are illiterate, the lowest among various groups in the households. This is to be expected given the improved access to formal education in more recent years. Fifty-one percent of the children were literate in English and a Ghanaian language and 23.7 percent in English language only. The proportion of children literate in a Ghanaian language only was 7.1 percent.

Among the other members of agricultural households, 38.5 percent was illiterate. The proportion literate in English and a Ghanaian language was higher than that among heads of household and spouses. Generally, the other members of agricultural households were relatively more literate than the heads and their spouses (Table 12.7). Some level of literacy is necessary to enable

agricultural household members follow simple instructions such as using agricultural chemicals properly and also keeping simple farm records required for operating farm activities as a business. That 64.5 percent of members of agricultural households were literate in one language or the other is an indication of the literacy level among the group.

Table 12.7: Language of literacy of agricultural households, 11 years and older

Language	All	Head	Spouse	Children	Other
Not Literate	35.5	44.1	55.5	17.7	38.5
English Only	16.0	9.8	9.4	23.7	16.8
Ghanaian Only	7.9	9.2	9.6	7.1	6.2
English / Ghanaian	39.7	36.3	25.2	51.0	38.0
English / French	0.2	0.2	0.1	0.1	0.2
English/French/Ghanaian	0.4	0.4	0.2	0.4	0.3
Other	*	0.0	0.0	*	*
Total %	100.0	100.0	100.0	100.0	100.0
Number	9,005,899	2,503,006	1,423,049	3,056,290	2,023,554

Source: Ghana Statistical Service, 2010 Population and Housing Census

* Less than 0.1%

Table 12.8 shows that 54.3 percent of female heads of agricultural households was illiterate compared to 40 percent of male heads. As shown in Chapter 5 (Figure 5.2), over 50 percent of female heads and 40 percent of male heads in rural areas were illiterate, similar to the proportions among agricultural households. Over half the male (51.7%) heads and 34.2 percent of female heads of agricultural households were literate in English language. Among the heads, 49.5 percent of the males was literate in a Ghanaian language whilst the proportion of female heads was 37.1 percent. The lower literacy levels among female heads reflect the generally low literacy rate among females in the country.

Table 12.8: Literacy of heads of agricultural households by sex (percentage): 2010

Language	Both	Male	Female
Not Literate	44.1	40.0	54.3
English Only	9.8	10.3	8.5
Ghanaian Only	9.2	8.3	11.5
English / Ghanaian	36.3	40.7	25.4
English / French	0.2	0.2	0.1
English/French/Ghanaian	0.4	0.5	0.2
Other	0.0	0.0	0.0
Total %	100.0	100.0	100.0
Number	2,503,006	1,786,950	716,056

Source: Ghana Statistical Service, 2010 Population and Housing Census

12.5 Disability among Agricultural Population

There were 737,743 persons with disability in the country in 2010 (Chapter 13). Of that number, 415,151 (56.3%) were in agricultural households. The figure compares with the proportion of 54.2 percent for agricultural population in the total population (Table 12.3). While agricultural households accounted for 45.8 percent of the total households, the proportion of agricultural households with disable persons was 22.8 percent (Table 12.9). In the agricultural households, the most common disability was sight (28.5%), while speech disability (10.3%) was the lowest. Among the heads of households, sight disability accounted for 39.9 percent of all disabilities followed by physical (19.4%) and hearing (11.4%) disabilities. Among parents/parent in-laws 41.4 percent had sight disability. This is unexpected as they are older persons and sight impairment increases with age (Ocansey, 2013). Among sons and daughters in-laws, emotional disability was the highest at 20.4 percent. Levels of disability among children appeared to be relatively the same for the identified disability categories (Table 12.9).

Table 12.9: Disability in agricultural households

Category of Member	Total	Percent	Sight	Hearing	Speech	Physical	Intellectual	Emotional	Other
All	570,872	100	28.5	12.1	10.3	17.8	10.6	13.0	7.7
Head	190,921	100	39.9	11.4	6.3	19.4	6.0	10.4	6.6
Spouse	57,603	100	35.0	11.8	7.1	17.2	8.4	14.1	8.2
Child	171,942	100	17.0	12.7	15.2	15.0	15.1	16.0	9.0
Parents / In-laws	31,426	100	41.4	15.1	4.0	24.2	5.4	5.5	4.4
Son / Daughter In-law	2,868	100	19.1	11.1	10.4	14.3	12.6	20.4	12.1
Grand Child	30,555	100	16.2	12.2	17.7	14.8	15.6	15.2	8.3
Brother / Sister	28,440	100	21.5	10.6	11.2	20.4	14.3	14.4	7.6
Step Child	3,860	100	15.1	12.3	15.4	14.2	15.1	17.0	10.8
Foster Child	1,420	100	15.9	14.4	14.1	12.7	17.0	15.4	10.4
Other Relative	44,891	100	25.4	12.2	10.0	18.8	12.5	13.1	8.0
Non-Relative	6,946	100	21.1	12.1	11.6	18.3	14.4	15.1	7.3

Source: Ghana Statistical Service, 2010 Population and Housing Census

12.6 Nationality and migration status

About 94 percent of the heads of agricultural households was Ghanaian by birth, and another three percent had dual nationality. A little less than two percent of the heads of agricultural households were from the ECOWAS area, particularly Nigeria, Togo and Burkina Faso. The heads of agricultural households from other African countries, Asia and other countries was about 1.5 percent

12.7 Agricultural Activities

12.7.1 Types of Agricultural activities

In the 2010 PHC, an agricultural household was defined as one in which at least one person in the household was engaged in farming/fishing/animal husbandry. Four types of agricultural activities were identified: crop farming, tree growing, livestock rearing and fish farming (Table 12.10). As indicated in the table, 95.1 percent of the agricultural population was engaged crop farming and 40.5 percent in livestock rearing. Among the households, 1.1 percent and 0.2 percent were involved in tree growing and fish farming respectively. Fish farming (aquaculture) is relatively new in Ghana.

In six of the regions, the proportions of agricultural households engaged in crop farming exceeded 95.0 percent with the highest proportions in the Ashanti (96.8%), Upper East (96.7%), and Brong Ahafo regions (96.6%). The lowest proportion was 80.2 percent in the Greater Accra region. The proportions of agricultural households engaged in tree crop growing were 4.5 percent in Greater Accra and 2.0 percent in Brong Ahafo region. In six of the regions, the proportions were below 1.0 percent with the least being in the Upper East (0.4%), Western (0.5%) and Volta regions (0.6%).

As indicated earlier, 40 percent was in livestock rearing and the regions with the highest proportions are the three in the northern savannah agro-ecological, namely, Upper East (82.8%), Upper West (63.7%) and Northern regions (60.9%). In the rest of the seven regions, the proportions were below 40.0 percent except Eastern region which had a proportion of 41.5 percent. The lowest proportions were in the Ashanti (25.4%) and Western regions (29.1%).

The proportion of agricultural households engaged in fish farming was low in all the regions. The highest proportion was only 0.5 percent in Greater Accra region, followed by Western region (0.4%) and Eastern region (0.3%). In three regions, namely, Central, Volta and Northern, the proportions were the same as the national average (0.2%). In the remaining four regions, namely, Ashanti, Brong Ahafo, Upper East and Upper West, the proportion was 0.1 percent.

Table 12.10: Types of Agricultural Activities by region: 2010

Region	Agric. Household	%Crop farming	%Tree growing	%Livestock rearing	%Fish farming
All regions	2,503,006	95.1	1.1	40.5	0.2
Western	275,975	96.2	0.5	29.1	0.4
Central	270,854	94.1	1.7	34.9	0.2
Greater Accra	68,715	80.2	4.5	35.8	0.5
Volta	291,224	93.1	0.6	39.2	0.2
Eastern	374,257	94.7	0.8	41.5	0.3
Ashanti	412,055	96.8	0.8	25.4	0.1
Brong Ahafo	336,097	96.6	2.0	34.4	0.1
Northern	240,238	95.9	0.9	60.9	0.2
Upper East	148,660	96.7	0.4	82.8	0.1
Upper West	84,931	95.7	1.9	63.7	0.1

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 12.11 shows the distribution of agricultural household size by type of activity. The proportions engaged in food crop farming declines with household size: 80.6 percent in single households to 61.3 percent in households with 10 or more persons. In households involved in livestock rearing, the proportions increased with increasing size of household. The proportions engaged in tree growing and fish farming were very small and did not show any pattern by size of household.

Table 12.11: Size of household by Agricultural Activity

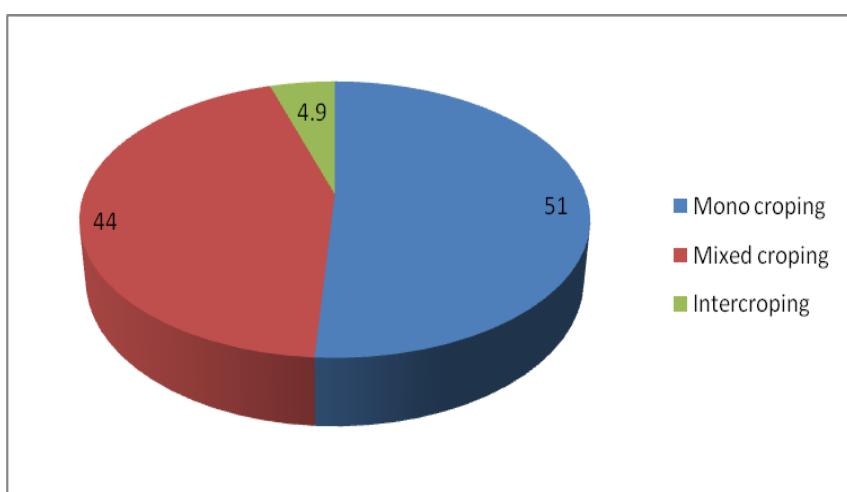
Size of Household	Crop Farming		Tree Planting		Livestock Rearing		Fish Farming		Total	
	N	%	N	%	N	%	N	%	N	%
1	254,222	80.6	3,577	1.1	57,046	18.1	540	0.2	315,385	100.0
2-3	499,827	74.1	6,234	1.0	167,521	24.8	1,003	0.1	674,585	100.0
4-6	908,400	69.2	10,422	0.8	391,562	29.8	1,981	0.2	1,312,365	100.0
7-9	470,382	65.2	5,337	0.7	244,382	33.9	1,330	0.2	721,931	100.0
10+	470,382	61.3	2,970	0.7	152,233	37.8	710	0.2	403,011	100.0
Total	2,379,929	69.4	28,540	0.8	1,013,244	29.6	5,564	0.2	3,427,277	100.0

Source: Ghana Statistical Service, 2010 Population and Housing Census

12.7.2 Nature of cropping

The nature of cropping refers to the arrangement of crops (including trees) on a farm. If only one crop is cultivated, it is referred to as mono cropping. Where two crops or trees are planted together on a farm in alternate rows it is known as intercropping, and when two or more crops are planted together on a farm (in some cases in a haphazard manner) it is referred to as mixed cropping. Figure 12.2 shows the distribution of the methods by which crops are cultivated and trees are grown on a farm in the country. In just over one-half of the households, crops and trees are mono cropped, more than two-fifths (44%) use mixed cropping and the remaining 5 percent practice intercropping.

Figure 12.2: Type of cropping of crops and trees on farms



Source: Ghana Statistical Service, 2010 Population and Housing Census

12.7.3 Acreage cultivated

About 34.0 million acres representing 57.0 percent of land area has been classified as suitable for farming (Nyanteng and Dapaah 1997). From the 2010 PHC, 9,712,696 acres (25.8%) was under crop cultivation and the growing of trees (Table 12.12). In terms of acreage, the most important crop was cocoa, accounting for 2,315,421 acres (23.4%). This was followed by maize with 1,756,273 acres (18.1%) and cassava 1,251,588 acres (12.9%) Of the major cereals cultivated, the total acreage under cultivation was 2,514,751 acres: Maize accounted for 69.8 percent of the land cultivated, followed by millet (16.5%) rice (11.4%) and sorghum (2.2%).

The total area under cultivation of the important roots, tubers and plantain was 2,686,858 acres. Of the total area covered by roots, tubers and plantain, 46.6 percent was for cassava, 31.3 percent for yam, and plantain covered 19.6 percent. The total area cultivated for major vegetables (tomato, pepper, garden-egg, onion/shallot and okro) was 227,758 acres of which tomato accounted for 45.5 percent, okro 34.7 percent, garden eggs 12.1 percent, and onion / shallot 7.7 percent. The eight major tree crops (citrus, coconut, mango, rubber, cola, coffee, avocado and shea tree) accounted for a total land area under cultivation of 145,204 acres, with 50.4 percent under citrus, (predominantly orange), 22.8 percent under coconut, 13.0 percent under mango and 6.3 percent under rubber (Table 12.12).

Table 12.12: Area cultivated by type of crop

Crop	Acres	Crop	Acres	Crop	Acres	Crop	Acres
Total	9,712,696						
Cocoa	2,315,421	Cocoyam	66,883	Cotton	6,511	Coffee	2,833
Maize	1,756,273	Soya beans	64,837	Peas	6,204	Avocado	2,821
Cassava	1,251,588	Other (specify)	63,667	Potatoes	5,825	Kenaf	2,634
Yam	841,181	Sorghum	56,332	Tobacco	5,626	Shallot	2,488
Groundnut	565,364	Coconut	30,835	Taro	5,576	Cloves	2,324
Plantain	527,206	Garden eggs	27,602	Lettuce	5,482	Mushroom	2,159
Oil palm	425,068	Mango	17,567	Citronella	5,472	Lemon grass	2,111
Millet	415,538	Onion	14,990	Alligator pepper	5,023	Egg plant	1,446
Rice	286,608	Pineapple	14,332	Apples	4,971	Black berries	1,263
Pepper	177,340	Sugarcane	14,170	Ginger	4,948	Sweet pepper	1,258
Beans	126,430	Water melon	14,043	Nut meg	4,614	Sun flower	1,242
Tomatoes	103,735	Cucumber	12,193	Tiger nut	4,466	Shea tree	1,167
Cashew	84,670	Banana	9,766	Guava	4,387	Spinach	1,140
Okro	78,942	Cabbage	9,118	Pawpaw	4,365	Gallic	268
Carrot	73,864	Rubber	8,490	Black pepper	3,364		
Tree planting	68,775	Sweet potatoes	6,564	Cola	3,336		
Citrus	68,155	Asian vegetables	6,553	Melon (agusi)	3,275		

Source: Ghana Statistical Service, 2010 Population and Housing Census

12.7.4 Types of Livestock, numbers and keepers

Livestock rearing is the second most important agricultural activity. While it occurs throughout the country, and in both rural and urban areas, livestock rearing was concentrated in the savannah agro-ecological zone where the three northern regions are located. Table 12.13 shows the types of livestock reared in the country and the numbers. Among the ruminants³⁰, the top three were 5.5 million goats, 3.2 million sheep and 2.4 million cattle.

In the bird category, there were approximately 16.6 million chicken, nearly 2 million guinea fowls, about 386 thousand ducks and 160 thousand doves. Among the other livestock (non-traditional livestock), reported grass-cutters and rabbits were 110 thousand and 104 thousand respectively. Approximately, about 80 percent of ruminants were reported from rural areas (Table 12.14). In the case of pigs, 73.2 percent were in rural areas while for birds, 89.0 percent of guinea fowls, 84.1 percent of ostrich and 55 percent of turkey were in reared rural areas.

Table 12.13: Livestock numbers and keepers by locality

Livestock	Total			Urban			Rural		
	No. of Animals	No. of Keepers	Av. Animals Per keeper	No. of Animals	No. of Keepers	Av. Animals Per keeper	No. of Animals	No. of Keepers	Av. Animals Per keeper
Total	31,715,053	1,833,988	17.3	6,788,459	315,127	21.5	24,926,594	1,518,861	16.4
Cattle	2,422,156	112,039	21.5	423,516	15,403	27.5	1,987,640	96,636	20.6
Sheep	3,198,516	274,217	11.7	626,980	43,290	14.5	2,571,536	230,927	11.1
Goat	5,501,113	526,290	10.5	1,111,517	91,592	12.1	4,389,596	434,698	10.1
Pig	816,742	63,923	12.8	218,843	10,248	21.4	597,899	53,675	11.1
Chicken	16,580,656	687,760	24.0	3,787,948	126,102	30.0	12,792,708	563,658	22.7
Guinea Fowl	1,936,749	92,647	20.9	213,165	9,845	21.7	1,723,584	82,802	20.8
Ostrich	75,299	3,447	21.9	11,939	566	21.1	63,360	2,881	22.0
Turkey	85,621	5,493	15.6	38,546	206	22.9	47,075	3,807	12.4
Duck	386,117	28,240	13.7	106,949	6,892	15.5	279,168	21,348	13.1
Dove	161,137	5,085	31.7	56,961	1,281	44.5	104,176	3,804	27.4
Grass-cutter	109,656	5,702	19.2	40,948	1,546	26.5	68,708	4,156	16.5
Rabbit	103,523	5,567	18.6	47,950	2,155	22.3	55,573	4,312	16.3
Snail	92,771	742	125.0	34,607	206	168.0	58,164	536	108.5
Beehives	66,107	2,525	26.2	14,694	511	28.8	51,413	2,014	25.5
Silk-worm	44,756	2,833	15.8	12,249	627	19.5	32,507	2,206	14.7
Other	145,134	15,478	9.4	41,647	3,177	13.1	103,487	12,301	8.4

Source: Ghana Statistical Service, 2010 Population and Housing Census

Since these activities are basically rural-based, over 60 percent of the keepers are also in rural areas. For instance, 61.3 percent of those in rabbit rearing to 96.3 percent of those involved in turkey rearing are in rural areas. Among the keepers of ruminants - pigs, chicken, guinea fowl and ostrich - more than 80 percent were in rural areas. For the other livestock keepers, the proportions in the rural areas ranged from 60 percent to 80 percent (Table 12.14).

³⁰Ruminants are animals that chew the cud and include cattle, sheep, goats and camels.

Table 12.14: Livestock and keepers by locality (percentage): 2010

Livestock	Animal Population			Keepers		
	Urban	Rural	Total	Urban	Rural	Total
Total	21.4	78.6	100.0	17.2	82.8	100.0
Cattle	17.5	82.5	100.0	13.7	86.3	100.0
Sheep	19.6	80.4	100.0	15.8	84.2	100.0
Goat	20.2	79.8	100.0	17.4	82.6	100.0
Pig	26.8	73.2	100.0	16.0	84.0	100.0
Chicken	22.8	77.2	100.0	18.3	81.7	100.0
Guinea Fowl	11.0	89.0	100.0	10.6	89.4	100.0
Ostrich	15.9	84.1	100.0	16.4	83.6	100.0
Turkey	45.0	55.0	100.0	3.7	96.3	100.0
Duck	27.7	72.3	100.0	24.4	75.6	100.0
Dove	35.3	64.7	100.0	25.2	74.8	100.0
Grass-cutter	37.3	62.7	100.0	27.1	72.9	100.0
Rabbit	46.3	53.7	100.0	38.7	61.3	100.0
Snail	37.3	62.7	100.0	27.8	72.2	100.0
Beehive	15.8	84.2	100.0	20.2	79.8	100.0
Silk worm	27.4	72.6	100.0	22.1	77.9	100.0
Other	28.7	71.3	100.0	20.5	79.5	100.0

Source: Ghana Statistical Service, 2010 Population and Housing Census

12.7.5 Fish Farming

Fish farming is not a common activity in agricultural households. According to the results, only 3,580 (0.22%) of the agricultural population was engaged in that activity. The proportion of households engaged in fish farming by age of the head and locality is shown in Table 12.15. Generally, the proportions are quite uniform by age due to the small numbers involved.

Table 12.15: Heads of households undertaking fish farming by age and locality of residence: 2010

Age Group	All		Urban		Rural	
	Total	% Fishing	Total	% Fishing	Total	% Fishing
Total	1,659,223	0.22	283,095	0.21	1,376,128	0.22
15-19	9,689	0.20	1,303	0.31	8,386	0.18
20-29	156,940	0.25	8,330	0.23	138,610	1.25
30-39	362,369	0.23	53,299	0.21	309,070	0.23
40-49	411,417	0.22	70,642	0.18	340,475	0.23
50-59	326,897	0.22	62,894	0.26	264,003	0.21
60+	391,911	0.18	76,327	0.18	315,584	0.18

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 12.16 shows the distribution of heads of agricultural households in fish farming by locality and education. About 44 percent of the heads had never been to school and 45 percent had had only up to Middle School education. Only 0.8 percent reported having achieved tertiary education.

As with the other animal husbandry activities, 84.0 percent of fish farming households were in rural communities. Among those in urban communities, 52.7 percent of the heads of households had had Primary /JHS/JSS/Middle school education compared to 43.3 percent was in rural areas. On the other hand, in the rural areas the heads in fish farming who had never been to school was 47.9 percent compared to 23.6 percent among those in urban areas.

Table 12.16: Heads of households in Fish Farming by locality of Residence and Education

Education	Urban		Rural		Total	
	No	%	No.	%	No.	%
Total	588	100	2,992	100	3,580	100
Never attended	139	23.6	1,432	47.9	1,571	43.9
Primary/JSS/JHS/Middle	310	52.7	1,296	43.3	1,606	44.9
SSS/SHS/Voc./Tech./Com.	86	14.6	235	7.9	281	7.8
Post Middle/Sec. Cert. & Dip	36	6.1	59	2.0	95	2.7
Tertiary	17	2.9	10	0.3	27	0.8

Source: Ghana Statistical Service, 2010 Population and Housing Census

12.8 Summary, Conclusion and Recommendations

12.8.1 Summary

For the first time, a census collected data on agricultural activities making it possible to analyze socio-economic and demographic characteristics of agricultural households. The population of agricultural household constituted 54.2 percent of the entire population and accounted for 45.8 percent of total households. The average household size was 5.3 persons compared to the national average of 4.4 persons. Over 70 percent of the heads of agricultural households were males and about three-quarters were in rural areas, reinforcing the links between rural areas and agriculture.

Of the agricultural households, 95.1 percent were engaged in crop farming, 40.5 percent were in livestock rearing while only 1.1 percent was in tree growing and 0.2 percent in fish farming. The literacy level of the heads of the agricultural households was low: About two-fifths were illiterate; about a third had had up to middle school level education and only about a tenth had had education beyond the middle school level.

12.8.2 Conclusion

Tree crop cultivation which include cocoa and which account for about 40 percent of gross domestic product accounted for only 1.1 percent of the agricultural population. This low proportion of the agricultural population in tree crop cultivation presents a challenge for the sector which will need to be addressed.

The high proportion of low level of education among agricultural population has implications for the sector as the adoption of modern farming technologies requires relatively higher levels of education and literacy, particularly, in English language.

Furthermore, the sector has relatively higher proportion of children and old people compared to the structure of population in the country. Thus, the situation whereby agricultural households are dominated by older persons plays out in the data. The observation presents opportunities for developing strategies to respond to the situation. To encourage young people to be in agriculture would also require improvement in rural environments where over 70 percent of agricultural activities are based.

Livestock rearing, tree growing, and fish farming in the country require effective promotion beyond what currently exists in order to encourage many agricultural households to go into those farming activities.

12.8.3 Recommendations

With the low level of formal education and literacy among heads of agricultural households as well as the other members engaged in farming activities, there should be a concerted effort to improve the literacy level of agricultural and rural populations. As observed in Chapter 7, the Non-formal adult education programme has stalled and this will need to be reactivated and target rural populations.

Aquaculture, which accounted for only 0.2 percent of the agricultural population, is an emerging area which will need to be encouraged. When done, it will help to provide the much needed protein for the growing population.

According to the Ghana Living Standards Surveys, people involved in agriculture and rural communities are poorer than any other group (Ghana Statistical Service, 2007). Any policy to deal with poverty will need to target rural areas where the majority of the agricultural population resides. Juxtaposing this with the evidence that incidence of poverty in male-headed households is higher compared to the female-headed households (Ghana Statistical Service, 2007) suggests that poverty reduction strategies should be economic activity specific.

References

- Central Bureau of Statistics (1972), 1970 Population Census of Ghana: Economic Characteristics Tables, Census Office, Accra (unpublished)
- Ghana Statistical Service (1987), 1984 Population Census of Ghana: Demographic and Economic Characteristics, Accra
- Ghana Statistical Service (1995), Analysis of Demographic Data: Preliminary Analysis Report, Vol. 1, Accra
- Ghana Statistical Service (1998), Core Welfare Indicators Questionnaire (CWIQ) Survey -1997, Main Report, Accra
- Ghana Statistical Service (2000), 2000 Population and Housing Census of Ghana; Unpublished Tables, Accra
- Ghana Statistical Service (2001), Core Welfare Indicators Questionnaire (CWIQ) Survey (1997), Accra
- Statistical Service (2002), 2000 Population and Housing Census: Summary Report of Final Results; Accra
- Ghana Statistical Service (2003), Ghana Child Labour Survey, Accra
- Ghana Statistical Service (2005a), 2000 Population and Housing Census in Ghana: Demographic, Economic and Housing Characteristics, Total Country, Accra
- Ghana Statistical Service (2005b), Population Data Analysis Report : Policy Implications of Population Trends; Vols. 1 and 2, Accra
- GSS (2007). Pattern and Trends of Poverty in Ghana: 1991-2006, Accra
- Ghana Statistical Service (2012), 2010 Population and Housing Census: Summary Report of Final Results, Accra
- Inst. of Statistical, Social and Economic Research (2000), The State of the Ghanaian Economy in 1999; University of Ghana, Legon
- Inst. of Statistical, Social and Economic Research (2011), The State of the Ghanaian Economy in 2010; University of Ghana, Legon

Nyanteng, V.K. and Dapaah, S.K. (1997). Agricultural Development Policies and Options in Policies and Options for Ghanaian Economic Development (2nd edition) (Nyanteng V.K. edited), Inst. of Statistical, Social and Economic Research, University of Ghana, Legon

CHAPTER THIRTEEN

PERSONS WITH DISABILITY³¹

13.1 Introduction

Persons with disabilities (PWD) have been defined as those who are unable to or are restricted in the performance of specific tasks/activities due to loss of function of some part of the body as a result of impairment or malformation (Ghana Statistical Service, 2012). As a result, PWDs face a wide range of life challenges because disability, in whatever form or type, can reduce an individual's ability to function to his/her full potential. Disability can limit an individual's full participation in a number of activities in life. Estimates from the World Health Organisation (WHO) estimates that there are more than 600 million PWDs in the world, of which approximately 80 percent live in low-income countries (Ayiku, 2012).

The 1992 Constitution of the Republic of Ghana provides for the guarantee of the fundamental human rights of all persons including PWDs. In addition, Ghana has signed, ratified and adopted international agreements, such as the Convention on the Rights of PWDs and the African Decade of the Disabled Persons which seek to protect the fundamental freedoms and human rights of all PWDs and to promote and respect their inherent dignity. Notwithstanding these statutes and conventions, PWDs have continued to experience various barriers that prevent their full and effective participation in society on an equal basis with persons without disability.

In Ghana, PWDs in general are marginalized and suffer from discrimination on account of their disability status. They are mostly regarded as less productive and not capable of contributing to development compared to their non-disabled counterparts. Accordingly, they are often seen as a burden on society and their unfortunate circumstances are viewed sometimes as a curse or punishment. Furthermore, they have poorer health status, lower educational achievements, less economic participation and higher levels of poverty than people without disabilities (World Health Organisation, 2011).

Disability is now considered a societal development issue because of its direct relationship to poverty. The development of a nation depends on the important contributions of not only a segment of the population but on the collective contributions of every individual, including PWDs. To this extent, government and civil society organizations in recent years have made progress in addressing disability issues, resulting in some positive gains in improving the lives of PWDs in Ghana. Notable among these is the Persons with Disability Act, 2006, (Act 715). The Act deals with issues such as rights, employment, education, transportation, housing facilities, effective health care, adequate medical rehabilitation services, generation and dissemination of relevant information and participation of PWDs in cultural activities. Pursuant to the passage of the Disability Act 2006 (Act 715), the National Council on Persons with Disability was

³¹This chapter was prepared by Rebecca Appiah, Ezekiel N. Nortey and Chris Amewu

established in line with Article 41 of the Persons with Disability Act. Additionally, the Ghana Shared Growth and Development Agenda (2010 – 2013) Volume 1, also includes the development and implementation of an action plan to fulfill the provisions of the Persons with Disability Act and the development of targeted social interventions for PWDs (National Development Planning Commission).

Currently, activities concerning PWDs are allocated a three percent share of the District Assembly Common Fund. This has brought some relief to PWDs, particularly those outside the formal sector of employment. The National Council on Persons with Disability, among other things, is mandate to propose and enact policies and programmes to enable PWDs to contribute towards national development. With limited success, the concerns of PWDs have been integrated in some programmes of national interest with their issues gradually being highlighted in society.

While recognizing government responsibility through these efforts, there are still challenges in providing equal opportunities for PWDs. Improving the conditions of PWDs will contribute to aspects of the overall development of the nation's human resources. With appropriate and well implemented policies, PWDs can live a meaningful and dignified life in society while contributing positively to society.

In an attempt to understand the situation of PWDs as a guide for policy formulation, the Ghana Statistical Service, for the first time, collected specific data on PWDs in the 2010 Population and Housing Census. This chapter discusses the socio-economic and demographic characteristics of PWDs from the data. It describes PWDs with respect to age groups, region, locality of residence, literacy, educational level, marital status, activity status, employment status, employment sector, occupation of PWDs and their housing conditions. For the purpose of comparison, there are instances where these characteristics of non-PWDs were also analysed. The chapter ends with summary, conclusion and recommendations.

13.2 Data Sources and Limitations

The 2010 Population and Housing Census asked individuals whether they had any serious disability, for example, visual/sight impairment, hearing impairment, intellectual disability and emotional or behavioural disorders, that limit full participation in life activities such as mobility, work and social life. Respondents were also requested to indicate whether they had more than one form of disability. Since previous censuses did not collect information on PWDs, comparison of the current results with previous censuses could not be undertaken.

13.3 Demographic characteristics of PWDs

13.3.1 Persons With Disability by region

Table 13.1 shows that there were 737,743 persons with some form of disability, and this constituted about three percent of the population of Ghana. However, the proportions vary marginally between regions with Volta recording the highest rate of 4.3 percent, followed closely

by Upper East 3.8 percent and Upper West 3.7 percent. The lowest rate of 2.3 percent was reported in Brong Ahafo region.

Table 13.1: Distribution of PWDs by region

Region	Total population		With a disability		Disability Rate*
	Number	Percent	Number	Percent	
All Regions	24,658,823	100.0	737,743	100.0	3.0
Western	2,376,021	9.6	66,016	8.9	2.8
Central	2,201,863	8.9	75,939	10.3	3.4
Greater Accra	4,010,054	16.3	103,939	14.1	2.6
Volta	2,118,252	8.6	91,767	12.4	4.3
Eastern	2,633,154	10.7	94,579	12.8	3.6
Ashanti	4,780,380	19.4	124,501	16.9	2.6
Brong Ahafo	2,310,983	9.4	54,038	7.3	2.3
Northern	2,479,461	10.1	61,294	8.3	2.5
Upper East	1,046,545	4.2	39,924	5.4	3.8
Upper West	702,110	2.8	25,746	3.5	3.7

Source: Ghana Statistical Service, 2010 Population and Housing Census

*PWDs in region divided by population in region expressed as a percentage

Table 13.2 shows the regional distribution of PWDs by type of disability. About 40 percent of all PWDs in Ghana had multiple disabilities. These varied from 29.7 percent in Upper East region to 45.5 percent in Volta region. Nationally, about 40 percent of PWDs had sight or visual impairments, which was the most common type of disability, followed by physical disability (25.4%), with other types of disability accounting for 10.4 percent. In eight regions, over four in every ten PWDs said they had sight impairment, with highest in the Volta region (44.3%) and lowest in the Northern region (28.7%). The regions with high percentages of PWDs with hearing impairment were Upper East (21.3%), Upper West (17.7%) and Northern (17.7%) regions. The lowest proportion with hearing impairment was in the Greater Accra region (10.3%). This phenomenon of Greater Accra region's low proportion may be attributed partly to the closer proximity of Greater Accra to centres that detect or diagnose hearing impairments early to address the situation than other regions.

There were also regional variations in the proportion of persons with speech impairments. Upper West (10.6%) and Brong Ahafo (16.6%) respectively had the lowest and highest proportions of PWDs with speech impairments. The proportion of PWDs with a physical disability was above 20 percent in all the regions of the country with the exception of Northern region (18.4%). Upper East (12.9%), Upper West (12.8%) and Central region (13.0%) reported the lowest proportions of PWDs with intellectual disabilities while Greater Accra and Volta recorded the highest proportions of 16.8 percent. Northern region (23.6%) had the highest proportion and Upper East (13.2%) the lowest proportion of persons with emotional disabilities.

Table 13.2: Distribution of disability type by region

Region	Population with disability	Disability type							More than one form of disability
		Number	Sight	Hearing	Speech	Physical	Intellectual	Emotional	
All Regions	737,743	40.1	15.0	13.7	25.4	15.2	18.6	10.4	38.3
Western	66,016	41.6	13.2	13.7	25.2	14.8	16.3	9.3	34.1
Central	75,939	42.9	14.1	12.9	28.6	13	15.3	8.2	35.1
Greater Accra	103,939	42.2	10.3	13.2	23.3	16.8	21.3	11.2	38.4
Volta	91,767	44.3	15.6	13.5	26.6	16.8	21.1	7.6	45.5
Eastern	94,579	42.3	15.9	15.2	29.4	15.6	18.1	7.9	44.5
Ashanti	124,501	40.2	14.5	14.1	25.9	14.4	16.1	10	35.3
Brong Ahafo	54,038	33.0	16.9	16.6	27.7	16	21.3	9.2	40.7
Northern	61,294	28.7	17.7	12.3	18.4	15.9	23.6	21.9	38.5
Upper East	39,924	40.0	21.3	12.4	21.9	12.9	13.2	8.1	29.7
Upper West	25,746	37.5	17.7	10.6	21	12.8	18.2	15.8	33.6

Source: Ghana Statistical Service, 2010 Population and Housing Census

Speech impairment and Intellectual disability are highly related and are often grouped under the Autism Spectrum Disorders (ASD). Autism is a developmental disorder that appears in the first three years of life and affects the brain's normal development of social and communication skills. Children or persons with autism need special care giving or attention to unearth their full potential in educational participation. Autism is a physical condition linked to abnormal biology and chemistry in the brain. The exact causes of these abnormalities remain unknown, but this is a very active area of research. There are probably several combinations of factors that lead to autism. Genetic factors seem to be important. For example, identical twins are much more likely than fraternal twins or siblings to both have autism. Similarly, language abnormalities are more common in relatives of autistic children. Chromosomal abnormalities and other nervous system (neurological) problems are also more common in families with autism. Autism now occurs in one in 100 child births and affects four males for every one female (August, Raz, & Baird, 1985).

In Ghana, not many institutions or centres are available for care giving for autistic children. The only notable one in the country of international standard is the New Horizon Special School. Located in Accra, it handles children that have some disabilities and also combines education with training in special skills for employment.

13.3.2 Persons With Disability by type of locality

Table 13.3 shows the distribution of PWDs by locality type. The data show that the percentage of PWDs living in rural areas was 54 percent with the rest (46%) in urban localities. With over 50 percent of the population in the 2010 PHC in urban areas (see Chapter Ten), the results indicate a disproportion share of PWDs in rural areas. The distribution of PWDs living in urban and rural areas by region shows variations: the proportions were higher in rural than in urban localities for

all regions except Greater Accra and Ashanti regions. Greater Accra and Ashanti had the highest proportion of their PWDs living in urban areas while Upper East and Upper West had the lowest proportions of PWDs living in urban localities. This situation mainly stems from the fact that Greater Accra and Ashanti are the most urbanized regions in Ghana. Having a greater proportion of PWDs in the rural areas implies that there is the need to consider their needs such as special schools and centres which will offer them opportunities to enhance their livelihoods in these rural settings.

Table 13.3: Distribution of PWDs by region and type of locality

Region	Locality type					
	Total		Urban		Rural	
	Number	Percent	Number	Percent	Number	Percent
All Regions	737,743	100	339,414	46.0	398,329	54.0
Western	66,016	100	26,801	40.6	39,215	59.4
Central	75,939	100	31,412	41.4	44,527	58.6
Greater Accra	103,939	100	94,181	90.6	9,758	9.4
Volta	91,767	100	25,797	28.1	65,970	71.9
Eastern	94,579	100	40,109	42.4	54,470	57.6
Ashanti	124,501	100	71,997	57.8	52,504	42.2
Brong Ahafo	54,038	100	23,344	43.2	30,694	56.8
Northern	61,294	100	16,259	26.5	45,035	73.5
Upper East	39,924	100	5,924	14.8	34,000	85.2
Upper West	25,746	100	3,590	13.9	22,156	86.1

Source Ghana Statistical Service, 2010 Population and Housing Census

Table 13.4 shows that visual or sight impairment was the most common type of disability among PWDs in both urban (40.8%) and rural (39.5%) areas, followed by physical disability (25.1%) in urban areas and (25.7%) in rural areas. However, the percentage of PWDs with hearing impairment was higher in rural (16.8%) than in urban (12.9%) localities. The percentage of PWDs with emotional challenges was higher in urban (19.5%) than in rural (17.7%) localities. Also, the percentage of persons with more than one form of disability was slightly higher in rural areas (38.9%) than in urban centres (37.7%).

Table 13.4: Distribution of disability type by locality

Type of disability	Total		Urban		Rural	
	Number	%	Number	%	Number	%
All disability	737,743	100	339,414	100	398,329	100
Sight	295,720	100	138,503	40.8	157,217	39.5
Hearing	110,625	100	43,658	12.9	66,967	16.8
Speech	101,096	100	46,051	13.6	55,045	13.8
Physical	187,522	100	85,265	25.1	102,257	25.7
Intellectual	112,082	100	52,548	15.5	59,534	14.9
Emotional	136,898	100	66,199	19.5	70,699	17.7
Other	76,692	100	35,289	10.4	41,403	10.4
Multiple disability	282,892	100	128,099	37.7	154,793	38.9

Source: Ghana Statistical Service, 2010 Population and Housing Census

13.3.3 Disability type by Sex

The sex ratios of PWDs (number of males to every 100 females), as shown in Table 13.5, reveal that in all regions except Northern Region, there were more female than male PWDs. Overall, there are only 90 male PWDs for every 100 female PWDs. The lowest sex ratio of 82 was found in Volta Region, indicating that in this region, there were only 82 male PWDs for every 100 female PWDs.

Table 13.5: Percentage distribution and sex ratio of PWDs by region and sex

Region	Total		Male Number	Female Number	Sex Ratio
	Number	Percent			
All Regions	737,743	100.0	350,096	387,647	90.3
Western	66,016	8.9	32,641	33,375	97.8
Central	75,939	10.3	34,416	41,523	82.9
Greater Accra	103,939	14.1	49,104	54,835	89.5
Volta	91,767	12.4	41,301	50,466	81.8
Eastern	94,579	12.8	44,034	50,545	87.1
Ashanti	124,501	16.9	58,112	66,389	87.5
Brong Ahafo	54,038	7.3	26,927	27,111	99.3
Northern	61,294	8.3	31,185	30,109	103.6
Upper East	39,924	5.4	19,580	20,344	96.2
Upper West	25,746	3.5	12,796	12,950	98.8

Source: Ghana Statistical Service, 2010 Population and Housing Census

The data on male and female PWDs by type of disability (Table 13.6) show that the percentage of females with sight or hearing impairment (42.1% and 15.6% respectively) was higher than the percentage of males (38.0% and 14.3%) with similar disabilities. However, the percentage of male PWDs with speech or intellectual disabilities (15.7% and 15.8%) was higher than that of females (11.9% and 14.6%) with the same disabilities. Almost two out of every five (38.3%) of PWDs had more than one type of disability with similar proportions for males (38.2%) and females (38.5%). These findings are consistent with international literature on male and female differentials in disability (Määttä, Tervo-Määttä, Taanila, Kaski, Livanainen, 2006).

Table 13.6: Distribution of disability type by sex

Total	Male		Female		Total	
	Number	Percent	Number	Percent	Number	Percent
Disability type	350,096	100	387,647	100	737,743	100
Sight	132,862	38.0	162,858	42.0	295,720	40.1
Hearing	50,125	14.3	60,500	15.6	110,625	15.0
Speech	54,859	15.7	46,237	11.9	101,096	13.7
Physical	87,872	25.1	99,650	25.7	187,522	25.4
Intellectual	55,306	15.8	56,776	14.6	112,082	15.2
Emotional	65,470	18.7	71,428	18.4	136,898	18.6
Other	37,323	10.7	39,369	10.2	76,692	10.4
Multiple disability	133,721	38.2	149,171	38.5	282,892	38.3

Source: Ghana Statistical Service, 2010 Population and Housing Census

13.3.4 Type of Disability by age and region

Table 13.7 shows the disability rates by age for the ten regions. In general, the rates of disability increase with age. The disability rate rose from 1.4 percent at age group 0–14 years to 3.1 percent for those aged 15–64 years then to 14 percent at age 65+ years. This pattern was the same in each region. For those aged 0–14 years, the disability rate was lowest in Ashanti and Brong Ahafo (1.2%) and highest in Upper West (1.7%). For those aged 15–64 years the rate ranged from 2.5 percent in Brong Ahafo to 4.6 percent in the Volta region. Even though rates of disability were relatively high for the elderly (65+ years), levels varied among the ten regions with Volta having the highest rate of 17.4 percent while Northern had the lowest rate at 8.8 percent.

Table 13.7: Distribution of disability rate by age and region

	All ages	0-14	15-64	65+
Total Population	24,658,823	9,450,398	14,040,893	1,167,532
With disability	737,743	132,881	441,405	163,457
Rates (Percent)				
All regions	3.0	1.4	3.1	14.0
Western	2.8	1.3	3.0	14.1
Central	3.4	1.4	3.7	16.7
Greater Accra	2.6	1.3	2.7	12.3
Volta	4.3	1.7	4.6	17.4
Eastern	3.6	1.4	3.8	16.3
Ashanti	2.6	1.2	2.7	13.5
Brong Ahafo	2.3	1.2	2.5	10.7
Northern	2.5	1.7	2.6	8.8
Upper East	3.8	1.7	3.9	15.6
Upper West	3.7	2.0	3.8	14.0

Source: Ghana Statistical Service, 2010 Population and Housing Census

13.4 Socio-economic characteristics of PWDs

13.4.1 Literacy of PWDs 11 years and older by region

As indicated in Table 13.8, 42.0 percent of PWDs could not read or write in any language, compared with only 25.9 percent of the total population. The levels of illiteracy varied among regions. The proportion of PWDs, 11 years and older, who were not literate in 2010, ranged from 20.4 percent in Greater Accra to 73.3 percent in both Northern and Upper East regions. Thirty-five percent of the PWDs were literate in English and a Ghanaian language. The proportions literate in English and a Ghanaian language were higher in the Ashanti and Greater Accra regions (43.8% and 43.3%) respectively and very low (8.8%) in Upper East. Furthermore, 14.3 percent was literate in English only. The proportion of PWDs that were literate in a Ghanaian language only was 7.5 percent and ranged from 0.9 percent in the Upper East to 12.8 percent in the Volta region.

Table 13.8: Distribution of literate PWDs (11 years +) by region

Literacy	All Regions	Region										Total
		Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brong Ahafo	Northern	Upper East	Upper West	
Not literate	42.0	38.2	43.5	20.4	42.1	35.8	34.7	47.9	73.3	73.3	71.0	269,069
English only	14.3	17.9	13.9	29.0	7.0	11.6	10.1	9.8	12.2	16.9	11.3	91,332
Ghanaian language only	7.5	6.2	6.3	5.0	12.8	11.4	10.3	6.6	1.4	0.9	1.4	48,094
English and Ghanaian language	35.3	36.8	35.7	43.3	37.2	40.6	43.8	35.1	12.9	8.8	16.0	226,245
English and French	0.3	0.3	0.2	0.7	0.2	0.2	0.2	0.2	0.0	0.0	0.0	1,589
English, French and Ghanaian Language	0.7	0.6	0.5	1.6	0.7	0.5	0.8	0.4	0.1	0.1	0.2	4,332
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Number	640,662	57,205	67,541	92,483	81,963	84,082	109,174	46,007	45,994	34,647	21,566	640,662

Source: Ghana Statistical Service, 2010 Population and Housing Census

13.4.2 Literacy levels of population aged 11 – 24 years by disability status

The importance of literacy levels of the population aged 11–24 years stems from the fact that by age 11 years one would have had primary schooling and by age 21 years, all things being equal, one would have completed tertiary education. Among the age group 20-24 years, 28.8 percent of females and 22.4 percent of males with disability were illiterate. Equal proportions of males and females (21.9%) with disability were literate in English only, but more males than females with disability were literate in English and a Ghanaian language irrespective of age.

The observed level of illiteracy among PWDs (20.9%) was higher than non-PWDs (12.1%). The proportions literate in a Ghanaian Language only and English and French were higher among PWDs compared to non-PWDs. Conversely, the proportions literate in English only and English and a Ghanaian language were higher among non-PWDs. For instance, of those aged 11–14 years who did not have any disability, 33.7 percent were literate in English only and 51.7 percent literate in English and a Ghanaian Language compared with 30.9% and 44.0% respectively among those with a disability. The trend was the same for the other age groups, 15–19 and 20–24 years.

Furthermore, while 16.6 percent of PWDs aged 11–14 years were not literate in any language, the proportion of those without disability who were not literate was 7.4 percent. Among those aged 20-24 years, 25.7 percent of PWDs were not literate compared with 17.7 percent among those without any disability. Thus, people with disability were disproportionately illiterate.

Table 13.9: Distribution of literacy by disability status of the population aged 11-24 years: 2010

Literacy/Disability Status	Total					Male				Female			
	N	%	11-14	15-19	20-24	Total	11-14	15-19	20-24	Total	11-14	15-19	20-24
Total													
Total	7,117,910	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None (Not literate)	869,913	12.2	8.2	11.1	17.9	10.4	8.2	10.0	13.7	14.0	8.3	12.2	21.6
English only	1,912,735	26.9	32.5	25.6	21.9	26.8	32.1	25.5	21.9	26.9	32.8	25.7	21.9
Ghanaian language only	395,539	5.6	6.4	4.6	5.5	5.1	6.2	4.3	4.5	6.0	6.6	4.9	6.4
English and Ghanaian language	3,836,922	53.9	51.8	57.1	53.1	56.3	52.4	58.8	58.1	51.6	51.2	55.4	48.6
English and French	24,793	0.3	0.2	0.3	0.5	0.4	0.3	0.3	0.5	0.3	0.2	0.3	0.4
English French and Ghanaian Language	77,963	1.1	0.9	1.2	1.2	1.0	0.8	1.0	1.2	1.2	1.0	1.4	1.2
Other	45	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-
Without disability													
Total	6,982,785	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None (Not literate)	841,658	12.1	8.1	10.9	17.7	10.2	8.0	9.8	13.5	13.8	8.1	12.0	21.5
English only	1,879,168	26.9	32.5	25.7	21.9	26.9	32.2	25.6	22.0	27.0	32.9	25.8	21.9
Ghanaian language only	386,912	5.5	6.4	4.6	5.5	5.1	6.2	4.3	4.5	6.0	6.5	4.9	6.3
English and Ghanaian language	3,774,278	54.1	51.9	57.2	53.3	56.5	52.5	58.9	58.3	51.7	51.3	55.5	48.7
English and French	24,288	0.3	0.2	0.3	0.5	0.4	0.3	0.3	0.5	0.3	0.2	0.3	0.4
English French and Ghanaian Language	76,437	1.1	0.9	1.2	1.2	1.0	0.8	1.0	1.2	1.2	0.9	1.4	1.2
Other	44	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-	0.0	-
With disability													
Total	135,125	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
None (Not literate)	28,255	20.9	17.5	19.3	25.7	19.3	17.3	18.3	22.4	22.5	17.6	20.4	28.8
English only	33,567	24.8	29.8	24.3	21.0	24.9	29.6	24.5	21.0	24.8	30.0	24.0	21.0
Ghanaian language only	8,627	6.4	6.9	5.6	6.5	6.0	6.8	5.4	5.8	6.8	7.1	5.8	7.2
English and Ghanaian language	62,644	46.4	44.6	49.1	45.3	48.5	45.2	50.5	49.3	44.3	43.9	47.7	41.6
English and French	505	0.4	0.3	0.4	0.4	0.3	0.2	0.3	0.5	0.4	0.3	0.5	0.4
English French and Ghanaian Language	1,526	1.1	1.1	1.4	1.0	1.0	0.9	1.1	0.9	1.3	1.2	1.7	1.1
Other	1	0.0	-	0.0	-	0.0	-	0.0	-	-	-	-	-

Source: Ghana Statistical Service, 2010 Population and Housing Census

13.4.3 Literacy of PWDs 11 years and older by Type of Disability

Table 13.10, which presents data on literacy among PWDs 11 years and older by type of disability shows that level of illiteracy was particularly pronounced for PWDs with hearing impairment (52.1%), physical (47.2%), intellectual (44.9%) and speech (43.8%) disabilities. The proportion literate in English and a Ghanaian Language was highest for those with emotional disability (37.4%) and lowest for those with hearing impairment (28.0%). Among those with speech and emotional disabilities, 15.4 percent and 16.9 percent persons respectively were literate in English only. The lowest reported language proficiency across all types of disability included English and French, French and Ghanaian Language as in the general population. PWDs with hearing disability reported the lowest level of literacy and this could be attributed to the low number of sign language instructors. These results are further highlighted in Figure 13.1.

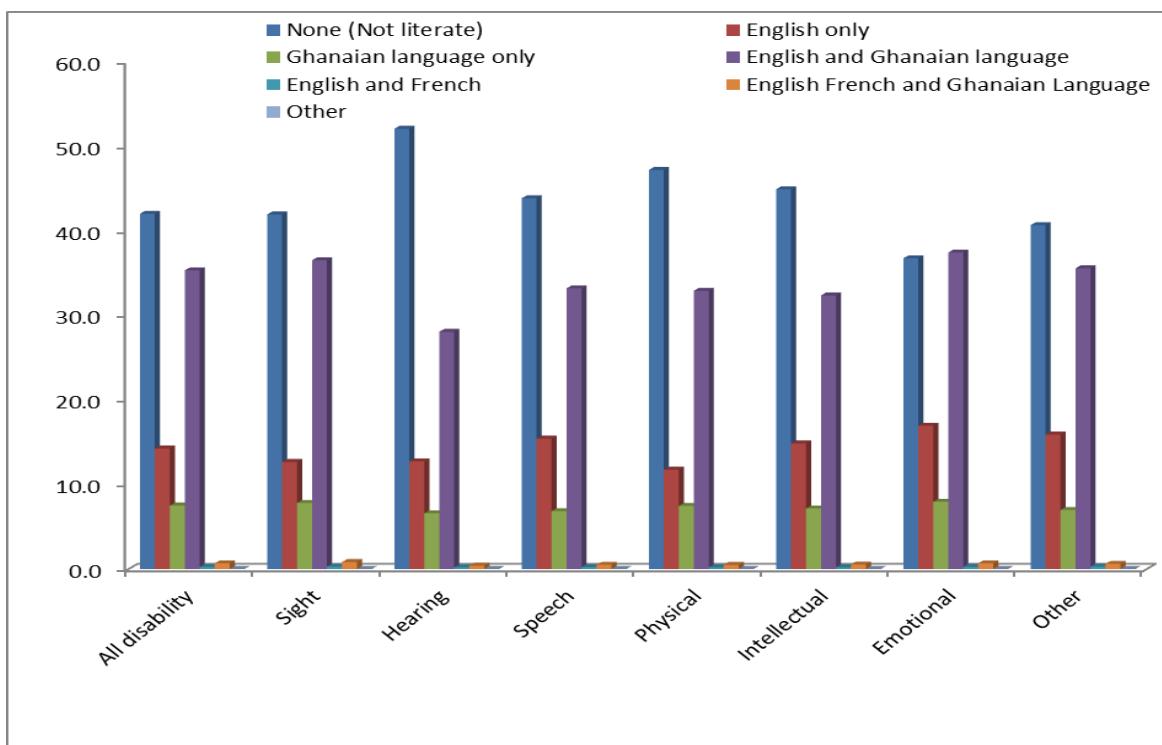
Table 13.10: Distribution of literate PWDs (11 years+) by disability type

Literacy	All disability	Disability type							Total
		Sight	Hearing	Speech	Physical	Intellectual	Emotional	Other	
Not literate	42.0	41.9	52.1	43.8	47.2	44.9	36.7	40.7	381,780
English only	14.3	12.7	12.7	15.4	11.8	14.8	16.9	15.9	120,116
Ghanaian language only	7.5	7.8	6.6	6.8	7.5	7.2	8.0	7.0	64,840
English and Ghanaian language	35.3	36.5	28.0	33.2	32.9	32.3	37.4	35.6	299,107
English and French	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.3	2,073
English French and Ghanaian Language	0.7	0.8	0.4	0.5	0.5	0.5	0.7	0.6	5,442
Other	0.0	0	0.0	0.0	0	0	0	0	2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Number	640,662	269,278	91,984	77,198	168,243	90,334	114,246	62,077	873360*

Source: Ghana Statistical Service, 2010 Population and Housing Census

* Multiple disability; 0.0 indicates a negligible proportion; and 0 is an absolute zero.

Figure 13.1: Distribution of PWDs (11 years +) by literacy and disability type



13.4.4 Level of education of PWDs, three years and older by region

The 2010 PHC asked questions on education for respondents three years and older. As presented in Table 13.11, out of the total population of PWDs three years and older, about 40 percent had never attended school and 44.5 percent had attended basic school. Furthermore, only about five percent had some post-secondary education up to post graduate level. With respect to the regions, about two out of three PWDs in the Upper East (68.2%), Northern (66.5%) and Upper West (65.7%) had never attended school. In contrast, in Greater Accra, only 20 percent of the PWDs had never attended school, followed by Ashanti (33.0%) and Eastern (34.5%).

Table 13.11: Distribution of PWDs three years and older by level of education and region

Level of education	All Regions	Region										Total
		Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brong Ahafo	Northern	Upper East	Upper West	
Never attended school	40.1	36.5	41.4	19.9	40.7	34.5	33.0	45.1	66.5	68.2	65.7	286,427
Pre-school	3.4	3.7	3.3	2.9	2.8	3.0	3.3	4.0	4.8	3.1	3.7	23,954
Primary/JHS/SHS/ Middle	44.5	47.2	45.3	48.3	47	51.7	48.7	41.6	23.4	23.9	24.3	310,467
SSS/SHS/ Secondary	6.5	6.4	4.8	13.6	4.7	4.9	7.9	5.6	3.5	2.8	3.0	46,330
Vocational/Technical/ Commercial	2.0	2.0	1.6	4.9	1.7	1.9	1.8	1.1	0.3	0.5	0.9	13,976
Post middle/ secondary certificate	1.4	1.4	1.0	1.9	1.6	1.6	1.7	1.1	0.8	0.6	1.0	9,918
Post-secondary diploma	1.7	2.1	1.3	4.1	1.1	1.3	1.9	1.0	0.5	0.5	0.8	12,206
Tertiary	1.4	0.9	1.2	4.4	0.5	1.0	1.7	0.5	0.2	0.4	0.6	10,122
Total	100	100	100	100	100	100	100	100	100	100	100	
Number	713,400	63,563	73,937	100,726	89,448	92,015	120,349	51,888	57,691	38,894	24,889	713,400

Source: Ghana Statistical Service, 2010 Population and Housing Census

13.4.5 Level of education of PWDs three years and older by type of disability

Table 13.12 presents the population three years and older with disability disaggregated by level of education and disability type. Among the various types of disabilities, 48.5 percent of persons with hearing impairments had never attended school, followed by those with physical (45.9%) and intellectual (42.7%) disabilities. Thirty-five percent of those with emotional disability had never attended school, the lowest proportion in that category. Furthermore, for PWDs with some education, over 40 percent had had basic (Primary, JSS/JHS and middle school) education, with the highest of 51.6 percent among those with emotional disability. Only 1.4 percent of PWDs had had tertiary education. The highest was 1.9 percent among those with sight impairment and the lowest of 07 percent among those with hearing impairment. Thus, the low school participation rate among PWDs with hearing disability is evident.

In Ghana, hearing aids and other hearing devices that help or facilitate communication between a teacher and a hearing impaired student are generally not available making it difficult for students with such challenges to cope. This situation affects their school attendance and subsequently they drop out of school.

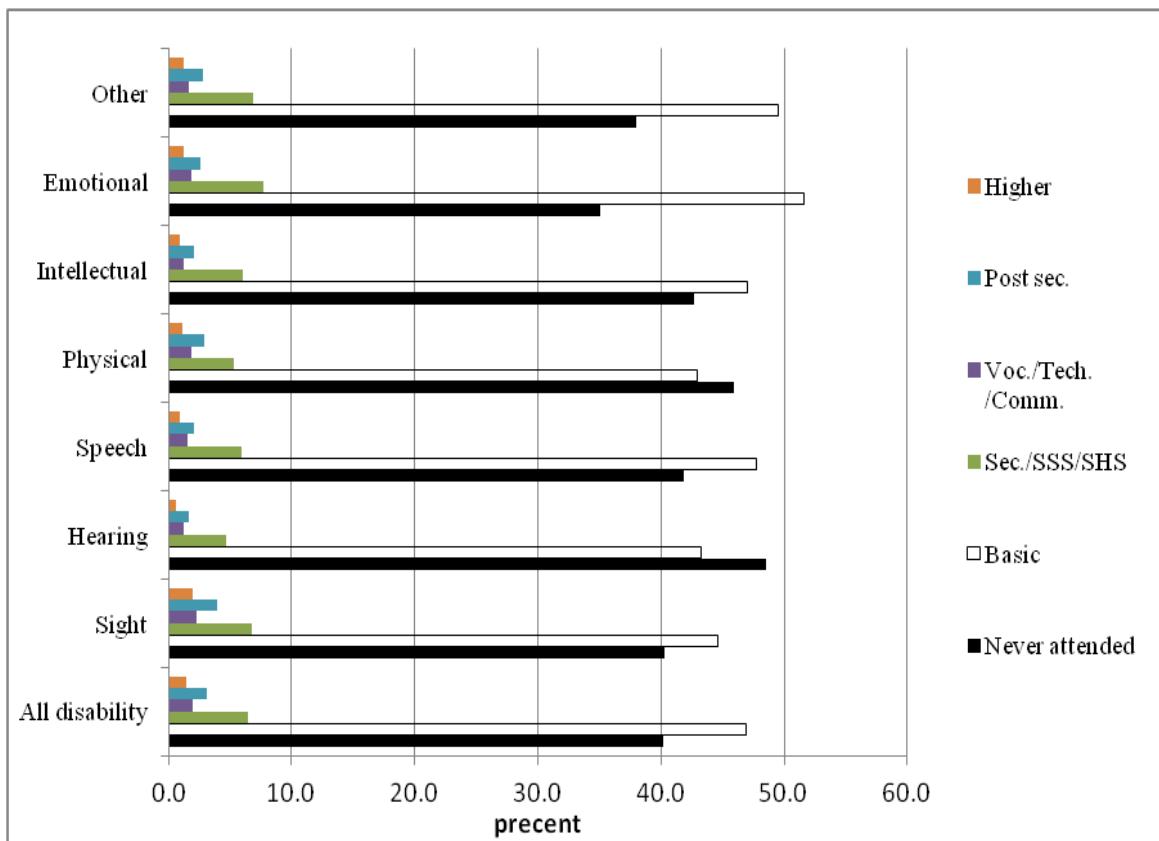
Table 13.12: Population three years and older with disability by level of education and disability type

Educational level	All disability	Disability type								Total
		Sight	Hearing	Speech	Physical	Intellectual	Emotional	Other		
Never attended	40.1	40.3	48.5	41.8	45.9	42.7	35.0	38.0	286,427	
Basic	47.0	44.7	43.2	47.8	42.9	47.0	51.6	49.6	334,421	
Secondary/SSS/SHS	6.5	6.8	4.6	5.9	5.3	6.1	7.7	6.9	46,330	
Vocational/Technical/Commercial	2.0	2.3	1.3	1.5	1.9	1.3	1.8	1.6	13,976	
Post-secondary diploma/certificate	3.1	4	1.7	2.1	2.9	2.1	2.6	2.8	22,124	
Tertiary	1.4	1.9	0.7	0.9	1.1	0.9	1.2	1.2	10,122	
Total	100	100	100	100	100	100	100	100	100	
Number	713,400	288,868	106,440	94,357	182,252	105,631	130,852	72,789		

Source: Ghana Statistical Service, 2010 Population and Housing Census

* Note that there may be respondents with more than one form of disability

Figure 13.2: Educational level of PWDs (three years +) by type of disability



Source: Ghana Statistical Service, 2010 Population and Housing Census

13.4.6 PWDS and non-PWDs aged 6-24 years by level of education

Data presented in Table 13.13 show that 20.6 percent of PWDs aged 6–24 years had never attended school, compared with 11.5 percent for persons without disability in the same age group. Generally, for each level of education, there are a higher proportion of those without disability than those with a disability. Furthermore, at every age more males than females with disability had ever attended school. This pattern occurs among all age groups except for age group 6-9 years where slightly less females (19.5%) than males (20.3%) had never attended school.

At the basic level, there were higher proportions of males than females with disability in all the age groups. However, 10.3 percent, 1.0 percent, 1.6 percent of females and 9.9 percent, 0.7 percent and 1.2 percent males respectively among those with disability had attained secondary, vocational and post-secondary diploma/certificate education.

Table 13.13: Population aged 6-24 years by disability status and level of education

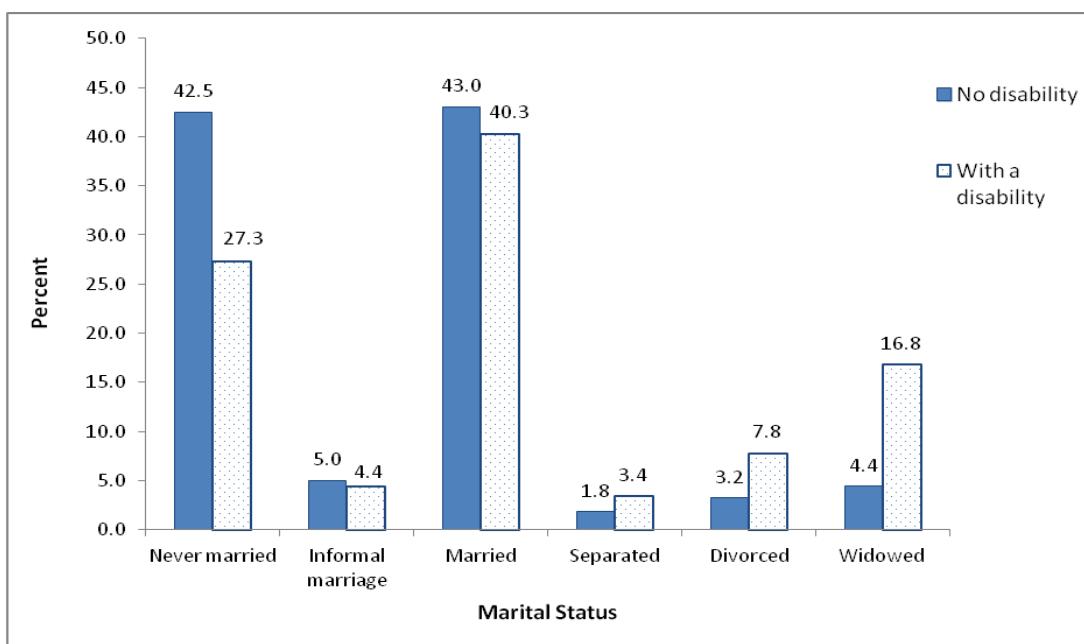
Level of education/Disability Status	Total						Male					Female				
	N	%	6-9	10-14	15-19	20-24	Total	6-9	10-14	15-19	20-24	Total	6-9	10-14	15-19	20-24
Total	10,325,466	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Never attended	1,205,872	11.7	10.8	8.5	11.1	17.9	10.4	10.8	8.5	10.0	13.7	12.9	10.7	8.5	12.2	21.6
Basic	7,586,475	73.5	89.2	89.4	65.5	43.4	74.0	89.2	89.5	66.8	42.2	73.0	89.3	89.3	64.2	44.6
Secondary/SSS/SHS	1,158,278	11.2	0.0	2.1	21.5	24.7	11.7	0.0	2.0	21.3	28.5	10.7	0.0	2.2	21.7	21.3
Vocational/Technical/Commercial	72,224	0.7	0.0	0.0	0.6	2.4	0.7	0.0	0.0	0.6	2.4	0.7	0.0	0.0	0.6	2.4
Post sec diploma/certificate	181,913	1.8	0.0	0.0	0.5	7.2	1.8	0.0	0.0	0.5	7.7	1.8	0.0	0.0	0.6	6.8
Tertiary	120,704	1.2	0.0	0.0	0.7	4.4	1.4	0.0	0.0	0.7	5.6	1.0	0.0	0.0	0.7	3.3
Without disability																
Total	10,143,786	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Never attended	1,168,440	11.5	10.6	8.4	10.9	17.7	10.3	10.7	8.4	9.8	13.5	12.7	10.6	8.4	12.0	21.5
Basic	7,465,899	73.6	89.4	89.6	65.6	43.4	74.1	89.3	89.7	66.8	42.0	73.1	89.4	89.5	64.3	44.6
Secondary/SSS/SHS	1,139,977	11.2	0.0	2.1	21.6	24.8	11.8	0.0	2.0	21.5	28.7	10.7	0.0	2.2	21.8	21.4
Vocational/Technical/Commercial	70,715	0.7	0.0	0.0	0.6	2.4	0.7	0.0	0.0	0.6	2.4	0.7	0.0	0.0	0.6	2.4
Post sec diploma/certificate	179,367	1.8	0.0	0.0	0.5	7.3	1.8	0.0	0.0	0.5	7.7	1.8	0.0	0.0	0.6	6.8
Tertiary	119,388	1.2	0.0	0.0	0.7	4.4	1.4	0.0	0.0	0.7	5.6	1.0	0.0	0.0	0.7	3.3
With disability																
Total	181,680	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Never attended	37,432	20.6	19.9	17.9	19.2	25.7	19.4	20.3	17.6	18.1	22.4	21.8	19.5	18.1	20.3	28.8
Basic	120,576	66.4	80.1	80.1	61.9	46.1	68.0	79.7	80.5	64.7	47.3	64.7	80.5	79.7	59.1	45.0
Secondary/SSS/SHS	18,301	10.1	0.0	2.1	17.3	18.7	9.9	0.0	1.9	15.7	21.0	10.3	0.0	2.2	18.9	16.6
Vocational/Technical/Commercial	1,509	0.8	0.0	0.0	0.7	2.3	0.7	0.0	0.0	0.7	2.1	1.0	0.0	0.0	0.8	2.6
Post sec diploma/certificate	2,546	1.4	0.0	0.0	0.4	4.8	1.2	0.0	0.0	0.3	4.4	1.6	0.0	0.0	0.5	5.1
Tertiary	1,316	0.7	0.0	0.0	0.4	2.3	0.8	0.0	0.0	0.4	2.7	0.7	0.0	0.0	0.3	2.0

Source: Ghana Statistical Service, 2010 Population and Housing Census

13.5 Marital status of PWDs and non-PWDs 12 years and older

Data on PWDs and non-PWDs, 12 years and older, by marital status are presented in Figure 13.3. There were variations among the distribution of PWDs and non-PWDs across the various categories of marital status. A larger proportion of non-PWDs (42.5%) have never married compared with PWDs (27.3%) while higher proportion of non-PWDs were currently married (43.0%) compared with PWDs (40.3%). The reverse is true for divorced (3.2% non-PWDs and 7.8% PWDs) and widowed (4.4% and 16.8% respectively). All other categories have similar or approximately equal proportions for PWDs and non-PWDs. This gap between PWDs and non-PWDs that are widowed may possibly be attributed to the fact that re-marriage among widowed PWDs is less likely than for non-PWDs that were widowed.

Figure 13.3: Distribution of PWDs and Non-PWDs, 12 years and older by marital status



Source: Ghana Statistical Service, 2010 Population and Housing Census

Data on PWDs by type of disability and marital status showed that 27.3 percent of those with disability had never had formal education (Table 13.14). Among those with intellectual or speech disabilities 46.9 percent and 46.1 percent respectively had never married, the highest among the groups. Those with sight impairments had the lowest proportion never married (17.6%) persons. The highest proportions married were found among PWDs with sight (45.3%), hearing (37.9%), physical (37.0%) and emotional (36.5%) challenges. Those with intellectual problems had the lowest proportion of married (29.0%). Physically challenged PWDs had one of the lowest proportions of never married (23.5%) but the highest proportion divorced (9.5%) and widowed (22.4%). Thus, in general, impairment does not seem to be a major barrier for marriage.

Table 13.14: Distribution of PWDs (12 years+) by disability type and marital status

Marital status	All disability	Disability Type							Total
		Sight	Hearing	Speech	Physical	Intellectual	Emotional	Other	
Never married	27.3	17.6	28.8	46.1	23.5	46.9	37.4	32.8	250,739
Informal/Consensual union/Living together	4.4	3.7	3.4	4	3.6	3.9	6.2	4.1	34,909
Married	40.3	45.3	37.9	33.1	37	29	36.5	41.3	333,746
Separated	3.4	3.4	2.9	2.8	3.9	3.6	3.5	3	29,309
Divorced	7.8	8.3	6.7	5.3	9.5	6.6	6.8	6.8	65,679
Widowed	16.8	21.8	20.2	8.6	22.4	10.1	9.6	11.9	147,316
Total	100	100	100	100	100	100	100	100	
Number	632,718	267,036	90,257	75,335	166,785	88,726	112,460	61,099	861,698*

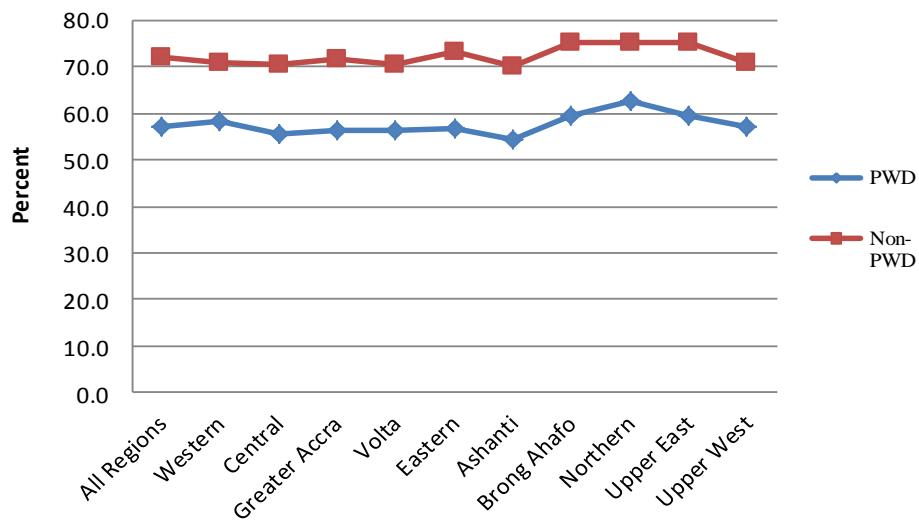
Source: Ghana Statistical Service: 2010 Population and Housing Census

*Multiple disabilities.

13.6 Activity status of PWDs 15 years and older

Activity status refers to the economic and non-economic activity of persons during the reference period (the seven days preceding the census night). Persons who worked for pay, profit or family gain, those who did not work but had jobs to return to and those unemployed, are referred to as economically active. The economically not active are persons who did not work and were not seeking for work. These include homemakers, students, retired persons, disabled and are unable to work and those with ill-health or too old to work. Table 13.15 and Figure 13.4 show a wide gap between the proportions of PWDs and non-PWDs who are economically active. While the proportion of economically active persons among non-PWDs is 72 percent, the corresponding proportion for PWDs is 57 percent. This means that the proportion of PWDs who are not economically active was much higher than the proportion for non-PWDs. This pattern was similar across all regions. However, the differences in the proportion of economically active and economically non-active PWDs among the regions were minimal, Ashanti had the highest proportion of economically not active (45.7% of PWDs), while the Northern region reported the lowest (37.2%) (Table 13.15). The pattern of economic activity across the regions was very similar for non-PWD and PWDs.

Figure 13.4: Economically Active PWDs and Non-PWDs by region



Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 13.15: Population with disability 15 years and older by sex, activity status and region

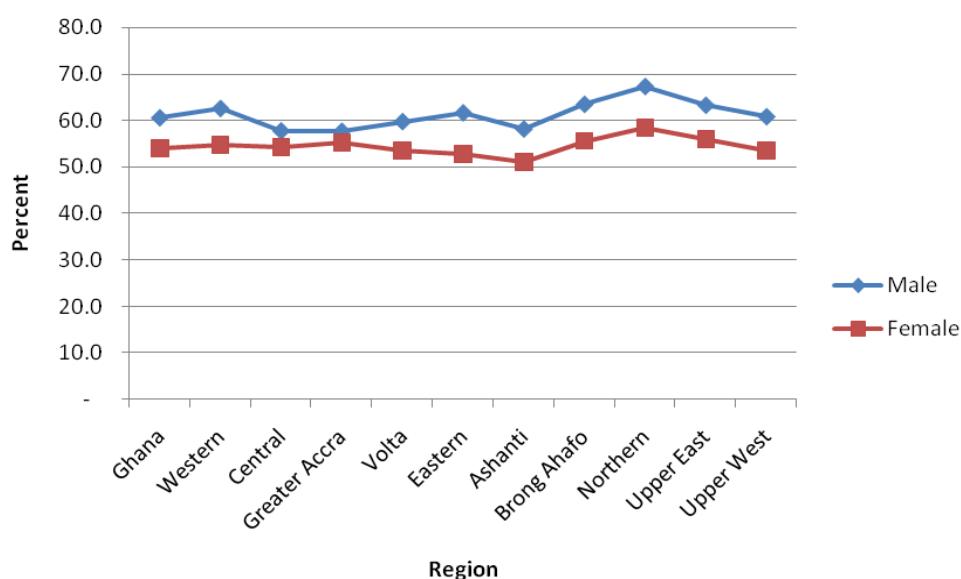
Region	Total			Male			Female					
	N	%	Econo-mically active	Not active	N	%	Econo-mically active	Not active	N	%	Econo-mically active	Not activ e
Total	604,862	100.0	57.1	42.9	280,055	100.0	60.6	39.4	324,807	100.0	54.0	46.0
Western	54,055	100.0	58.5	41.5	26,259	100.0	62.6	37.4	27,796	100.0	54.7	45.3
Central	64,040	100.0	55.8	44.2	28,082	100.0	57.8	42.2	35,958	100.0	54.2	45.8
Greater Accra	87,997	100.0	56.4	43.6	40,966	100.0	57.7	42.3	47,031	100.0	55.2	44.8
Volta	78,171	100.0	56.2	43.8	34,071	100.0	59.8	40.2	44,100	100.0	53.5	46.5
Eastern	80,023	100.0	56.8	43.2	36,348	100.0	61.6	38.4	43,675	100.0	52.8	47.2
Ashanti	102,973	100.0	54.3	45.7	46,895	100.0	58.2	41.8	56,078	100.0	51.1	48.9
Brong Ahafo	42,918	100.0	59.4	40.6	21,018	100.0	63.4	36.6	21,900	100.0	55.6	44.4
Northern	42,225	100.0	62.8	37.2	21,255	100.0	67.2	32.8	20,970	100.0	58.4	41.6
Upper East	32,490	100.0	59.5	40.5	15,567	100.0	63.2	36.8	16,923	100.0	56.0	44.0
Upper West	19,970	100.0	57.0	43.0	9,594	100.0	60.8	39.2	10,376	100.0	53.5	46.5

Source: Ghana Statistical Service, 2010 Population and Housing Census

13.6.1 Activity status of persons with disability by sex

As indicated in Table 13.5, there were variations by sex and region in the proportions of persons with disability who were economically active. At both the national and regional levels there were more males than females with disability. For instance, the economically active male proportions in the regions ranged from 67.2 percent in Northern to 57.7 percent in Greater Accra. For the females, the highest was also in Northern (58.4%) and the lowest was in Ashanti (51.1%) region. Figure 13.5 also shows that the variation in proportions between the sexes was highest in Northern and Eastern and lowest in Greater Accra.

**Figure 13.5: Percentage of economically active Population with disability
15 years and older by sex and region**



13.6.2 Employed PWDs 15 years and older by socio-economic characteristics and region

Data on employed PWDs 15 years and older by occupation, status in employment, institutional sector of employment and region are presented in Table 13.16. The three most common occupations in which PWDs were employed, for all regions, were agriculture, forestry and fisheries (49.5%), service and sales (17.9%), and crafts and related trades (13.8%). The proportion of PWDs engaged in agriculture, forestry and fishery was highest for the three northern regions: Northern (77.2%), Upper East (77.2%) and Upper West (75.2%); and lowest for Greater Accra (6.5%). For those engaged in service and sales works (17.9% overall), they were found in the Greater Accra (34.8%), Ashanti (22.6%) and Eastern (17.3%) regions while the three northern regions had the lowest engagements of employed PWDs in this occupational category. The patterns observed among the PWDs are similar to those among nonPWDs (see Chapter 11).

The data further showed that about two-thirds (66.2%) of employed PWDs were self-employed without employee(s) followed by 14.6 percent as employees and 9.6 percent contributing family workers. Only 2.0 percent of PWDs were casual workers, 1.7 percent was in apprenticeship (1.7%) and 0.6 percent was domestic employees. In all regions, except Greater Accra, between 60.0 percent (Upper West) and 77.6 percent (Volta region) employed PWDs were self-employed without employees. In the case of Greater Accra, a third (32.9%) were employees. For PWDs in the employee category, the proportions for the other regions ranged from 1.5 percent in Upper East to 17.0 percent and 16.9 percent in Western and Ashanti respectively. Contributing family workers constituted 9.6 percent of employed PWDs overall but ranged from 2.4 percent in Greater Accra to over 20 percent in the three northern regions and highest at 28.9 percent in Upper West.

With respect to institutional sector of employment, about 90 percent of all employed PWDs were in the private informal sector and only about five percent were engaged in the public (Governmental) sector of employment. There were variations in the regional distribution of the proportion of PWDs engaged in the private informal sector with the three northern regions having the highest proportions: Upper East (95.4%), Northern (95.2%) and Upper West (94.2%) while Greater Accra (74.6%) had the lowest and comparatively the highest proportion in the public sector (8.4%) and the private formal (15.6%), reflecting the different employment opportunities within the Greater Accra region.

13.6.3 Employed PWDs 15 years and older by socio-economic characteristics and type of Disability

Overall, and for each disability type, agriculture, forestry and fisheries constituted the largest occupation group (49.5%), followed by service and sales (17.9%) and crafts and related trades (13.8%) (Table13.17). For example, almost three-fifths (58.7%) of persons with hearing disability were in agriculture, forestry and fisheries..

Table 13.16: Employed PWDs (15 years+) socio-economic characteristics and region

Industry/Occupation/Employment Status/Employment Sector	Region											
	All Regions		Western		Central		Greater Accra		Volta		Eastern	
	Number	%	%	%	%	%	%	%	%	%	%	%
Occupation - Major Groups												
Total	327,200	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Managers	7,884	2.4	2.1	1.8	5.8	1.8	2.2	2.8	1.5	0.8	0.7	1.0
Professionals	14,997	4.6	4.5	3.9	8.5	3.5	4.4	5.9	3.5	2.3	1.9	2.4
Technicians and associate professionals	5,009	1.5	1.5	1.1	3.7	1.0	1.3	1.7	1.1	0.5	0.6	0.9
Clerical support workers	3,880	1.2	1.1	0.9	3.2	0.7	0.8	1.5	0.7	0.3	0.4	0.3
Service and sales workers	58,428	17.9	15.1	16.5	34.8	15.1	17.3	22.6	12.4	7.0	6.8	6.4
Skilled agricultural, forestry and fishery workers	161,810	49.5	53.1	53.2	6.5	54.0	52.4	39.3	66.1	77.2	77.2	75.2
Craft and related trades workers	45,193	13.8	11.3	15.0	20.5	17.1	13.2	14.5	9.1	7.1	8.9	10.3
Plant and machine operators and assemblers	10,190	3.1	5.6	2.2	5.2	2.0	3.0	4.0	2.3	1.0	1.1	1.0
Elementary occupations	19,492	6.0	5.6	5.4	11.6	4.6	5.4	7.6	3.3	3.8	2.3	2.5
Other occupations	339	0.1	0.2	0.0	0.4	0.1	0.0	0.0	0.0	0.1	0.0	0.0
Status in Employment												
Total	327,200	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employee	47,741	14.6	17.0	12.1	32.9	8.9	12.4	16.9	10.4	5.9	5.1	6.0
Self-employed without employee(s)	216,465	66.2	64.7	72.5	51.0	77.6	72.5	63.7	67.6	61.2	68.6	60.2
Self-employed with employee(s)	16,909	5.2	5.2	4.2	7.7	3.0	5.4	7.4	5.8	3.6	2.3	1.9
Casual worker	6,481	2.0	2.4	1.7	2.4	1.8	1.7	2.5	1.9	1.7	1.0	1.4
Contributing family worker	31,544	9.6	8.7	7.5	2.4	7.2	6.0	5.9	11.7	25.5	21.3	28.9
Apprentice	5,459	1.7	1.3	1.4	2.7	0.9	1.4	2.9	1.8	0.8	0.7	0.8
Domestic employee (Househelp)	1,972	0.6	0.6	0.5	0.8	0.5	0.5	0.6	0.6	0.9	0.7	0.6
Other	629	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.2	0.4	0.2	0.1
Institutional sector of employment												
Total	327,200	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Public (Government)	17,731	5.4	5.8	4.6	8.4	4.3	5.6	6.4	4.8	3.1	3.1	4.0
Private Formal	16,769	5.1	6.4	3.3	15.6	2.1	3.4	5.6	2.6	1.3	1.1	1.3
Private Informal	290,684	88.8	87.0	91.7	74.6	93.1	90.6	87.3	92.2	95.2	95.4	94.2
Semi-Public/Parastatal NGOs (Local and International)	335	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.1
Other International Organisation	1,584	0.5	0.6	0.3	0.1	0.4	0.2	0.6	0.2	0.3	0.4	0.4
	97	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Note that 0.0 indicates a negligible proportion

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 13.17: Employed PWDs (15 years+) by socio-economic characteristics and disability type

Occupation/Status in employment/ Sector of employment	All disability		Disability types						
	Number	%	Sight %	Hearing %	Speech %	Physical %	Intellectual %	Emotional %	Other %
Occupation - Major Groups									
Total	327,200	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Managers	7,882	2.4	2.9	1.5	1.8	2.6	1.9	2.3	2.0
Professionals	14,977	4.6	5.7	2.5	3.4	4.8	3.3	3.8	3.8
Technicians and associate professionals	5,009	1.5	1.8	0.9	1.4	1.6	1.1	1.4	1.4
Clerical support workers	3,880	1.2	1.4	0.7	0.9	1.3	1.0	1.1	1.0
Service and sales workers	58,428	17.9	18.2	15.0	15.9	17.7	17.6	19.6	17.8
Skilled agricultural forestry and fishery workers	61,810	49.5	49.6	58.7	51.2	47.7	50.2	46.0	50.1
Craft and related trades workers	45,193	13.8	12.3	13.1	15.2	15.9	13.9	14.3	13.9
Plant and machine operators and assemblers	10,190	3.1	2.7	2.5	4.0	2.9	3.3	4.1	3.4
Elementary occupations	19,492	6.0	5.3	5.0	6.0	5.5	7.6	7.2	6.4
Other occupations	339	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1
Status in employment									
Total	327,200	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Employee	47,741	14.6	16.1	10.0	14.7	13.2	13.4	15.2	13.6
Self-employed without employee(s)	16,465	66.2	67.6	68.8	61.8	68.7	61.4	63.3	64.4
Self-employed with employee(s)	16,909	5.2	5.8	4.1	4.5	5.5	4.0	5.0	5.1
Casual worker	6,481	2.0	1.6	2.0	2.3	1.8	3.0	2.6	2.2
Contributing family worker	31,544	9.6	7.0	12.3	13.2	8.6	15.0	11.0	11.9
Apprentice	5,459	1.7	1.0	1.9	2.6	1.5	2.3	2.1	1.9
Domestic employee (Househelp)	1,972	0.6	0.6	0.7	0.7	0.6	0.8	0.7	0.7
Other	629	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2
Sector of employment									
Total	327,200	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Public (Government)	17,731	5.4	6.7	3.2	4.6	5.4	4.1	4.7	4.7
Private Formal	16,769	5.1	5.8	3.4	5.1	4.2	4.6	5.7	4.8
Private Informal	290,684	88.8	86.8	92.9	89.8	89.8	90.8	89.2	89.9
Semi-Public/Parastatal	335	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
NGOs (Local and International)	1,584	0.5	0.6	0.4	0.4	0.5	0.4	0.4	0.5
Other International Organisations	97	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Ghana Statistical Service, 2010 Population and Housing Census

Data on employment status of PWDs showed that more than 60 percent of PWDs with sight (67.6%), hearing (68.8%), speech (61.8%), physical (68.8%), intellectual (61.4%), emotional (63.3%) and other types of disabilities (64.4%) were self-employed without employee(s). A higher proportion of those with sight, speech, physical, emotional or other disabilities were employees than contributing family workers, whereas the reverse was the case for those with hearing or intellectual impairment. Casual worker, apprentice and domestic employee were the lowest observed proportions for all types of disability.

In the previous section it was noted that the private informal sector employed almost 90.0 percent of all working PWDs. The data presented here also show that for each type of disability PWDs were employed in the private informal sector. PWDs with sight impairment (6.7 %), physical challenges (5.4%), or emotional problems (4.7%) were the most likely to be employed in the public sector. In addition PWDs with sight (5.8%), emotional 5.7%, or speech problems (5.1%) were employed in the private formal sector.

13.7 PWDs 15 years and older by type of dwelling and region

It is also important to understand the type of housing units occupied by PWDs and some of the basic amenities in those housing units. Analysing these will provide some indication on the well-being or otherwise of PWDs.

Table 13.18 presents summary data of the type of dwelling units in which PWDs live by region. The most common type of dwelling unit of PWDs was compound house units, accommodating more than half (52.8%) of PWDs. This may be related to the Ghanaian extended family system and nature of housing, especially in rural areas. This was the case for all regions except Volta (42.6%) and Western (46.1%) where less than half of PWDs lived in compound houses. The Northern region had the highest proportion (66.5%) followed by Greater Accra (57.6%) and Upper East (56.2%). Separate housing unit was the next most likely of all dwelling types and was the dwelling unit for 28 percent of PWDs. Northern region had the least proportion (14.0%) while Volta region had the highest proportion (44.6%) for this category of dwelling unit. For the category of huts/building on the same compound, Northern and Upper East regions had the largest proportions of 12.6 percent and 14. 9 percent respectively.

13.7.1 PWDs, 15 years and older by type of holding/tenancy arrangements and region

The three dominant holding/tenancy arrangements were owner-occupied housing, renting and rent-free housing units (Table 13.19). These three holding/tenancy arrangements constituted about 90 percent of all tenancy arrangements for PWDs. Nationally, about six out of ten (62.3%) of all PWDs lived in owner occupied dwelling units. Upper East (94.0%), Northern (92.1%) and Upper West (91.4%) had the three largest proportions for this category, whereas Greater Accra had the lowest proportion (46.8%) closely followed by Ashanti (48.0%). The second most common holding/tenancy arrangement was renting which constituted 17.4 percent of all dwelling units occupied by PWDs. This was highest in Greater Accra (32.4%), Ashanti (24.9%) and Western (20.3%) regions.

Table 13.18: Distribution of PWDs by type of dwelling and region

Type of dwelling	Total household population		All regions		Western	Central	Greater Accra	Volta	Eastern	Ashanti region	Brong Ahafo	Northern	Upper east	Upper west
	N	%	N	%	%	%	%	%	%	%	%	%	%	%
Total	24,075,944	100.0	716,453	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Separate house	6,748,249	28.0	200,354	28.0	33.4	31.2	18.6	44.6	30.9	24.4	33.0	14.0	17.2	29.0
Semi-detached house	1,699,951	7.1	50,720	7.1	10.0	7.3	8.8	6.5	6.7	7.6	5.3	4.0	3.5	9.9
Flat/Apartment	1,045,964	4.3	26,743	3.7	5.5	3.1	6.6	1.5	2.5	7.5	1.8	0.7	0.5	0.6
Compound house (rooms)	12,720,487	52.8	384,468	53.7	46.1	54.5	57.6	42.6	54.9	54.2	53.0	66.5	56.2	53.8
Huts/Buildings (same compound)	981,825	4.1	30,124	4.2	3.0	1.8	1.3	3.4	3.2	2.4	4.5	12.6	14.9	3.5
Huts/Buildings (different compound)	192,892	0.8	6,664	0.9	0.7	0.4	0.3	0.6	0.5	0.4	0.6	1.2	7.0	1.6
Tent	45,997	0.2	1,388	0.2	0.3	0.2	0.2	0.2	0.2	0.1	0.2	0.3	0.2	0.2
Improvised home (kiosk/container etc)	265,589	1.1	6,709	0.9	0.6	0.6	3.8	0.2	0.4	1.1	0.4	0.1	0.1	0.0
Living quarters attached to office/shop	70,100	0.3	1,994	0.3	0.2	0.2	0.6	0.1	0.3	0.3	0.1	0.2	0.2	0.1
Uncompleted building	268,695	1.1	6,051	0.8	0.2	0.6	1.8	0.2	0.4	1.6	0.9	0.4	0.2	1.3
Other	36,195	0.2	1,238	0.2	0.1	0.2	0.4	0.1	0.2	0.2	0.2	0.1	0.1	0.1

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 13.19: Distribution of PWDs by Present holding/tenancy arrangement and region

Present holding/ tenancy arrangement	Total household population		All regions		Western	Central	Greater Accra	Volta	Eastern	Ashanti region	Brong Ahafo	Northern	Upper East	Upper West
	N	%	N	%	%	%	%	%	%	%	%	%	%	%
Total	24,075,944	100.0	716,453	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Owner occupied	14,016,099	58.2	448,690	62.6	59.2	57.8	46.4	69.4	58.7	48.0	62.2	92.1	94.0	91.4
Renting	5,728,322	23.8	124,971	17.4	20.3	14.4	34.2	10.3	18.1	24.9	13.5	3.5	3.0	4.4
Rent-free	4,162,645	17.3	136,941	19.1	19.9	27.2	17.8	19.1	22.8	26.3	23.8	3.6	2.7	3.9
Perching	77,112	0.3	3,074	0.4	0.4	0.3	0.6	0.7	0.3	0.4	0.3	0.6	0.2	0.1
Squatting	53,464	0.2	1,227	0.2	0.1	0.1	0.5	0.1	0.1	0.3	0.1	0.1	0.0	0.1
Other	38,302	0.2	1,550	0.2	0.1	0.2	0.5	0.3	0.1	0.1	0.1	0.2	0.1	0.1

Source: Ghana Statistical Service, 2010 Population and Housing Census

Nationally, about two in five PWDs in households (19.1%) live in rent-free housing units with Central (27.2%), Ashanti (26.3%) and Brong Ahafo (23.8%) recording the three highest proportions. Less than five percent of all PWDs in households in the Northern, Upper East and Upper West regions lived in rent-free housing units.

13.7.2 PWDs 15 years and older by ownership of dwelling and region

The three most important categories of ownership of dwelling by PWDs were ownership by a household member (62.4%), ownership by a relative who is not a household member (20%), followed by ownership by other private individuals (13.1%) (Table 13.20). Two-thirds of dwelling units were owned by someone who is a household member whereas 15.8 percent are owned by a relative who is not a household member. This reflected the high proportion of owner-occupied dwelling units discussed in the previous section. In the regions the proportion of PWDs who lived in households owned by a household member varied from 52.3 percent in Greater Accra to over 90 percent in the three northern regions. About 14.5 percent were owned by other private individuals and these were highest in Greater Accra (28.0%) and Ashanti (21.3%), the most urbanized regions. For dwelling units that were not owned by household member, the proportions were highest in Central (24.1%), Ashanti (20.5%) and Volta (19.4%) and lowest (less than four percent) in the three northern regions. Dwelling units owned by other private individuals were more prevalent in Greater Accra (28.0%) and Ashanti (21.3%) regions than anywhere else.

13.8 Main source of drinking water of PWDs and non-PWDs by sex

The main sources of drinking water were about the same for all sexes and for persons with disability as well as persons without disability (see Chapter 15). Table 13.21 showed that the main source of drinking water did not vary greatly by disability status and sex. Borehole/pump/tube well was the main source of drinking water for just over one-quarter of the population with or without disability. The next most important sources of drinking water were pipe borne outside dwelling and pipe borne inside dwelling. Even for these sources of drinking water, the percentages did not vary greatly between those for all persons and those for persons with disability. Furthermore, the data indicated that for over ten percent of the male and female populations of PWDs and non-PWDs their main source of drinking water was a river/stream. These patterns emerge because these facilities are available at the household or community level and not for the individual.

Table 13.20: Distribution of PWDs by Ownership of dwelling arrangement and region

Ownership of dwelling	Total household population		All regions		Western	Central	Greater Accra		Volta	Eastern	Ashanti region	Brony Ahafo	Northern	Upper East	Upper West
	N	%	N	%	%	%	%	%	%	%	%	%	%	%	%
Total	24,075,944	100.0	716,453	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Owned by household member	15,022,190	62.4	472,680	66.0	65.2	61.0	52.3	70.1	62.8	53.4	65.2	91.7	93.5	91.2	
Being purchased (e.g. mortgage)	173,534	0.7	5,042	0.7	0.8	0.5	1.2	0.5	0.5	1.0	0.6	0.4	0.2	0.5	
Relative not a household member	3,155,917	13.1	113,358	15.8	13.1	24.1	13.8	19.4	18.9	20.5	18.1	3.9	3.3	3.6	
Other private individual	4,807,969	20.0	103,802	14.5	14.9	12.3	28.0	8.3	15.5	21.3	12.9	2.7	1.9	3.4	
Private employer	303,008	1.3	6,552	0.9	1.8	0.6	1.4	0.4	0.6	1.3	1.6	0.1	0.1	0.2	
Other private agency	74,829	0.3	1,670	0.2	0.2	0.2	0.4	0.2	0.3	0.3	0.2	0.1	0.0	0.1	
Public/Government ownership	449,049	1.9	10,247	1.4	3.6	0.7	2.3	0.7	1.0	1.7	1.0	0.8	0.8	0.9	
Other	89,448	0.4	3,102	0.4	0.5	0.5	0.7	0.5	0.4	0.4	0.3	0.2	0.1	0.1	

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 13.21: Main source of drinking water of PWDs and non-PWDs by sex

	Total			No disability			With a disability		
	Total N	Male %	Female %	Total %	Male %	Female %	Total %	Male %	Female %
Total	24,075,944	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Pipe-borne inside dwelling	3,117,808	12.6	13.3	13.0	12.6	13.3	12.0	11.5	12.4
Pipe-borne outside dwelling	4,233,339	17.2	17.9	17.6	17.3	17.9	17.4	16.8	18.0
Public tap/Standpipe	2,957,006	12.0	12.5	12.2	12.0	12.5	13.5	12.8	14.1
Bore-hole/Pump/Tube well	6,328,574	26.5	26.1	26.3	26.5	26.0	27.4	28.1	26.8
Protected well	1,525,498	6.3	6.3	6.4	6.4	6.3	5.8	5.8	5.7
Rain water	152,537	0.6	0.7	0.6	0.6	0.6	1.0	0.8	1.1
Protected spring	86,030	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3
Bottled water	67,281	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2
Satchet water	1,623,515	6.8	6.7	6.8	6.9	6.7	5.1	5.0	5.1
Tanker supply/Vendor provided	241,812	1.0	1.0	1.0	1.0	1.0	0.9	0.9	1.0
Unprotected well	576,495	2.4	2.4	2.4	2.4	2.3	2.6	2.7	2.5
Unprotected spring	62,446	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.2
River/Stream	2,615,803	11.4	10.4	10.8	11.4	10.3	11.6	12.6	10.7
Dugout/Pond/Lake/Dam/Canal	470,444	2.0	1.9	2.0	2.0	1.9	1.8	2.0	1.7
Other	17,356	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1

Source: Ghana Statistical Service, 2010 Population and Housing Census

13.9 Toilet facility used by disability status and sex

Table 13.22 presents information on the type of toilet facility available in the household where PWDs lived. One-quarter of the household population (either with or without persons with disability) had no toilet facility. About 30 percent and 20 percent respectively of the household population (with or without disability) used public toilets or pit latrines. The proportion of those who reported using WC ranged from 12 to 14 percent for all household populations (with or without disability).

13.9.1 Disability status by household size, sex and region

Persons with disability will need care and support and so the nature of living arrangements such as household size is of interest. All things being equal, PWDs will be expected to be in households with at least two persons in order to obtain support and/or care. As shown in Table 13.23, 18 percent of PWDs compared to 3.8 percent of PWDs (3.8%) lived in one-person household. The proportion for PWDs was highest in Central (15.0%) and lowest in Northern (1.9%). The situation could be due to the fact that some PWDs, especially young ones lived in institutions such as schools.

Table 13.22: Distribution of PWDs by toilet facility and region

Toilet facility	Total household population		All regions		Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brong Ahafo	Northern	Upper East	Upper West
	N	%	N	%	%	%	%	%	%	%	%	%	%	%
Total	24,075,944	100.0	716,453	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
No facilities (bush/beach/field)	5,872,411	24.4	186,574	26.0	12.8	17.1	8.4	30.5	10.5	6.9	19.9	77.4	88.3	80.2
W.C.	3,272,095	13.6	85,558	11.9	12.1	6.5	33.9	4.3	7.5	20.5	4.9	0.8	1.4	1.3
Pit latrine	4,706,847	19.5	136,858	19.1	30.1	22.3	8.7	23.7	35.7	18.4	22.8	3.1	2.3	6.3
KVIP	2,325,999	9.7	67,659	9.4	5.9	9.9	13.4	11.5	14.9	8.8	7.9	4.3	2.6	3.5
Bucket/Pan	152,305	0.6	5,058	0.7	0.5	0.7	2.4	0.5	0.7	0.3	0.3	0.3	0.1	0.1
Public toilet (WCKVIP/Pit/Pan etc)	7,646,067	31.8	231,185	32.3	38.2	43.0	32.4	29.1	30.3	44.6	43.8	13.6	5.1	7.7
Other	100,220	0.4	3,561	0.5	0.5	0.6	0.6	0.4	0.5	0.4	0.4	0.6	0.3	0.9

Source: Ghana Statistical Service, 2010 Population and Housing Census

The data by sex also show that male PWDs were more likely than female PWSSs to stay alone. About 12 percent of male PWDs compared with 8.0 percent of the female counterparts live alone. The highest proportions of both male and female PWDs staying as single person household were in Central, 18.1 percent male and 12.4 percent female. Proportions of male PWDs living alone exceeded those of their female counterparts in all regions except Upper West where the female proportion was slightly higher. This is one aspect of the demography among PWDs which will need further studies.

13.10 Summary, Conclusions and Recommendations

13.10.1 Summary

This chapter explored the demographic and socio-economic characteristics as well as housing conditions of PWDs at the national and regional level using data from the 2010 Population and Housing Census. For the first time in Ghana, a module was included in the PHC on disability. With a population of 737,743 persons, PWDS accounted for three percent of the total population. The regional distribution of PWDs followed the pattern in the country with the exception of the Brong Ahafo region which had 2.3 percent of disabled persons.

Fifty-four percent of PWDs were in rural areas which accounted for 49 percent of the total population. Thus, proportionately, there were more PWDs in rural than urban areas. Visual or sight impairment accounted for 40.1 percent of all the disability reported. The nature of disability varied by age: Among the age group, 0–14 years, speech, (35.0%) and intellectual disabilities (25.5%) were the two leading types of disability. Sight and physical disabilities were highest among elderly PWDs, while emotional, intellectual and physical disabilities were most common among those aged 15–64 years.

The educational attainment PWDs was generally low. While 42 percent of PWDs could not read or write in any language, the proportion was 25.9 percent for the total population. The proportion of PWDs, 11 years and older, who were not literate, ranged from 20.4 percent in Greater Accra to 73.3 percent in Northern and Upper East regions, reflecting the general pattern of regional variation in illiteracy in the country. Less than five percent of all PWDs, nationally, have an education beyond secondary school.

Forty percent PWDs were married compared to 43 percent in the total population, while 42.5 percent of non-PWDs had never married the proportion for PWD was 27.3 percent. This could be due to differences in age structure of the two populations. The proportions of PWDs divorced (7.8%), separated (3.4%) and widowed (16.8%) were comparatively higher than those of non-PWDs. Marital status of PWDs would be worth exploring further as this may be one source of support for some of them.

For all categories of disabilities, 66.2 percent of PWDs employed were self-employed without employee(s) and mostly in skilled agricultural, forestry and fishery, service and sales, and crafts and related trades. About 90 percent of all employed PWDs were in the private informal sector and only about 5 percent were engaged in the public (Governmental) sector.

The most common type of dwelling unit of PWDs in households was compound house units. The three most popular holding/tenancy arrangements were owner occupied housing, renting and rent-free housing units which constituted about 90 percent of all tenancy arrangements. Nationally, 62.3 percent of all PWDs lived in owner-occupied dwelling units.

The main source of drinking water for one-quarter of the households, (with PWDs or without PWDs), was borehole/pump/tube well. In terms of housing conditions, one quarter of all households (with PWDs or without PWDs), has no toilet facility. The data on housing units and amenities in which PWDs and non-PWDs lived indicate that there were no differences between the two groups in the type of housing units and household amenities. This is mainly because most PWDs live with non-PWDs in the same households. However, there were more PWDs in one person households than persons without disability. This is an issue which would need further examination to understand the nature and living arrangement of PWDs who live alone.

13.10.2 Conclusions

Generally, there were gender and rural dimension to disability in the country, and with visual impairment being the highest form of disability in Ghana. There were also age differences in the nature of disability and the proportion of PWDs increasing with age for some types of disability, especially visual impairment (Ocansey, 2013).

Again, while disability is not inability, there was low investment in the development of the human resources of people with disability, which is likely to turn disability into inability. This is reflected in the comparatively low level of educational attainment among PWDs compared with non-PWDs.

13.10.3 Recommendations

As this is the first time questions on disability has been fielded in a census, it is not possible to establish trends. Therefore, to establish trend there will be the need to ensure that the module is repeated in subsequent censuses.

Access to education is key to national and personal development for all persons. Efforts must be made to improve the educational attainment of PWDs. These should include the establishment of special schools for children with disability, giving support services to persons with disabilities, for example, provision of hearing aid, Braille and wheel chairs among others to PWDs which in turn will encourage them to attend school and participate fully in school activities. The Ghana Education Trust Fund (GETFund) and various Non-governmental Organisations (NGOs) could be sources of providing such support services for PWDs.

On educational attainment, Government should build specialized schools with all the needed aids for PWDs especially those with intellectual difficulties and also provide subsidies for parents whose children attend these schools. Also skill development training centres should be built and equipped by Government in the regions to train PWDs in various skills that will make them employable to reduce their vulnerability and enable them to live decent and quality lives.

The general well-being of the PWDs is predicated on the quality of living conditions as well as their health status. With PWDs sharing housing and other facilities with non-PWDs, improving

the availability of services such as water supply and use of modern toilet facilities would also help to improve the quality of life of PWDs as well. The three most important occupations for PWDs were agriculture, forestry and fishery, sales and services and crafts and related works. It should be possible for policies to target PWDs involved in these occupations for support and incentives. For instance, in Morocco, hand-woven carpets and sweaters made by PWDs are sold at a higher price than those woven by people without disability (McIvor, 2002).

The general spectacle is the number of PWDs begging on our principal streets in the urban centres. The available information should provide the needed inputs into the formulation of realistic policies which will ensure the implementation of the Disability Act.

References

- August, G. A., Raz, N., & Baird, T. D. (1985). Brief report: Affects of fenfluramine or behavioral, cognitive, and affective disturbances in autistic children. *Journal of Autism and Developmental Disorders*, 15, 97-107.
- Ayiku, C. N. A. (2012). *Giving visibility to persons with disability – providing a helping hand*. at <http://opinion.myjoyonline.com/pages/feature/201208/92607.php> retrieved on 23 August, 2012
- Ghana Statistical Service (GSS) (2012). *2010 Population and Housing Census: Summary Reports of Final Results*. GSS, Accra.
- Government of Ghana (2010). *Medium-Term National Development Policy Framework: Ghana Shared Growth and Development Agenda (GSGDA), 2010-2013 Volume I*. National Development Planning Commission, Accra.
- Määttä, T., Tervo-Määttä, T., Taanila, A., Kaski, M., & Iivanainen, M. (2006). Mental health, behaviour and intellectual abilities of people with Down syndrome. *Down Syndrome Research and Practice* 11(1), 37-43.
- National Council on Persons with Disability (2010). *Guidelines for the Disbursement and Management of the District Assembly Common Fund Allocation to Persons with Disability: NCPD/GFD, 2010*.
- National Population Council (1994). *National Population Policy at a Glance (Revised Edition)*
- Republic of Ghana (1992). *1992 Constitution of the Republic of Ghana*.
- Republic of Ghana (2006). *Persons with Disability Act, 2006*.
- United Nations (2006). *Convention on the Rights of Persons with Disabilities*. Prepared by the UN Web Services Section, Department of Public Information, New York.
- World Health Organisation (2011). *Summary World Report on Disability*. Geneva, WHO.

CHAPTER FOURTEEN

INFORMATION AND COMMUNICATION TECHNOLOGIES³²

14.1 Introduction

Information and Communication Technologies (ICT) have become important tools in today's knowledge-based information society and economy. This role of ICT in an emerging economy such as Ghana's, has been widely recognized at various levels. The recognition is reflected in actions such as the development and deployment of a national ICT infrastructure, institutional and regulatory framework for managing the sector, promoting the use of ICT in all sectors of the economy, implementing e-governance in all government institutions and the construction of a National Data Centre as well as Regional Innovation Centres.

The impact of these developments on the economic and social transformation of Ghana seem to have been positive: the contribution of ICT to the Gross Domestic Product increased from 2.3 percent in 2009 to 10.5 percent in 2011 and the industry created 3,500 additional jobs in 2011 compared to 3,050 in 2010 (National Development Planning Commission, NDPC, 2011). Mobile penetration rate increased from 74 percent in 2009 to 84.6 percent in 2011; the number of internet subscribers also increased from 1,296,047 to 4,086,428 during the same period (National Communications Authority, 2011).

To understand some of these developments a module was included in the 2010 PHC on ownership and use of ICT facilities. This chapter analyses access to these ICT technologies/facilities by various socio-demographic characteristics such as age, sex, education, region, locality of residence, and economic activity status. In addition, the chapter looks at the availability of ICT in agricultural households. Data from the Ministry of Communications, the National Communication Authority and other relevant sources were used where necessary.

14.2 Sources of Data

. For the first time in the country, the 2010 Population and Housing Census collected data on access to and use of ICT by individuals and households. Specifically, information was sought from persons 12 years and older on access to and the use of mobile phones, internet facilities at home, in an internet café, on mobile phone or other devices, households with desktops/laptop computers, and access to fixed telephone lines.

14.3 Ownership of Fixed Telephone Lines

Despite the widespread use of the mobile phone, fixed line telephones remain important, particularly at workplaces and parts of the country where mobile phone network access is poor or

³²Martin Yeboah and Emmanuel Ossei contributed this chapter

nonexistent. Table 14.1 shows that only 2.3 percent of households in this country had fixed telephone lines. The percentage of households with fixed telephone lines varied among the regions, with the largest (5.3%) and lowest (0.7%) found in Greater Accra and Upper West Regions, respectively.

Table 14.1: Households ownership of fixed telephone lines by region

	Total Households	Number of Households having fixed telephone lines	% of Households having fixed telephone lines
All Regions	5,467,136	127,694	2.3
Western	553,635	11,574	2.1
Central	526,764	7,595	1.4
Greater Accra	1,036,426	55,276	5.3
Volta	495,603	6,141	1.2
Eastern	632,048	9,249	1.5
Ashanti	1,126,216	27,809	2.5
Brong Ahafo	490,519	4,896	1.0
Northern	318,119	2,696	0.8
Upper East	177,631	1,728	1.0
Upper West	110,175	730	0.7

Source: Ghana Statistical Service, 2010 Population and Housing Census

The distribution of households with fixed telephone lines by region and sex of household head is shown in Table 14.2. According to the table, 43.3 percent of all households with fixed telephone lines were located in Greater Accra Region, 21.8 percent in Ashanti Region and 9.1 percent in the Western Region. Thus, the three regions accounted for 75.2 percent of all fixed lines in the country. The Upper West Region had the lowest share of households with access to fixed telephone lines (0.6%). The distribution was similar for male and female headed households.

Table 14.2: Households ownership of fixed telephone lines by region and sex of household head

Region	Both sexes		Male Headed Households		Female Headed Households	
	Number	Percent	Number	Percent	Number	Percent
All Regions	127,694	100.0	84,731	100.0	42,963	100.0
Western	11,574	9.1	7,696	9.1	3,878	9.0
Central	7,595	5.9	4,872	5.7	2,723	6.3
Greater Accra	55,276	43.3	37,016	43.7	18,260	42.5
Volta	6,141	4.8	4,041	4.8	2,100	4.9
Eastern	9,249	7.2	6,306	7.4	2,943	6.9
Ashanti	27,809	21.8	17,304	20.4	10,505	24.5
Brong Ahafo	4,896	3.8	3,379	4.0	1,517	3.5
Northern	2,696	2.1	2,242	2.6	454	1.1
Upper East	1,728	1.4	1,304	1.5	424	1.0
Upper West	730	0.6	571	0.7	159	0.4

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 14.3 shows households ownership of fixed telephone lines by locality of residence of heads of households. As expected, the percentage of households with fixed telephone lines was higher in urban than in rural areas in all the regions. The proportions in rural households varied narrowly between 0.3 percent in Upper West region and 0.7 percent, except with the Greater Accra region where it was 2.2 percent. In the urban areas, ownership ranged from 5.6 percent in Greater Accra to 1.5 percent in Northern Region.

Table 14.3: Households ownership of fixed telephone lines by region and locality of residence of household heads

Region	Total Households Urban	Number of Urban households with fixed telephone line	% of Urban households with fixed telephone line	Total Households Rural	Number of Rural households with fixed telephone line	% Rural household with fixed telephone line
All Regions	3,049,438	112,809	3.7	2,417,698	14,885	0.6
Western	248,919	10,085	4.1	304,716	1,489	0.5
Central	255,365	5,922	2.3	271,399	1,673	0.6
Greater Accra	950,391	53,414	5.6	86,035	1,862	2.2
Volta	178,817	4,564	2.6	316,786	1,577	0.5
Eastern	293,549	6,870	2.3	338,499	2,379	0.7
Ashanti	715,470	25,596	3.6	410,746	2,213	0.5
Brong Ahafo	236,287	3,305	1.4	254,232	1,591	0.6
Northern	106,071	1,546	1.5	212,048	1,150	0.5
Upper East	41,941	1,053	2.5	135,690	675	0.5
Upper West	22,628	454	2.0	87,547	276	0.3

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 14.4 shows households ownership of fixed telephone lines by age and sex of household head. In general, the percentage of households with fixed telephone lines increased with the age of the household head. Overall, the proportions of male and female headed households which had fixed telephone lines were 2.4 percent and 2.3 respectively. There were only minor variations in the ownership of fixed lines between male and female headed households by age.

Table 14.4: Household ownership of fixed telephone lines by age group and sex

Age Group	Total Households	Households with fixed telephone line	% households with fixed telephone line	Total Male Headed Households	Male Headed households with fixed telephone line	% Male Headed households with fixed telephone line	Total Female Headed Households	Female Headed households with fixed telephone line	% Female Headed households with fixed telephone line
All ages	5,467,054	127,694	2.3	3,571,781	84,731	2.4	1,895,273	42,963	2.3
15-19	86,829	1,014	1.2	49,369	554	1.1	37,460	460	1.2
20-24	338,377	4,021	1.2	205,601	2,455	1.2	132,776	1,566	1.2
25-29	618,228	8,041	1.3	411,690	5,258	1.3	206,538	2,783	1.4
30-34	698,494	11,606	1.7	495,051	8,057	1.6	203,443	3,549	1.7
35-39	689,612	12,514	1.8	489,464	8,823	1.8	200,148	3,691	1.8
40-44	633,574	14,524	2.3	440,043	10,326	2.4	193,531	4,198	2.2
45-49	538,420	14,776	2.7	363,582	10,349	2.9	174,838	4,427	2.5
50-54	505,207	15,255	3.0	322,839	10,443	3.2	182,368	4,812	2.6
55-59	339,915	12,810	3.8	216,711	8,843	4.1	123,204	3,967	3.2
60-64	303,158	10,291	3.4	186,205	6,532	3.5	116,953	3,759	3.2
65-69	188,348	7,079	3.8	110,471	4,313	3.9	77,877	2,766	3.6
70+	526,892	15,763	3.0	280,755	8,778	3.1	246,137	6,985	2.8

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 14.5 shows the distribution of households with a fixed telephone line by the level of education and sex of the household head. One quarter of all fixed telephone lines in Ghana (25.3%) were located in households headed by persons who have had a tertiary level of education. Another 23.2 percent were in households headed by persons with middle/JHS level of education.

Table 14.5: Households ownership of fixed telephone lines by level of education and sex of household head

Level of Education	Both Sexes		Male Headed Households		Female Headed Households	
	Number	Percent	Number	Percent	Number	Percent
All Levels	127,694	100.0	84,731	100.0	42,963	100.0
No education	10,630	8.3	4,605	5.4	6,025	14.0
Primary	5,111	4.0	2,567	3.0	2,544	5.9
Middle/JHS	29,616	23.2	17,537	20.7	12,079	28.1
Secondary	18,873	14.8	12,719	15.0	6,154	14.3
Voc./Tech.	8,237	6.5	4,835	5.7	3,402	7.9
Post-Sec.	22,908	17.9	15,323	18.1	7,585	17.7
Tertiary	32,319	25.3	27,145	32.0	5,174	12.0

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 14.6 presents the percentage of households with fixed telephone lines by economic activity status and sex of the household head. The largest percentage of households with fixed telephone lines (3.9%) were in households where the head of household was not economically active, followed by households with unemployed heads (2.3%). These results may be accounted for by the presence in such households of older/retired people who may have had the fixed telephone lines earlier. The same pattern was reflected in the results for both male and female-headed households.

Table 14.6: Households ownership of fixed telephone lines by economic activity status and sex of household head

Economic Activity Status	All Economic Activities	Employed	Unemployed	Not active**
Total Households	5,467,136	4,585,293	148,108	733,735
Households having fixed telephone line	127,694	95,479	3,350	28,865
% households having fixed telephone line	2.34	2.08	2.26	3.93
Total Male Headed Households	3,571,820	3,132,907	80,750	358,163
Male Headed households having fixed telephone line	84,731	67,634	1,902	15,195
% Male Headed households having fixed telephone line	2.37	2.16	2.36	4.24
Total Female Headed Households	1,895,316	1,452,386	67,358	375,572
Female Headed households having fixed telephone line	42,963	27,845	1,322	13,796
% Female Headed households having fixed telephone line	2.27	1.92	1.96	3.67

Source: Ghana Statistical Service, 2010 Population and Housing Census

14.4 Mobile phone ownership

In 2003, the cellular phone formally became the most widely-used telecommunication tool in the world and has been spreading around the world faster than any telecommunication technology (Castells *et al.* 2004). Research shows that the increasing global diffusion of mobile telecommunication has contributed to narrowing the gap in telephone usage between developed and less developed countries (Geser, 2004). Ghana has benefited from this global diffusion of mobile telecommunication, when in 2003, mobile telephones became the primary mode of communication for social and business activities for the majority of Ghanaians (Ayensu, 2003). According to the NDPC (2012), the total number of mobile phone subscribers was 21,165,843 in 2011, corresponding to a penetration rate of 84.9 percent of the population.

The 2010 Population and Housing Census recorded a total of 8,049,408 mobile phone owners in the country. This constituted 47.7 percent of the 16,886,306 population 12 years and older. In 2011, the number of mobile phone subscribers in the country was 21,165,843. One reason may be that many mobile phone owners have more than one subscription. Another reason may be due to community and family sharing and maintenance of mobile phones. According to Castells *et al.* (2007) shared access and maintenance is one of the key characteristics of mobile phone development in developing countries, especially Africa.

Table 14.7 presents the distribution of the population 12 years and older owning mobile phones by region. For the country as a whole, the table shows that the highest proportion of mobile phone owners lived in the Greater Accra Region (27.2%), followed by Ashanti region (23.1%). Together, these two regions account for just over half of mobile phone owners in the country. The table also showed that all the other regions had ten percent or less of mobile phone owners. The Northern, Upper East, and Upper West Regions reported substantially low proportions of 4.2 percent, 2.1 percent and 1.2 percent, respectively. This may be due to the concentration of mobile phone network providers in the southern part of the country where telecommunications and other infrastructure are relatively well developed and also the relatively low shares of the country's population living in those regions.

Studies in developed countries suggest that more men owned mobile phones than women (Castells *et al.* 2004). An examination of the distribution of mobile phone ownership by sex in Table 14.7 confirmed that in all the regions of Ghana, there were more males than females owning mobile phones.

Table14.7: Population 12 years and older having mobile phones by region and sex

Region	All localities		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
All Regions	8,049,408	100.0	4,275,211	100.0	3,774,197	100.0
Western	750,227	9.3	422,311	9.9	327,916	8.7
Central	669,083	8.3	355,087	8.3	313,996	8.3
Greater Accra	2,191,910	27.2	1,106,032	25.9	1,085,878	28.8
Volta	540,623	6.7	291,006	6.8	249,617	6.6
Eastern	806,291	10.0	428,543	10.0	377,748	10.0
Ashanti	1,859,656	23.1	956,242	22.4	903,414	23.9
Brong Ahafo	622,715	7.7	341,715	8.0	281,000	7.4
Northern	341,536	4.2	212,773	5.0	128,763	3.4
Upper East	167,421	2.1	98,288	2.3	69,133	1.8
Upper West	99,946	1.2	63,214	1.5	36,732	1.0

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 14.8 shows the population 12 years and older owning mobile phones by region and sex. Seven out of ten people aged 12 years or older (73.5%) resident in Greater Accra and more than half of the population (56.1%) in the Ashanti region owned a mobile phone. In all other regions, less than half of the population owned mobile phones. For instance, 21.7 percent of the population in Upper West Region owned a mobile phone.

There were variations in mobile phone ownership by sex across the regions. Overall, 53.0 percent of males and 42.8 percent of females aged 12 years or older owned mobile phones. The percentage of females owning mobile phones was less than the percentage of males in all the regions, with the variation between the sexes highest in the Northern, Upper West and Upper East regions.

Table 14.8: Population 12 years and older having mobile phones in the regions by sex

Region	Population 12 years and older	Population 12 years and older with mobile phones	Percentage 12+ with mobile phones	Male Population 12 years and older	Male Population 12 years and older with mobile phones	Males 12+ Percentage with mobile phones	Female Population 12 years and older	Female Population 12 years and older with mobile phones	Female 12+ Percentage with mobile phones
All Regions	16,886,306	8,049,408	47.7	8,072,481	4,275,211	53.0	8,813,825	3,774,197	42.8
Western	1,615,850	750,227	46.4	800,971	422,311	52.7	814,879	327,916	40.2
Central	1,490,517	669,083	44.9	689,359	355,087	51.5	801,158	313,996	39.2
Greater Accra	2,980,912	2,191,910	73.5	1,422,840	1,106,032	77.7	1,558,072	1,085,878	69.7
Volta	1,449,077	540,623	37.3	679,615	291,006	42.8	769,462	249,617	32.4
Eastern	1,810,449	806,291	44.5	869,286	428,543	49.3	941,163	377,748	40.1
Ashanti	3,312,023	1,859,656	56.1	1,570,911	956,242	60.9	1,741,112	903,414	51.9
Brong Ahafo	1,547,336	622,715	40.2	755,018	341,715	45.3	792,318	281,000	35.5
Northern	1,528,287	341,536	22.3	744,075	212,773	28.6	784,212	128,763	16.4
Upper East	690,901	167,421	24.2	323,110	98,288	30.4	367,791	69,133	18.8
Upper West	460,954	99,946	21.7	217,296	63,214	29.1	243,658	36,732	15.1

As expected, ownership of mobile phones was higher among residents of urban than rural areas as shown in Table 14.9. At the national level 63.4 percent of the urban population owned mobile phones compared with 29.6 percent of the rural population. At the regional level, the Greater Accra Region had the highest proportion of its population owning mobile phones in both urban areas (75.0%) and rural areas (57.7%), followed by the Ashanti Region where 67.7 percent of urban population and 36.6% of rural population had mobile phones. The rest of the regions, except Northern and Upper East, had more than half of their urban populations owning mobile phones. Only one in eight people aged 12 years and older living in rural areas in the Northern region owned a mobile phone.

Table 14.9: Regional distribution of population 12 years and older with mobile phone by locality of residence

Region	Total Urban Population 12+	Urban Population 12+ with mobile phone	Percentage 12+ urban with mobile phones	Total Rural Population 12+	Rural Population 12+ with mobile phone	Percentage 12+ rural with mobile phones
All Regions	9,037,989	5,728,294	63.4	7,848,317	2,321,114	29.6
Western	721,714	431,997	59.9	894,136	318,230	35.6
Central	724,503	404,340	55.8	766,014	264,743	34.6
Greater Accra	2,720,199	2,041,458	75.0	260,713	150,452	57.7
Volta	507,111	264,443	52.1	941,966	276,180	29.3
Eastern	820,517	466,310	56.8	989,932	339,981	34.3
Ashanti	2,083,350	1,409,708	67.7	1,228,673	449,948	36.6
Brong Ahafo	720,497	380,653	52.8	826,839	242,062	29.3
Northern	504,047	217,393	43.1	1,024,240	124,143	12.1
Upper East	152,928	70,216	45.9	537,973	97,205	18.1
Upper West	83,123	41,776	50.3	377,831	58,170	15.4

Source: Ghana Statistical Service, 2010 Population and Housing Census

People in various age groups are motivated to use the mobile phone for different reasons; among teenagers and young adults it may be because of display and accessibility; and for families with children, mobile phones may largely be used to coordinate daily activities. The distribution of mobile phone ownership by age and sex is presented in Table 14.10. From the table, 59.2 percent of the population 12+ years with mobile phones were between the ages of 20 and 39 years. For both males and females, the highest proportion of individuals with mobile phones was in the 20-29 year age group – 17.1 percent, with slightly more females (17.7%) than males (16.5%). The table also shows that the percentage of persons who owned mobile phones first increased with age and then declined with increasing age after 30-34 years.

Table14.10: Population 12 years and older with mobile phones by age and sex: 2010

Age Group	Total		Males		Females	
	Number	Percent	Number	Percent	Number	Percent
All ages	8,049,408	100.0	4,275,211	100.0	3,774,197	100.0
12-14	89,594	1.1	45,719	1.1	43,875	1.2
15-19	698,202	8.7	368,748	8.6	329,454	8.7
20-24	1,374,744	17.1	705,204	16.5	669,540	17.7
25-29	1,334,628	16.6	683,620	16.0	651,008	17.2
30-34	1,087,186	13.5	578,107	13.5	509,079	13.5
35-39	902,045	11.2	486,873	11.4	415,172	11.0
40-44	713,605	8.9	390,630	9.1	322,975	8.6
45-49	549,363	6.8	296,991	6.9	252,372	6.7
50-54	456,153	5.7	244,358	5.7	211,795	5.6
55-59	290,977	3.6	161,997	3.8	128,980	3.4
60-64	208,024	2.6	119,168	2.8	88,856	2.4
65-69	106,508	1.5	59,844	1.4	46,664	1.2
70+	226,625	2.8	127,323	3.0	99,302	2.6

Source Ghana Statistical Service, 2010 Population and Housing Census

Table 7.11 shows the percentage of the population 12 years and older having mobile phones by age and sex. The results show that for males and females those age groups 25-29, 30-34 and 35-39 years had the highest proportion owning a mobile phone. .

Table 14.11: Population 12 years and older having mobile phones in the age group by sex

Age group	Population 12+ by age group	Population 12+ with mobile phone	Percentage 12+ with mobile phone	Male Population 12+	Male Population 12+ with mobile phone	Males 12+ Percentage with mobile phone	Female Population 12+ with mobile phone	Female 12+ Percentage with mobile phone
	All ages	16,886,306	8,049,408	47.7	8,072,481	53.0	8,813,825	3,774,197
12-14	1,677,881	89,594	5.3	846,580	45,719	5.4	831,301	43,875
15 - 19	2,609,989	698,202	26.8	1,311,112	368,748	28.1	1,298,877	329,454
20 - 24	2,323,491	1,374,744	59.2	1,100,727	705,204	64.1	1,222,764	669,540
25 - 29	2,050,111	1,334,628	65.1	943,213	683,620	72.5	1,106,898	651,008
30 - 34	1,678,809	1,087,186	64.8	790,301	578,107	73.2	888,508	509,079
35 - 39	1,421,403	902,045	63.5	676,768	486,873	71.9	744,635	415,172
40 - 44	1,186,350	713,605	60.2	572,620	390,630	68.2	613,730	322,975
45 - 49	938,098	549,363	58.6	452,975	296,991	65.6	485,123	252,372
50 - 54	833,098	456,153	54.8	394,600	244,358	61.9	438,498	211,795
55 - 59	523,695	290,977	55.6	258,582	161,997	62.6	265,113	128,980
60 - 64	475,849	208,024	43.7	227,050	119,168	52.5	248,799	88,856
65 - 69	293,871	106,508	36.2	136,244	59,844	43.9	157,627	46,664
70+	873,661	226,625	25.9	361,709	127,323	35.2	511,952	99,302

Source: Ghana Statistical Service, 2010 Population and Housing Census

Ownership of mobile phone will be expected to increase with increasing education. As expected, the percentage of the population that owned mobile phones increased from 25 percent among those with no formal education to 97.2 percent among those with tertiary level of education. At the lower levels of formal education, more males owned phones than females. However, at the secondary school level and higher, the proportions were about the same between males and females in ownership of mobile phones (Table 14.12).

Table 14.12: Population 12 years and older with mobile phone by education and sex

Level of education	Population 12+ by age group	Population 12+ with mobile phone	Percentage 12+ with mobile phone	Male Population 12+	Population 12+ with mobile phone	Percentage of Males 12+ with mobile phone	Female Population 12 years and older	Population 12+ with mobile phone	Percentage of Females 12+ with mobile phone
All Levels	16,886,306	8,049,408	47.7	8,072,481	4,275,211	53.0	8,813,825	3,774,197	42.8
No education	4,459,510	1,115,036	25.0	1,627,628	488,372	30.0	2,831,882	626,664	22.1
Primary	2,713,710	707,645	26.1	1,248,156	315,102	25.2	1,465,554	392,543	26.8
Middle/JHS	6,067,030	3,276,906	54.0	3,084,022	1,740,903	56.4	2,983,008	1,536,003	51.5
Secondary	2,105,935	1,524,439	72.4	1,191,239	877,306	73.6	914,696	647,133	70.7
Voc./Tech.	369,365	319,673	86.5	192,496	166,924	86.7	176,869	152,749	86.4
Post-Secondary	728,505	675,713	92.8	430,238	396,538	92.2	298,267	279,175	93.6
Tertiary	442,251	429,996	97.2	298,702	290,066	97.1	143,549	139,930	97.5

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 14.13 shows the population 12 years and older with mobile phones by employment status and sex. The percentage of the population with mobile phones was about the same for the employed and the unemployed (55.5% and 53.1%, respectively). Furthermore, about one third of persons not economically active owned mobile phones. Among females, 51.3 percent of the unemployed had phones compared to 48.9 percent of the employed. For males, 53.1 percent of the unemployed had mobile phones and 62.3 percent of the employed owned mobile phones. This variation by employment status between males and females could be due to the definition of work (see Chapter 11).

Table 14.13: Population 12 years and older owning mobile phone by employment status and sex

	All Economic Activities	Employed	Unemployed	Not active**
Population 12+	16,886,306	10,500,292	665,795	5,720,219
Population 12+ having mobile phone	8,049,408	5,823,667	353,573	1,872,168
Percentage 12+ having mobile phone	47.7	55.5	53.1	32.7
Male Population 12+	8,072,481	5,142,599	299,646	2,630,236
Male Population 12+ having mobile phone	4,275,211	3,205,464	165,764	903,983
Males 12+ Percentage having mobile phone	53.0	62.3	55.3	34.4
Female Population 12+	8,813,825	5,357,693	366,149	3,089,983
Female Population 12+ having mobile phone	3,774,197	2,618,203	187,809	968,185
Female 12+ Percentage having mobile phone	42.8	48.9	51.3	31.3

Source: Ghana Statistical Service, 2010 Population and Housing Census

14.5 Households ownership of desktop and laptop computers

Desktop and laptop computers are useful for accessing and processing information, including the use of the Internet, electronic mail and other services. For the country as a whole, only 7.9 percent of households owned a desktop/laptop computer (Table 14.14).

Forty percent of all households with desktop/laptop computers in the country were resident in Greater Accra region, followed by 24.1 percent in Ashanti region. The lowest proportions of households with computers were in the Northern (2.2%), Upper East (1.3%) and Upper West (0.9%) regions. In addition, 73.3 percent of households with desktop/laptop computers were headed by males.

Table 14.14: Households ownership of desktop and laptop computers by region and sex of household heads

Region	Total		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
All Regions	431,917	100.0	316,639	100.0	115,278	100.0
Western	36,214	8.4	27,248	8.6	8,966	7.8
Central	28,167	6.5	21,271	6.7	6,896	6.0
Greater Accra	174,285	40.4	126,788	40.0	47,497	41.2
Volta	15,054	3.5	11,313	3.6	3,741	3.2
Eastern	32,554	7.5	24,443	7.7	8,111	7.0
Ashanti	104,197	24.1	74,036	23.4	30,161	26.2
Brong Ahafo	22,618	5.2	16,663	5.3	5,955	5.2
Northern	9,312	2.2	7,459	2.4	1,853	1.6
Upper East	5,490	1.3	4,229	1.3	1,261	1.1
Upper West	4,026	0.9	3,189	1.0	837	0.7

Source: Ghana Statistical Service, 2010 Population and Housing Census

Differences between the regions in terms of ownership of desktop/laptop computers by sex of household head are shown in Table 14.15. Overall, 8.9 percent male-headed households and 6.1 percent of female-headed households (6.1%) had access to a desktop/laptop computer. In the Greater Accra Region, 16.8 percent of households had access to desktop/laptop computers, the highest in the country, followed by the Ashanti Region (9.3%). The Northern Region had the lowest proportion of households with access to a desktop/laptop computer (2.9%). This general pattern was the same for both male and female headed households, except the Volta Region, where the figure for female-headed households was 2.0 percent.

As indicated in Table 14.16, 12.4 percent of the urban households had access to a desktop/laptop computer, whereas the proportion was 2.3 percent for rural households. The pattern of higher proportions of access by urban compared to rural households occurs in all the regions. For instance, 17.4 percent of the urban population in Greater Accra region had access to computers compared to 10 percent in the rural areas. In Upper West region 12.6, percent of households in urban areas had a desktop/laptop computer but only 1.3% in rural areas. The results point to the rural-urban digital divide in the country.

Table 14.15: Households ownership of desktop/laptop computers within regions by sex of household head

	Total Households	Number of Households with desktop/laptop	% households with desktop/laptop	Total Male Headed Households	Male Headed households with desktop/laptop	% Male Headed households with desktop/laptop	Total Female Headed Households	Female Headed households with desktop/laptop	% Female Headed households with desktop/laptop
All Regions	5,467,136	431,917	7.9	3,571,820	316,639	8.9	1,895,316	115,278	6.1
Western	553,635	36,214	6.5	380,842	27,248	7.2	172,793	8,966	5.2
Central	526,764	28,167	5.3	313,307	21,271	6.8	213,457	6,896	3.2
Greater Accra	1,036,426	174,285	16.8	668,304	126,788	19.0	368,122	47,497	12.9
Volta	495,603	15,054	3.0	305,239	11,313	3.7	190,364	3,741	2.0
Eastern	632,048	32,554	5.2	399,342	24,443	6.1	232,706	8,111	3.5
Ashanti	1,126,216	104,197	9.3	702,686	74,036	10.5	423,530	30,161	7.1
Brong Ahafo	490,519	22,618	4.6	320,241	16,663	5.2	170,278	5,955	3.5
Northern	318,119	9,312	2.9	270,488	7,459	2.8	47,631	1,853	3.9
Upper East	177,631	5,490	3.1	128,435	4,229	3.3	49,196	1,261	2.6
Upper West	110,175	4,026	3.7	82,936	3,189	3.8	27,239	837	3.1

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 14.16: Households ownership of desktop/laptop computers by region and locality of residence of head of household

	Total Households	Number of Households with desktop/laptop	% households with desktop/laptop	Number of Urban households with desktop/laptop				Total Rural Households	Rural households with desktop/laptop	% Rural households with desktop/laptop
				Total Urban Households	Urban households with desktop/laptop	% Urban households with desktop/laptop	Total Rural Households			
All Regions	5,467,136	431,917	7.9	3,049,438	377,338	12.4	2,417,698	54,579	2.3	
Western	553,635	36,214	6.5	248,919	29,165	11.7	304,716	7,049	2.3	
Central	526,764	28,167	5.3	255,365	20,726	8.1	271,399	7,441	2.7	
Greater Accra	1,036,426	174,285	16.8	950,391	165,494	17.4	86,035	8,791	10.2	
Volta	495,603	15,054	3.0	178,817	11,168	6.2	316,786	3,886	1.2	
Eastern	632,048	32,554	5.2	293,549	25,415	8.7	338,499	7,139	2.1	
Ashanti	1,126,216	104,197	9.3	715,470	93,012	13.0	410,746	11,185	2.7	
Brong Ahafo	490,519	22,618	4.6	236,287	18,162	7.7	254,232	4,456	1.8	
Northern	318,119	9,312	2.9	106,071	7,478	7.0	212,048	1,834	0.9	
Upper East	177,631	5,490	3.1	41,941	3,856	9.2	135,690	1,634	1.2	
Upper West	110,175	4,026	3.7	22,628	2,862	12.6	87,547	1,164	1.3	

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 14.17 shows the distribution of households owning a desktop/laptop computer by the age and sex of the head of household. Like mobile phone ownership, the ownership of desktop/laptop computers was higher in households where the head was relatively younger. For example, the highest proportions of households with access to a desktop/laptop computer had heads who were in the age groups 25-29 (14.6%) and 30-34 (14.2%) age groups. The proportions declined after age 45-49 years for male-headed households and after age 50-54 for female-headed households. This difference, if right, would need to be investigated further.

Table 14.17: Households ownership of desktop/laptop computers by age and sex of household heads

Age Group	Total		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
All Ages	431,917	100.0	316,639	100.0	115,278	100.0
15-19	4,858	1.1	3,293	1.0	1,565	1.4
20-24	35,081	8.1	26,050	8.2	9,031	7.8
25-29	63,267	14.6	48,592	15.3	14,675	12.7
30-34	61,348	14.2	48,803	15.4	12,545	10.9
35-39	50,270	11.6	38,511	12.2	11,759	10.2
40-44	47,133	10.9	34,130	10.8	13,003	11.3
45-49	43,734	10.1	30,871	9.7	12,863	11.2
50-54	42,909	9.9	30,014	9.5	12,895	11.2
55-59	31,384	7.3	22,376	7.1	9,008	7.8
60-64	21,052	4.9	14,590	4.6	6,462	5.6
65-69	11,448	2.7	7,645	2.4	3,803	3.3
70+	19,433	4.5	11,764	3.7	7,669	6.7

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 14.18 presents the ownership of households with a desktop/laptop computer within the age group by sex of the head of household. The results show that the highest proportions of households with a desktop/laptop computer were those headed by persons in their twenties (20-24: 10.4% and 25-29 years 10.2%). For both males and females, the next highest proportion was among those aged 50-54 years (9.2%). Households with heads in their teen years and those with heads above sixty years had the lowest proportions of ownership of desktop/laptop computers. The age pattern of ownership for male-headed households differed from that of female headed households, whereby among the latter, the highest proportions with a desktop/laptop computer were those in age groups 25-29, 45-49, 50-54, and 55-59 years.

The proportion of households with access to a desktop/laptop computer increased with increasing level of education of the household head, ranging from 1.1 percent for households with heads who had no education to 59.1 percent for households with heads with tertiary education. The pattern is similar for both male and female headed households (Table 14.19). This is expected since use of computers is associated with education and literacy.

Table 14.18: Households with desktop/laptop computers within age groups by sex of heads of household

Age Group	Total Households	Number of Households with desktop/laptop	% households with desktop/laptop	Total Male Headed Households	Male Headed households with desktop/laptop	% Male Headed households with desktop/laptop	Total Female Headed Households	Female Headed households with desktop/laptop	% Female Headed households with desktop/laptop
All ages	5,467,054	431,917	7.9	3,571,781	316,639	8.9	1,895,273	115,278	6.1
15-19	86,829	4,858	5.6	49,369	3,293	6.7	37,460	1,565	4.2
20-24	338,377	35,081	10.4	205,601	26,050	12.7	132,776	9,031	6.8
25-29	618,228	63,267	10.2	411,690	48,592	11.8	206,538	14,675	7.1
30-34	698,494	61,348	8.8	495,051	48,803	9.9	203,443	12,545	6.2
35-39	689,612	50,270	7.3	489,464	38,511	7.9	200,148	11,759	5.9
40-44	633,574	47,133	7.4	440,043	34,130	7.8	193,531	13,003	6.7
45-49	538,420	43,734	8.1	363,582	30,871	8.5	174,838	12,863	7.4
50-54	505,207	42,909	8.5	322,839	30,014	9.3	182,368	12,895	7.1
55-59	339,915	31,384	9.2	216,711	22,376	10.3	123,204	9,008	7.3
60-64	303,158	21,052	6.9	186,205	14,590	7.8	116,953	6,462	5.5
65-69	188,348	11,448	6.1	110,471	7,645	6.9	77,877	3,803	4.9
70+	526,892	19,433	3.7	280,755	11,764	4.2	246,137	7,669	3.1

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 14.19: Households with desktop/laptop computers by level of education and sex of head of household

Level of Education	Total Households	Number of Households with desktop/laptop	% household with desktop/laptop	Total Male Headed Households	Male Headed households with desktop/laptop	% Male Headed households with desktop/laptop	Total Female Headed Households	Female Headed households with desktop/laptop	% Female Headed households with desktop/laptop
All levels	5,467,136	431,917	7.9	3,571,820	377,338	10.6	1,895,316	54,579	2.9
Never attended	1,663,329	18,125	1.1	934,949	14,355	1.5	728,380	3,770	0.5
Primary	530,764	13,963	2.6	298,118	11,660	3.9	232,646	2,303	1.0
Middle/JHS	2,023,860	92,730	4.6	1,394,893	79,393	5.7	628,967	13,337	2.1
Secondary	547,615	73,132	13.4	415,366	65,471	15.8	132,249	7,661	5.8
Voc/Tech/Comm.	171,268	26,809	15.7	118,827	24,355	20.5	52,441	2,454	4.7
Post Sec	339,856	94,592	27.8	250,220	81,689	32.6	89,636	12,903	14.4
Tertiary	190,444	112,566	59.1	159,447	100,415	63.0	30,997	12,151	39.2

Source: Ghana Statistical Service, 2010 Population and Housing Census

Households with desktop/laptop computers were classified by employment status of their heads and the results are presented in Table 14.20. Among heads of households who were unemployed 9.8 percent had access to a desktop/laptop computer with the proportion for heads who were employed being 7.6 percent. The national pattern existed for male-headed households but not for female-headed ones. A possible explanation for the apparently surprising result is that some members of the unemployed group may be students or people who may have recently graduated.

Table 14.20: Households having desktop/laptop computers by economic activity status and sex of head of household

	All Economic Activities	Employed	Unemployed	Not active**
Total Households	5,467,136	4,585,293	148,108	733,735
Number of Households having desktop/laptop	431,917	347,887	14,492	69,538
% households having desktop/laptop	7.9	7.6	9.8	9.5
Total Male Headed Households	3,571,820	3,132,907	80,750	358,163
Male Headed households having desktop/laptop	316,639	263,313	9,768	43,558
% Male Headed households having desktop/laptop	8.9	8.4	12.1	12.2
Total Female Headed Households	1,895,316	1,452,386	67,358	375,572
Female Headed households having desktop/laptop	115,278	84,574	4,724	25,980
% Female Headed households having desktop/laptop	6.1	5.8	7.0	6.9

Source: Ghana Statistical Service, 2010 Population and Housing Census

14.6 Utilisation of internet facilities

The Internet has become a very useful communication facility for people, businesses and organizations. Some of the common uses of the Internet include electronic mailing, accessing information, conducting business transactions, social networking and shopping. According to the International Communication Union (2012), the percentage of individuals using the Internet continues to grow worldwide and by the end of 2011, about 2.3 billion people were using the Internet. However, there is a wide gap in access to Internet between the developed and developing countries. By the end of 2011, 70 percent of households in developed countries used the Internet compared to only 20 percent of households in developing countries (International Communications Union, 2012).

The 2010 Population and Housing Census recorded 1,312,971 users of internet facilities out of 16,886,306 population 12 years and above. This indicates that only 7.8 percent of the population 12 years and older had access to internet. As shown in Table 14.21, there were marked regional differentials in access to internet facilities. The highest percentage of internet users in the country, 42.3 percent, resided in the Greater Accra region, followed by Ashanti region (22.5%), with the lowest in Upper East (1.2%) and Upper West (1.1%) regions.

As indicated in Table 14.22, 18.6 percent of the population in the Greater Accra had access to internet facilities, the highest in the country, followed by Ashanti Region (8.9%). Northern, Upper East and Upper West regions had less than three percent each of their populations with access to internet facilities. In terms of the sexes, (Table 7.22) usage of the Internet among males was 10.3 percent and that of females was 5.4 percent. Thus, for every two males who used the Internet in any regions, one female used the facility.

Table 14.21: Population 12 years and older using internet facilities by region and sex

Region	All Regions		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
All Regions	1,312,971	100.0	832,789	100.0	480,182	100.0
Western	103,166	7.9	66,698	8.0	36,468	7.6
Central	104,301	7.9	64,410	7.7	39,891	8.3
Greater Accra	555,847	42.3	340,275	40.9	215,572	44.9
Volta	50,644	3.9	33,918	4.1	16,726	3.5
Eastern	88,869	6.8	58,830	7.1	30,039	6.3
Ashanti	295,251	22.5	189,033	22.7	106,218	22.1
Brong Ahafo	52,923	4.0	36,542	4.4	16,381	3.4
Northern	32,128	2.4	22,507	2.7	9,621	2.0
Upper East	15,777	1.2	10,943	1.3	4,834	1.0
Upper West	14,065	1.1	9,633	1.2	4,432	0.9

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 14.22: Population 12 years and older using Internet within regions by sex

Internet Using 12 years and older	All Regions	Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brony Ahafo	Northern	Upper East	Upper West
Population 12 years and older	16,886,306	1,615,850	1,490,517	2,980,912	1,449,077	1,810,449	3,312,023	1,547,336	1,528,287	690,901	460,954
Population 12years and older using internet	1,312,971	103,166	104,301	555,847	50,644	88,869	295,251	52,923	32,128	15,777	14,065
Percentage 12+ using internet	7.8	6.4	7.0	18.6	3.5	4.9	8.9	3.4	2.1	2.3	3.1
Male Population 12 years and older	8,072,481	800,971	689,359	1,422,840	679,615	869,286	1,570,911	755,018	744,075	323,110	217,296
Male Population 12years and older using internet	832,789	66,698	64,410	340,275	33,918	58,830	189,033	36,542	22,507	10,943	9,633
Males 12+ Percentage using internet	10.3	8.3	9.3	23.9	5.0	6.8	12.0	4.8	3.0	3.4	4.4
Female Population 12 years and older	8,813,825	814,879	801,158	1,558,072	769,462	941,163	1,741,112	792,318	784,212	367,791	243,658
Female Population 12years and older using internet	480,182	36,468	39,891	215,572	16,726	30,039	106,218	16,381	9,621	4,834	4,432
Female 12+ Percentage using internet	5.4	4.5	5.0	13.8	2.2	3.2	6.1	2.1	1.2	1.3	1.8

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 14.23 shows the distribution of persons using internet facilities by locality of residence within the regions. As internet is associated with electricity supply, it will be expected that the urban areas will dominate in access to the use of the internet. As shown in Table 14.23, 87.4 percent of users were in urban areas. However, in Upper East and Upper West Regions the percentage differences between urban and rural internet users was quite close (57% vs. 43% and 59% vs. 41%, respectively) compared to other regions.

Table 14.23: Population 12 years and older using internet by region and locality of residence

	Total	Urban	Rural	% Urban	% Rural
All Regions	1,312,971	1,147,874	165,097	87.4	12.6
Western	103,166	85,784	17,382	83.2	16.8
Central	104,301	79,628	24,673	76.3	23.7
Greater Accra	555,847	528,729	27,118	95.1	4.9
Volta	50,644	36,501	14,143	72.1	27.9
Eastern	88,869	67,543	21,326	76.0	24.0
Ashanti	295,251	266,451	28,800	90.2	9.8
Brong Ahafo	52,923	41,761	11,162	78.9	21.1
Northern	32,128	24,102	8,026	75.0	25.0
Upper East	15,777	9,029	6,748	57.2	42.8
Upper West	14,065	8,346	5,719	59.3	40.7

Source: Ghana Statistical Service, 2010 Population and Housing Census

Generally, the proportion of persons 12 years and older using the Internet by age tended to assume a curvilinear function. Similar to mobile phone ownership, use of Internet facilities increased from age 12-14 years, peaking at age 20-24 years and declined thereafter with increasing age. A similar pattern was observed among both males and females, with the peak age group of use being 20-24 years for both sexes (Table 14.24).

Table 14.24: Population 12 years and older using internet facility by age and sex

Age Group	Total Country		Males		Females	
	Number	Percent	Number	Percent	Number	Percent
All Ages	1,312,971	100.0	832,789	100.0	480,182	100.0
12-14	52,889	4.0	29,821	3.6	23,068	4.8
15-19	223,394	17.0	128,946	15.5	94,448	19.7
20-24	349,551	26.6	211,897	25.4	137,654	28.7
25-29	253,085	19.3	160,250	19.2	92,835	19.3
30-34	149,036	11.4	101,619	12.2	47,417	9.9
35-39	89,520	6.8	63,233	7.6	26,287	5.5
40-44	60,780	4.6	42,737	5.1	18,043	3.8
45-49	45,267	3.4	31,364	3.8	13,903	2.9
50-54	36,956	2.8	25,682	3.1	11,274	2.3
55-59	23,329	1.8	16,790	2.0	6,539	1.4
60-64	12,190	0.9	8,860	1.1	3,330	0.7
65-69	5,577	0.4	4,022	0.5	1,555	0.3
70 +	11,397	0.9	7,568	0.9	3,829	0.8

Source: Ghana Statistical Service, 2010 Population and Housing Census

There is also a relationship between Internet use and level of education. Table 14.25 shows that Internet use increases with level of education. The proportion of individuals who reported using internet facilities ranged from 0.4 percent for people with no education to 72.1 percent for people with tertiary education. This finding holds true for both males and females.

Table 14.25: Population 12 years and older using Internet by level of education and sex

Level of education	All Levels	No education	Primary	Middle/JHS	Secondary	Voc./Tech	Post-Sec.	Tertiary
Population 12+ by age group	16,886,306	4,459,510	2,713,710	6,067,030	2,105,935	369,365	728,505	442,251
Population 12+ using internet	1,312,971	17,895	35,660	215,585	384,834	54,101	286,112	318,784
Percentage 12+ using internet	7.8	0.4	1.3	3.6	18.3	14.6	39.3	72.1
Male Population 12 years and older	8,072,481	1,627,628	1,248,156	3,084,022	1,191,239	192,496	430,238	298,702
Male Population 12 years and older using internet	832,789	8,086	21,192	140,067	241,428	33,790	175,006	213,220
Males 12+ Percentage using internet	10.3	0.5	1.7	4.5	20.3	17.6	40.7	71.4
Female Population 12 years and older	8,813,825	2,831,882	1,465,554	2,983,008	914,696	176,869	298,267	143,549
Female Population 12 years and older using internet	480,182	9,809	14,468	75,518	143,406	20,311	111,106	105,548
Female 12+ Percentage using internet	5.4	0.3	1.0	2.5	15.7	11.5	37.3	73.5

Source: Ghana Statistical Service, 2010 Population and Housing Census

Usage of the internet was higher among the unemployed (12.3%) than the employed (6.2%). Among the not economically active population, which included students, 10.1 percent reported using the internet, more than the population employed (Table 14.26). This pattern of Internet usage may be explained by the employment structure whereby the employed population are in agriculture and related activities which rarely use computers and the internet (see Chapter 11).

Table 14.26: Population 12 years and older using internet by employment status and sex

Economic Activity Status	All Economic Activities	Employed	Unemployed	Not active**
Population 12+	16,886,306	10,500,292	665,795	5,720,219
Population 12+ using internet	1,312,971	654,059	81,841	577,071
Percentage 12+ using internet	7.8	6.2	12.3	10.1
Male Population 12 years and older	8,072,481	5,142,599	299,646	2,630,236
Male Population 12years and older using internet	832,789	440,775	51,041	340,973
Males 12+ Percentage using internet	10.3	8.6	17.0	13.0
Female Population 12 years and older	8,813,825	5,357,693	366,149	3,089,983
Female Population 12years and older using internet	480,182	213,284	30,800	236,098
Female 12+ Percentage using internet	5.5	4.0	8.4	7.6

Source: Ghana Statistical Service, 2010 Population and Housing Census

NB: **Not economically active includes people who were in full time education, pensioned/retired, disabled, too sick to work, too old/too young to work, did home duties

14.7 ICT in Agriculture

The government of Ghana, as part of its overall strategy to develop ICT for national development, recognizes the role ICT can play in supporting activities of the agricultural sector including the production, processing, distribution, and marketing of agricultural products and services. Although direct questions on the use of ICT in agriculture were not asked in the 2010 Population and Housing Census, this section of the report uses the household questions on ownership of ICT facilities and those on agriculture to describe the characteristics and distribution of agricultural households with access to ICT.

14.7.1 Ownership of fixed telephone lines among agricultural households

Mobile telephones are now more widespread in Ghana than fixed line telephones. Nevertheless fixed telephone lines continue to be used. This section reports on the characteristics of agricultural households with access to fixed telephone lines.

The 2010 Population and Housing Census recorded a total of 23,729 agricultural households with fixed telephone lines. With a total count of 2,503,006 agricultural households in the census, it implies that less than one percent (0.95%) of agricultural households had access to fixed telephone lines. As shown in Table 14.27, the highest proportion of agricultural households with fixed telephone line lived in the Ashanti Region (20.7%), followed by the Eastern Region (16.0%) and Greater Accra Region (14.0%).

The distribution of the facility in the regions and by sex of household head (Table 14.27) shows that 75 percent of the fixed lines were in male-headed households. The higher number of male-headed households with telephone lines existed in all the regions.

Table 14.27: Ownership of fixed telephone lines by region and sex of agricultural household heads

Region	Total		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
All Regions	23,729	100.0	17,794	100.0	5,935	100.0
Western	2,012	8.5	1,585	8.9	427	7.2
Central	2,100	8.8	1,463	8.2	637	10.7
Greater Accra	3,314	14.0	2,538	14.3	776	13.1
Volta	2,485	10.5	1,862	10.5	623	10.5
Eastern	3,788	16.0	2,809	15.8	979	16.5
Ashanti	4,909	20.7	3,380	19.0	1,529	25.8
Brong Ahafo	2,274	9.6	1,700	9.6	574	9.7
Northern	1,474	6.2	1,349	7.6	125	2.1
Upper East	1,025	4.3	809	4.5	216	3.6
Upper West	348	1.5	299	1.7	49	0.8

Source: Ghana Statistical Service, 2010 Population and Housing Census

The distribution of fixed telephone line by region and locality of residence of the agricultural household head shows that the highest proportions of agricultural household heads with fixed telephone lines lived in the urban areas in the Ashanti, Greater Accra and Eastern regions. In the Brong Ahafo, Northern, Upper east and Upper West regions, the numbers of households with fixed lines in rural areas were more than those in urban areas (Table 14.28).

Table 14.28: Ownership of fixed telephone lines by region and locality of residence of agricultural household heads

Region	Total		Urban		Rural	
	Number	Percent	Number	Percent	Number	Percent
All Regions	23,729	100.0	14,832	100.0	8,897	100.0
Western	2,012	8.5	1,079	7.3	933	10.5
Central	2,100	8.8	1,083	7.3	1,017	11.4
Greater Accra	3,314	14.0	3,103	20.9	211	2.4
Volta	2,485	10.5	1,359	9.2	1,126	12.7
Eastern	3,788	16.0	2,130	14.4	1,658	18.6
Ashanti	4,909	20.7	3,844	25.9	1,065	12.0
Brong Ahafo	2,274	9.6	1,130	7.6	1,144	12.9
Northern	1,474	6.2	502	3.4	972	10.9
Upper East	1,025	4.3	448	3.0	577	6.5
Upper West	348	1.5	154	1.0	194	2.2

Source Ghana Statistical Service, 2010 Population and Housing Census

14.7.2 Ownership of mobile phones among agricultural household heads

Access to mobile telephones has led to the development of innovative means to enhance trading activities among farmers. One such initiative is TradeNet which is an organization that links farmers and traders through the provision of information on product type, quantity and prices via mobile networks in markets across African (TradeNet, 2007).

Of the 2,503,006 agricultural households enumerated in the 2010 Census, 1,183,231 household heads (47.3%) indicated that they owned mobile phones (Table 14.29). Between the two sexes, male-headed agricultural households accounted for 78 percent of the mobile phones. Among the regions, agricultural household heads in the Ashanti, Eastern and Brong Ahafo Regions had 49.5 percent of the phones. The relative proportions for males and females were 48.7 percent and 55.7 percent respectively.

Table 14.29: Mobile phone ownership by region and sex of agricultural household heads

Region	Total		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
All Regions	1,183,231	100.0	926,782	100.0	256,449	100.0
Western	145,825	12.3	121,034	13.1	24,791	9.7
Central	130,228	11.0	98,749	10.7	31,479	12.3
Greater Accra	50,866	4.3	38,903	4.2	11,963	4.7
Volta	131,624	11.1	100,307	10.8	31,317	12.2
Eastern	196,082	16.6	150,213	16.2	45,869	17.9
Ashanti	220,968	18.7	165,620	17.9	55,348	21.6
Brong Ahafo	167,653	14.2	126,071	13.6	41,582	16.2
Northern	69,929	5.9	65,452	7.1	4,477	1.7
Upper East	45,620	3.9	38,521	4.2	7,099	2.8
Upper West	24,436	2.1	21,912	2.4	2,524	1.0

Source: Ghana Statistical Service, 2010 Population and Housing Census

The number and percentages of agricultural household heads with mobile phones by region and locality of residence are presented in Table 14.30. The table shows that, as expected, 63 percent of agricultural household heads with mobile phones were resident in rural areas. Furthermore about 55 percent of urban agricultural household heads with mobile phones were resident in Brong Ahafo, Eastern and Ashanti regions. The absence of fixed lines in rural areas is offset by the penetration of mobile phones.

Table 14.30: Mobile phone ownership by region and locality of residence of agricultural household heads

Region	Total		Urban		Rural	
	Number	Percent	Number	Percent	Number	Percent
All Regions	1,183,231	100.0	439,854	100.0	743,377	100.0
Western	145,825	12.3	36,638	8.3	109,187	14.7
Central	130,228	11.0	44,057	10.0	86,171	11.6
Greater Accra	50,866	4.3	35,510	8.1	15,356	2.1
Volta	131,624	11.1	37,870	8.6	93,754	12.6
Eastern	196,082	16.6	78,136	17.8	117,946	15.9
Ashanti	220,968	18.7	85,677	19.5	135,291	18.2
Brong Ahafo	167,653	14.2	77,601	17.6	90,052	12.1
Northern	69,929	5.9	27,933	6.4	41,996	5.6
Upper East	45,620	3.9	11,828	2.7	33,792	4.5
Upper West	24,436	2.1	4,604	1.0	19,832	2.7

Source: Ghana Statistical Service, 2010 Population and Housing Census

The age and sex composition of agricultural household heads with mobile phone may indicate the readiness agriculture to adopt and use modern forms of communication. The distribution of agricultural household heads owning mobile phones by age and sex shows a curvilinear relationship between the age of agricultural household head and ownership of mobile phones (Table 14.31). Ownership of mobile phones increases with increasing age of household head, peaks at ages 35-39 years for males and 40-44 for females and declines steadily after that.

Table 14.31: Mobile phone ownership by age and sex of agricultural household heads

Age Group	Total		Males		Females	
	Number	Percent	Number	Percent	Number	Percent
All Ages	1,183,231	100.0	926,782	100.0	256,449	100.0
15-19	7,853	0.7	5,698	0.6	2,155	0.8
20-24	44,608	3.8	34,310	3.7	10,298	4.0
25-29	108,681	9.2	87,972	9.5	20,709	8.1
30-34	149,290	12.6	122,677	13.2	26,613	10.4
35-39	169,199	14.3	138,057	14.9	31,142	12.1
40-44	160,212	13.5	128,121	13.8	32,091	12.5
45-49	143,783	12.2	112,127	12.1	31,656	12.3
50-54	131,299	11.1	98,827	10.7	32,472	12.7
55-59	88,632	7.5	66,612	7.2	22,020	8.6
60-64	68,268	5.8	51,518	5.6	16,750	6.5
65-69	38,635	3.3	28,202	3.0	10,433	4.1
70+	72,771	6.2	52,661	5.7	20,110	7.8

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 14.32 presents the mobile phone ownership by level of education and sex of agricultural household head. The table indicates that for the country and both sexes, the largest share of the total number of agricultural heads with mobile phones have had at least basic education (Primary and Middle/JHS), accounting for 56 percent of users. Thirty-two percent of female-headed households and 23.0 percent of male-headed households in agriculture using mobile phones had no education.

Table 14.32: Mobile phone ownership by level of education and sex of agricultural household heads

Level of education	Both Sexes		Males		Females	
	Number	Percent	Number	Percent	Number	Percent
All Levels	1,183,231	100.0	926,782	100.0	256,449	100.0
No education	294,344	24.9	212,932	23.0	81,412	31.7
Primary	122,715	10.4	86,216	9.3	36,499	14.2
Middle/JHS	539,887	45.6	430,060	46.4	109,827	42.8
Secondary	99,943	8.4	87,835	9.5	12108	4.7
Voc./Tech.	31,430	2.7	25,779	2.8	5,651	2.2
Post-Sec.	68,977	5.8	59,879	6.5	9,098	3.5
Tertiary	25,935	2.2	24,081	2.6	1,854	0.7

Source: Ghana Statistical Service, 2010 Population and Housing Census

14.7.3 Utilisation of internet facilities among agricultural household heads

Results from the 2010 Population and Housing Census indicated that 54,360 agricultural households, representing 2.2 percent, used internet facilities out of the 2,503,006 recorded. The low penetration rate of internet facilities among agricultural households in Ghana could be attributed to poor connectivity in rural areas and high subscription cost.

At the regional level, the proportion of all agricultural households using the internet ranged from 2.2 percent in the Upper West Region to a high of 19.3 percent in Ashanti Region (Table 14.33). Among male agricultural household heads, the highest proportions using the Internet were in Ashanti Region (18.9%), Eastern Region (15.7%) and Greater Accra Region (14.0%). The same pattern was observed for female heads. The data also pointed to low levels of internet use among agricultural household heads in the three northern regions.

Table 14.33: Utilisation of internet facilities by region and sex of agricultural household heads

Region	Total		Male		Female	
	Number	Percent	Number	Percent	Number	Percent
All Regions	54,360	100.0	47,730	100.0	6,630	100.0
Western	5,083	9.4	4,474	9.4	609	9.2
Central	5,573	10.3	4,887	10.2	686	10.3
Greater Accra	7,679	14.1	6,666	14.0	1,013	15.3
Volta	5,050	9.3	4,455	9.3	595	9.0
Eastern	8,519	15.7	7,477	15.7	1,042	15.7
Ashanti	10,501	19.3	9,036	18.9	1,465	22.1
Brong Ahafo	5,666	10.4	4,956	10.4	710	10.7
Northern	2,784	5.1	2,632	5.5	152	2.3
Upper East	2,307	4.2	2,067	4.3	240	3.6
Upper West	1,198	2.2	1,080	2.3	118	1.8

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 14.34: Utilisation of internet facilities by region and locality of agricultural household heads

Region	Total		Urban		Rural	
	Number	Percent	Number	Percent	Number	Percent
All Regions	54,360	100.0	33,513	100.0	20,847	100.0
Western	5,083	9.4	2,349	7.0	2,734	13.1
Central	5,573	10.3	2,915	8.7	2,658	12.8
Greater Accra	7,679	14.1	6,864	20.5	815	3.9
Volta	5,050	9.3	2,594	7.7	2,456	11.8
Eastern	8,519	15.7	5,021	15.0	3,498	16.8
Ashanti	10,501	19.3	7,120	21.2	3,381	16.2
Brong Ahafo	5,666	10.4	3,518	10.5	2,148	10.3
Northern	2,784	5.1	1,630	4.9	1,154	5.5
Upper East	2,307	4.2	990	3.0	1,317	6.3
Upper West	1,198	2.2	512	1.5	686	3.3

Source: Ghana Statistical Service, 2010 Population and Housing Census

Table 14.35 indicates that variations in internet use by age and sex in agricultural households followed the national pattern discussed earlier. The proportions of agricultural household heads using Internet was highest in the age range 25 years to 39 years. For female heads of agriculture households, the peak age of usage was 25-29 years (15.9%), while for the males the peak period was 30-34 years (15.3%). The early peak for female-headed households compared to male-headed households is different from what was observed for mobile phones.

Table 14.35: Utilisation of internet facilities by age and sex of agricultural household heads

Age Group	Total Country		Males		Females	
	Number	Percent	Number	Percent	Number	Percent
All Ages	54,360	100.0	47,730	100.0	6,630	100.0
15-19	769	1.4	567	1.2	202	3.0
20-24	3,910	7.2	3,199	6.7	711	10.7
25-29	7,632	14.0	6,576	13.8	1,056	15.9
30-34	8,321	15.3	7,473	15.7	848	12.8
35-39	7,596	14.0	6,904	14.5	692	10.4
40-44	6,489	11.9	5,816	12.2	673	10.2
45-49	5,694	10.5	5,107	10.7	587	8.9
50-54	5,576	10.3	4,928	10.3	648	9.8
55-59	3,803	7.0	3,348	7.0	455	6.9
60-64	2,151	4.0	1,810	3.8	341	5.1
65-69	978	1.8	843	1.8	135	2.0
70+	1,441	2.7	1,159	2.4	282	4.3

Source: Ghana Statistical Service, 2010 Population and Housing Census

14.8 Summary, Conclusions and Recommendations

14.8.1 Summary

ICT has become an important tool in various facets of life and this is reflected in the observed numbers and proportions of the population with access to mobile phones and internet facilities as well as household ownership of computers and fixed telephone lines.

With respect to ownership of mobile phones, 47.7 percent of the population 12 years and older owned mobile phones. At the regional level, Greater Accra had the highest proportion of mobile phone owners (73.5%), followed by the Ashanti Region (56.1%). The proportion of people in the three northern regions who own mobile phones was around one in five. Generally, mobile phone ownership peaked around the age groups 20-34 years, with the proportions declining after age 40 years. Only 7.8 percent of the population 12 years and older reported using internet facilities. Individuals who used the Internet were more likely to be young, educated, and resided in urban areas. There are also marked regional differentials in use of internet facilities.

Only 2.3 percent of households in Ghana had fixed telephone lines. At the regional level, households with fixed telephone lines were found mainly in Greater Accra (43.3%) and Ashanti (21.8%). The proportion of households with this facility was below the national average in the Northern, Upper East, Upper West and Brong Ahafo regions. In all regions rural households were less likely to have a fixed telephone line than urban households. A slightly higher proportion of male than female headed households had fixed telephone lines and ownership increased also with age and education level. The absence of fixed lines in rural areas has been made up by the penetration of mobile phones, with about eight percent of households in the country owned either a desktop or laptop computer. As with ownership of mobile phones and fixed telephone lines, highest proportions of households with computers were in the Greater

Accra (16.8%) and Ashanti (9.3%) regions. The lowest ownership rates were found in the three northern regions and Volta region (all below 4.0%). Ownership of computers was associated with urban residence, with only 2.3 percent in rural areas compared to 12.4 percent in urban areas. Ownership increased with education level and is highest among younger age groups (20-29 years).

Access to and use of ICT facilities in agricultural sector indicated that 47.3 percent of agricultural household heads owned mobile phones. At the regional level, the proportion of agricultural household heads with mobile phone ranged from 2.1 percent in the Upper West Region to 18.7 percent in Ashanti Region. About half of agricultural household heads who owned mobile phones were resident in Ashanti, Eastern and Brong Ahafo regions. Regions where rural agricultural household heads with mobile phones predominate over their urban counterparts were the Western, Volta, Upper East and Upper West regions. Only 2.2 percent of agricultural household heads reported having access to internet facilities. As expected, the majority of agricultural household heads with access to mobile phones and the internet facilities were young, educated and urban residents.

Less than one percent of agricultural households had fixed telephone lines. Generally, the lowest proportions of all households with fixed telephone lines were found in the Northern (6.2%), Upper East (4.3%) and the Upper West (1.5%) regions. In seven of the regions, the majority of agricultural households with fixed telephone lines lived in rural areas, the exceptions being the Greater Accra, Ashanti, and Eastern regions.

14.8.2 Conclusions

The use of mobile phones in the country is quite extensive covering all regions and localities. The 2010 Population and Housing Census revealed that close to half of the population 12 years and older owned mobile phones. The lack of fixed lines among agricultural workers has been offset with the penetration of mobile phones, with about 73 percent of agricultural workers in rural areas owning mobile phones.

The low rate of usage of internet facilities in the country generally and the rural areas in particular point to the digital divide between Ghana and the rest of the world and the internal urban-rural divide. This is one area where efforts are needed to bridge the gap.

14.8.3 Recommendations

The penetration of mobile phones among agricultural households offers an opportunity for government agencies, private companies and community organizations to disseminate important public information through that medium. TradeNet Africa provides one model for the use of mobile phone. In countries such as Tanzania, Kenya and Uganda, programmes are in place to enable farmers to use mobile phones to access relevant agricultural information, such as, availability and prices of improved technologies, marketing outlets and prices for farm produce. The Health programme of the Ministry of Health/Ghana Health Service can be used to improve health outcomes in the country. Similarly, the Ghana Meteorological Agency can provide information on the weather to farmers.

The variability in access to these ICT across the regions and localities in Ghana observed in the report also has policy implications for support to getting the ICT facilities to underserved areas, particularly in the three northern regions and rural areas. To increase the use of Internet, the government, especially the District Assemblies, and private organization, may need to set up internet centers in public places such as libraries and community centres. The use of internet, however, is closely linked with regular supply of electricity.

Finally, this is the first national census on ICT. In order to establish trends, there should be a mechanism for collecting regular data on ICT and for the module to be repeated in subsequent censuses.

References

- Ayensu, E.A (2003). *Communication and Culture in Ghana: Technology's Influence and Progress in New Digital Age*. A Ph.D. Thesis Submitted to the Faculty of Graduate School of Art and Sciences, George University, Washington D.C, Cambridge, United States of America.
- Castells, M, Fernandez-Ardevol,M, Qiu, J.L & Sey, A (2004). *The Mobile Communication: A Cross Cultural Analysis of Available Evidence on the Social Uses of Wireless Communication Technology*. A Research Report Prepared for International Workshop on Wireless Communication Policies and Prospects at the Annenberg School for Communication, University of Southern California, Los Angeles.
- Castells, M, Fernandez-Ardevol, M, & Sey, A (2007). *Mobile Communication and Society*. Massachusetts. Institute of Technology, Cambridge.
- Geser, H (2004). Towards a Sociological Theory of the Mobile Phone, Retrieved May 12, 2012 from: <http://siocio.chmobile/tgeser/pdf>
- International Telecommunications Union (2012). *Key Statistical Highlights: ITU Data Release June 2012*. ITU World Telecommunication/ICT Indicators Database. Retrieved July, 2012 from <http://www.itu.int/ITU-statistics/pdf>
- Lin, R % Haddon, L (2001). *Mobile Telephony, Mobility and Coordination of Everyday Life*. Machine that Becomes Us Conference, Rutgers University, New Brunswick, New Jersey, United States of America.
- Ling, R (2004). *The Mobile Connection: The Cell Phone Impact on Society*. Elsevier: San Francisco, Unite States of America.
- National Development Planning Commission (2012). *2011 GSGDA Annual Progress Report*. Government of Ghana, Accra

CHAPTER FIFTEEN

HOUSING CONDITIONS³³

15.1 Introduction

In 2010, the policy framework of the Government of Ghana, the *Ghana Shared Growth and Development Agenda*, emphasized the need for increased access of the population to safe, adequate and affordable housing and shelter (National Development Planning Commission, 2010). Earlier frameworks also underscored the important role of housing in social development. For example, in the Ghana Poverty Reduction Strategy (2003 – 2005) policy framework, housing interventions were prescribed implicitly within the context of social development objectives (National Development Planning Commission, 2002). The achievement of health objectives was linked, among others, to the provision of safe water supply and sewerage, improved housing, and well planned settlements. The provision of periodic information on housing and housing conditions is therefore important both to assess what has been achieved and to plan ahead.

The 2010 Ghana Population and Housing Census is the second national census, following the 2000 census, which included a comprehensive housing census. The two censuses provided an official count of all structures (permanent and temporary) within the nation. Among the issues covered were the number of occupied and unoccupied dwelling units, the type of dwelling and the main materials used in house construction, occupancy status, methods of waste disposal, utilities and household facilities. It is envisaged that the housing data from the 2010 PHC will enable planners and policy makers formulate realistic and relevant housing policies and design appropriate programmes to meet Ghana's housing needs. For instance, information obtained from the census on housing quality indicated by the materials used for constructing various housing units, and the availability of facilities such as water and sanitation, will serve as important indicators of the occupants' quality of life. Such information can aid the government in designing housing improvement programmes.

The information from housing censuses also serves as a basis for planning housing and human settlement programmes and policies, evaluation and monitoring of housing conditions and needs of the population within the context of the Millennium Development Goal Seven (MDG7). It can also be used to determine the adequacy of housing stock and assessment of the need for additional housing. It may also provide information on living conditions of those residing in temporary or substandard housing at the national, regional and local levels.

In this chapter, data on stock of houses, facilities and amenities of houses in the 2010 Population and Housing Census were analysed at the national and regional levels, and by rural-urban residence, where appropriate. Trend of analysis of stock of houses was also presented based on data from previous censuses (1960, 1970, 1984 and 2000). The main source of data for the

³³This chapter was contributed by Augustine Ankomah and Emmanuel Boateng

analysis of this chapter was the 2010 Population and Housing census but, where possible, comparison was made with the previous censuses especially the 2000 census.

15.1.2 Definitions of concepts

House/Compound

The United Nations (UN) recommended definition (UN, 2008) of a house as “structurally separate and independent place of abode such that a person or group of persons can isolate themselves from the hazards of climate such as storms and the sun” was adopted in the 2010 census. In the definition adopted, a house or compound was identified as a structurally separate and independent place of living. The essential features are separateness and independence. An enclosure may be considered as separate if it is surrounded by walls, fences, and suitable materials such that a person or group of persons can isolate themselves from other persons in the community for the purpose of sleeping, preparing and taking their meals or protecting themselves from hazards of climate such as severe winds. The definition therefore covered any type of shelter used as living quarters, such as separate houses, semi-detached houses, flats/apartments, compound houses, huts, tents, kiosks and containers.

Dwelling unit

A dwelling unit (or living quarter) was used to refer to a specific area or space occupied by a particular household. It does not necessarily refer to the entire house of which the dwelling unit may be a part.

Household

In the 2010 PHC, a household was defined as a person or a group of persons, who live together in the same house or compound and share the same house-keeping arrangements. In general, a household consists of a man/woman, spouse, children, other relatives, non-relatives and house assistants who may be living with them. Members of a household may not necessarily be related (by blood or marriage) because non-relatives (e.g. house assistants) may be part of a household. It is this definition which has been used for data collection in all censuses in Ghana.

A room

A room was defined in the census as a space in the housing unit or other living quarters enclosed by walls reaching from the floor to the ceiling or roof covering, or at least to a height of two metres, of a size large enough to hold a bed for an adult, that is, at least four square metres.

15.2 Housing stock

The available data from previous censuses on housing stock point over fivefold increase since the first post-independence census. As shown in Table 15.1, that there were 636,189 houses in Ghana in 1960, 2,181,975 in 2000, and the number increased to 3,392,745 in 2010. The annual growth in housing stock between 2000 and 2010 was 4.4 percent, representing the highest annual growth rate in housing stock in Ghana since 1960. This is even higher than the post-

independence (1960-1970) boom in housing, due to economic growth, when the annual growth in housing was 4.0 percent (Ghana Census Office, 1970). In contrast, the lowest annual growth of 1.7 percent was experienced in the 1970-1984 inter-censal period; a period which witnessed a near collapse of the economy due to political instability.

With reference to the 2000-2010 inter-censal period, the three regions with the highest annual growth rates were Ashanti (5.6%), Greater Accra (5.0%) and Upper West (4.6%), while the three regions with the lowest annual growth rates were Upper East (2.5%), Northern (3.7%) and Western (3.8%). Considering its position as the nation's capital, Greater Accra experienced the highest annual growth rate for each of the first three inter-censal periods of 1960-70, 1970-84, and 1984-2000. The lowest annual growth in housing stock for each of the four inter-censal periods occurred in Upper East region (Table 15.1).

As shown in Table 15.1, the mean number of persons per house in Ghana decreased from 10.0 in 1984 to 8.7 in 2000 to 7.3 in 2010. There were regional variations in the number of persons in each house for 2010. The lowest was in Volta region (5.3 persons) and the highest in the Northern region (9.6 persons). The mean number of persons per house in the Greater Accra region was 8.4. All the ten regions of Ghana experienced a reduction in the number of persons per house between 2000 and 2010. The highest declines were in the Ashanti region (11 persons to 8.3); Upper West region (from 11.1 persons to 8.5), and Greater Accra region (10.1 persons to 8.4).

The distribution of housing stock in Ghana by region and by locality type is presented in Table 15.2. Two regions, Ashanti (16.9%) and Greater Accra (14.0), accounted for 30.9 percent of the total housing stock. The Upper West region had only 2.4 percent and Upper East 3.4% percent, the two regions with the lowest proportions of houses. Altogether the three northern regions (Northern, Upper East, and Upper West) had 13.4% of houses in Ghana. This figure was lower than the proportion for either Greater Accra or Ashanti region. These are consistent with their proportion in the total population (see Chapter Four).

Rural areas accounted for 57.7 percent of housing stock in the country in 2010, a decline from the 65.9 percent level in 2000. The decline in the housing stock in rural is due to increased urbanisation, where in 2010, for the first time, more than 50 percent of the population resided in urban areas. Notwithstanding the decline in the proportion of rural housing stock, in all regions, except Greater Accra where the rural share was only 13.0%, the proportion of rural houses still far exceeds urban houses. The three regions with high proportions of rural housing stock were Upper West (85.4%), Upper East (79.2%) and Volta (72.2%). The results point to the dominance of Accra in the proportion of housing stock in the country.

Table 15.1: Number of houses, annual rate of increase and number of persons per house, 1960- 2010

Region	Number of Houses					Annual Rate of Increase ¹				Average (mean) number of persons per house				
	1960	1970	1984	2000	2010	1960-1970	1970-1984	1984-2000	2000-2010	1960	1970	1984	2000	2010
All Regions	636,189	945,639	1,204,395	2,181,975	3,392,745	4.0	1.7	3.7	4.4	10.6	9.0	10.2	8.7	7.3
Western	61,103	87,061	128,427	259,874	380,104	3.5	2.8	4.4	3.8	10.2	8.8	9.0	7.4	6.3
Central	79,196	111,753	129,154	223,239	346,699	3.4	1.0	3.4	4.4	9.5	8.0	8.8	7.1	6.4
Greater Accra	36,643	71,189	116,211	287,840	474,621	6.6	3.5	5.7	5.0	13.4	12.0	12.3	10.1	8.4
Volta	84,927	141,382	164,513	264,451	399,953	5.1	1.1	3.0	4.1	9.2	6.7	7.4	6.2	5.3
Eastern	108,136	159,246	182,690	283,461	431,697	3.9	1.0	2.7	4.2	10.1	7.9	9.2	7.4	6.1
Ashanti	94,459	136,428	173,969	328,751	574,066	3.7	1.7	4.0	5.6	11.7	10.9	12.1	11.0	8.3
Brong-Ahafo	46,749	80,889	115,873	216,275	331,967	5.5	2.6	3.9	4.3	12.6	9.5	10.4	8.4	7.0
Northern	50,333	71,808	96,090	177,785	257,311	3.6	2.1	3.8	3.7	10.6	10.1	12.1	10.2	9.6
Upper East	58,455	64,801	70,967	88,401	114,034	1.0	0.6	1.4	2.5	8.5	8.4	10.9	10.4	9.2
Upper West	16,188	21,082	26,501	51,898	82293	2.6	1.6	4.2	4.6	16.0	15.2	16.5	11.1	8.5

Source: Ghana (Census Office) 1960 Population Census of Ghana, Vol. I, Accra, 1963;Ghana (Census Office) 1970 Population Census of Ghana, Vol. I, Accra, 1973;Ghana (Statistical Service) 1984 Population Census of Ghana, Demographic and Economic characteristics Report, Vol. I, Accra, 1987;Ghana (Statistical Service (2002), 2000 Population and Housing Census, Summary report of Final Results, March 2002, Table 14;Ghana Statistical Service, (2012) , 2010 Population and Housing Census: Summary Report of Final Results.;2010 Population and Housing Census report.

¹ The annual rates of increase were calculated by the authors based on geometric growth (compound growth rate).

15.3 Household and household size

There is often a relationship between socio-economic conditions of households and the quality of life of its members (Gordon, Nandy, Pantazis, Pemberton, and Townsend, 2003). As a unit for production and consumption of resources, the characteristics of a household such as size, composition, and economic base, have implications for aspects such as health, productivity, social interaction, welfare, security and general outlook.

According to the 2010 Population and Housing Census, there were 5,467,136 households in country as at the time of the census (Table 15.2). As with the distribution of housing stock, the largest proportions of households were in Ashanti region (20.1%) and Greater Accra region (19.0%). The lowest were in Upper West region (2.0%) and Upper East region (3.2%). The mean number of households per house in 2010 was 1.6, a decline from 1.7 in 2000. The number of households per house varied among the regions. For example, in the Volta and Northern regions, the figure was 1.2, but it was 2.0 in Ashanti region and 2.2 in Greater Accra region. Thus, the number of households per house was higher in regions with relatively larger urban populations where different households share a house. An emerging trend in urban areas is the development of individual self-contained apartments for different households within a house.

In 2010, the average household contained 4.4 persons, with substantial regional variation. The average size for the Northern region (7.7), the highest, was about twice that of Greater Accra (3.8) with the lowest household size. The other regions with lower household sizes were Ashanti region (4.1), Eastern region (4.1), and Brong Ahafo region (4.2). The highest household sizes were recorded for the Northern region (7.7), and Upper West region (6.2). In 2000, there were 5.1 persons per household, compared to the 4.4 persons in 2010. The decline in household size occurred in all regions except Northern region where there was an increase from 7.4 persons in 2000 to 7.7 persons in 2010.

Table 15.2: Number of houses, households and household characteristics by region, 2010

Region	Total Population	Household Population	Total Number of Houses	Number of Households	Percentage distribution of houses	Rural share of housing stock	Percentage increase in housing stock over 2000	Households per house	Average household size (2000)	Average household size (2010)
All Regions	24,658,823	24,076,327	3,392,745	5,467,136	100.0	57.7	55.5	1.6	5.1	4.4
Western	2,376,021	2,307,395	380,104	553,635	11.2	67.5	46.3	1.5	4.7	4.2
Central	2,201,863	2,113,766	346,699	526,764	10.2	61.8	55.3	1.5	4.4	4.0
Greater Accra	4,010,054	3,888,512	474,621	1,036,426	14.0	13.0	64.9	2.2	4.6	3.8
Volta	2,118,252	2,086,567	399,953	495,603	11.8	72.2	51.2	1.2	4.7	4.2
Eastern	2,633,154	2,574,549	431,697	632,048	12.7	64.1	52.3	1.5	4.6	4.1
Ashanti	4,780,380	4,671,982	574,066	1,126,216	16.9	53.0	74.6	2.0	5.3	4.1
Brong-Ahafo	2,310,983	2,265,458	331,967	490,519	9.8	63.4	53.5	1.5	5.3	4.6
Northern	2,479,461	2,445,061	257,311	318,119	7.6	71.3	44.7	1.2	7.4	7.7
Upper East	1,046,545	1,034,704	114,034	177,631	3.4	79.2	29.0	1.6	6.4	5.8
Upper West	702,110	688,333	82,293	110,175	2.4	85.4	58.6	1.3	7.2	6.2

Source: Ghana Statistical Service, 2010 Population and Housing Census

15.4 Types of dwelling, house construction materials, ownership and tenureship arrangements

Houses in Ghana are constructed using various materials. In addition, ownership and tenureship arrangements vary. This section describes the three main characteristics of dwelling units: the type of dwelling, the type of construction material for the wall and the roof and tenureship arrangements. The analysis was based on the total number of both occupied and unoccupied dwellings. Additional analysis in floor, room occupancy, and number of sleeping rooms, tenure and other holdings arrangements, as well as other health conditions of the dwelling units was done for occupied dwellings only since such information could not be determined for unoccupied dwellings.

15.4.1 Type of Dwelling Units (occupied and vacant)

Table 15.3 shows that there were 5,817,607 dwelling units in 2010 of which 94.0 percent (5,467,054) were occupied. For the country as a whole, over one-half (51.5%) of all dwelling units were compound houses, an increase over the 2000 figure of 44.5 percent, making the compound house the most common type of dwelling unit in Ghana. There was also an increase in the proportion of separate dwelling units from 25.3 percent in 2000 to 28.7 percent in 2010.

There has been a sharp decline in the proportion of dwelling units that were semi-detached houses, from 15.3 percent in 2000 to 7.1 percent in 2010. The proportion of dwelling units which were flats or apartments remained virtually unchanged: 4.4 percent in 2000 and 4.7 percent in 2010. Makeshift and other improvised dwellings constituted 1.8 percent of all dwellings in 2010, slightly higher than the 2000 figure of 1.4 percent. In Greater Accra region, however, the proportion of makeshift dwellings was 6.1 percent, explained mainly by the presence of slum areas.

In 2010, as found at both the national and regional levels, the compound house was the most common form of dwelling unit accounting for more than one-half of the total number of houses, except in Western region (44.5%) and Volta region (41.0%). The region with the highest proportion of compound houses was Northern region (63.7%). Volta region had the highest proportion of separate or detached houses (45.8%). In Upper East region, 12.7 percent of dwelling units were huts or buildings in the same compound. In Northern region, the proportion was 10.6 percent. At the national level, the proportion of uncompleted dwelling units was 1.6% with the proportion highest in Greater Accra (3.0%) and Ashanti (2.5%).

Table 15.3 further shows that the proportion of separate houses was higher in rural than urban localities (40.1% vs. 19.3%). Conversely, the percentage of compound houses was higher in urban areas (58.7%) than rural areas (42.9%). As expected, the proportion of huts was higher in rural localities (6.9%) than urban localities (1.3%) while the proportion of improvised homes (containers and kiosks) was higher in urban localities (2.9%).

15.4.2 Materials for outer wall (occupied and vacant)

The main construction materials for outer walls were cement, concrete and mud/mud bricks or earth. Table 15.3 indicates that, at the national level, the proportion of outer walls constructed with mud or mud bricks decreased substantially during the inter-censal period from 2000 to 2010. In 2000, 50.0 percent of dwelling units had outer walls constructed of mud or mud bricks. The proportion declined to 34.2 percent in 2010. While in 2000 74.5 percent of dwelling units in rural areas were of mud/earth, the proportion was 60.5 percent in 2010. The proportion of dwelling units with outer walls of cement or concrete increased from 39.1 percent in 2000 to 57.5 percent in 2010. In the rural areas, the proportion with outer walls of cement almost doubled over the last ten years: from 16.6 percent in 2000 to 32.1 percent in 2010. This may be evidence of changes in the economy triggering a construction boom. The increase in housing stock, especially in urban areas, has also been attributed to Ghanaians in the diaspora building at home (Anaman and Osei-Amponsah, 2007).

There are wide regional variations in materials used for the construction of outer walls. Mud-based outer walls were predominant in Northern (72.9%), Upper West (75.0%) and Upper East (80.7%) regions. Two other regions with a fairly high proportion of dwellings with mud walls were Volta region (48.1%) and Brong-Ahafo (46.1%). About eight in ten dwellings in the Greater Accra region (82.2%) and seven in ten in Ashanti region (71.9%) had outer walls built of cement, compared to about one-half in Central, Eastern and Western regions. A lower proportion of dwelling units in the three northern regions had outer walls made of cement with the lowest being in Upper East at 16.0 percent. Only 3.4 percent of outer walls of buildings were made of wood, with the highest proportion of 10.2 percent in Greater Accra region. The Greater Accra also reported the highest proportion of walls made up of metal sheets (1.3%).

15.4.3 Materials for roof (occupied and vacant)

Table 15.3 further shows that in 2010, 71.4 percent of dwelling units in Ghana were roofed with metal sheets. The other two main materials used for roofing were slate or asbestos (13.0%) and thatch or palm leaves or raffia (8.6%). Less than one percent of roofs were made of tiles. Between 2000 and 2010, the proportion of dwellings with thatched or palm as the main roofing material declined from 18.6 percent to 8.6 percent. In contrast, the proportion of dwelling units with corrugated metal sheets increased from 60.3 percent to 71.4 percent. There was no change, however, in the proportion using asbestos/slates (13.0%) between 2000 and 2010.

While the most common material for roofs was metal sheets in all ten regions, the proportions varied by region. The three regions with the highest proportion of roofs made up of metal sheets were Ashanti (89.5%), Eastern (88.0%) and Brong Ahafo (81.5%) regions, and those with the lowest were Greater Accra (49.3%) and Northern (56.6%) regions. Greater Accra had the highest proportion of roofs made of slates or asbestos (41.7%), followed by Central region (25.9%) and Western region (15.3%). Roofing slate was hardly used (one percent or less) in six regions: Eastern, Ashanti, Northern, Brong Ahafo, Upper East and Upper West. Nationwide, roofing tiles were hardly used, with less than one percent of roofs of dwellings (1.7% in Greater Accra region). The use of thatch or palm leaves or raffia was fairly common in the Northern region (34.9%), Volta region (18.7%), Upper East region (16.8%) and Brong Ahafo region (14.4%). In Upper East and Upper West regions, 12% of roofs were made of mud or earth products.

Table 15.3: Type of dwelling, main construction for wall and roof by type of locality and region, 2000 and 2010

Type of dwelling	All regions 2000	All regions, 2010	Urban	Rural	Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brony Ahafo	Northern	Upper East	Upper West
Separate house	25.3	28.7	19.3	40.1	35.4	32.6	18.1	45.8	33.0	24.7	34.6	17.6	17.6	33.3
Semi-detached house	15.3	7.1	7.8	6.3	8.6	6.8	8.1	6.5	6.6	7.9	5.4	4.2	3.9	9.0
Flat/Apartment	4.4	4.7	7.0	1.9	6.1	4.4	6.4	1.5	2.7	8.0	2.3	1.1	0.9	1.4
Compound house (rooms)	44.5	51.5	58.7	42.9	44.4	51.3	55.6	41.0	52.4	52.2	50.2	63.7	57.5	50.0
Huts/Buildings (same compound)	4.4	3.1	1.0	5.7	2.5	1.6	1.1	3.1	2.8	2.0	4.3	10.6	12.7	3.2
Huts/Buildings (different compound)	*	0.7	0.3	1.2	0.5	0.4	0.2	0.6	0.5	0.4	0.7	1.1	6.4	1.6
Tent	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.2
Improvised home (kiosk/container etc.)	1.4		1.8	2.9	0.4	0.8	6.1	0.4	0.6	1.6	0.6	0.2	0.1	0.1
Living quarters attached to office/shop	0.4		0.4	0.5	0.2	0.3	0.3	0.8	0.2	0.3	0.4	0.2	0.2	0.2
Uncompleted building	*	1.6	2.1	1.0	1.0	1.5	3.0	0.6	0.7	2.5	1.3	0.7	0.4	0.9
Other	3.8	0.2	0.3	0.2	0.2	0.2	0.3	0.1	0.2	0.2	0.2	0.3	0.1	0.2
Total	99.6**	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Wall														
Mud / Mud brick / Earth	50.0	34.2	12.4	60.5	40.6	36.4	3.6	48.1	38.9	21.4	46.1	72.9	80.7	75.0
Wood	4.0	3.4	4.8	1.8	3.2	1.8	10.2	0.9	1.8	2.3	1.5	1.6	0.9	0.7
Metal sheet / Slate	0.5	0.8	1.0	0.5	0.5	0.5	1.3	0.6	0.6	0.9	0.5	0.6	0.5	0.5
Stone	0.2	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2	0.2
Burnt Bricks	1.5	0.7	0.6	0.7	0.9	1.0	0.4	0.6	0.9	0.6	1.0	0.2	0.1	0.3
Cement blocks / Concrete	39.1	57.5	78.5	32.1	50.1	57.4	82.2	45.6	54.0	71.9	46.5	19.1	16.0	21.1
Sandcrete / Landcrete	2.8	1.8	1.2	2.5	1.6	1.9	0.3	1.4	2.9	1.7	3.6	3.1	1.0	1.0
Packing cases / Bamboo	0.2	0.1	0.1	0.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1
Palm leaf / Thatch	0.8	0.7	0.3	1.0	2.0	0.2	0.2	2.1	0.2	0.2	0.3	1.7	0.2	0.8
Other	0.8	0.7	0.9	0.5	0.6	0.5	1.5	0.4	0.4	0.7	0.3	0.4	0.2	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100
Roof														
Mud/Mud bricks/Earth	1.9	1.4	0.3	2.7	0.8	0.5	0.3	0.7	1.0	0.4	0.8	4.8	12.2	12.6
Wood	0.9	0.8	0.8	0.8	0.7	0.5	0.8	0.5	1.0	1.0	0.7	1.2	1.7	1.2
Metal sheet	60.3	71.4	71.6	71.1	63.2	65.3	49.3	70.6	88.0	89.5	81.5	56.6	67.2	77.0
Slate/Asbestos	12.9	13.0	20.1	4.6	15.3	25.9	41.7	7.5	1.3	1.1	0.3	0.6	0.4	0.2
Cement/Concrete	2.4	2.4	3.8	0.8	6.0	2.0	3.8	0.9	0.8	3.1	0.6	0.4	0.5	0.6
Roofing tiles	0.5	0.5	0.8	0.3	0.4	0.3	1.7	0.3	0.1	0.4	0.1	0.2	0.1	0.3
Bamboo	2.1	1.2	0.3	2.3	5.4	1.8	0.2	0.2	0.7	1.2	1.0	0.3	0.3	0.2
Thatch/Palm leave/Raffia	18.6	8.6	1.7	16.9	7.4	3.4	1.5	18.7	7.6	2.8	14.4	34.9	16.8	7.1
Other	0.5	0.6	0.6	0.6	0.8	0.6	0.7	0.6	0.4	0.5	0.6	1.1	0.8	0.8
Total	100.0	100.0	100.0	100.0	100	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100
N(vacant dwelling units)	350,553	127,686	222,867	40,658	40,288	54,027	54,406	54,433	42,825	28,827	21,755	5,216	8,118	
N(occupied dwelling units)	5,467,054	3,049,366	2,417,688	553,634	526,763	1,036,370	495,600	632,045	1,126,205	490,515	318,119	17,762	110,174	
N	5,817,607	3,177,052	2,640,555	594,292	567,051	1,090,397	550,006	686,478	1,169,030	519,342	339,874	182,845	118,292	

Source: 2010 Population and Housing Census; * Category not included in 2000 census;

**Hotel/Hostel: 0.4%; was included in 2000 Census only but category was not included in 2010.

There are similarities and differences between rural and urban areas in materials used. For instance, just over 71 percent of dwelling units was roofed with metal sheets in both rural and urban localities. However, the proportion using asbestos/slates was higher in urban (20.1%) than rural localities (4.6%), while the proportion using thatch or palm leaves was higher in rural (16.9%) than urban localities (1.7%) reflecting the use of materials available in the immediate rural environment.

15.4.4 Materials for floor

Type of materials used for the floor of a house affects the appearance, quality and health status of a house. Some floors are easily contaminated and are difficult to clean or disinfect. As shown in Table 15.4, floors were largely made of cement or concrete (77.8%) and earth or mud (16.0%). Nationally, the proportion of dwelling floors made with earth or mud declined from 23.8 percent in 2000 to 16.0 percent in 2010, while the proportion made of cement increased from 72.0 percent to 77.8 percent. In 2000, the proportion of floors made of tiles, marble or terrazzo put together was 2.1 percent but this increased to 4.2 percent in 2010. In all the regions, cement was the most common material for floors with proportions ranging from 59.6 percent in Upper West region to 85.2 percent in Central region in 2010. However, in at least three in ten dwelling units in the three northern regions, the main material for floor was earth or mud: Upper West (38.5%), Upper East (31.7%), and Northern (30.7%). In all other regions, except Greater Accra, in at least one in ten dwelling units the material used for the floors was mud or earth. Only 4.2 percent of floors were made of tiles (vinyl, ceramic, porcelain) marble or terrazzo. The proportion was more than twice in Greater Accra region where 9.7 percent of floors were made of tiles or terrazzo. In four regions - Volta, Northern, Upper East, and Upper West - the proportion of floors made with tiles was only 1.0 percent. In urban and rural localities the most common material for floors was cement with 84.0 percent in urban areas and 70.1 percent in rural areas. In rural areas 27.4 percent of floors were constructed from earth/mud bricks compared to 6.9.percent in urban areas.

15.5 Room occupancy

The relationship between the number of rooms and the number of persons give the space available per person. Table 15.4 shows that single-room households increased from 38.0 percent in 2000 to 44.5 percent in 2010. In contrast, the proportion occupying four or more rooms decreased from 26.0 percent in 2000 to 19.1 percent in 2010.

The proportion of households occupying a single room was more than one-half in two regions: 57.8 percent in Ashanti region and 54.5 percent in Central region (Table 15. 4). In contrast, in the three northern regions proportions of households occupy single rooms were 11.2 percent in Northern, 14.3 percent in Upper East and 15.7 percent in Upper West. Nationwide, 24.8 percent of households used two rooms, with the proportion in urban and rural localities about the same as the national average. Sixty-two percent of households in seven regions of Ghana occupied either one or two rooms. About 12 percent of households occupied three rooms. At the regional level the proportion of households occupying three rooms ranged from 8.3% in Greater Accra to 20.7 percent in Upper East region. In seven regions, the proportion of households occupying nine

rooms or more was around 1.0 percent but was 5.6 percent in Upper West, and 6.8 percent in Upper East, and 13.3 percent in Northern region.

On the whole, as shown in Table 15.4, there were fewer rooms per household in dwelling units in urban localities compared with rural localities. Over one-half of households in urban localities (51.4%) occupied one room; the proportion in rural localities was 35.9 percent. While almost one-quarter of rural households occupied four or more rooms, the proportion in urban localities was only 14.7 percent.

15.5.1 Number of sleeping rooms

The number of ‘sleeping rooms’ provides an indication of the extent of crowding in households. Overcrowded rooms have health implications arising from, among others, disturbed sleep. More importantly, crowded living conditions increase the risk of the spread of infectious diseases, such as meningococcal disease, tuberculosis and respiratory infections. Considering the hot and humid conditions, overcrowding can lead to psychological distress; lack of tolerance, reduced levels of concentration and can affect mental health. Table 15.4 provides information on the number of ‘sleeping rooms’ per household. As stated earlier, the average household size was 4.4 persons. Over one-half of households (54.4%) had one sleeping room. This was higher than the 2000 figure of 49.9 percent indicating that people were increasingly sleeping in crowded rooms. Over one-half (54.9%) of households with four members, 35.2 percent of those with six members and one-quarter of households with seven members had one sleeping room. On the whole, three in ten households with five or more members (29.2%) have one sleeping room.

There were variations at the regional level in the number of sleeping rooms. As shown in Table 15.4, the proportions of households with only one sleeping room were highest in Ashanti (64.5%), Central (64.0%), and Greater Accra (61.2%) regions and lowest in Northern (15.7%) and Upper West (24.0) regions. While 80 percent of all households in Greater Accra and Central regions had either one or two sleeping rooms, only 38.1 percent of households in the Northern region had one or two rooms.

As expected, there were fewer sleeping rooms per household in urban localities, probably as a result of the high cost of accommodation and less available space. The proportion of households with one sleeping room was 61.4 percent in urban areas. There is evidence that rural households were also getting crowded. The proportion of households in rural areas sleeping in one room increased from 39.1 percent in 2000 to 45.5 percent in 2010. The percentage of rural households with four or more sleeping rooms was 14.4 percent compared with 8.7 percent in urban localities.

Table 15.4: Main construction material for floor, rooms and sleeping rooms occupied by household by region and type of locality, 2000 and 2010

Floor	All regions (2000)	All regions (2010)	Urban	Rural	Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brony Ahafo	Northern	Upper East	Upper West
Earth / Mud brick	23.8	16.0	6.9	27.4	14.1	11.3	5.2	17.7	18.8	14.6	23.1	30.7	31.7	38.5
Cement / Concrete	72.0	77.8	84.0	70.1	81.3	85.2	80.2	80.2	77.8	77.8	74.2	67.4	65.8	59.6
Stone	0.6	0.6	0.6	0.6	0.4	0.4	0.5	0.4	1.0	0.8	0.7	0.4	0.9	0.3
Burnt bricks	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Wood	1.0	1.0	1.6	0.2	0.5	0.4	3.8	0.1	0.2	0.5	0.2	0.1	0.0	0.0
Vinyl tiles	0.4	1.0	1.6	0.3	0.8	0.6	2.6	0.2	0.5	1.3	0.4	0.2	0.1	0.2
Ceramic tiles/marble	0.3	1.6	2.3	0.8	1.2	1.1	3.8	0.8	0.9	1.8	0.8	0.7	0.7	0.6
Terrazo	1.4	1.6	2.6	0.3	1.3	0.7	3.3	0.3	0.6	2.9	0.4	0.1	0.2	0.2
Other	0.5	0.3	0.3	0.3	0.3	0.2	0.4	0.3	0.2	0.2	0.2	0.3	0.5	0.5
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Rooms household occupy														
One room	38.0	44.5	51.4	35.9	48.0	54.5	47.6	29.6	44.4	57.8	47.2	11.2	14.3	15.7
Two rooms	23.8	24.8	24.6	25.1	26.5	23.9	30.0	32.9	27.7	19.2	24.0	14.4	20.0	19.6
Three rooms	12.3	11.6	9.1	14.7	11.9	9.8	8.3	16.1	12.4	9.2	12.8	15.4	20.7	19.4
Four rooms	8.1	7.1	5.6	9.0	6.2	5.1	5.5	9.0	6.9	5.3	7.0	13.9	15.5	15.3
Five rooms	5.6	4.1	3.3	5.0	3.0	2.6	3.5	4.4	3.4	3.0	3.5	10.9	9.1	9.8
Six rooms	3.7	2.8	2.2	3.6	1.8	1.6	2.2	3.2	2.2	2.1	2.2	9.2	6.6	7.3
Seven rooms	2.8	1.8	1.4	2.2	1.1	1.0	1.4	1.8	1.2	1.4	1.3	6.4	4.0	4.2
Eight rooms	1.8	1.2	0.8	1.6	0.6	0.6	0.7	1.2	0.7	0.8	0.8	5.3	2.9	3.1
Nine rooms or more	4.4	2.1	1.4	2.9	0.9	0.9	0.9	1.9	1.0	1.1	1.1	13.3	6.8	5.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Sleeping rooms household occupy														
One room	49.9	54.4	61.4	45.5	58.3	64.0	61.2	46.1	54.4	64.5	54.1	15.7	21.5	24.0
Two rooms	21.5	24.3	22.2	26.9	24.9	22.3	24.7	30.4	26.6	19.3	24.5	22.4	31.0	29.5
Three rooms	11.3	10.1	7.8	13.1	9.1	7.5	6.9	12.2	10.1	7.9	11.1	19.9	21.2	20.7
Four rooms	6.6	5.3	4.2	6.8	4.1	3.3	3.9	5.8	4.7	3.9	5.4	14.4	12.4	12.1
Five rooms	3.7	2.5	2.0	3.2	1.7	1.4	1.6	2.4	2.0	2.0	2.3	9.0	5.8	5.8
Six rooms	2.4	1.4	1.1	1.9	0.9	0.7	0.8	1.4	1.1	1.1	1.2	6.1	3.4	3.4
Seven rooms	1.4	0.7	0.5	0.9	0.4	0.3	0.3	0.6	0.4	0.5	0.6	3.7	1.7	1.6
Eight rooms	1.0	0.5	0.3	0.6	0.2	0.2	0.2	0.4	0.3	0.3	0.3	2.7	1.1	1.1
Nine rooms or more	2.3	0.8	0.6	1.0	0.4	0.3	0.2	0.6	0.3	0.4	0.5	6.1	1.9	1.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	3,698,337	5,467,054	3,049,366	2,417,688	553,634	526,763	1,036,370	495,600	632,045	1,126,205	490,515	318,119	177,629	110,174

Source: Ghana Statistical Service, 2010 Population and Housing Census

15.6 Tenure and holding arrangements

Table 15.5 shows tenure and other holding arrangements of dwelling units in Ghana. According to the data, three major types of tenure exist in Ghana – owner-occupier, renting and rent-free. Forty-seven percent of all dwelling units were owner occupied, 31.1 percent were rented properties and a further 20.8 percent were rent-free. The proportion of dwellings units occupied on a rental basis increased from 22.1 percent in 2000 to 31.1 percent in 2010. Data on tenure arrangements of dwelling units at the regional level revealed in the Upper East, Upper West, and Northern regions, over 80 percent of all dwellings were owner-occupier. In contrast, in Greater Accra region 32.4 percent of dwelling units were owner occupied and 47.0 percent were rented. In seven of the regions (the exception being the Northern Upper West and Upper East regions), about one-fifth of dwellings were occupied on a ‘rent-free’ basis where the occupants were neither owners nor renters. Perching and squatting occur in less than one percent of dwelling units in all regions, except Greater Accra where the proportion was 1.6 percent.

The percentage of dwelling units owned by the occupants in rural areas was 65.5 percent and this was about twice that of urban localities (32.7%). Forty-five percent of dwelling units were rented in urban areas while in rural localities it was only 13.5 percent. The proportion who occupied dwelling units on a rent-free basis, about one-fifth, was about the same in both rural and urban localities.

15.6.1 House ownership

In Ghana, as in many other countries, owning a house is the dream of many citizens. The proportion of houses owned by members of the household was 57.4 percent in 2000 and 52.7 percent in 2010, a slight decline in the percentages. On the other hand, the proportion of houses owned by a relative who was not a household member increased from 12.5 percent to 15.6 percent. This could be explained by an increase in the practice where relatives (who may be living abroad, or in the case of rural areas, the owners may be family members living in Ghanaian cities) build houses and allow other family members to occupy them. The proportion of dwelling units owned by other private individuals (not relatives) increased from 19.3 percent in 2000 to 26.3 percent in 2010. Public or government-owned housing remained consistently low and virtually unchanged: two percent in 2000 and 2.2 percent in 2010. The proportion of private dwelling units owned by private employers dropped from 4.1 percent in 2000 to 1.5 percent in 2010. Less than one percent of dwelling units were owned through mortgage schemes. Ownership through mortgage was low: from 1.1 percent in 2000 and 0.8 percent in 2010.

There were variations in ownership status across regions. In regions where investment in houses comes with high rental income, private ownership was high. Thus in Greater Accra, 40.8 percent of all dwelling units were owned by private individuals who were not the occupants of the houses compared with 6.9 percent in Upper East region. While over eight in ten dwellings, in Upper East region (86.7%), Northern region (84.1%) and Upper West region (82.8%), were owned by a household member, only 39.8 percent of dwellings in Greater Accra region were owned by a household member. This ownership pattern of houses implies that different policy measures should be followed to improve housing conditions based on the regional patterns.

Table 15.5: Holding/Tenancy arrangement and ownership of dwelling by region and type of locality, 2000 and 2010

Present holding/tenancy arrangement	All regions (2000)	All regions 2010	2010										
	Urban	Rural	Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brony Ahafo	Northern	Upper East	Upper West	
Owner occupied	57.4	47.2	32.7	65.5	48.9	46.1	32.4	59.0	46.8	34.9	48.8	83.2	
Renting	22.1	31.1	45.0	13.5	28.6	26.4	47.0	20.8	30.7	38.0	25.9	10.5	
Rent-free	19.5	20.8	21.2	20.3	21.7	26.8	18.7	19.4	22.1	26.3	24.8	5.6	
Perching	1.0	0.5	0.5	0.4	0.4	0.4	0.8	0.5	0.3	0.4	0.3	0.4	
Squatting	*	0.3	0.4	0.1	0.1	0.1	0.8	0.1	0.1	0.4	0.1	0.1	
Other	0.0	0.2	0.2	0.1	0.2	0.2	0.3	0.2	0.1	0.1	0.1	0.1	
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
Ownership of dwelling													
Owned by household member	57.4	52.7	39.7	69.1	56.6	51.6	39.8	61.4	53.0	41.9	53.1	84.1	
Being purchased (e.g. mortgage)	1.1	0.8	1.1	0.6	0.9	0.7	0.9	0.6	0.6	1.2	0.7	0.4	
Relative not a household member	12.5	15.6	16.2	14.8	13.0	22.0	12.3	18.6	17.1	19.4	18.4	5.2	
Other private individual	19.3	26.3	37.3	12.5	22.3	22.5	40.8	16.4	25.3	32.9	23.7	7.6	
Private employer	4.1	1.5	1.6	1.4	2.8	1.0	2.0	0.7	1.1	1.8	1.9	0.4	
Other private agency	0.4	0.4	0.5	0.2	0.5	0.3	0.5	0.3	0.4	0.5	0.3	0.1	
Public/Government ownership	2.0	2.2	3.1	1.0	3.5	1.4	2.9	1.6	2.0	2.0	1.5	1.8	
Other	3.1	0.4	0.5	0.3	0.4	0.4	0.7	0.4	0.4	0.4	0.4	0.1	
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
N	3,698,337	5,467,054	3,049,366	2,417,688	553,634	526,763	1,036,370	495,600	632,045	1,126,205	490,515	318,119	177,629
													110,174

Source: Ghana Statistical Service, 2010 Population and Housing Census; * Category not included in 2000

There were also marked rural-urban variations in house ownership. As shown in Table 15.5, over two-thirds of dwellings (69.1%) in rural localities were owned by a household member as compared with 39.7 percent in urban localities. In both rural and urban localities, the 2010 proportions were slightly lower than the 2000 proportions of 71.7 percent for rural and 41.4 percent for urban. In contrast, the proportion of dwellings owned by other private individuals (other than relatives of household members) increased from 19.3 percent in 2000 to 26.3 percent in 2010. Although the number of houses being purchased under mortgage could be rising, the proportion of houses owned through mortgage (being serviced) declined in urban localities from 1.6 percent in 2000 to 1.1 percent in 2010. This declining mortgage share could be attributed to the apparently increasing direct home ownership by private individuals.

15.7 Access to Utilities and Household Facilities

This section analyses household amenities, cooking space and sanitation issues in dwelling units at national, regional and locality levels.

15.7.1 Dwelling facilities: source of lighting

Nature of the source of lighting is one of the indicators of quality of life. As society improves, the source of lighting shifts from use of low quality sources such as fuelwood to more efficient ones such as electricity. At the national level, as shown in Table 15.6, the three main sources of non-natural lighting in households were electricity (grid) (64.2%), kerosene lamp (17.8%) and flashlight (15.7%). The proportion of dwelling units using electricity (excluding private generator) increased from 43.7 percent in 2000 to 64.2 percent in 2010. The proportion of dwelling units using electricity generators as the main source of lighting in 2010 was under one percent (0.7%). In 2000, 54.9 percent of households were using kerosene lamp, but this reduced to 17.8 percent in 2010, the reverse of the trend for electricity. Flashlights as source of light for 15.7 percent could be due to the introduction of rechargeable varieties and long-lasting batteries.

At the regional level, the percentage of households which reported the use of electricity ranged from 24.1 percent in Upper East region to 87.1 percent in Greater Accra region. The percentages were less than 50 in the Upper West (30.9%), Northern (36.1%) and Volta (49.6%) regions. Two other regions were below the national average: Eastern (58.5%) and Brong-Ahafo (53.8%). The percentage of households reported private generators as the main source of lighting was less than 1.0 percent in 2010. There was no report on the use of generators in 2000.

Kerosene lamp as source of lighting was used by 54.9 percent in 2000, 17.8 percent in 2010. In the Upper East (45.5%), Northern region (42.3%), and Volta region (40.4%), over four in ten households used kerosene lamp as the main source of lighting. In four regions, more than one-fifth of dwelling units used flashlight as the main source of light: 45.0 percent in Upper West, 32.6 percent in Brong Ahafo, 27.6 percent in Upper East and 20.7 percent in Western. In Brong Ahafo, Western, and Upper West regions, the proportion using flashlight was higher than those using the kerosene lamp. Although there are efforts to introduce non-conventional energy sources such as solar, at the national level, only 0.2 percent of households in 2010 and 0.1 percent in 2000 reported using solar as source of light. The region with the highest proportion of solar energy users was Upper West region (0.7%).

Eighty-four percent of urban dwelling units used electricity as the main source of lighting in 2010, an increase from 74.6 percent in 2000. In rural areas, the proportion using electricity more than doubled from 16.1 percent in 2000 to 39.5 percent in 2010 (Table 15.6). The increase in the use of electricity could explain the decline in the proportion using kerosene lamps as source of light in rural areas. In 2000, over eight in ten (82.5%) dwelling units mentioned the kerosene lamp as the main source of light but in 2010 less than three in ten (29.5%) relied on the kerosene lamp as their main source of light. The decline was also observed in urban localities: from 28.1 percent in 2000 to 8.4 percent in 2010. While only 5.5 percent of dwelling units in urban areas used flashlight as the main source of light, nearly three in ten dwelling units (28.6%) do so in rural localities.

15.7.2 Dwelling facilities: source of energy for cooking

The three main sources of energy for cooking in 2010 were firewood (40.2%), charcoal (33.7%), and gas (18.2%) (Table 15.6.). While the proportion using firewood declined from 55.8 percent in 2000 to 40.2 percent in 2010, that of charcoal increased from 30.0 percent in 2000 to 33.7 percent in 2010. The use of gas tripled during the inter-censal period: from 6.2 percent in 2000 to 18.2 percent in 2010. The proportion of households using electricity for cooking declined from 1.1 percent in 2000 to 0.5 percent in 2010. A similar decline was observed in the use of kerosene, from 2.0 percent in 2000 to 0.5 percent in 2010. This decline in the use of electricity may be due to the increasing cost of electricity and its variable availability. The proportion of dwelling units where no cooking was done at all increased from 3.5 percent in 2000 to 5.6 percent in 2010. Similar increases were observed in both rural and urban areas: from 1.8 to 3.6 percent (rural) and 5.4 to 7.2 percent (urban).

For all the regions, with the exception of Greater Accra, firewood was the predominant source of cooking fuel. This was particularly the situation in Northern (76.5%), Upper West (73.4%), Upper East (60.4%), and Brong-Ahafo (60.0%) regions. Greater Accra and Ashanti regions had the highest proportions of dwelling units using charcoal (45.4% and 39.3% respectively). Conversely, the use of charcoal was low in the Upper East (15.2%), Northern, 16.4%, Upper West (19.0%) and Brong-Ahafo (24.9%) regions compared to other regions. Greater Accra region had the highest proportion of households using gas for cooking (41.4%). In all other regions, the proportions of households using gas were relatively low: Ashanti region (21.1%), Western region (15.0%) and Central region (12.5%), with the lowest in the Northern region (3.3%).

As shown in Table 15.6, firewood remains the main source of cooking fuel in rural localities, although the proportion declined from 85.2 percent in 2000 to 73.4 percent in 2010. In contrast, only 13.8 percent in urban localities used wood, a decline from 22.9 percent in 2000. In urban localities, charcoal was the most common energy source for cooking, even though the proportion declined from 54.3 percent in 2000 to 47.9 percent in 2010. The use of gas as source of energy for cooking rose substantially in urban areas from 11.8 percent in 2000 to 28.9 percent in 2010.

Table 15.6: Main source of lighting for the dwelling, source of energy for cooking and cooking space used in household by region and type of Locality, 2000 and 2010

Main source of lighting	2010													
	All regions (2000)	All regions (2010)	Urban	Rural	Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brony Ahafo	Northern	Upper East	Upper West
Electricity (mains)	43.7	64.2	83.8	39.5	65.0	66.1	87.1	49.6	58.5	73.6	53.8	36.1	24.1	30.9
Electricity (private generator)	*	0.7	0.6	0.7	0.9	0.7	0.6	0.8	0.7	0.6	0.5	0.7	0.6	0.6
Kerosene lamp	54.9	17.8	8.4	29.5	12.2	20.7	5.9	40.4	25.2	7.0	11.9	42.3	45.5	19.5
Gas lamp	0.3	0.2	0.1	0.2	0.2	0.2	0.1	0.2	0.2	0.2	0.2	0.3	0.2	0.3
Solar energy	0.1	0.2	0.1	0.3	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.3	0.3	0.7
Candle	*	0.8	1.1	0.3	0.4	0.5	1.9	0.5	0.4	0.8	0.3	0.2	0.2	0.3
Flashlight/Torch	*	15.7	5.5	28.6	20.7	11.2	3.9	8.0	14.3	17.3	32.6	19.0	27.6	45.0
Firewood	*	0.2	0.1	0.4	0.2	0.2	0.1	0.3	0.3	0.1	0.2	0.7	0.7	1.2
Crop residue	*	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.2	0.5	0.3
Other	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.1	0.2	0.3	0.1	0.3	1.2
Total	99.3**	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Main fuel used for cooking														
None no cooking	3.5	5.6	7.2	3.6	5.3	5.1	6.9	2.6	4.6	8.1	6.6	2.1	1.8	2.1
Wood	55.8	40.2	13.8	73.4	48.4	44.2	3.5	57.1	49.9	29.8	60.0	76.5	60.4	73.4
Gas	6.2	18.2	28.9	4.8	15.0	12.5	41.4	9.3	11.8	21.1	7.5	3.3	4.9	4.1
Electricity	1.1	0.5	0.8	0.3	0.6	0.2	0.9	0.2	0.5	0.7	0.2	0.4	0.2	0.4
Kerosene	2.0	0.5	0.7	0.3	0.4	0.6	1.1	0.5	0.5	0.4	0.2	0.4	0.2	0.3
Charcoal	30.0	33.7	47.9	15.9	29.7	36.9	45.4	29.6	32.1	39.3	24.9	16.4	15.2	19.0
Crop residue	*	0.8	0.2	1.6	0.3	0.3	0.1	0.5	0.3	0.2	0.4	0.6	16.7	0.7
Saw dust	*	0.1	0.2	0.1	0.1	0.1	0.3	0.1	0.1	0.1	0.2	0.2	0.1	0.1
Animal waste	*	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0
Other	1.1	0.1	0.2	0.1	0.1	0.1	0.3	0.1	0.1	0.2	0.1	0.1	0.3	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Cooking space used by household														
No cooking space	6.5	7.1	8.4	5.4	7.0	6.6	8.3	4.3	6.2	9.4	8.0	3.4	3.8	4.1
Separate room for exclusive use of household	32.2	33.2	28.2	39.6	46.6	33.5	30.9	35.0	36.5	28.3	27.7	25.8	42.4	41.8
Separate room shared with other household(s)	14.3	7.5	7.7	7.3	7.9	6.8	2.9	3.5	8.1	14.7	9.8	3.4	2.6	2.6
Enclosure without roof	3.3	2.2	1.4	3.2	1.1	1.6	1.6	1.9	1.6	1.3	1.5	3.5	17.8	1.8
Structure with roof but without walls	7.3	6.4	2.8	11.0	4.7	6.5	1.5	19.8	10.7	4.7	8.5	3.5	1.0	1.3
Bedroom/Hall/Living room)	2.7	1.4	1.8	0.8	0.7	1.6	2.7	3.4	1.2	0.4	0.3	0.4	0.3	1.1
Veranda	11.5	21.5	29.5	11.3	20.8	20.6	29.2	10.3	21.5	27.0	17.2	10.7	10.4	17.3
Open space in compound	21.6	20.4	19.8	21.1	10.8	22.3	22.3	21.4	13.9	13.8	26.7	48.9	21.4	29.9
Other	0.6	0.4	0.4	0.4	0.3	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.2	0.2
Total	100	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	5,467,054	3,049,366	2,417,688	553,634	526,763	1,036,370	495,600	632,045	1,126,205	490,515	318,119	177,629	110,174	

Source: Ghana Statistical Service, 2010 Population and Housing Census; * Category not included in 2000 census

15.7.3 Dwelling facilities: cooking space

The distribution of cooking spaces is presented in Table 15.6. In 2010, one in three dwelling units (33.2%) had a cooking space that is separate for exclusive use of the household, the highest. In 2010, about one-fifth of dwelling units cooked in open spaces in the compound. The proportion using a veranda as their cooking space almost doubled, from 11.5 percent in 2000 to 21.5 percent in 2010. The proportion of dwelling units in Ghana with no cooking space was 6.5 percent in 2000 and 7.1 percent in 2010.

There were regional variations in the type of cooking space in dwelling units. The three regions with the highest proportions of dwelling units with a separate cooking room for exclusive use of household members were Western (46.6%), Upper East (42.4%) and Upper West (41.8%), and the lowest were in Northern region (25.8%) and Brong-Ahafo region (27.7%). Cooking on the veranda was also a fairly common feature in many dwelling units. For instance, it was 29.2 percent in Greater Accra, 27.0 percent in Ashanti region (27.0%), with the lowest being 10.4 percent in the Northern region. In nearly one-half of dwelling units (48.9%) in Northern region, 29.9 percent in Upper West and 26.7 percent in Brong-Ahafo, households cooked in open spaces in the housing compound. The high proportion of households who cook in the open in the Northern region may be due to the nature of housing arrangements In Ashanti region, nearly one in ten (9.4%) dwelling units had no cooking space. Similar figures were recorded for Greater Accra (8.3%) and Brong-Ahafo (8.0%) regions.

As shown in Table 15.6, the proportion of dwelling units in rural areas with separate rooms for cooking was 39.6 percent compared with 28.2 percent in urban localities. However, a higher proportion of dwelling units in urban localities cooked on the veranda (29.5%) compared to rural localities (11.3%). In both rural and urban localities around seven percent of households shared a separate room as cooking space with other households.

15.7.4 Sanitation: Bathing Facilities

Bathing facilities available in dwelling units can be categorised primarily into four main types: bathroom for exclusive use, shared bathroom in the same house, shared open bathing cubicle and others. The proportion of dwelling units with bathrooms exclusively used by household members was 23.5 percent in 2000 and 28.1 percent in 2010. One in three dwellings units had a separate bathroom shared with other non-household members. This proportion marginally increased from 32.0 percent in 2000 to 33.3 percent in 2010. As in 2000, 18 percent shared an open cubicle as a bathroom with others in the compound. The fourth consisted of assorted places. For instance, about 13 percent of dwelling units had no bathing facilities. In such cases household members used open spaces around the house (6.8%), facilities in another house (3.4%), public bath house (2.6%), or rivers, lakes, dams and ponds (0.3%) (Table 15.7).

There were marked regional differentials in the types of bathing facilities used by households. The Central region recorded the lowest proportion of dwelling units with bathrooms (23.0%) for the exclusive use of household members followed by Upper East (41.3%) and Upper West regions (42.8%). Sharing of bathing facilities was highest in Ashanti (58.6%) and Greater Accra

(55.7%). In three regions, Brong-Ahafo, Upper East and Upper West, one out of every ten dwelling units used open spaces around the house as bathing facilities.

As shown in Table 15.7, the proportion of dwelling units that had a bathroom for exclusive use was higher in rural (32.3%) than urban (24.7%) localities. On the other hand, 40 percent of urban dwelling units shared a separate bathroom in the same house compared with 24.4 percent in rural dwelling units. Furthermore, 20.4 percent of households in urban localities shared open cubicle bathrooms compared to 15.6 percent in rural localities.

15.7.5 Sanitation: toilet facilities

An efficient and hygienic method of human waste disposal available in a dwelling unit is a critical indicator of the sanitary condition of the unit and is an indirect measure of the socio-economic status of a household. Table 15.7 shows that four main types of toilet facilities were reported in the 2010 PHC. The highest reported facilities were public toilet (34.6%), pit latrine (19.0%), water closet (WC) (15.4%) and Kumasi Ventilated Improved Pit Latrine (KVIP) (10.5%). At the national level, the proportion of dwelling units with a WC almost doubled from 8.5 percent in 2000 to 15.4 percent. The public toilet was used by one in three dwelling units in both 2000 and 2010: 32.7 percent in 2000 and 34.6 percent in 2010.

Some housing units used movable pan latrines, but this method of waste disposal was officially banned. As a result, the proportion using the bucket/pan latrine declined from 4.0 percent in 2000 to 0.7 percent in 2010. This translates to 40,678 dwelling units still using the bucket/pan toilet facilities, even though its use has been declared illegal by law. The ban led to the construction of public toilets by municipal and district authorities as revenue generating outlets, hence, the slight increase. The proportion using pit latrine declined from 22.0 percent in 2000 to 19.0 percent in 2010. In contrast, there was an increase in the improved version of the pit latrine (KVIP), from 6.9 percent in 2000 to 10.5 percent in 2010. One in five dwelling units (19.3%) had no toilet facilities. Household members reportedly used the bush/beach and open fields. The proportion using this method remained unchanged: 20.0 percent in 2000 and 19.3 percent in 2010.

The type of toilet facilities available in dwelling units varies considerably by region. Seven in ten dwellings units in Northern and Upper West regions, and over eight in ten in Upper East region (81.9%) had no toilet facilities (i.e. they used the bush/ field), in contrast to only 6.3 percent in Ashanti region. The proportion that used public toilets was lowest in Upper East (7.2%) and highest in Brong-Ahafo region (44.0%). Nearly a third of dwelling units in Eastern region (32.2%) and Western region (30.1%) used the pit latrine. In Northern region and Upper East region pit latrine was used by only three percent of the dwelling units. This may be the result of the scattered settlements in these areas where households are surrounded by their farms.

KVIP was used by 10.5 percent of all dwelling units, with 8.7 percent in Ashanti, 11.8 percent in Central region, and 12.8 percent in Volta region. A few dwelling units (2.3%) had KVIPs for exclusive use by households. The highest proportion of was In the Greater Accra region 2.3 percent reported using pan latrine when the national average was 0.7 percent. Thus, the national capital continues to use one of the least acceptable forms of human waste disposal.

At the locality level, nearly one in three dwelling units (32.0%) in rural areas had no toilet facilities and resorted to the use of bush, beach or open fields. The proportion in 2000 was 28.3 percent (data not shown), the trend indicating deteriorating human waste disposal in rural localities. In urban localities the proportions were 10.7 percent in 2000 and 9.3 percent in 2010.

In 2011, public toilet was the highest reported facility in urban localities while in rural areas the highest was the use of bushes, fields and beaches. Public toilets were used by 38.4 percent of urban dwelling units and 29.8 percent in rural localities (Table 15.7). The figures showed an increase in the proportions using public toilets in both urban and rural localities between 2000 and 2010 (37.2%, urban; and 26.3% rural). Pit latrine was used by 26.7 percent of rural dwelling units, a decline from 30.9 percent in 2000. The use of the KVIP, however, increased in both urban (9.6% in 2000 to 12.8% in 2010) and rural localities (4.5% to 7.5%).

15.7.6 Sanitation: disposal of solid waste

One of most intractable challenges of both urban and rural areas in Ghana is adopting modern and hygienic solid waste disposal systems. Acceptable waste management helps to prevent the spread of some types of infections and improves the quality of the environment. As shown in Table 15.8, the most widely used means of disposing solid waste (refuse) was either dumping in a container (23.8%) or dumping unto open dump site (37.7%). Routine house-to-house collection of waste was the main method for 14.4 percent of dwellings units, a considerable improvement over the 2000 figure of 4.8 percent. This may be explained by the emergence of new private waste management firms, especially Zoomlion Ltd, which operates nationwide. In 9.1 percent of dwelling units, solid waste disposal was done indiscriminately. The proportion of dwellings that burnt their solid waste increased from 7.8 percent in 2000 to 10.7 percent in 2010.

Nearly one-half (48.5%) of dwelling units in Greater Accra region had their solid waste collected from their homes, but for the rest of Ghana, the proportions ranged from 2.9 percent in Brong-Ahafo region to 11.1 percent in Upper West region. Dumping of solid wastes in open public sites was practised by over one-half of dwelling units in Western region (50.6%), Central region (53.8%), and Brong-Ahafo region (53.3%). Indiscriminate dumping of refuse was the main means of solid waste disposal in Northern region (26.4%) and Upper West (36.0%) region.

As shown in Table 15.8, the main method of solid waste disposal in rural localities was dumping in an open space (56.6%). The proportion in urban areas was 22.7 percent. The proportion of dwelling units that had their solid waste collected from their houses increased from 8.4 percent in 2000 to 22.1 percent in 2010 in urban dwelling units and from 1.5 percent to 4.6 percent in rural localities. This suggests that the use of private waste management firms, particularly in urban areas, is gradually becoming acceptable. In urban areas 38.7 percent of dwelling units dumped solid waste in public containers, compared to 4.9 percent in rural localities. The low proportion in rural areas could be due to the limited availability of public containers for waste disposal. In both rural and urban localities, about 10 percent of dwelling units burnt their solid waste. For 16.7 percent of rural dwelling units and 3.1 percent urban, indiscriminate dumping was the main method of refuse disposal.

15.7.7 Sanitation: disposal of liquid waste

Among the methods of liquid waste disposal in the country are throwing either onto a compound, onto the street or any available space outside the house. The proportion of dwelling units where liquid waste was thrown onto the compound was 34.6 percent in 2000 and 35.2 percent in 2010, and the practice of throwing liquid waste onto the street or any space outside the house was 39.0 percent in 2000 and 28.1 percent in 2010. The proportion which reported throwing water into a public gutter was 21.1 percent in 2000 and 18.7 percent in 2010. In the 2010 PHC, 10.9 percent of dwelling units disposed of liquid waste through a drainage system into a gutter and another 3.1 percent had drainage into a pit (or soak away system). Only 3.4 percent of dwelling units were connected to a central sewage system. The proportion was 4.5 in 2000 (Table15.8).

Over one-half of dwellings in Volta and Eastern regions (52.2% and 50.6% respectively), as well as 47.1 percent in Brong Ahafo region and 41.0 percent in Central region, disposed of liquid waste onto a compound. Throwing liquid waste onto the street or outside the house was the highest reported form of liquid waste disposal in Upper West (64.8%), Upper East region (59.4%), Northern region (56.2%) and Brong-Ahafo region (40.8%). While in Greater Accra region 9.2 percent of dwellings disposed of their liquid waste through a formal or public sewage system, only 1.0 percent did so in Volta, Brong-Ahafo, Eastern and Central regions.

In rural localities there were two main methods of liquid waste disposal (Table15.8): throwing waste onto compounds and throwing waste onto the street/ outside the house. Nearly one-half of rural households (49.5%) disposed of liquid waste onto their compounds and 37.2 percent threw water onto streets or open space outside the house. In urban areas, throwing water onto the compound, street and gutter accounted for 73 percent of the methods of disposal of liquid waste. A further 17.6 percent had the liquid waste system connected into a gutter, 3.7 percent were connected into a pit or a soak-away system and 5.1 percent of dwelling units were connected to a central sewage system. Thus, liquid waste disposal poses a challenge to local administrators.

Table 15.7: Bathing and toilet facilities used by household by region and type of locality, 2000 and 2010

Bathing facility used by household	2010													
	All regions (2000)	All regions (2010)	Urban	Rural	Western Central	Greater Accra	Volta	Eastern	Ashanti	Brony Ahafo	Northern	Upper East	Upper West	
Own bathroom for exclusive use	23.5	28.1	24.7	32.3	31.1	23.0	27.1	34.0	25.9	24.9	24.3	34.0	41.3	42.8
Shared separate bathroom in the same house	32.0	33.3	40.3	24.4	33.3	30.4	31.7	22.5	33.1	44.5	34.9	29.9	18.8	21.5
Private open cubicle	10.1	7.0	4.4	10.2	5.3	6.9	4.2	10.1	9.0	5.8	8.3	6.9	14.7	10.8
Shared open cubicle	18.0	18.3	20.4	15.6	14.7	22.4	24.2	19.9	20.8	14.1	16.3	15.3	11.9	10.5
Public bath house	2.1	2.6	3.8	1.1	2.3	2.4	7.0	0.7	0.4	1.5	0.7	3.9	1.3	1.5
Bathroom in another house	4.3	3.4	1.9	5.3	5.9	7.3	1.6	4.0	3.1	2.8	5.2	0.8	0.3	0.8
Open space around house	8.6	6.8	4.1	10.3	6.3	6.8	3.9	8.0	7.3	6.0	10.0	8.6	11.3	11.7
River/Pond/Lake/Dam	0.9	0.3	0.1	0.5	0.8	0.3	0.1	0.3	0.3	0.1	0.2	0.3	0.2	0.2
Other	0.6	0.3	0.3	0.3	0.3	0.4	0.3	0.5	0.3	0.3	0.2	0.2	0.2	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Toilet facility used by household														
No facilities (bush/beach/field)	20.2	19.3	9.3	32.0	11.9	15.4	8.2	27.7	11.3	6.3	17.8	72.6	82.4	72.9
W.C.	8.5	15.4	24.9	3.3	13.4	9.2	31.0	6.0	8.7	23.2	6.7	2.4	3.4	3.1
Pit latrine	22.0	19.0	12.9	26.7	30.1	23.1	9.9	22.6	32.2	17.8	22.9	2.9	3.0	6.2
KVIP	6.9	10.5	12.8	7.5	6.3	11.8	14.4	12.8	15.9	8.7	8.1	4.6	3.5	4.5
Bucket/Pan	4.0	0.7	1.2	0.2	0.4	0.5	2.3	0.5	0.6	0.3	0.2	0.4	0.2	0.1
Public toilet (WC/KVIP/Pit/Pan etc.)	31.4	34.6	38.4	29.8	37.4	39.5	33.8	30.0	31.0	43.3	44.0	16.6	7.2	12.7
Other	0.0	0.4	0.5	0.4	0.5	0.5	0.6	0.3	0.3	0.3	0.3	0.6	0.3	0.5
Total	93.0*	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	3698337	5,467,054	3,049,366	2,417,688	553,634	526,763	1,036,370	495,600	632,045	1,126,205	490,515	318,119	177,629	110,174

Source: Ghana Statistical Service, 2010 Population and Housing Census; * Toilet facility in another house- 6.9% ; Exact category not included in 2010 census

Table 15.8: Methods of solid and liquid waste disposal in household by region and type of locality, 2000 and 2010

Method of rubbish disposal	2010													
	All regions (2000)	All regions (2010)	Urban	Rural	Western	Central	Greater Accra	Volta	Eastern	Ashanti	Bronz Ahafo	Northern	Upper East	Upper West
Collected	4.8	14.4	22.1	4.6	8.2	3.9	48.5	6.1	4.1	9.1	2.9	6.2	11.1	4.6
Burned by household	7.9	10.7	10.2	11.4	5.8	13.4	13.0	15.9	16.2	5.3	4.4	10.9	25.0	5.9
Public dump (container)	*	23.8	38.7	4.9	21.1	18.7	25.7	16.6	22.8	35.4	23.9	14.8	7.9	12.7
Public dump (open space)	*	37.7	22.7	56.6	50.6	53.8	8.4	41.3	40.0	41.9	53.3	38.7	31.2	36.8
Dumped indiscriminately	*	9.1	3.1	16.7	9.7	5.4	2.1	13.7	10.0	4.9	11.9	26.4	14.6	36.0
Buried by household	3.9	3.3	2.3	4.6	3.5	3.4	1.4	5.2	5.9	2.7	3.1	2.2	6.9	3.2
Other	0.9	1.0	0.8	1.2	0.9	1.5	0.9	1.2	1.0	0.7	0.6	0.8	3.3	0.8
Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Method of liquid waste disposal														
Through the sewerage system	4.5	3.4	5.1	1.2	2.5	1.3	9.2	1.0	1.3	3.2	1.2	2.1	2.3	1.6
Through drainage system into a gutter	**	10.9	17.6	2.4	11.0	6.7	18.5	2.5	5.3	19.8	2.6	4.4	4.3	3.2
Through drainage into a pit (soak away)	**	3.1	3.7	2.2	2.1	1.7	5.4	2.3	1.8	2.6	1.5	5.1	6.8	3.3
Thrown onto the street/outside	39.0	28.1	20.9	37.2	23.7	31.1	12.3	31.1	23.3	23.0	40.9	56.2	59.4	64.8
Thrown into gutter	21.1	18.7	28.2	6.6	21.6	16.9	33.9	9.3	16.9	21.8	6.5	6.3	3.4	3.6
Thrown onto compound	34.6	35.2	23.8	49.5	38.3	41.0	20.1	52.2	50.6	29.4	47.1	25.5	23.2	23.0
Other	0.8	0.7	0.6	0.8	0.9	1.3	0.6	1.5	0.8	0.3	0.3	0.5	0.6	0.5
Total		100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
N	3,698,337	5,467,054	3,049,366	2,417,688	553,634	526,763	1,036,370	495,600	632,045	1,126,205	490,515	318,119	177,629	110,174

Source: Ghana Statistical Service, 2010 Population and Housing Census * 2000 Categories: Public dump 57.6%; Dumped elsewhere, 25.0%;

** Category not included in 2000 census

15.8 Main source of drinking water

The availability of and accessibility to improved drinking water is an important aspect of the health of household members. The UN Millennium Development Goal (MDG) Seven aimed to reduce by half the proportion of people without sustainable access to safe drinking water by 2015 based on 1990 levels. The source of water supply particularly for drinking has a tremendous effect on burden of diseases. For instance, one of the main health benefits of clean drinking water supply is a reduction in diarrhoea.

Water sources are often classified as ‘improved’ or ‘unimproved’: Sources considered as improved are piped public water into homes, public standpipe, borehole, protected (lined) dug well, protected spring, and rainwater collection; unimproved are unprotected wells and springs, vendors, and tanker-trucks (WHO and UNICEF, 2000). The main sources of drinking water in Ghana are presented in Table 15.9. Household drinking water was obtained from six main sources as follows: bore-hole including pump or tube well (23.2%), pipe-borne water outside the dwelling (19.0%), pipe-borne water inside the dwelling (14.5%), public tap or standpipe (13.0%), river or stream (9.2%), and sachet water (9.0%). Nearly three in ten dwelling units (29.1%) obtained their drinking water from wells (both protected wells and boreholes). In 2010, 46.5 percent of households were using pipe-borne water (in the dwelling, outside the dwelling and public tap or standpipe) as the main source of drinking water, compared to 39.9 percent in 2000.

There were regional variations in the main source of drinking water. The highest reported source of drinking water for Western and Greater Accra regions was pipe-borne outside the dwelling, for Central and Volta it was public tap or standpipe, and for the remaining six regions it was borehole. For Upper West and Upper East regions, 70.1 percent and 67.8 percent relied on borehole for their drinking water. Water from rivers and streams constituted the main source of drinking water for 17.4 percent of dwelling units in Northern region, 16.5 percent in Volta and 16.3 percent in Western region. Sachet water was the main source of drinking water for 28 percent of dwelling units in Greater Accra, 8.5 percent in Eastern region and 8.1 percent in Central region.

As shown in Table 15.9, there were also wide variations in the main source of drinking water between urban and rural localities. Pipe-borne water was the main source in urban areas while in rural areas it was water from boreholes and tube wells. The proportion of urban dwelling units that used pipe-borne drinking water (from all the three sources) was 64.4 percent, representing a slight decline over the 2000 (67.8%) figure. In urban localities, 13.9 percent use sachet water as the main source of drinking water, as against 2.8 percent in rural localities. The proportion of dwelling units who use piped water as main source of drinking water in rural localities increased modestly from 14.9 percent to 23.8 percent.

15.5.9 Main source of water for other domestic use

The source of water for domestic use was similar to drinking water with the exception of sachet water. The use of tankers as the main source of water for other domestic use was 6.2 percent in Greater Accra region (Table 15.9), but less than one percent in all other regions except Central region (3.8%). Less than one percent of households used harvested rainwater as the main source of domestic water except in the Volta region where it was reported by 3.0 percent and the Central and Eastern regions with 1.2 percent each.

15.6 Summary, Conclusions and Recommendations

15.6.1 Summary

In 1960, the housing stock in the country was 636,189. This increased to 2,181,975 in 2000, and then to 3,392,745 in 2010. The increase between 2000 and 2010 translates to an annual rate of growth of 4.4 percent. The highest inter-censal annual growth rate of 5.6 percent was in Ashanti region and the lowest was 2.5 percent recorded in the Northern region. The total number of houses in the three northern regions was less than the number of houses in either Greater Accra or Ashanti region.

Although there had been an increase in the construction of modern houses in the form of bungalows and flats, compound house accounted for 51.5 percent in 2010 of all houses in the country. Between 2000 and 2010, there was a decline in the proportion of houses with outer walls constructed of earth, mud/mud bricks, from 50.0 percent to 34.2 percent. Conversely, there was an increase in the proportion of dwelling units with cement or concrete walls, from 39.1 percent in 2000 to 57.5 percent in 2010. About seven out of every ten dwelling units (71.4%) in Ghana was roofed with metal sheet, compared with 60.3 percent in 2000. The proportion with slate/asbestos roof remained at 13.0 percent for both censuses.

The number of households per house was 1.6, and the average number of persons per house was 7.3 persons. One-half (54.4%) of dwellings had only one sleeping room. Fifty-three percent of dwelling units were owned by a member residing in the household member while 26.8 percent was owned by a private individual who was not a member of the household.

Table 15.9: Main source of drinking water and water for domestic use of household by region and type of locality

Main source of drinking water	2010													
	All regions (2000)	All regions (2010)	Urban	Rural	Western	Central	Greater Accra	Volta	Eastern	Ashanti	Brony Ahafo	Northern	Upper East	Upper West
	14.3	14.5	23.9	2.5	10.5	9.3	26.3	7.4	8.1	22.0	6.1	8.7	6.5	5.4
Pipe-borne inside dwelling	25.6	19.0	25.9	10.3	19.6	20.9	28.1	18.8	14.5	18.7	13.9	12.2	8.5	11.4
Pipe-borne outside dwelling	*	13.0	14.6	11.0	16.3	23.3	10.0	19.2	11.3	10.1	17.1	6.9	2.9	4.4
Public tap/Standpipe	**	23.2	9.4	40.6	18.2	18.2	1.5	16.4	28.0	30.9	33.4	35.1	57.3	64.2
Bore-hole/Pump/Tube well	**	5.9	6.3	5.4	7.0	4.3	0.7	4.6	9.2	7.2	9.4	5.6	12.8	3.6
Protected well	**	0.7	0.5	1.0	0.1	1.6	0.2	3.2	1.3	0.1	0.2	0.6	0.1	0.2
Rain water	**	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.4	0.4	0.3	0.3	0.4	0.3
Protected spring	*	0.4	0.6	0.1	0.3	0.3	1.1	0.2	0.2	0.3	0.2	0.1	0.0	0.0
Bottled water	*	9.0	13.9	2.8	5.4	8.1	28.0	3.3	8.5	3.7	2.7	0.4	0.4	0.7
Sachet water	2.2	1.1	1.5	0.5	0.6	2.9	2.9	0.4	0.2	0.4	0.1	0.3	0.2	0.3
Tanker supply/Vendor provided	**	2.1	0.9	3.5	4.2	1.9	0.2	4.8	1.5	0.7	1.9	4.2	6.2	1.6
Unprotected well	**	0.2	0.1	0.4	0.3	0.2	0.0	0.5	0.3	0.1	0.3	0.3	0.2	0.3
Unprotected spring	**	9.2	1.7	18.7	16.3	7.8	0.4	16.5	15.0	5.2	13.2	17.4	2.5	6.4
River/Stream	**	1.4	0.3	2.8	0.6	0.8	0.2	4.4	1.4	0.1	1.3	7.6	1.8	1.2
Dugout/Pond/Lake/Dam/Canal	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.0
Other	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Main source of water for other domestic use														
Pipe-borne inside dwelling	16.6	27.5	2.7	11.1	10.4	35.0	7.3	8.8	22.8	6.6	8.7	6.4	5.3	
Pipe-borne outside dwelling	19.9	28.0	9.8	18.2	20.9	37.1	14.9	13.2	18.3	13.7	11.8	7.9	11.0	
Public tap/Standpipe	12.9	15.0	10.2	15.4	22.4	12.3	16.8	10.4	10.0	17.0	6.1	2.6	3.9	
Bore-hole/Pump/Tube well	23.4	10.9	39.3	18.9	19.3	4.0	14.8	28.6	31.5	31.8	32.0	55.4	61.8	
Protected well	8.5	10.0	6.6	11.0	7.2	2.4	7.8	15.1	9.0	11.6	6.2	14.0	4.6	
Rain water	0.7	0.6	0.9	0.2	1.2	0.3	3.0	1.2	0.2	0.2	0.7	0.2	0.3	
Protected spring	0.3	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.4	0.3	
Tanker supply/Vendor provided	1.8	2.7	0.7	0.6	3.8	6.2	0.5	0.3	0.5	0.1	0.4	0.2	0.3	
Unprotected well	2.8	1.8	4.0	5.5	2.9	0.6	7.8	2.1	0.9	2.2	4.2	6.5	1.7	
Unprotected spring	0.3	0.1	0.5	0.3	0.3	0.2	0.6	0.3	0.2	0.3	0.3	0.4	0.3	
River/Stream	10.8	2.5	21.2	17.5	9.9	1.1	20.4	17.8	5.8	14.4	19.9	3.4	8.0	
Dugout/Pond/Lake/Dam/Canal	1.8	0.4	3.5	0.7	1.1	0.4	5.5	1.6	0.2	1.5	9.2	2.5	2.3	
Other	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
N	3,698,337	,467,054	3,049,366	2,417,688	553,634	526,763	1,036,370	495,600	632,045	1,126,205	490,51	318,119	177,629	110,174

Source: Ghana Statistical Service, 2010 Population and Housing Census; * Category not included in 2000; ** Categories used in 2000 very different from 2010

Sixty-four percent reported using of electricity (mains) the main source of power for lighting. The proportions were 83.8 percent for urban areas and 39.5 percent for rural. This disparity between rural and urban areas in access to electricity has had implications for the access to and use of other facilities and services. For instance, the lack of electricity could be partly responsible for the low proportion of households in rural areas who use computers and the internet. The proportion with exclusive cooking space in the household was 33.2 percent at the national level (39.6% urban; 28.2% rural). In one out of five dwelling units the veranda was the cooking space. In 2010, as in 2000, the three main sources of energy for household cooking were firewood, charcoal, and gas. While the proportion using wood declined from 55.8 percent in 2000 to 40.2 percent in 2010, the proportion using charcoal increased from 30.0 percent to 33.7 percent. The proportion using gas tripled from 6.2 percent in 2000 to 18.2 percent in 2010.

Furthermore, 46.5 percent of dwelling units had access to pipe-borne water as the main source of drinking water. In urban areas 13.9 percent reported using sachet water as the main source of drinking water. The national proportion was 9.0 percent.

Sanitation and the availability of toilet facilities were reported to be either poor or inadequate. For instance, 15.4 percent of dwelling units had access to WC and 34.6 percent used public toilet in 2010. One in five dwelling units had no toilet facilities and household members either used open fields, the beach or other open areas. Over 70 percent of dwelling units did not have exclusive use of bathrooms for the household.

The proportion of dwelling units where solid waste was collected from the house increased from 4.8 percent in 2000 to 14.4 percent in 2010. Notwithstanding, the main modes of solid waste disposal were public dump site (37.7%) and dumping in a public container with periodic collection (23.8%). Nine percent of dwelling units dumped their solid waste indiscriminately. The increase in the proportion where waste is collected could be due to the introduction of private waste management firms in the country.

Only 24.1 percent of dwelling units in Upper East had access to electricity, compared with 87.1 percent in Greater Accra and 73.6 percent in Ashanti. Charcoal was the main source of fuel for cooking in the southern regions while wood is the main source in the predominantly savannah belt: Brong Ahafo, Upper East, Upper West and Northern. Although in nearly all regions about one third of dwelling units have separate rooms for cooking to the exclusive use of households, in nearly one-half of dwelling units (48.9%) in Northern region, 29.9 percent in Upper West and 26.7 percent in Brong Ahafo, households cook in open spaces in the housing compound. The highest proportions of dwelling units with bathrooms for exclusive use of household members are recorded in Upper East (41.3%) and Upper West (42.8%). The lowest proportion is in Central (23.0%). Sharing of bathing facilities by multiple households is highest in Ashanti (58.6%) and Greater Accra (55.7%). Seven in ten dwellings units in Northern and Upper West, and over eight in ten in Upper East region (81.9%) have no toilet facilities (i.e. they use the bush/ field). The proportion of dwelling units using public toilet is highest in Brong Ahafo region (44.0%) while nearly a third of all dwelling units in Eastern region (32.2%) and Western region (30.1%) use the pit latrine.

Nearly one-half (48.5%) of dwelling units in Greater Accra region have their solid waste (rubbish) collected from their homes, but for the rest of Ghana, the proportions range from 2.9 percent in Brong Ahafo region to 11.1 percent in Upper West region. The proportion of dwelling units that dump solid wastes in open public sites is highest in Western region (50.6%). Disposal of liquid waste is done mainly by throwing onto the compound or unto streets or outside the house. Volta region has the highest proportion of dwelling units that dispose liquid waste by throwing unto the compound (52.2%). The most common source of drinking water for Western and Greater Accra is pipe-borne outside the dwelling, for Central and Volta it is public tap or standpipe, and for the remaining six regions it is borehole. Indeed for Upper West and Upper East over half of dwelling units rely on borehole for their drinking water. Rivers and streams constitute the main source of drinking water for 17.4 percent of dwelling units in Northern region, 16.5 percent in Volta and 16.3 percent in Western region. The use of sachet water is becoming popular in many regions. It is the main source of drinking water for 28 percent of dwelling units in Greater Accra, 8.5 percent in Eastern and 8.1 percent in Central.

15.6.2 Conclusions

The housing stock, quality of materials used for building houses and the provision of utilities is far short of the needs of the growing population in both urban and rural areas. Generally, Ghana's housing conditions were poor in nearly all areas including, poor access to improved water sources, poor or non-existent drainage and poor sanitation reflected in inadequate, cooking, bathing and toilet facilities. However, there were signs that the overall situation was improving, arising from the moderate economic growth experienced over the last decade which lifted the country to lower-middle income status.

The disposal of both liquid and solid household waste, toilet and bathing facilities and sewerage are inadequate, and where available insufficient (United Nations Human Settlements Programme, 2011). Investment in solid waste disposal and drainage should be seen as part of the portfolio of investments in public health. Thus, sewerage disposal should be planned as a major health intervention. Its linkage to the National Health Insurance Scheme (NHIS) needs to be explored given that several diseases are linked to poor sanitation in the country.

Ghanaian households still relied on wood or charcoal for cooking. The high cost of gas and occasional shortages of the product have undermined a decisive shift away from charcoal to gas as the dominant source of energy for cooking especially in the urban areas. The reliance on fuel wood and charcoal for cooking, especially in the savannah zone has implications for the environment. The results of the census should be able to inform policy on domestic energy use.

Although there is an increase in the proportion of dwelling units with access to piped water, there are challenges with quantity of water produced. Census data are not able to address quantity and quantity of water available and consumed. Access to and use of water is a challenge in urban and rural areas. For instance, 28 percent of households in Greater Accra did not have access to good drinking water and rural communities continue to rely on unsafe drinking water supply.

15.6.3 Recommendations

The results from the census provide aggregate picture of the housing and social amenities such as water, sanitation, electricity and other facilities. The general observation is that even at that gross level the housing and associated facilities are either inadequate, unreliable or of poor quality. Therefore, there will be the need for government and local administrations to enforce the minimum standards of house construction and the provision of basic facilities such as cooking areas and toilets in houses. Government policy should also be geared towards the modernisation and expansion of housing styles (e.g. compound houses) which are able to house more people than the current approach of individual structures. There should be a process of providing facilities such as pipe borne water supply and sanitation services in new and emerging suburb in urban areas while modernizing and improving sanitation in old settlements.

Although rural electrification is improving and should be intensified, government should continue to explore non-conventional sources of energy such as solar. There is the need for initiatives aimed at addressing the lighting needs of off-grid populations by making safe, affordable, durable, and environmentally sustainable lighting available to through solar and other forms of energy supply. There is potential to expand solar energy for both domestic and industrial use to accelerate economic development. Thus, government needs to invest efforts to make solar energy available.

The proportion of dwelling units with WC almost doubled from 8.5 percent in 2000 to 15.4 percent and the proportion using public toilets also increased from 32.7 percent in 2000 to 34.6 percent in 2010. The proportion of the population with access to adequate and hygienic toilet facilities is low. Laws of sanitation should be enforced at the various levels of governance – national, regional, district/metropolitan – on home ownership of clean toilets as well as maintain clean public toilet facilities.

Water supply continues to be a challenge in the country. Communities in both urban and rural areas do not have adequate, reliable and clean water supply throughout the year. In the absence of adequate supply of good drinking water, bottled and sachet water have emerged to meet the need for clean drinking water. However, the disposal of the sachets and the bottles has come at a cost. The available evidence indicates that Ghana will not be able to meet the water and sanitation targets in the MDGs. Therefore, efforts should be geared towards developing programmes for 2015 and beyond on these critical components.

References

- Anaman, K.A. & Osei-Amponsah, C. (2007) Analysis of the causality links between the growth of the construction industry and the growth of the macro-economy in Ghana, *Construction Management and Economics*, 25: 951-961.
- Ghana Census Office (1963) *1960 Population Census of Ghana Volume I*, Accra: Ghana Census Office.
- Ghana Census Office (1973) *1970 Population Census of Ghana, Volume I* Accra: Ghana Census Office.
- Ghana Statistical Service (1987) *1984 Population Census of Ghana, Demographic and Economic characteristics Report, Volume I*, Accra: Ghana Statistical Service.
- Ghana (Statistical Service (2002) *2000 Population and Housing Census, Summary Report of Final Results.*, Accra: Ghana Statistical Service.
- Ghana Statistical Service (2012) *2010 Population and Housing Census: Summary Report of Final Results* Accra: Ghana Statistical Service .
- Gordon, D., Nandy, S., Pantazis, C., Pemberton, S., and Townsend, P. (2003) *Child Poverty in the Developing World* New York, UNICEF
- National Development Planning Commission (NDPC) 2010 *Medium-Term National Development Policy Framework: Ghana Shared Growth and Development Agenda (GSGDA), 2010-2013*, National Development Planning Commission, Accra.
- United Nations (2008) *Principles and Recommendations for Population and Housing Census, Revision 2*; New York: Department of Economics and Social Affairs Statistics Division, United Nations,
- United Nations Human Settlements Programme (UN-HABITAT) (2011) *Ghana Housing Profile*; Nairobi: UN-Habitat,
- WHO and UNICEF (2000) *The Global Water Supply and Sanitation Assessment 2000 Report*. Geneva: WHO.

CHAPTER SIXTEEN

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS³⁴

16.1 Introduction

The 2010 Population and Housing Census (PHC), the eleventh in the history of modern census-taking in the country, derived its basic features from the United Nations Principles and Recommendations (2010) for countries taking part in the 2010 round of population and housing census and experiences from previous censuses. Following the publication of the results of the 2000 census, the Ghana Statistical Service produced an analytical report which provided insight into the information collected and helped to disseminate results from the census beyond the statistics which were produced.³⁵ This report is the fifth and is produced with the aim of providing useful materials for planners, academics and policy makers as well as the general reader on some of the results from the 2010 PHC.

As with previous censuses, the 2010 PHC collected data on basic demographic and socio-economic characteristics such as, age, sex, relationship to head of household, marital status, ethnicity, religion, literacy, education, economic characteristics and housing. But unlike previous censuses, the census of 2010 collected data on Information and communications technologies (ICT), disability, emigration, maternal mortality and agriculture. Although censuses are organized every ten years, the results form the basis of a wide range of planning, policy-making and research activities.

16.2 Summary and Conclusion

The section is organized under six thematic areas, namely data collection process and quality of data, socio-demographic characteristics, disability, economic activities, ownership of ICT items and housing characteristics.

16.2.1 Data Collection Process and Assessment of Quality of Data

Collecting timely, adequate and reliable census data is very essential. In organizing a census, activities revolve around three phases, namely pre-enumeration, enumeration and post-enumeration. The pre-enumeration phase involved planning, mapping, questionnaire development, training, procurement and provision of logistics, while the enumeration phase involved the actual field work. The post-enumeration phase of data capture, verification and production of tables, and organizing a post-enumeration survey. The final activity under this phase will be the production, publication and dissemination of results. Each of these phases presented challenges which, although did not adversely affect the census, would need to be considered to inform future censuses (Section 2.5: Lessons learnt).

³⁴This chapter was prepared by Emmanuel O. Tawiah, Samuel N.A. Cudjoe, John K. Anarfi and Clara K. Fayorsey

³⁵The following publications have been produced from the 2010 census:

Once census data are collected, they should be assessed for quality data and coverage of the activity. In general the assessment is undertaken at two levels – organizing a post-enumeration survey and undertaking internal consistency checks. In April 2011, a post enumeration survey was conducted as one of the tools for assessing the coverage of the 2010 PHC.

Some of the main findings of the PES are:

- Based on the PES, the coverage rate of the PHC was estimated to be 97.0 percent. That is 97% of all residents in the country on Census Night (26th September, 2010) were enumerated, indicating an omission rate of 3.0 percent.
- 1.3 percent of the population was erroneously included in the census.
- The population estimate from the PES results was 24.5 million, close to the 24, 658,823 enumerated in the PES.
- Coverage rates for regions varied from 95.7 percent in the Volta region, to 98.2 percent in the Upper East region.
- The coverage rate for males was 96.7 percent and the coverage rate for females was 97.2 percent. Also, the coverage rates (94.1%) for those within the 20-29 and 30-39 age groups are relatively lower compared to the coverage rates of the other age groups.
- There was a high rate of agreement between the 2010 PHC data and the PES data for sex (98.8%), marital status (94.6%), relationship to head of household (90.5%) and age (83.0%).

In this study, internal consistency checks were undertaken on the reported age-sex data (Chapter Three) as well as the children ever born and surviving and children dead (Chapters Eight and Nine). The assessment of the age-sex data revealed that although digit preference for ages ending in 0 and 5 and a systematic avoidance of ages ending 1, 3, and 9 still existed in the 2010 census, the results showed an improvement in age reporting compared to the 2000 census (Adeku & Ameka, 1995; Ghana Statistical Service, 2005). That there has been an improvement in age reporting from one census to the other, has been attributed partly to the use of two questions on age (completed age and date of birth) and partly to the increased utilisation of information on age for day-to-day transactions (e.g. voting, national health insurance). It is also possible that the increasing rate of formal education is making people conscious of their date of birth. Therefore, it will be useful to maintain the double age-based questions used in the 2010 census in future data collection exercise and to promote the use of age in national activities.

Assessment of the data on children ever born (CEB), children surviving (CS) and deaths in households in the last 12 months indicated that there was likely under-reporting of deaths and children ever born and surviving. Nonetheless, the data was found to be satisfactory and was used to construct reliable estimates for mortality indicators including age patterns of mortality (Chapter Nine). Thus, various approaches indicate that the data from the 2010 PHC were of high quality.

16.2.2 Socio-Demographic Indicators

The results from the 2010 PHC, viewed against the data from previous censuses brings out changes in the demographic characteristics of the population. In 1960, the population of Ghana was 6,726,815 and by 2010 the population had risen to 24,658,823, an increase of three and half times over a 50-year-period. Inter-censal annual growth rate declined slightly from 2.8 percent between 1984 and 2000 to 2.5 percent between 2000 and 2010. Nonetheless, a growth rate of 2.5 percent per annum translates to a population doubling time of 28 years. Given this rate of growth and doubling time, the population of Ghana is expected to be 33.4 million by 2025 and 49.1 by 2050 (Population Reference Bureau, 2011). Such a population will have implications for overall socio-economic development in the absence of paradigm shift to development planning.

Sex ratios have declined steadily from 102.2 males per 100 females in 1960, through 97.3 males per 100 females in 1984 to 95.2 males per 100 females in 2010. The high rate in 1960 was attributed to the high proportion of non-Ghanaians in the country at that time (Chapter Ten). Since then the proportion of the non-Ghanaians in the population has declined (Chapter Ten). Nonetheless, this may not fully explain the observed trend and would need to be explored in future research.

The age structure of the country is also undergoing changes with the proportion of the population aged 15-64 years increasing from 47.7 percent in 1970, to 49.1 percent in 1984, 51.1 percent in 2000 to 55.0 percent in 2010 (Table 4.8). A feature of the population structure is the increasing population of persons aged 60 years and above. For instance, the population aged 60 years and above and 65 years and above constituted 1,643,380 and 1,167,531 respectively. In 2000, the population aged 60 years and above was 1,365,291 while those 65 years and above was 998,940. At the moment, programmes for the elderly and structure for dealing with their welfare are limited (UNDP, Ghana, 2007). This increasing number will have to be planned for.

Using the data from children ever born and births within the last twelve months (current fertility) total fertility was estimated to have declined from 3.99 in 2000 to 3.28 in 2010 while the mean number of children ever born to women aged 45-49 (completed fertility) was also estimated to have declined from 5.58 in 2000 to 4.71 in 2010. The fertility rate of around 4.0 children per woman is consistent with results from the 2008 Ghana Demographic and Health Surveys (Ghana Statistical Service, 2009). Available evidence also indicates that fertility has declined from about seven children per woman in 1980 to the current 4.0 (Ghana Statistical Service, 1989; 2009). The observed patterns were consistent with results from the Ghana Demographic and Health Surveys (Ghana Statistical Service, 2009). Furthermore, pattern of inverse relationship between educational attainment and fertility conforms to findings observed in some African countries (Garenne, 2008).

The changing age structure which is leading to decline in age-dependency ratio due to declining fertility and improved life expectancy if managed properly, leads to what has been described as the ‘demographic dividend’. This is a situation of increased personal savings and investment possibilities among the working population as a result of the decline in transfer of resources to children and the elderly (See Box 1). Ghana will need to take advantage of this demographic dividend which seems to be at the incipient stage (Gribble and Bremner, 2012).

Results from the 2010 census also indicated that 50.9 percent of the population lived in urban areas. Thus, for the first time, the proportion of the population in urban areas is more than those in rural areas. This trend has been due to natural growth within the urban population itself, boundary changes and rural-urban migration (Chapter Ten). This change has been characterised by the concentration of population in few urban centres. In particular, the population density of Greater Accra increased from 896 in 2000 to 1,236 person per square kilometer. This high concentration of people, with its associated infrastructural needs, presents its own challenges for the planning and development of the national capital.

BOX 1

Demographic Dividend

“The demographic dividend is the accelerated economic growth that may result from a decline in a country’s mortality and fertility and the subsequent change in the age structure of the population. With fewer births each year, a country’s young dependent population grows smaller in relation to the working-age population. With fewer people to support, a country has a window of opportunity for rapid economic growth if the right social and economic policies developed and investments made.”

Source: Gribble, J and Bremner, J. (2012b: 1)

The total number of households in the country was 5,467,136 in 2010 and 3,701,241 in 2000, representing an increase of 47.7 percent between the two inter-censal periods. The average number of persons per household was 4.4 persons in 2010. Fifty-six percent of the households were in urban areas where 50.9 percent of the population lived. Two regions, Ashanti and Greater Accra, accounted for one-fifth each of the total number of households. One phenomenon from the results was the proportion of female household heads which was never married: it increased from about 3.0 percent in 1960 to 14.0 percent in 2010. Such emerging dynamics in the aspects of the population will need to be tracked and explained further.

As observed in previous censuses and various studies, there is the near universality of marriage, with females marrying earlier than males (Ghana Statistical Service, 2009; Nukunya, 2003). Nonetheless, the singulate mean age at marriage of 25.9 years observed in Chapter Six indicates increasing age at first marriage over the years. The results from the census are consistent with observations in the various Ghana Demographic and Health Surveys (Ghana Statistical Service, 2004; 2009). In the older ages, and in urban and rural areas, more females than males were widowed or divorced reflecting the increasing life expectation among females compared to males and the effects of polygyny.

Using the 2010 census data on deaths in the household in the last twelve months, and indirect techniques, infant mortality rate was estimated to be 59 infant deaths per 1,000 live births and under-five mortality of 90 deaths per 1,000 children. Furthermore, based on verbal autopsy, nine percent of the reported deaths among females aged 12-54 years were classified as pregnancy-related. The estimated maternal mortality ratio of 485 per 100,000 live births appeared be consistent with other estimates for the country. The estimated life expectancy at birth of 62.7 years between 2000 and 2007 was also consistent with other available data such as estimates from the World Bank 2011. Thus, the evidence suggests that census data can be used to derive fairly reliable estimates on deaths in the absence of death registration.

Fifty-three years after independence, Ghana was yet to achieve universal basic education. The results indicated that 80.2 percent males 68.5 females were literate in at least one language. Of those who had had formal education, over 70 percent had completed just basic education. The gender divide in education is reflected in the fact that while 21.3 percent of males had achieved secondary school education or higher, the proportion for females was 12.5 percent. This low level of education is incompatible with the expectations of a lower middle-income country with a growing economy. Effort would need to be made to increase the proportion of the population with secondary and tertiary education. Available evidence suggest that the current newly developed countries such as Malaysia developed with at least two generations of basic education and close to 50 percent of secondary school education (Gribble and Bremner, 2012).

These socio-demographic characteristics varied by region and rural-urban residence. For instance, the Greater Accra, Northern and Central regions showed high growth rates while the Volta, Upper East and Upper West regions exhibited relatively low growth rates. The Ashanti Region accounted for 19.4 percent of the total population and the Upper West region 2.8 percent. Furthermore, the Greater Accra Region had an average household size of 3.9 persons, the lowest in the country and while the Northern Region recorded an average household size of 7.8 persons. Furthermore, the three northern regions experience higher infant and under-five mortality compared to the rest of the regions. In all the indicators, there are gender, rural urban and north-south divides in most of the indicators.

16.2.3 Economic Background

The structure of Ghana's economy has not changed in the last five decades and this is reflected in the occupational structure of the population over the period (Ghana Statistical Service, 2005; 2012). As with previous censuses, over 60 percent of employed persons were engaged in agriculture, forestry and fishing activities. This was followed by services and sales and craft and related trades. Of those engaged in agriculture over 70 percent were involved in crop farming while only 2.2 percent were in tree crop farming, the latter being the main export component of the economy. About 40 percent was involved in animal husbandry and 0.2 percent in fish farming. There appeared to be a mis-match between the proportions of the population involved in the various components of the agricultural sector. Given the pattern of employment, about 60 percent of the household heads were self-employed in the private informal sector of the economy, while over 80 percent of the employed were also in the private informal sector.

Other characteristics of the employed population were:

- About two-fifths were illiterate in any language and nearly one-third had no formal education.
- About 11 percent of children aged 5-14 years were engaged in economic activity. This is at the age when children are supposed to be in full-time schooling.
- In 2010, only 7.0 percent of the employed persons were in the formal private sector compared to 8.5% in 2000.
- A third of the workforce has no education and 36.5 percent have been educated to JSS level with less than 10 percent having secondary school education.
- Only 2.9 percent the total employed persons aged 15 years and above had had commercial, technical and vocational qualifications in 2010, compared to 3.9 percent in 2000.
- The level of unemployment, especially among 15 to 24 year-age groups appeared to be high.

The low levels of education and literacy among heads of agricultural households as well as the other members engaged in farming activities is an aspect of the population characteristics which will need to be addressed. In particular, the level of education of the agricultural workforce in the country needs to be improved. The non-formal (adult) education programmes, particularly in the rural areas, was meant to address this problem, but it appears this has not been the case. The programme will need to be revived and revised to respond to the low level of literacy among agricultural workers and rural residents.

16.2.4 Disability

In the 2010 Population and Housing Census, data were collected on persons living with disability (PWDs). This was the first time such data had been collected in a national census (see Chapter 13). The results indicated that there 737,743 persons with some form of disability representing about three percent of the total population of Ghana. PWDs had lower levels of education than persons without disability. In terms of regional distribution of PWDs, Ashanti (16.9%) and Greater Accra (14.1%) reported the highest proportions reflecting their population sizes in the country. The highest disability rate of 4.3% was observed in the Volta region followed closely by Upper East (3.8%) and Upper West (3.7%) regions. The lowest rate of 2.3% is found in Brong-Ahafo. The leading cause of disability among the aged was sight and among young people, emotional disability. The three leading occupations for PWDs were agriculture, forestry and fishery, sales and services and crafts and related works as was the case with the non-PWDs. The data on quality of housing, access to good drinking water, toilet facilities and sources of energy for cooking and lighting did not vary much for PWDs since such data were collected at the household level.

The results indicate that this component of the population would need to be targeted for further studies to identify their needs and challenges. For instance, the low level of education among PWDs is an issue which will need some attention.

16.2.5 Ownership of ICT Items

Ownership of mobile phones, access to computers and internet and household owning fixed line phones were explored under the general rubrics of information and communications technologies (ICT) (Chapter 14). This was also the first time such questions were asked in a national census. Of the population 12 years and older who were interviewed, 47.8 percent owned mobile phones and 2.3 percent of households owned fixed lines. Ownership declined with age, while household ownership of fixed phone lines was associated with household headed by older persons. Only 7.8 percent of the population 12 years and older used Internet. Individuals who use the Internet were more likely to be young, educated, employed and reside in urban areas. In addition, only 7.9 percent of households in the country owned either desktop or laptop computers. Households with desktop/laptop computers were located in the more urbanized and cosmopolitan regions of Greater Accra and Ashanti and were more likely to be headed by males who were relatively young and educated.

There were regional and rural-urban variations as well as by occupation in ownership of these ICT items. For instance, among those employed in the agricultural sector, 47.3 percent of household heads owned mobile phones but only 2.2 percent of agricultural household heads used Internet and less than one percent had fixed telephone lines. There were regional, rural-urban and gender differences in access to and use of internet and computers. These variations in ICT also reflect the differences in education and facilities in the country. For instance, the use of computers is associated with the availability of electricity. Therefore, the drive for improved use of ICT should be accompanied by comprehensive development of other utilities.

16.2.6 Housing Characteristics

Housing interfaces with demographic and other social and economic dimensions. The availability and nature of housing stock have implication for quality of life (Ghana National Development Commission, 2010; Gordon, Nandy, Pantazis, Pemberton, and Townsend, 2003). In 1960, the housing stock in the country was 636,189. This increased to 2,181,975 in 2000, and then to 3,392,745 in 2010. Thus, between 1960 and 2010, housing stock increased fivefold (Chapter Fifteen). Between 2000 and 2010, housing stock increased at an annual growth of 4.4 percent. Fifty-eight percent of the houses were in rural areas where 49.1 percent of the population lived. Average household size decreased from 5.1 persons to 4.4 persons between 2000 and 2010. These houses were also of varying quality, with mud/mud brick/earth and wood as walls accounting for 34.2% of houses in 2012. The major type of housing is the compound house.

The houses were also characterized by poor access to water, poor or non-existent drainage and poor sanitation, inadequate, cooking, bathing and toilet facilities. In spite of the rural electrification in the country over the last two decades, 39.5 percent of the households in rural areas had access to electricity. In both 2000 and 2010 only a third of households had exclusive areas for cooking. These indicators point to the inadequate housing stock, low quality of houses and inadequate facilities such as areas for cooking, electricity water and sanitation. For instance, one in five dwelling units had no toilet facilities. Household members reportedly used bush/beach and open fields. Although laws have been passed requesting landlords to provide toilet facilities in houses, such laws are not enforced. In 2000, 4.0 percent of households used

bucket/pan toilet facilities. This declined to 0.7 percent in 2010, which translates to 40,678 dwelling units still using that facility. There are challenges with quantity and quality of water produced, a situation which has led to the emergence of sachet drinking water. The disposal of the plastic materials also has its own environmental challenges.

The rural-urban and north-south variability plays out more in housing quality, type, ownership and availability of facilities. For instance, over 80 percent of the houses in the Northern, Upper West and Upper East regions were built of mud/earth. Furthermore, the disposal of both liquid and solid household waste, the provision of toilet and bathing facilities are inadequate (United Nations Human Settlements Programme, 2011). Although, the availability of some of these facilities have increased over the years, the inadequate supply and quality continue to present challenges, especially for those in rural areas. The population in the northern savannah zone continue to use fuelwood and charcoal for cooking. This is an environment which is subject to drought.

Housing and related infrastructure are either of poor quality, inadequate or unavailable. The data as analysed in this publication should, therefore, inform some of the decisions on housing and housing characteristics in the country.

16.3 Recommendations

The various socio-demographic characteristics present challenges as well as opportunities. The challenges include creating employment for the young and fairly well educated population, dealing with the increasing proportion of the population in urban areas and the associated rural-urban migration, especially to Accra. The opportunities include taking advantage of the demographic dividend associated with fertility decline and the subsequent increase in the active population (Box 1).

After five decades of independence, Ghana is yet to achieve universal education. This is accentuated by the low level of formal education among people in Northern, Upper West and Upper East regions. These are also regions where free education has been available since independence. The situation existing in the three northern regions would need to be studied for the factors accounting for the observation. Given the results, government should re-double its efforts towards the achievement of Millennium Development Goal 2, if not by the stipulated period of 2015, in the next shortest possible period. This will mean paying particular attention to areas with low enrolment rates such as the three northern regions.

Migration has played a major role in the economic development of the country in the past and will continue to do so. The first step towards an effective management of migration in a country is to have a national migration policy. Linked closely to the issue of migration is its contribution to urban growth. While there was internal growth in the urban areas through natural means, the change in population could be partly attributed to the re-classification of urban settlement in the face of rapid urbanisation. For effective urban planning and reduction in overlaps in metropolitan and peri-urban areas, there will be the need to consider the paradigms for re-classification of urban areas.

Estimates derived from the 2010 Census data indicate that both infant and under-five mortality are higher in rural than in urban areas. Inequities in the distribution of medical and health facilities, and the availability of other social services such as sanitation and water between rural and urban areas would need to be addressed. For instance, the provision of Community Health Planning Services (CHIPS) compounds in the rural areas would have to be vigorously pursued while at the same time improving the stock and quality of health infrastructure and accessibility in all parts of the country. Furthermore, the Savannah Accelerated Development Authority (SADA) project should be monitored and the lessons learnt applied to other deprived regions of the country.

The inclusion of disability in the 2010 PHC has provided opportunity to assess the social, demographic and economic characteristics of PWDs. The results should inform the development of strategies which will respond to the Disability Act. For instance, the low level of education among persons with disability would need to be factored into the programme for achieving MDG 2. These are people who are likely to be left behind in the development process. In the 2007 Ghana Human Development Report (UNDP, Ghana, 2007), for instance, PWDs were classified under others (with the elderly who had no access to family care and pension) and those with mental disabilities put under health. The results present a challenge which would have to be addressed in a more comprehensive manner. It will also be useful for the module on PWDs to be repeated in subsequent censuses.

The use of ICT for interaction, communication and business has become critical in this knowledge age. While there is evidence of mobile phone penetration, there will be the need to monitor its penetration to ensure that some people are not left behind. There should be a conscious effort to promote ICT based on the information available from the census data.

In the last few years, efforts have been made in drafting policies that seek to enhance the provision of services for the urban population. These include the drafting of a National Urban Policy, a National Housing Policy, a National Urban Transport Policy, Water and Sanitation policy, as well as a National Migration Policy among others. It is important that these policies are informed by available data on the multifaceted nature of and the inter-linkages in population issues. The available data from 50 years of modern census taking should be used to inform planning in this country.

Finally, the new modules which were introduced in the 2010 PHC should be repeated in subsequent censuses so that trends could be established over time.

References

Adeku and Ameka (1995)

Garenne, M. M. 2008. *Fertility Changes in Sub-Saharan Africa*. DHS Comparative Reports No. 18. Calverton, Maryland, USA: Macro International Inc.

Ghana (Statistical Service (2005) *2000 Population Data Analysis, Vol. 1: Socio-economic and Demographic Trends Analysis* Accra: Ghana Statistical Service.

Ghana Statistical Service (2012) *2010 Population and Housing Census: Summary Report of Final Results* Accra: Ghana Statistical Service .

Gordon, D., S. Nandy, C. Pantazis, S. Pemberton and P. Townsend (2003), *Child Poverty in the Developing World*, New York: UNICEF.

Gribble, J & Bremner, J., (2012a) “Achieving a Demographic Dividend” *Population Reference Bureau*, Vol. 67 (2)

Gribble, J & Bremner, J., (2012b) *The Challenge of Attaining the Demographic Dividend (policy Brief)* New York, Population Reference Bureau

Population Reference Bureau (2011), *2011 World Data Sheet* New York, Population Reference Bureau.

UNDP (Ghana) (2007), *Ghana Human Development Report, 2007: Towards a more Inclusive Society*. Accra, UNDP.