POPULATION GROWTH, STRUCTURE AND MOMENTUM IN TANZANIA

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List of Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
CPR	Contraceptive Prevalence rate
DHS	Demographic and health Survey
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
ICPD	International Conference on Population and Development
IMR	Infant Mortality Rate
MDG	Millennium Development Goals
MICS	Multi cluster indicator Survey
MKUKUTA	Mkakati wa Kukuza Uchumina Kupunguza Umaskini Tanzania
NBS	National Bureau of Statistics
ILO	International Labour organization
IOM	International Organization for Migration
OCGS	Office of Chief Government Statistician
PoA	Plan of Action
POPC	President's Office Planning Commission
TRCHS	Tanzania Reproductive and Child Health Survey 1999
TDHS	Tanzania Demographic and Health Survey
TDV	Tanzania Development Vision
TFR	Total fertility rate
TWR	Total wanted fertility rate
UN	United nations
UNDESA	United Nations, Department of Economic and Social Affairs
UNECA	United Nations Economic Commission for Africa
UNFPA	United Nations Fund for Population Activities
UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
URT	United Republic of Tanzania
WHO	World Health Organisation

Executive Summary

Despite debates on the linkages between population and development, studies have shown that issues related to population go beyond its size. The inter linkages between components of population such as age, structural composition, density, distribution and its characteristics must be considered in the context of sustainable development and human wellbeing. The sources of components of change are the cornerstone to understanding the complex relationship between economic transformation and demographic transition. The speed at which the demographic transition takes place is important because different speeds create different social, economic and environmental challenges and opportunities for countries.

Tanzania's population at the last census (2012) almost triples the size in 1967 (first post independence population census). At a rate of growth of 2.7 percent per annum, the national average population growth rate ranks as one of the fastest in the world and translates to a net total of about 1.2 million people being added to the population annually. At this rate Tanzania's population is projected to reach 70.1 million in 2025.The high rate of population growth is driven by persistently high level of fertility, reduced mortality and low international net migration.

The pst and current population growth rate has resulted have resulted in unprecedented large youthful population that enters labour market. The increase in youth population has opportunities as well as challenges. To gain from the ever-increasing youth population there is need for appropriate policies and programmes to harness their potential. On the other hand persons aged 60 and above though are of much lower proportion, are increasing in large numbers that demand attention to their welfare particularly health.

The continued high fertility rate is a key source of population growth rate. Trend data indicate remarkable decline in fertility between 1991 and 2000 followed by a stall in fertility decline between 2000 and 2004 followed by a marginal decline by about 5.3 percent between 2005 and 2010. The major sources of marginal decline are; unchanging fertility rate among women in age groups 20-24 and 25-29; slow pace in uptake of contraception among lower socioeconomic strata; persistent high fertility rate in the western parts of the country coupled with desire for large family in the same regions and unchanging unmet need for contraception.

Education, urbanization and income levels play a significant role in reducing fertility. Large differences in fertility levels between regions and place of residence are due to differences in education, income and urbanization on one hand and the level of infant mortality. The Northern regions have had the highest proportion of women with secondary education, rapid urbanization coupled with low childhood mortality have had the highest rates of fertility decline within the last decade.

Mortality during childhood (ages 0-5) is a key indicator of a country's socio-economic well-being and is useful indicators for assessing progress in overall national development. A recent review of status of MDG indicates that Tanzania is among the countries in sub Saharan Africa that have made insufficient progress towards the achievement of mortality related indicators (MDG 4). However,

the country has made progress in bridging the gap in childhood mortality between the poor and the wealthiest groups and between urban and rural areas. However, mortality remains by level of education and region of residence.

Although there has been significant progress made towards improving child mortality in the country; there are important secular trends that have occurred across different groups. Infant mortality continues to be lower in the northern regions of Arusha and Kilimanjaro but high in the Southern and Western parts of the country. It is important to note that regions with the lowest childhood mortality rates have also the lowest fertility levels indicating that it is important to bring down the levels of childhood mortality before initiating rapid fertility decline.

International migration contributes little to population change in Tanzania. An initially high rate of inflow was contributed by refugees into Tanzania from the southern part of Africa. The peak in migration to Tanzania occurred again 1990-1995 due to refugees in western part of Tanzania from troubled neighbours of Burundi and Rwanda. It is estimated that there will be net outflow from Tanzania to other countries. However, data and information on the nature of international migration particularly the effect of economic and social remittances are still scanty. Tanzania as in many other countries in sub Saharan Africa does not have sufficient data on international and internal migration. Evidence available indicates greater rural to urban migration with rural to rural more confined to within region and neighborhood migration. Census data do not allow for estimation of circular migration which is thought to be rampant in this region in Africa.

The country now experiences rapid urbanization process particularly in Zanzibar where nearly half of the population is now living in urban areas. The rapid growth rate occurred in the 1967-1978 period. This growth rate subsided to about 5 percent in the recent decade with Zanzibar having slightly lower growth rate. There are five sources of urban population growth namely: rural-to-urban migration; increase in the number of urban centres over space and time; natural urban increase; expansion of urban boundaries or reclassification of urban centres; and daily commuters. Daily commuters, is hardly captured in population censuses but they increase the daytime population of urban areas.

The structure and dynamics of population in Tanzania have several implications on development. As population grows, so does the demand for resources. Rapid population growth of this magnitude results in increased social expenditures such as education and health thereby diminishing investment in other critical development sectors such as agriculture, science technology and infrastructure. Between 650,000 and 750,000 persons are being added to the labour force annually and about 2.3 million persons have remained jobless particularly women.

If the current population increases doesn't change by 2025 the renewable water resources per capita shall be 1405.3 cubic metres which is below the threshold of 1667cubic meters while available cropland per capita in hectares shall be about 0.16 hectares which is below the threshold level of 0.21 hectares. In terms of primary education, an average of 11,589 teachers per annum will be required between 2015 and 2020. Similarly, an average of 8,924 teachers per annum will be needed between 2020 and 2025. To achieve this requirement for teachers implies expanding the teacher training institutions to meet the number required annually.

Trends in components of population change in the country have a number of implications for growth and development. This demographic change brings economic opportunity that occurs

only once in a limited amount of time. Studies show that the demographic bonus brought about surging youth population will not automatically occur without the active commitment of a government to design and implement appropriate policies and programmes. The utilization of demographic bonus is associated with: (i) existence of a large and high quality base of human resources, (ii) a stable population with strong growth of employment, and (iii) high saving and investment rates. These factors largely contributed rapid economic growth of South Korea and the other "Asian Tigers". The key factors that are considered crucial in gaining demographic bonus include; making investments in health, education, and family planning. Thus the need to: address high fertility by providing family planning services; expand opportunities for higher education particularly for women and in rural areas; critically review the quality of education, including vocational skills essential for technological change as well as ensuring that educational provision is aligned with and tailored to the needs of both the local and global economy.

As a core component of demographic transition, urbanization is inevitable and managing its trends and patterns constitute a major challenge as well as opportunity. Urban population is growing very fast while the economic growth and development transformations necessary to support it and enhance quality of life are not occurring at the same rate. Despite this fact, studies show that if cities are well managed then they can offer important opportunities for economic and social development. Since cities have always been centres for economic development and innovation. The high population density in urban areas can enable governments to easily deliver essential infrastructure and services at relatively low cost per capita. Urbanization is part of demographic transition and the transformation of a society from high to low birth and death rates. Therefore planning and managing urban growth as part of national development planning, can enable the country to address the challenges and harness opportunities linked to efficiency in provision of needs and lowering of resource scarcity threats associated with high population growth rate.

Acknowledgement

1. Background

The relationship between population growth and economic development has long been debated ever since Malthus in the 18th century. In the mid 20th century when it became clear that rapid increase in the populations of the developing countries had started; several authors highlighted the potentially negative impact of continued rapid population growth (Coale and Hoover 1958; Ehrlich 1968, 2008). Nevertheless, others have argued that technological advances and institutional development could counter negative effects of rapid population growth on development (Kuznets 1967; Boserup1981; Simon 1981).

The debate has revolved around two fundamental Issues. First, to what extent is a larger population good or bad for human development and welfare (Birdsall and Sinding, 2001; Kelley, 2001) and secondly how does population growth respond to changing economic conditions (Kremer, 1993, Wang et al., 1994). Cohen (1995) review on human carrying capacity noted the continuing lack of scientific consensus on the subject. The Royal Society, (2012) review of these debates indicates that economic development and the demographic change are interlinked. In the process of demographic transition, different challenges and opportunities do exist. Bloom and Canning, (2001) noted the need to assess the economic consequences of a growing population by considering the feedback effects of tighter resource scarcity. Secondly, these debates have ignored the effect of changing age structure as well as population dynamics (African Development Bank and UNFPA, 2005). The changing age distribution is equally important as population growth because each age group in a population behaves differently, with distinct economic consequences (UNFPA 2012). Therefore, the effects of changing age structure must be factored in any analysis of economic and human development relationships.

Despite the debates, many poor nations especially in sub Saharan Africa (Tanzania included) are still struggling to meet the needs of rapidly growing populations amid huge disparities between the rich and the poor (Zuberi and Thomas 2012). In addition, more people are vulnerable to food insecurity, water shortages, and weather-related disasters thus undermining their welfare. For Tanzania, despite having achieved relatively high economic growth (GDP increasing from 1.6% in 1992 to 7% in 2007) little has changed in terms of human welfare (URT, 2011). The country 2010 MDG report further indicated low reduction in poverty and skewed distribution of wealth.

Figure 1.1 shows a summary of the interrelationships between population and socioeconomic variables based on various debates. However this simple relationship has been criticized because the interrelationships are more complex involving several processes within sub systems and feedbacks. In addition, it lacks socio-cultural systems governing relationships within and among groups of social actors and its implications in the general welfare of individuals. Secondly, a key objective of the Tanzania Development Vision (TDV) is enhancement of the wellbeing of the population of United Republic of Tanzania. Such objective is achieved through sustainable development, the broader and more comprehensive concept of development that was adopted by the Brudtlandt Report of 1987. Economic development, social development and environmental protectionare the key components or pillars of sustainable development.[1] Sustainability implies meeting the

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[1]   See elaboration in 'Sustainable Development Policy and Guide for The EEA Financial Mechanism & the Norwegian Financial

needs of the present population that does not jeopardize the needs of the future population. While wellbeing has traditionally been reflected in the levels of income and access to basic needs, such as food, housing, healthcare, education and employment (socioeconomic outcomes in Figure 1.1); its broader meaning implies meeting the basic human rights of the population. This includes the right to participate in the development process itself. These concerns have been included in both International Conference on Population and Development (ICPD) Programme of Action (PoA) (UNFPA, 2004) and the MDGs (United Nations, 2012). This framework lacks these key areas that are of importance in structural change.

Figure 1.1: A simple framework for economic- demographic interrelationships.
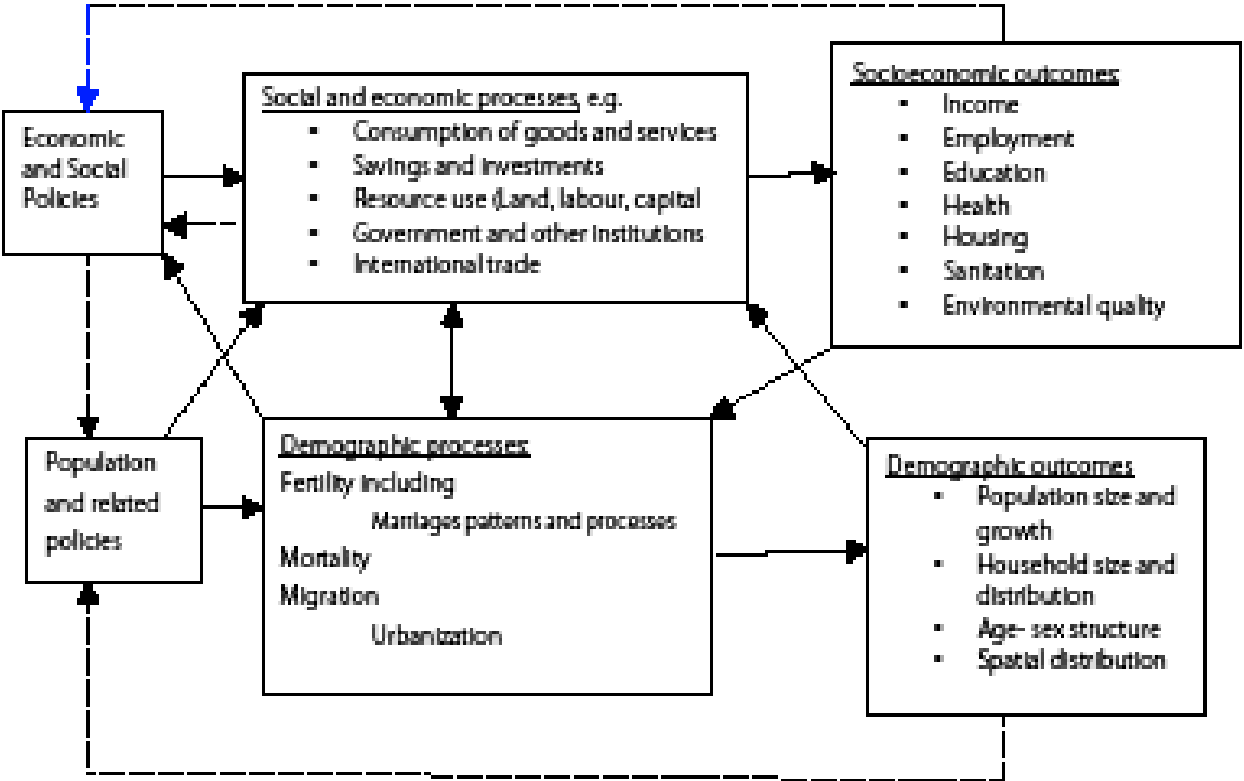
Source: African Development Bank and UNFPA, 2005

However, despite the above criticisms, size, growth, age-sex structure, and location of the population have various effects that are relevant for public policies and decisions (UNFPA, 2010). In order to improve welfare of the people, trends in aggregate characteristics determine the evolution of the target age groups of the main social sectors (education, health, social security, housing, sanitation, etc.). The profiles by age, sex, and location, are of key importance for estimating sectoral requirements and their geographical location. The, size growth, age-sex structure, and location of the population have an impact, through a variety of mechanisms, on fundamental aggregate economic parameters such as investment, savings, consumption, and productivity but these relations are complex. The next chapter examines trends in population size and growth and its implications on social and economic transformation.

2.   Trends Population Size, Growth and Structure

2.1   Population size and growth

The total population of the United Republic of Tanzania according to the 2012 Census is 44,929,002, compared to 34,443,603 in 2002 (see Table 2.1). Population of Mainland Tanzania according to 2012 Census is 43,625,434 (compared to 33,461,849 in 2002). This means that the population of Tanzania has grown by 10,485,399 persons or 30.4% since 2002. This translates into a rate of growth of 2.7 percent per annum for Tanzania during the intercensal period 2002-2012, compared to 2.9 percent per annum in the previous period (1988-2002). Several countries in Sub-Saharan Africa share similar (high) rates of growth, at varied population sizes (African Development Bank and UNFPA, 2005 UNFPA 2012, Zuberi and Thomas 2012).

The corresponding population increases since 2002 for Tanzania Mainland and Zanzibar are 10,163,585 (30.4%) and 321,814 (32.8%) respectively. These represent a growth rate of 2.7 percent and 2.8 percent per annum for the 2002-2012 intercensal period for Tanzania Mainland and Zanzibar, down from 2.9% and 3.0percent per annum respectively during the previous period.

The enumerated population in 2012 is about 3 fold that of 1967. The current average annual growth rate of 2.7 percent per annum translates to about slightly over 1.2 million people per year. The patterns of population growth for URT is similar to that of Tanzania mainland, however, Zanzibar which initially had a lower growth has in the last decade experienced a higher growth rate. An indicator of the speed of growth is the doubling times[2]. If the current growth rate is maintained then the population for Tanzania Mainland will double in 26 years time (year 2038). The doubling time for Zanzibar is even much shorter (24 years).

Table: 2.1: Trends in population size and growth, 1967-2012

Tanzania	Census year				
	1967	1978	1988	2002	2012
Total Population	12,313,469	17,512,610	23,095,882	34,443,603	44,928,923
Intercensal Increase		5,199,141	5,583,272	11,347,721	10,485,320
Size relative to 1967(1967=100)		100	142	188	280
Average annual growth rate (% p.a.)		3.2	2.77	2.85	2.66
Doubling time (years)		21.7	25.0	24.3	26.1
Tanzania Mainland					
Total Population	11,958,654	17,036,499	22,455,207	33,461,849	43,625,354
Intercensal Increase		5,077,845	5,418,708	11,006,642	10,163,505
Size relative to 1967(1967=100)		100	142	188	280
Average annual growth rate (% p.a.)		3.22	2.76	2.85	2.65
Doubling time (years)		21.5	25.1	24.3	26.1
Zanzibar					
Total Population	354,815	476,111	640,675	981,754	1,303,569
Intercensal Increase		121,296	164,564	341,079	321,815
Size relative to 1967(1967=100)		100	134	181	277
Average annual growth rate (% p.a.)		2. 7	3.0	3.1	2.8
Doubling time (years)		26.0	23.3	22.7	24.4

Source: National Bureau of Statistics (NBS) and Office of Chief Government Statistician (OCGS), Zanzibar 2013

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2   The doubling time – the time (in years) it takes for the population to double its size at current growth rates

2.2   Age-Sex Structure

The age structure of a population is simply the distribution of the relative sizes of various age groups in the population of a region, country, or the world. The population pyramid shown in Figure 2.1 has remained fairly broad-based because of high growth rates. This general structure implies a youthful population with about half of the total population under 17.5 years (median age).

Figure 2.1: Population Pyramid (Five-Year Age Groups) – Tanzania Mainland, 2012 Census

Figure 2.2 shows trends in distribution of population by age since 1978. The proportion of children (population under age 15) declined from 46.1 per cent in 1978 to about 44.0 per cent in 2012. The share of the youth (aged 15 to 24) has remained just at about one fifth of the total population. As a result of high birth rates in the last 2 decades and declining mortality in the early part of 1980s, the population of working age-group 25-64 has been increasing while the proportion of the elderly has remained at just below 4.0 per cent since 1978.

Figure 2.2: Past Trends in share of age groups to total population
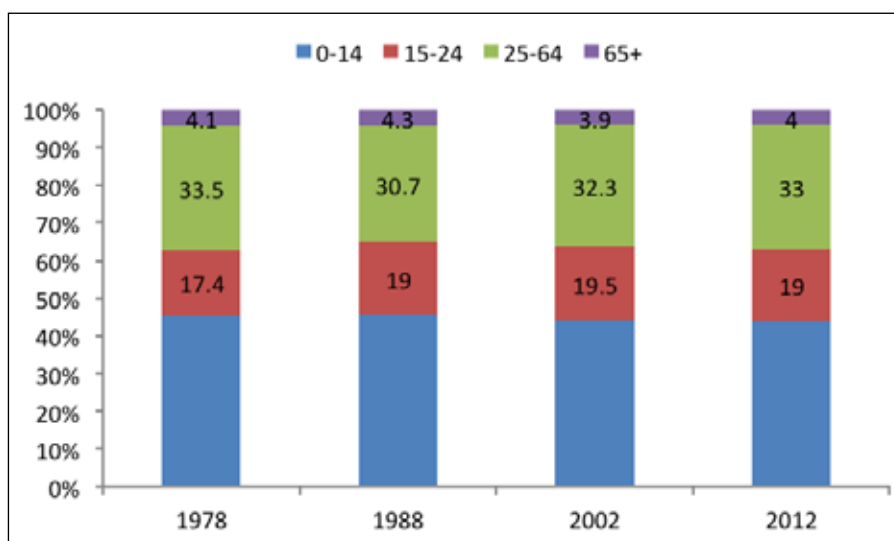
National Bureau of Statistics (NBS) and Office of Chief Government Statistician (OCGS) Zanzibar. 2013

2.3   Implications of changing age structure

2.3.1 Age dependency

The changing age structure has implications for future. Changes in the size, age structure and location of the population have direct implications for the level and redistribution of economic resources. This is because population constitutes the human capital and defines its potential labour supply while from an economic point of view; the working population is a factor of production and its aptitude and skill level contributes to the productivity of the national economy. Trends in ratio of working age population (age 15-64) relative to non-working age population (also called age dependency ratio) are shown in Figure 2.3. It is expressed as number of dependents per 100 working age population. The age-dependency ratio is a proxy indicator of the economic burden and responsibility borne by the working age population. Age dependency ratios of 100 and above are undesirable. The trend data indicates improvement in potential burden for workers particularly in Zanzibar. The declining dependency is an opportunity created by increased proportion of working age population and declining proportion of children in the population as shown in Figure 2.2.

Figure 2.3: Trends in Age Dependency Ratio,
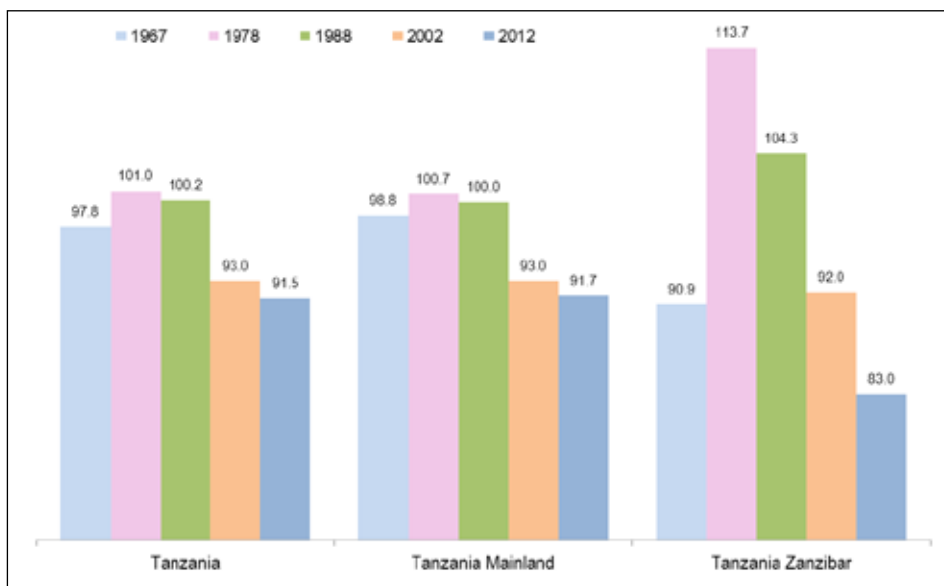
Source: National Bureau of Statistics (NBS) and Office of Chief Government Statistician (OCGS) Zanzibar. 2013

2.3.2 Youth

A notable feature of the age structure is the increasing population of youth aged 15-24. When the youth proportion reaches at least 20 percent of total population or 30 percent of adult population then the country is said to experience "youth bulge" (Urdal, 2006, UNFPA, 2010). Trends in the proportion of youth to total population and youth to working population are shown in Figure 2.4 for Tanzania. The "youth bulge" results from a transition from high to low fertility about 15 years earlier (Westley and Choe, 2002). It consists of large numbers of adolescents and young adults who were born when fertility was high followed by declining numbers of children born after fertility has declined. Tanzania begun to experience bulge in the youth population in the 1980s and can either be a source of economic transformation and development or a conflict risk factor (UNECA, 2013).

Figure 2.4: share of youth population to total and working population
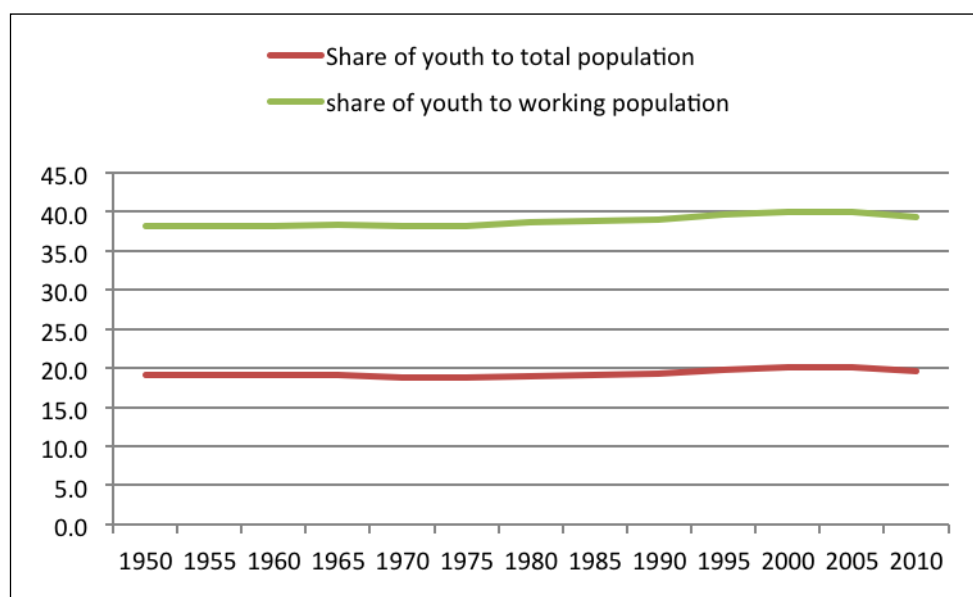
Source: generated from World Population Prospects: The 2012 Revision,
http://esa.un.org/unpd/wpp/index.htm

The youth bulge can produce a "demographic dividend[3]" (Mason 2008; Mason et al 2003, Gribble, 2012) which arises when a country is dominated by a working age population resulting in a low dependency ratio (Mason 2008; Mason et al 2003). The reduced population pressure enables a country to increase savings and investments towards improved economic growth, if the country improves the quality of labour by investing in education, and modernizing agriculture (Gribble, 2012).

However, large youthful populations have been observed to have certain consequences if not harnessed. First, youth populations are just at the beginning of childbearing and are mainly responsible for population momentum. The fertility decisions that young people make shall determine future birth rates. Some studies indicate that 'youth bulges" could be associated with high risk of outbreaks of civil conflicts (Cincotta, 2005; Cincotta, et al., 2003, Urdal 2006; Urdal 2007). Urdal and Hoelscher (2009) indicated that in countries where youth make up to 35 percent of the total adult population, the risk of conflict, *ceteris paribus*, increases by 150 percent compared to countries where youth make up only 17 percent of the adult population. Cincotta, et al., 2003 reported that between 1970 and 1999, 80% of civil conflicts occurred in countries where 60% of the population or more were under the age of thirty (Cincotta, et al., 2003).

2.3.3 Elderly Population

According to most recent census, the population aged 60 and above are about 2.5million of which 1.2 million are males and 1.3 million females respectively. The elderly population constitutes 5.6 percent of the total population. The proportion of persons aged 60 and above have been declining marginally in Tanzania, however, the decline in Zanzibar is substantial. The decline however masks the annual increase in absolute numbers and rate of growth. Secondly, there are wide regional differentials in the proportion of the elderly population.

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[3] Sometimes referred to as demographic bonus or demographic window of opportunity (Mason 2008; Mason et al 2003)

Figure 2.5: Trends in Population Aged 60 Years and Above as a Percentage of Total Population 1988-2012
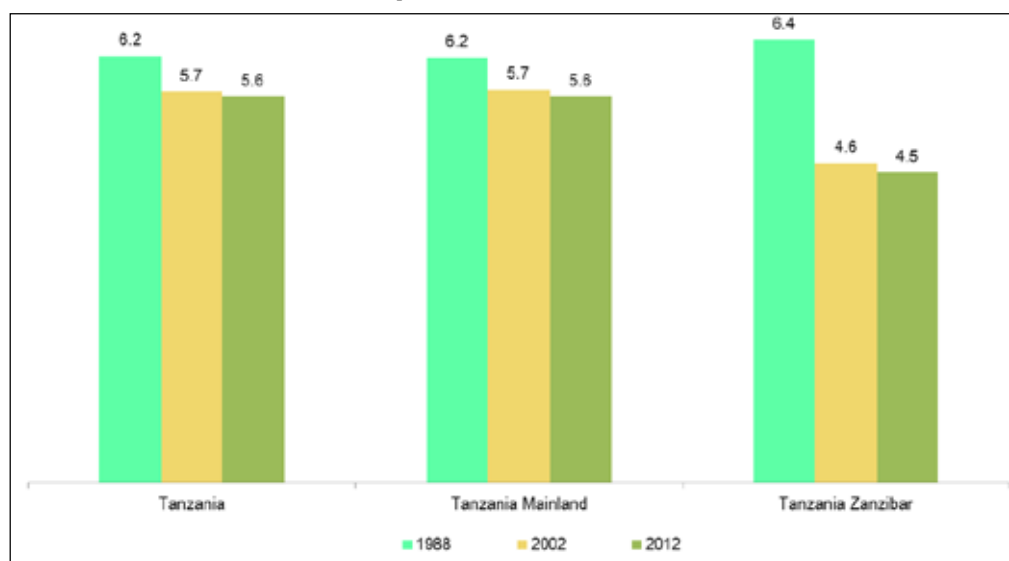
Source: National Bureau of Statistics (NBS) and Office of Chief Government Statistician (OCGS) Zanzibar. 2013

Kilimanjaro region had the highest proportion (9.7 percent), followed by Mtwara (9.5 percent), Lindi (9.0 percent) and Pwani (8.5 percent). While Dar es Salaam and Mjini Magharibi had the lowest proportion of elderly population at 3.5 percent and 3.6 percent respectively. Kilimanjaro, Mtwara, and Pwani can be considered as aging regions since the aging index[4] is already beyond 20 percent. For example in Kilimanjaro the aging index is about 26 showing that for every 100 persons aged below 15, there are 26 older adults aged 60 and above.

Table 2.2 Proportion of children, elderly to the total population for selected regions

Region	Children (% of total population)	Elderly (% of total population	Aging index
URT	43.87	5.58	12.7
Mainland	43.91	5.61	12.8
Zanzibar	42.5	4.5	10.6
Dar	31.6	3.5	11.1
Kilimajaro	37.8	9.7	25.7
Mtwara	38.5	9.5	24.7
Kusini Unguja	38.6	5.3	13.7
Lindi	39.3	9	22.9
Mjini magharibi	39.8	3.6	9.0
Pwani	39.9	8.5	21.3
Morogoro	41.3	6.3	15.3
Arusha	41.7	4.7	11.3
Simiyu	51.3	4.7	9.2
Geita	50.5	3.7	7.3
Rukwa	50.5	3.9	7.7
Mara	49.6	5.1	10.3

Source: National Bureau of Statistics (NBS) and Office of Chief Government Statistician (OCGS) Zanzibar. 2013

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4   Aging index (elder-child ratio) is defined as the number of elderly persons per 100 persons aged below 15.

According to *HelpAge* international[5], Tanzania ranks 90 globally in the welfare of the elderly population-the lowest in the Africa region. The worst ranking is income security where pension coverage is 3.2% and high relative old age poverty rate of 33%. In the health domain, however, Tanzania ranks third highest in the region, at 73, after Mauritius and Ghana, with a life expectancy and healthy life expectancy at age 60 of 17 and 14 years, respectively. Tanzania ranks 88 in the employment and education domain because of very low share of older who have secondary or higher education (3.1%). About 94% of older Tanzanians remain employed.

2.3.4 Possibilities for Demographic Dividend

Figure 2.6 presents estimated and projected growth rates of effective producers and effective consumers, with the latter dominating the former until the 1980s. The growth rate of effective producers peaked at 3.5 percent between 1985 and 1990. The two periods represent the periods of highest growth. Between 2000 and 2005, fertility decline stalled while both childhood and adult mortality surged creating a 'plateau' in growth rate of consumers as well as decline in growth rate of effective producers. This may have been partly due to the impact of HIV and AIDS which often affected society's most productive members. The growth in effective producers will peak again at about 3.1 percent between 2025 and 2030.The difference between the growth rates of effective producers and that of consumers determines the population window of opportunity which is likely to be experienced between 2020 and 2050. This is an opportunity that must be harnessed.

Figure 2.6: growth rate of working and non-working population
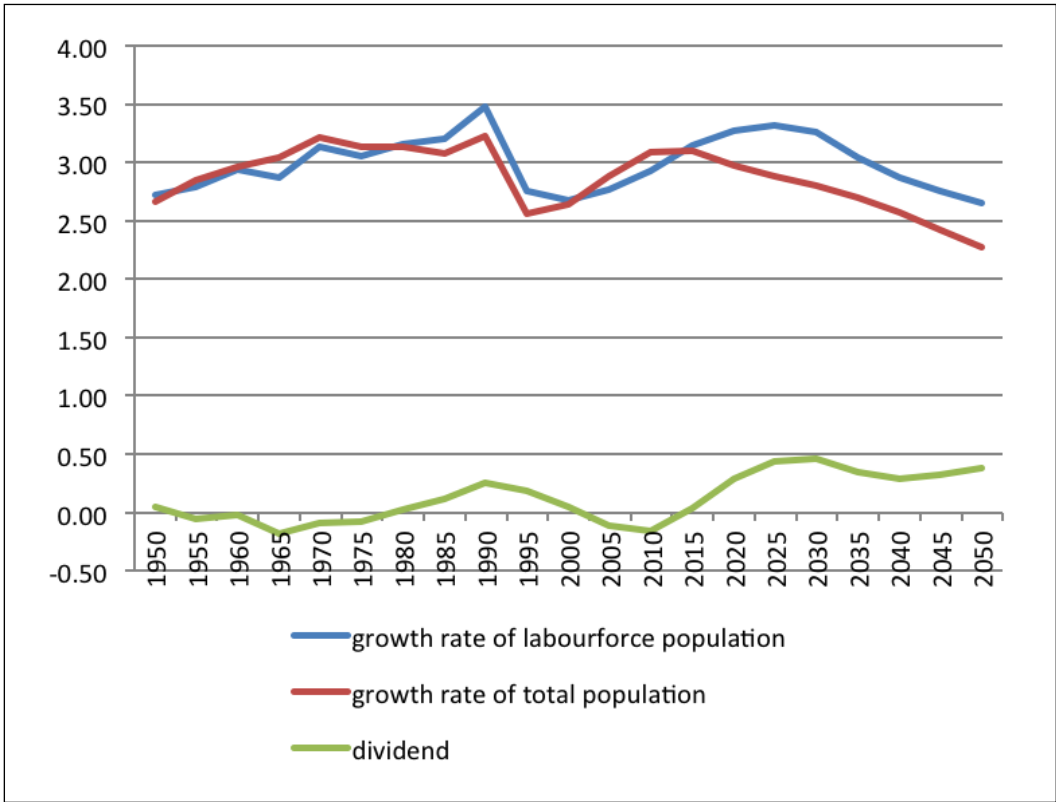
Source: computed from Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2012 Revision, http://esa.un.org/unpd/wpp/index.htm

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[5]   AgeWatch report card: United Republic of Tanzania 2013. http://www.helpage.org/global-agewatch/population-ageing-data/country-ageing-data accessed 13/11/2013

2.4 Implications for social and economic transformation

Changes in age structure have potentially very important implications for macroeconomic performance. The most direct and important link between population dynamics and economic and social development is the labour markets. For countries with a rapidly growing youthful population (such as Tanzania) to seize the potential demographic bonus, they must create sufficient and sufficiently productive and remunerative employment opportunities for their labour force (UNFPA, 2010).

The relatively high growth rate of population of Tanzania is likely to impede economic transformation. This is because resources are likely to be spent on the growing large children population. Secondly, the changing age structure has economic growth potential due to the continued decline in age dependency ratios as well as the potential from gaining from demographic dividend.

However, these potential gains are policy dependent. The economic gains from the changing age structure can be realized only if employment opportunities expand as rapidly as the numbers seeking new jobs. Bloom et al., (2007) argues that, two major factors will determine Africa's future economic growth prospects: growth in the working-age share of the population and institutional quality. The institutional quality implies factors such as; strong rule of law, efficient bureaucracies, government stability, lack of corruption, and a stable business environment that encourages domestic and foreign investors.

However, the final long term question needs some foresight. As the country seeks to harness the bonus from the youth bulge, it is time to consider the flip side – the elderly population. Are the socio-economic policies integrated enough to navigate the country through the youth bulge while at the same time anticipating the ageing process that will inevitably ensue. Already, there are regions namely; Kilimanjaro, Mtwara and Pwani that have begun experiencing population aging arising from declining fertility and mortality levels and perhaps high rate of out migration to other regions.

3. Components of Population Growth

3.1 Natural rate of increase

The major source of population increase in Tanzania is the declining mortality rates and high birth rates (see Figure 3.1). Data from the various censuses show that the effect of international migration on Tanzanian population change at national level is minimal (see also Figure 3.12b). Trend data is indicative that Tanzania is at the second stage of demographic transition (see appendix 2 for description) where birth rates are still high and death rates have begun to fall markedly. Typically Tanzania is still in phase of stylized demographic transition according to Eastwood and Lipton (2011).

Figure 3.1: Trends in birth and death rates
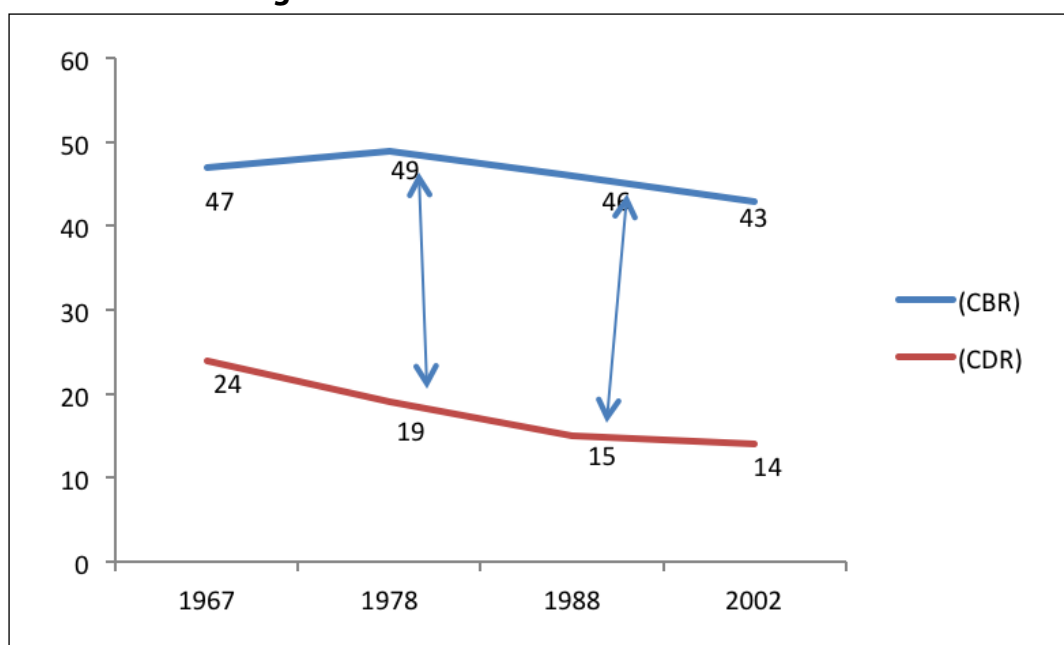
Source: National Bureau of Statistics (2006).

3.2 Fertility

Fertility is one of the components of population change, alongside mortality and migration. Fertility analysis is therefore important for understanding past, current and future trends in population size, composition and growth. Population growth rates in developing countries are largely driven by levels of fertility. A better way to present fertility trends is to use total fertility rates rather than crude birth rates since crude birth rates are affected by age structure and contains in the denominator a sizable proportion not at risk of giving birth. The general trend (see Figure 3.2) shows that TFR has continuously declined from 6.3 in 1990s to 5.4 in 2010. Between 1996 and 2010, fertility declined by about 14 percent. Analysis of trend data indicate remarkable decline between 1991 and 2000 followed by a stall in decline between 2000 and 2004. After 2005, there was a further marginal decline by about 5.3 percent.

Figure 3.2: trends in total fertility rates
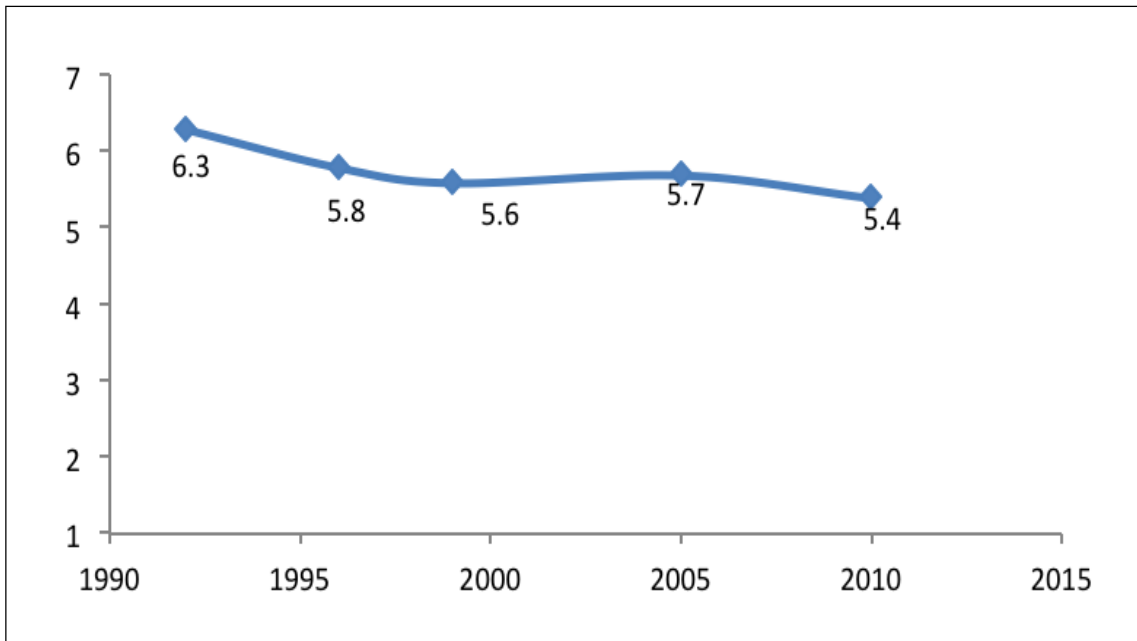
Sources: Tanzania Demographic and Health Surveys, 1991/92, 1996, 2004–05 and 2010.
Tanzania Reproductive and Child Health Survey, 1999.

Trends in age specific fertility rates (Figure 3.3a to 3.3b) show that fertility levels mainly declined among the older women aged 35 and above. However, for younger women in age groups 20-24 and 25-29 fertility fluctuated and sometimes increased, with no significant change since 1996. The peak age at childbearing is still age group 20-24 with unchanging levels of birth rates.

Figure 3.3a: Trends in age specific fertility rates.
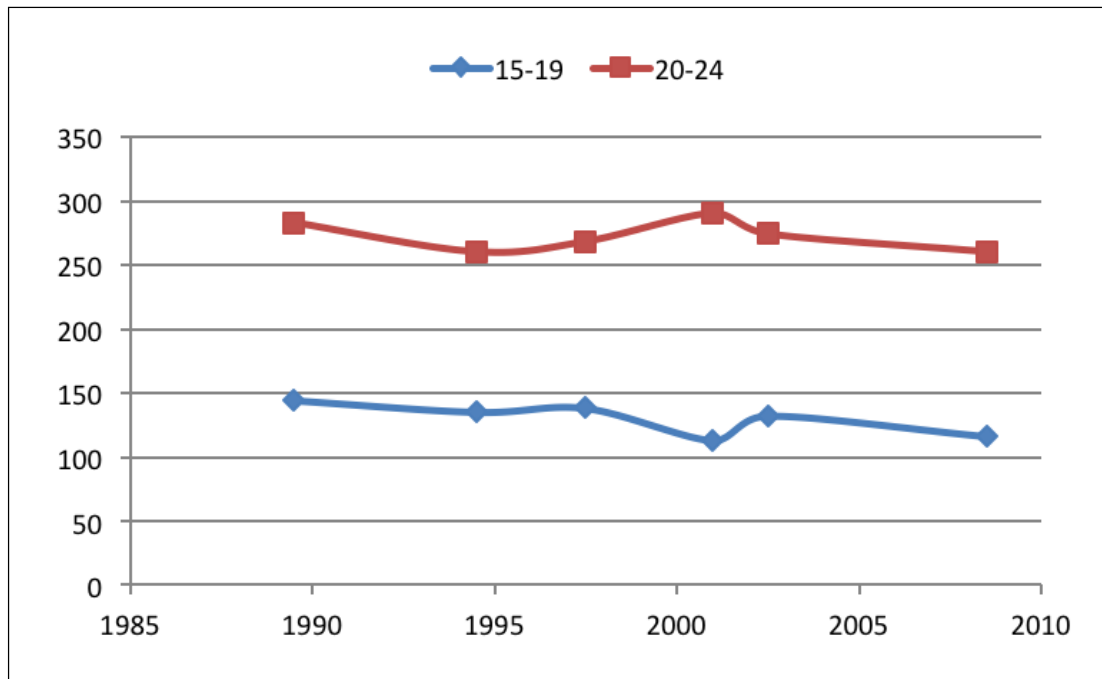
Figure 3.3b: Trends in age specific fertility rates (age group 15-24)
Sources: Tanzania Demographic and Health Surveys, 1991/92, 1996, 2004–05 and 2010.
Tanzania Reproductive and Child Health Survey, 1999.

Figure 3.3c Trends in age specific fertility rates (age group 25+)
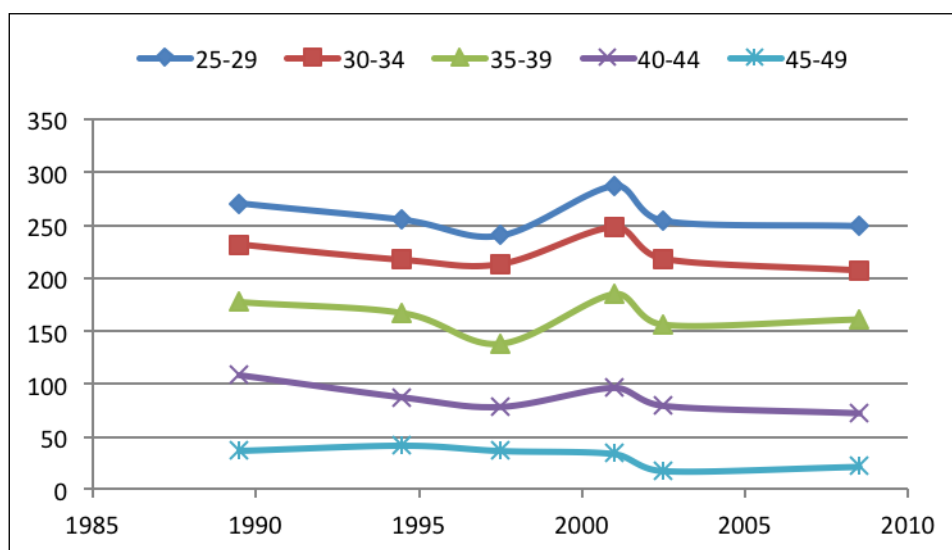
Sources: Tanzania Demographic and Health Surveys, 1991/92, 1996, 2004–05 and 2010.
Tanzania Reproductive and Child Health Survey, 1999.

Contribution of adolescent fertility to overall fertility marginally changed from about 12 % in 1991 to 11 percent in 2010 (Figure 3.4). Contribution of older women to overall fertility declined from 11 percent to 9 %. Youth aged 15-24 contribution marginally increased from 34 % to 35 % while half of total births contributed by women age 20-29.

Figure3.4: Share of births contributed by age groups to overall fertility

Sources: Tanzania Demographic and Health Surveys, 1991/92, 1996, 2004–05 and 2010.
Tanzania Reproductive and Child Health Survey, 1999.

3.2.1   Regional Differentials in fertility levels

Fertility in Tanzania varies substantially by residence, region, education levels and wealth quintile. Trends from the demographic health survey data between regions is shown in Figure 3.5. In the 1990s, Kilimanjaro region had the highest fertility rate reaching TFR of 8.9 followed by Shinyanga

(8.7) and Mwanza (8.1) and lowest in Dar es Salaam (5) and Mtwara (5.7). The gap between the highest and lowest was about 3.9. In 2004/5 with comparable data, highest fertility was in Mara (5.9) followed by Shinyanga (5.6) Kigoma (5.5) and lowest in Dar (1.9), Mtwara (3.1) Arusha and Kilimanjaro (3.4) respectively. Gap between the lowest and highest remained at 4.0.

Figure 3.5: Box plots[6] of regional fertility levels

Sources: Tanzania Demographic and Health Surveys, 1991/92, 1996 and 2004–05.
Tanzania Reproductive and Child Health Survey, 1999.

Tanzania Demographic and Health Survey 2010 showed that fertility level in rural areas was 1.65 times that of urban area. The disparities in fertility between these two areas were attributed to differences in literacy levels, rate of urbanization and uptake of contraception. Fertility is lowest in eastern zone and highest in Lake Region.

3.2.2 Socioeconomic Differentials in Fertility

Studies have consistently showed that education levels of women are negatively associated with fertility (Askew et al., 2009; Westoff & Cross, 2006; Bledsoe, 1999). Other factors are place of residence and wealth Index. Table 3.1 shows trends in fertility levels by socio economic characteristics of the respondents. The largest decline in fertility has occurred among women living in urban areas, with secondary education and women living in higher wealth quintile households. A noticeable fact is the apparent increase in fertility among women with lower education and in second quintile households. Between 1996 and 2008, fertility decline stalled in Tanzania rural areas (Garenne 2011) and this could explain the stall in decline between 2000 and 2004 and the modest decline at national level after 2004. However, if fertility stalls last longer, they could have serious consequences for long-term demographic dynamics, especially when they occur at relatively high levels of fertility (Garenne 2011).

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6   A box plot summarizes the distribution of a variable. The box is a rectangle, the top and bottom of which mark the 75th and 25th percentiles, respectively, with the median observation (in this case, the median county) as a cross-bar within the box. The "whiskers" for each box are the lines protruding above and below, and indicate the range of the data above and below the upper and lower quartiles.

Table3.1: Trends in Total fertility rate by background characteristics

Background Characteristic	Survey Year			Percent change 1996 - 2010
	1996	2004/5	2010	
Residence				
Urban	4.1	3.6	3.7	9.8
Rural	6.3	6.5	6.1	3.2
Education				
No education	6.4	6.9	7.0	-9.4
Primary incomplete	5.9	5.6	6.0	-1.7
Primary complete	5.4	5.6	5.5	-1.9
Secondary +	3.2	3.3	3.0	6.3
Wealth				
Lowest	7.8	7.3	7.0	10.3
Second	6.0	6.7	6.8	-13.3
Middle	6.4	6.6	6.1	4.7
Fourth	5.4	5.3	4.7	13.0
Highest	3.9	3.3	3.2	17.9

Sources: Tanzania Demographic and Health Surveys, 1991/92, 1996 and 2004–05.
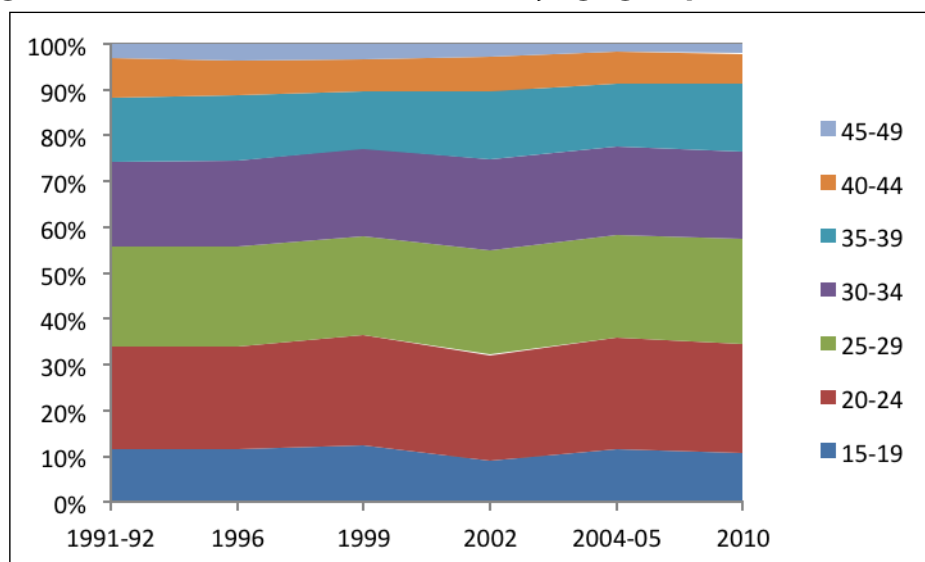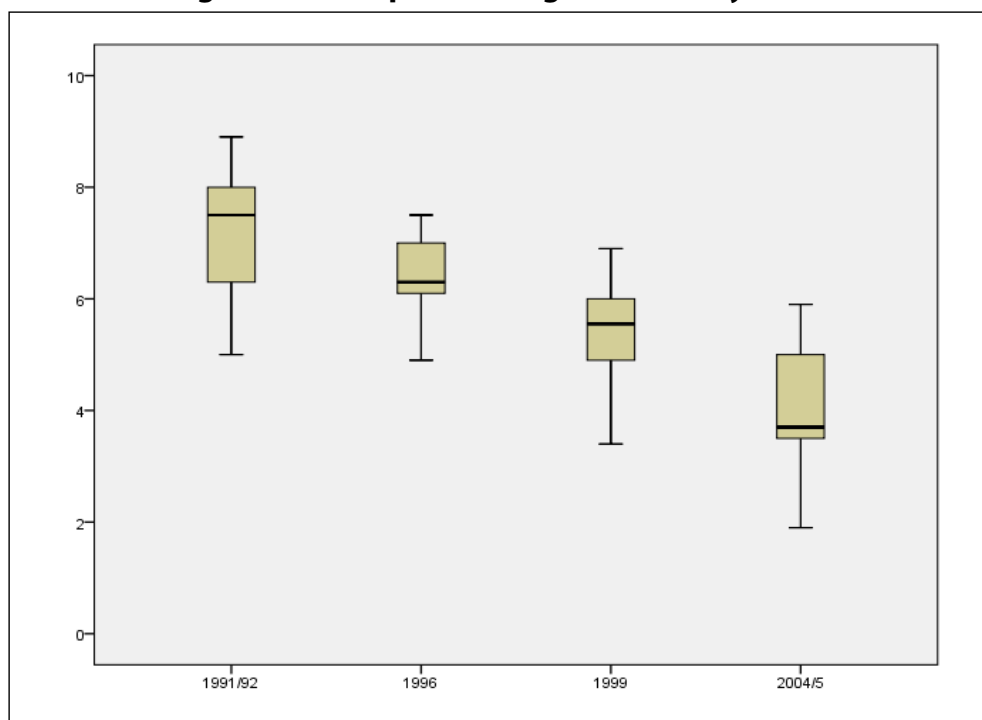Tanzania Reproductive and Child Health Survey, 1999

3.2.3 Determinants of Fertility

Proximate Determinants of Fertility

Bongaarts (1978) indicated that four factors account for most of the differences in fertility levels across societies - marriage, contraceptive use, induced abortion, and duration of breastfeeding. However these factors are affected by complex processes that involve changes in demand for children, diffusion of new attitudes about birth control and greater accessibility to contraception provided by family planning programmes (Cleland and Wilson, 1987; Freedman and Freedman, 1992).

The observed fertility patterns are influenced by proximate and socioeconomic determinants of fertility. The proximate determinants of fertility are the biological and behavioral factors through which socioeconomic and environmental variables operate to influence the rate of childbearing in a population (Bongaarts 1987).

These proximate determinants can be classified into two broad categories: fertility-enhancing trends (shortening of breastfeeding and postpartum abstinence, decline in pathological sterility) and fertility-reducing trends (rise in age at first union, higher prevalence and effectiveness of contraception) (Bongaarts, Frank, and Lesthaeghe, 1984). Where fertility reduction is most pronounced, there is evidence that fertility-reducing variables such as age of marriage have risen (Cohen 1998) but where fertility transition is more advanced indicates that contraceptive use is by far the most important factor accounting for inter society differences (Kirk and Pillet 1998).

The Bongaarts model summarizes the effect of each of the proximate determinants of fertility using individual indices that range from 0 to 1, with 0 indicating the greatest possible inhibiting effect on fertility and 1 indicating no inhibiting effect. The indices measuring the effect of marriage

(Cm), contraception (Cc), postpartum infecundability[7] (Ci) and abortion (Ca) respectively. Table 3.2a shows trends on the effect of each of the proximate determinants derived from 1996 DHS and 2010 DHS. In 1996, breastfeeding had the greatest inhibiting effect but has declined in 2010. The effect of contraception has increased by about 19 %. This implies that one of the most important factors influencing fertility change in recent times is the use of contraception. However, it should be noted that the effect of breastfeeding is declining and hence use of contraception must be increased to in order to arrest the declining role of breastfeeding.

Table 3.2a: trends in Indicators proximate determinants (Bongaarts Model)

Indexes	1996	2010	Ratio	% change
Cm	0.666	0.633	0.95	5.0
Ci	0.585	0.669	1.14	-14.4
Ca	0.925	0.915	0.99	1.0
Cs	1.017	0.998	0.98	1.8
Cc	0.825	0.672	0.81	18.6

Source: Computed from1996 TDHS and 2010TDHS

Table 3.2b shows the effect of proximate determinants on fertility by region. In all the areas the effect marital union has the greatest effect however, marital union is more pronounced in urban areas and Zanzibar. The depressing effect of marital union is determined by entry into marriage, relative marital stability. Where either there is late entry into marriage or higher frequency of infecundability is greatest in rural areas this is due to prolonged breastfeeding and sexual abstinence after child birth. In all the areas the effect of contraception is the same. The declining incidence of sterility (Cs) acts in the opposite direction by increasing fertility rate.

Table 3.2b: Differentials in the effect of Proximate Determinants

Indexes	Mainland Tanzania	Zanzibar	Urban	Rural
Cm	0.635	0.550	0.548	0.666
Ci	0.667	0.743	0.760	0.645
Ca	0.915	0.915	0.915	0.915
Cs	1.013	1.021	0.990	1.013
Cc	0.666	0.674	0.670	0.665
Model TFR	5.034	4.963	4.873	5.099

Source: Computed from2010TDHS

Factors influencing Fertility

The most frequently used model in the explanation of fertility levels, differentials and trends is the socio-economic model. In the early 1980s, the socioeconomic approach to fertility analyses largely assumed that high fertility in Africa is an economically rational response (Caldwell 1982; Stecklov 1999). The core explanation was that there are costs and benefits of having children such as educational costs, benefit from children's work and old-age security. Where these benefits outweigh the costs, fertility levels will be high in such settings. Moreover, fertility levels will change as the relative valuation of these costs and benefits change. It also assumed that there are key socio-economic characteristics that drive these changes in the relative valuation of costs and benefits of having children. The key factors that drive the changes being; women's education, female labour force participation, urban residence, household wealth, cultural norms (often measured by

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[7]   Postpartum infecundability refers to the effect of breastfeeding on the ability to conceive.

religion or ethnicity), and overall levels of social development often measured by region or level of urbanization.

Shapiro and Gebreselassie (2008) suggested that women's education is a key factor that contributes to fertility decline, both directly and via the proximate determinants of marriage and contraceptive use, as well as via the influence it has on infant and child mortality.

Although both within and across countries, differentials and changing fertility patterns have been explained largely as resulting from socio-economic models, some authors indicate that socio-cultural differences among groups is equally important. Patterns of fertility are not just the result of biological processes, but also involve social, cultural and political processes. Makinwa-Adebusoye, (2001) acknowledges some unique aspects of Africa in that it is primarily rural with high fertility supported by pronatalist institutions such as patrilineal descent, patrilocal residence, inheritance and succession practices and hierarchical relations that have remained unchanged for generations. In some religious systems, pronatalism is considered as divine blessing while infertility is considered as a curse which could therefore influence fertility preferences (Ezeh and Dodoo 2001). In a recent review of why fertility decline stalled in Kenya, Westoff and Cross (2006) found a shift towards large fertility preferences among Muslims in Kenya during the stall period. However, the role of independent effect of culture on fertility has largely been unexplored in recent time other that the work of Caldwell in the late 1970s and early part of 1980s. Anthropologists (Kertzer, 1997) criticizes the methods of most demographers, arguing that culture cannot and should not be treated as "just-another-laundry-list-of-variables" which can be analyzed as part of the demographer's standard statistical models of fertility behavior. A number of scholars (Gregson et al. 1999; Agadjanian 2001; Agha et al. 2006) suggest further investigation on the influence of certain Pentecostal movements, on the link between doctrines of these movements and the opposition to modern contraceptive use.

Based on theoretical perspectives that explain fertility levels, differentials and change in societies, the following has emerged as key factors behind fertility change.

(i) _Early Marriage and Childbearing_

One of the indicators of high fertility is continued early childbearing and early marriage. The timing of first union has implications for the organization of the family and gender relations in society (Mensch et al., 2005) because marriage change is also closely linked with social change (van de Walle 1993). Timing of marriage is also of concern because of the potential harm young women face when they get married too early (Singh and Samara, 1996; Zabin and Kiragu, 1998; Mensch et., al., 2005). According to the 2010 TDHS, 23% of young women age 15–19 have already begun childbearing: 17% are mothers, and an additional 6% are pregnant with their first child. Young motherhood is much more common in rural areas than in urban areas. Young women with no education are more than eight times as likely to have started childbearing by age 19 than those who have secondary and higher education (52% versus 6%).

Four in ten women in Tanzania are married by age 18. The median age at first marriage is 18.8 for women age 25–49 compared to men who marry later, at a median age of 24.3. Age at marriage greatly increases with education; women with secondary and higher education get married more than five years later than those with no education (median age of 23.1 years versus 17.7 years for women age 25–49).

Table 3.3: Key marriage indicators

	Total	Urban	Rural
Women age 15–19 who are mothers or currently pregnant (%)	23	15	26
Median age at first marriage for women age 25–49 (years)	18.8	19.8	18.5
Median age at first intercourse for women age 25–49 (years)	17.4	17.8	17.3
Median age at first birth for women age 25–49 (years)	19.5	19.9	19.4

Source: Tanzania Demographic and Health Surveys, 2010.

(ii)   *Contraceptive use*

Tanzania is one the earliest countries in Sub-Saharan African countries to establish Family Planning (FP) Programme[8]. Figure 3.6 shows trends in the use of contraceptives by type between 1991 and 2010. Three distinct patterns can be observed from the CPR trends. The contraceptive prevalence rate (CPR) among married women rose from 10 percent in 1991 to 34% in 2010. However, between1999-2004, CPR leveled off at 26 percent. This has since changed; the Tanzania Demographic and Health Survey (TDHS) 2010 showed a rising trend, with CPR reaching 34 percent for use of any method. The percentage of currently married women using modern method of contraception increased from 7 percent in 1991 to 19 percent in 1999 stalled between 1999 and 2004 but has since increased markedly between 2004 and 2010 from 20 percent to 27.4 percent. The overall increase in contraceptive prevalence rate between1991 and 2010 was largely due to use of modern methods among currently married women. Use of traditional methods has generally remained low at between 4 percent and 7 percent during the period under review.

Figure3.6: Trends in contraceptive use 1991-2010
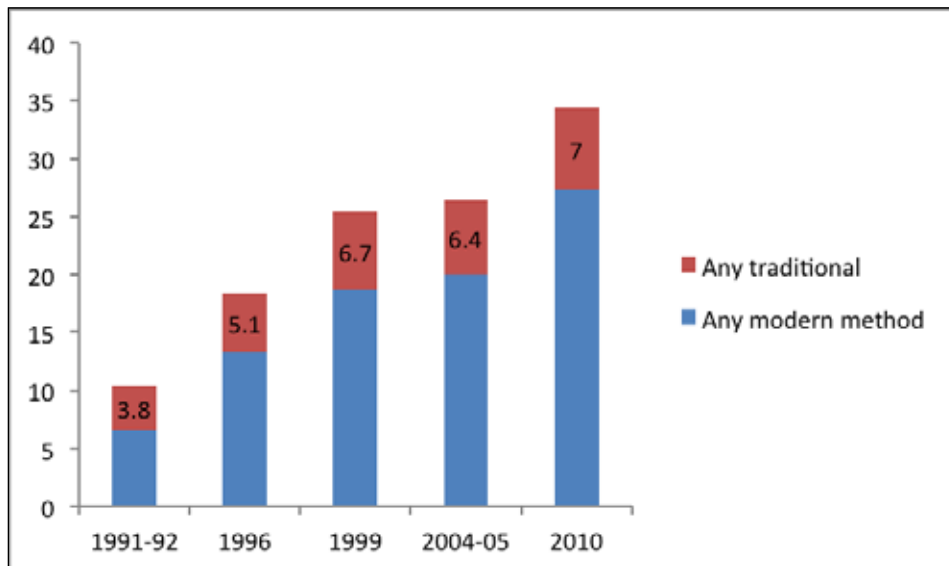
Sources: Tanzania Demographic and Health Surveys, 1991/92, 1996, 2004–05 and 2010.
Tanzania Reproductive and Child Health Survey, 1999

(iii)   *Unmet needs for family Planning*

A remarkable feature in family planning in Tanzania is the extent of unmet need for family planning. Unmet needs for family planning is defined as the percentage of married women who want to

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[8]   Historically family Planning programme was first introduced in Dar es Salaam in 1959 by family Planning Association of Tanzania (UMATI). There after it remained mostly in urban areas until 1974(Mturi and Hinde 2001), It was not until 1989 when the government established national family planning programme(NFPP) in the Ministry of Health.

space their next birth or stop childbearing entirely but are not using contraception. Table 3.4 below shows trends in unmet need for family planning, total demand for family planning and proportion of demand satisfied. Unmet needs have declined marginally from about 28% in 1991 to about 25 percent in 2010. If all women who report wants to use contraception were able to achieve their desire then CPR would have increased from 38 % in 1991 to nearly 60 % in 2010. In particular unmet needs for modern methods have remained at just about 32 % while the percentage of modern methods satisfied has remained below 50 %. This implies that low use of modern methods can be accounted for from the supply side.

Table 3.4: Trends in unmet need and demand for family planning

Year	Unmet need	Current use	Total demand	Proportion of total demand satisfied	Unmet need for modern methods	Current use of modern methods	Proportion of modern methods satisfied
1991- 92	27.8	10.4	38.2	27.3	31.6	6.6	17.2
1996	26.0	18.4	44.4	41.5	31.1	13.3	30.0
1999	22.3	25.4	47.7	53.2	28.9	18.7	39.3
2004 - 05	24.3	26.4	50.6	52.1	30.6	20.0	39.5
2010	25.3	34.4	59.7	57.6	32.3	27.4	45.9

Source: Bradley et al. 2012.

Figure 3.7 shows unmet need by socio economic characteristics. Unmet need is highest among women in living in rural areas or with lowest level of education or in lowest quintile groups.

Figure 3.7: Differentials in unmet need for family planning
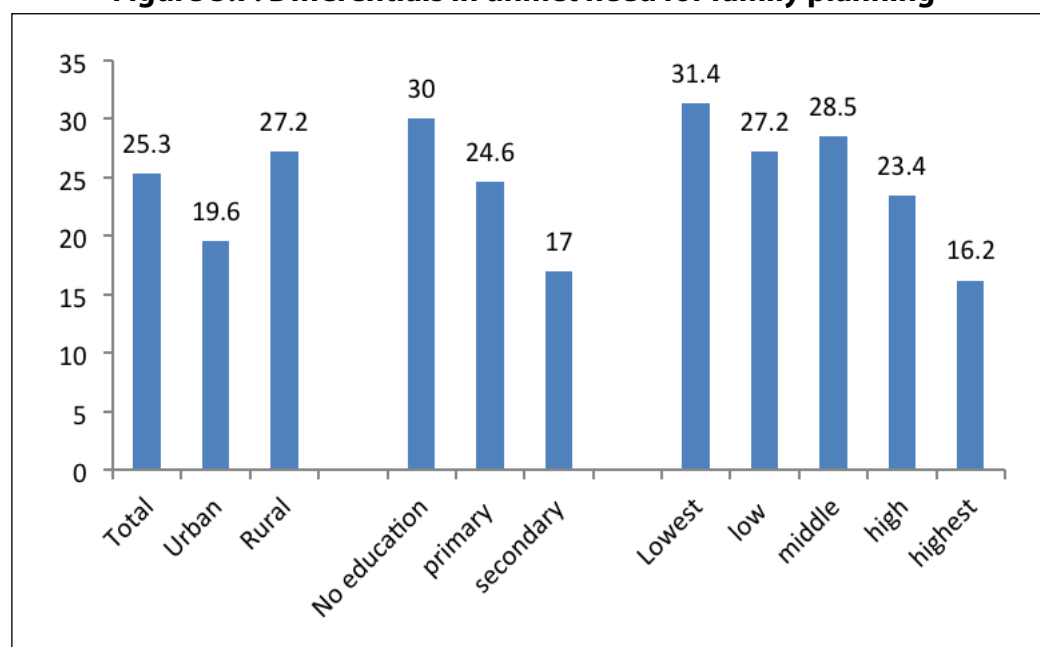
Source: Tanzania Demographic and Health Surveys, 2010.

(iv)   Fertility Preferences – Demand for children

The term fertility preferences refer to the desired number and/or timing of births. In surveys, individual women are often asked the number of children they would like to have in their

lifetime or whether they want additional children beyond what they already have and if so how long they would like to wait for the next birth. Understanding of factors that influence preferences is central to efforts in understanding why contraceptive use varies within and across societies (United Nations, 2000). Past studies have shown the existence of strong associations between the level of contraceptive use and the extent of reproductive preferences (Westoff, 1991; Bankole and Westoff 1998). Westoff (1991) suggested that where contraceptive prevalence is low in relation to fertility preferences, the expansion of family planning services could have a large impact on fertility.

One measure of fertility preference is ideal family size. This is a hypothetical question that is used to estimate preferred family size among men and women. The essential question addressed here is: *What are the levels of mean ideal family size preference and how has this changed overtime?* Figure 3.7 shows trend in ideal family size by sex. There have been declines in ideal family size for both men and women. This gap has been narrowing indicating a convergence in preferences between men and women. During the periods of high fertility men desired larger family compared to women. However, this trend has narrowed and the desired family size is almost similar.

Figure 3.8: Trends in mean ideal family size by sex.
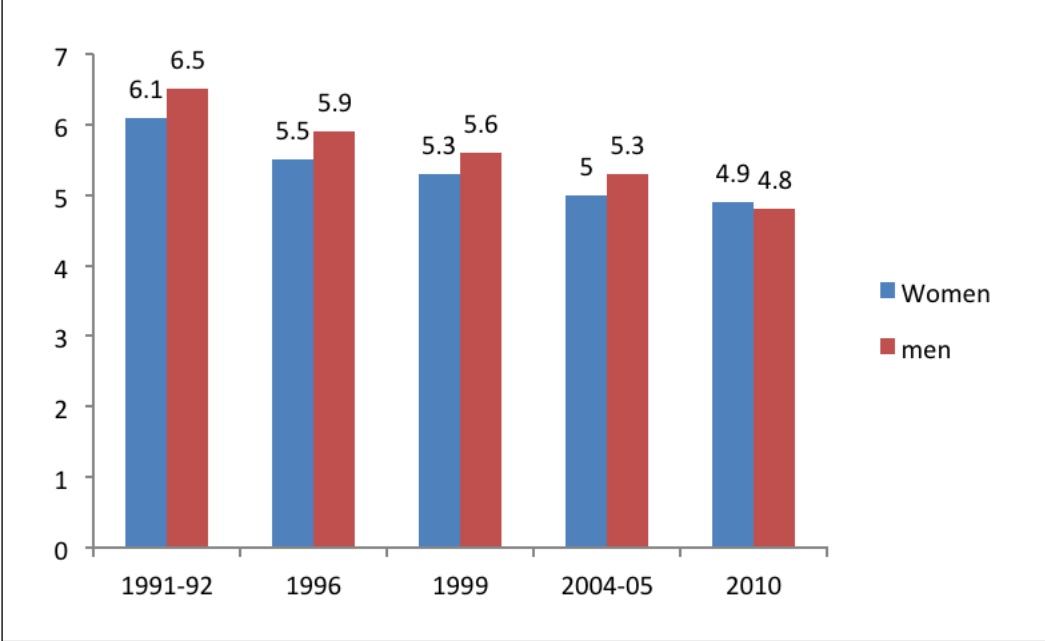
Sources: Tanzania Demographic and Health Surveys, 1991/92, 1996 2004–05 and 2010.
Tanzania Reproductive and Child Health Survey, 1999

Table 3.5 shows wanted and unwanted fertility rates by background characteristics of individual women. The overall wanted fertility rate (TWR) is lower than TFR by about 0.7 births on average. The difference is similar to other sub Saharan African countries that have begun fertility transition. Wanted fertility rate is higher in rural compared to urban. The gap between wanted fertility and actual fertility rate is also higher in rural areas. The largest gap occurs in the lake region of nearly 1.2 births per woman. Although desired family size declines by socio economic status, large unwanted fertility rate occurs among women of low socio economic status and in high fertility regions. The level of unwanted fertility rate is highly associated with unmet need for contraception.

Table 3.5: Differentials in wanted and unwanted fertility rates

	TWR	TFR	TFR -TWR		TWR	TFR	TFR-TWR
Total(URT)	4.7	5.4	0.7	Education			
Residence				No education	6.3	7	0.7
Urban	3.3	3.7	0.4	Primary incomplete	5.2	6	0.8
Rural	5.3	6.1	0.8	primary complete	4.7	5.5	0.8
				Secondary+	2.7	3	0.3
				Wealth quintile			
Mainland	4.7	5.4	0.7				
Urban	3.3	3.7	0.4	Lowest	6.1	7	0.9
Rural	5.3	6.1	0.8	Second	5.9	6.8	0.9
Zanzibar	4.8	5.1	0.3	Middle	5.4	6.1	0.7
Unguja	4.1	4.6	0.5	Fourth	4.1	4.7	0.6
Pemba	6.2	6.4	0.2	Highest	3	3.2	0.2
Zone							
Western	6.3	7.1	0.8				
Northern	3.8	4.6	0.8				
Central	5.7	6.5	0.8				
Southern Highlands	4.7	5.4	0.7				
Lake	5.1	6.3	1.2				
Eastern	3.6	3.9	0.3				
Southern	4	4.4	0.4				

Source: Tanzania Demographic and Health Surveys, 2010.

3.2.4 Accelerating fertility decline as a key factor in economic and social transformation

Slowing down population growth depends on slowing down fertility rates. The transition from high to low birth rates has been cited as a key process in structural transformation according to Timmer and Akkus (2008) (cited in Wuyts and Kilama[9], 2013). South Korea made a rapid transition from high to low fertility, while at the same time experiencing an annual growth in per capita gross domestic product of 6.7 percent between 1960 and 1990. South Korea's success was the result of addressing population issues (Gribble James 2012).

Despite the fact that fertility has been declining in Tanzania, the pace has been slow. The achievement of structural transformation shall only occur if the pace of decline is further accelerated. Table 3.6 shows trends in key indicators behind the fertility change in Tanzania. These include; uptake of contraception, increasing the average age at marriage, duration breastfeeding and post-partum abstinence in the short run. In the long run, increasing the proportion of women who complete secondary education will create the need to have smaller family sizes and hence declining birth rates.

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9   Background paper number 2: Economic transformation in Tanzania.

Table 3.6: Key indicators for fertility decline and its determinants

Year	TFR	CPR (%)	Median age at first marriage 25-29	Post-partum infecundability	% with secondary and above level of education
1992	6.2	6.6	19.0	15.6	4.8
1996	5.8	13.3	18.7	15.7	5.4
1999	5.6	16.9	18.8	14.7	5.3
2004	5.7	20.0	19.0	13.0	8.6
2010	5.4	27.4	18.9	11.4	16.4

Sources: Tanzania Demographic and Health Surveys, 1991/92, 1996, 2004–05 and 2010. Tanzania Reproductive and Child Health Survey, 1999

However, the use of contraception is a determinant of rapid decline and narrowing of differences by social position and region. Differences in contraceptive use follow the history of the introduction of family planning in the country. A key lesson is the notable rapid decline in fertility in the northern regions. Accelerating decline in fertility at national level depends on how fertility decline is accelerated in the west and lake regions of the country; rural areas among the lower socio economic class.

Meeting unmet need for contraception is likely to increase the use of contraception and hence accelerating fertility decline. Weinberger and Coast, (2011) suggest that meeting the existing unmet need could result in TFRs as low as 2.5 in urban areas and 4.0 in rural areas. Meeting the Government's target of 60% CPR (United Republic of Tanzania, 2006) would bring fertility near replacement levels and hence lower population growth. The national level measures of CPR and TFR mask important, policy-relevant differential patterns. There are wide and growing regional differences suggesting the importance of targeting programmes and resources to underserved rural communities and regions.

The most important factors influencing fertility decline in sub-Saharan Africa are reductions in the desired number of children and increases in the use of modern contraception (Westof et al., 2013). In addition, the number of children desired is determined by increases in education, urbanization, and mass media exposure. Westof et. al., (2013) concluded that two main predictors of decline in the number of children desired are increases in years of schooling and decreases in the percentage of the population residing in rural areas.

Evidence from the various demographic and health surveys for Tanzania since 1991 indicate that the major source of supply of contraceptives is the government. It is therefore important to lobby for the inclusion of private sector in contraceptive supply. Although other studies do indicate that fertility decline occurred across all age groups, examination of data from the DHS suggest unchanging fertility among the younger women (age group 20-29), this has the potential of creating a fertility momentum that is likely to push birth rates to higher level.

3.3 Mortality

Mortality refers to deaths that occur within a population. The likelihood of dying during a given time period is linked to many factors; such as age, sex, race or ethnicity, occupation, and social class. However the incidence of death can reveal much about a population's standard of living and quality of health care. Therefore, several indicators used to assess human development relate to mortality and indicators of mortality often act as inverse measurements for the health of populations. Poor

health poses significant threat to the economy, as the untimely and unnecessary death particularly during adulthood results in a loss of any social and economic investment made in them

Childhood mortality is a key indicator of a country's socio-economic well-being, as well as of the quality of its medical services in general and its public health services in particular. An increase in childhood mortality is, therefore, not only undesirable, but an indicator of a decline in general living standards. Infant and under-five mortality rates are useful indicators for assessing progress in overall national development. For example a recent review of status of MDG indicates that Tanzania is among the countries in sub Saharan Africa that have made insufficient progress towards the achievement of mortality related indicators. Moreover, mortality is one of the factors that influence population change. Demographic transition theory supported by a number of studies indicates that fertility declines only after mortality has declined.

3.3.1 *Factors Associated with Differential Mortality in Sub Saharan Africa*

Mortality is the result of a complex web of determinants at many levels and for the fact that determinants of mortality vary by age, no single framework has been used to describe trends and determinants. The most commonly utilized approach by demographers is to employ proximate determinants approach following Bongaarts 1978 for fertility and Mosely and Chen 1984 for child survival. Similarly, McCarthy and Maine (1992) provided for a three-tier model in which the factors were grouped as distal or socio-economic, intermediate (health behaviour and status, access to services and other unknown factors), to influence maternal morbidity and mortality. However no single framework has been developed on adult mortality in general. For maternal and child health; the determinants may be grouped as those related to:

1. **_Household and community characteristics:_** Several factors have been linked with poor pregnancy maternal health and child outcomes. These include the social and economic characteristics of both the households and the communities women live in. The social status of women limits their access to economic resources and basic education and consequently their ability to make decisions relating to their health and nutrition (Shen and Williamson, 1999). Some women are denied access to care when it is needed, either because of cultural practices of seclusion or because decision-making is the responsibility of other family members. Gender roles significantly affect maternity care sometimes when complications of pregnancy and childbirth develop; women are not often able to make decisions about their care

2. **_Bio – demographic and other risk factors:_** It is known that standard biological variables such as age, height and parity also affect maternal mortality in Africa (Rogo et al, 2006) and that short birth intervals increase the risk of infant mortality.

3. **_Malnutrition and infections: (protein related and micronutrient deficiencies, anaemia, malaria and HIV/AIDS)._** Malaria for example is not only one of the greatest killers of human beings in Africa but also a major source of complication during pregnancy. In regions where malaria is endemic, women are more likely to have it during pregnancy than at any other time. Malaria is also associated with spontaneous abortion and stillbirth, and women who develop severe anaemia from malaria are at increased risk of maternal death. Despite interventions such as intermittent preventive treatment and use of insecticide treated nets; the changing complexities of malarial chemotherapy can be regarded as one of the most

difficult situations facing safe motherhood and child survival in Africa.

4. ***Health systems including National policies and related investments in health and non health factors:*** Health systems refer to all resources, organizations and actors that are involved in the regulation, financing, and provision of actions whose primary intent is to protect, promote or improve health. The utilization of a broad range of health interventions requires a functioning health system fundamentally consisting of the following key areas; human resource base, infrastructure and their geographical distribution. The ability to plan, finance, and deliver high-quality health services requires: better management capacity; functioning monitoring, evaluation, and quality assurance system; enhanced community demand for and access to essential interventions and supportive health research and development. Maternal and child deaths are strongly associated with each of these aspects of the health system.

3.3.2 Overall Mortality

<u>Life expectancy at Birth</u>

Life expectancy at birth is usually a useful summary measure of overall mortality. It summarizes the mortality situation that prevails across all age groups, from children to the youth, adults and the elderly. Figures 3.9a and 3.9b show trends in life expectancy at birth since 1970. There has been a steady increase in expectation of life over the decades up to 1990s when it stagnated at around 55 years. Thereafter life expectancy at birth has been increasing since mid 2000s to an average of 60 years for men and 63 years for women. The increase in life expectancy reflects an improved nutrition, better hygiene, access to safe drinking water, effective birth control and immunization, and other medical interventions (Clark, 1990). Expectation of life at birth is closely associated with the level of infant mortality, with the former declining with rising infant mortality.

Figure3.9a: Trends in male life expectancy at birth
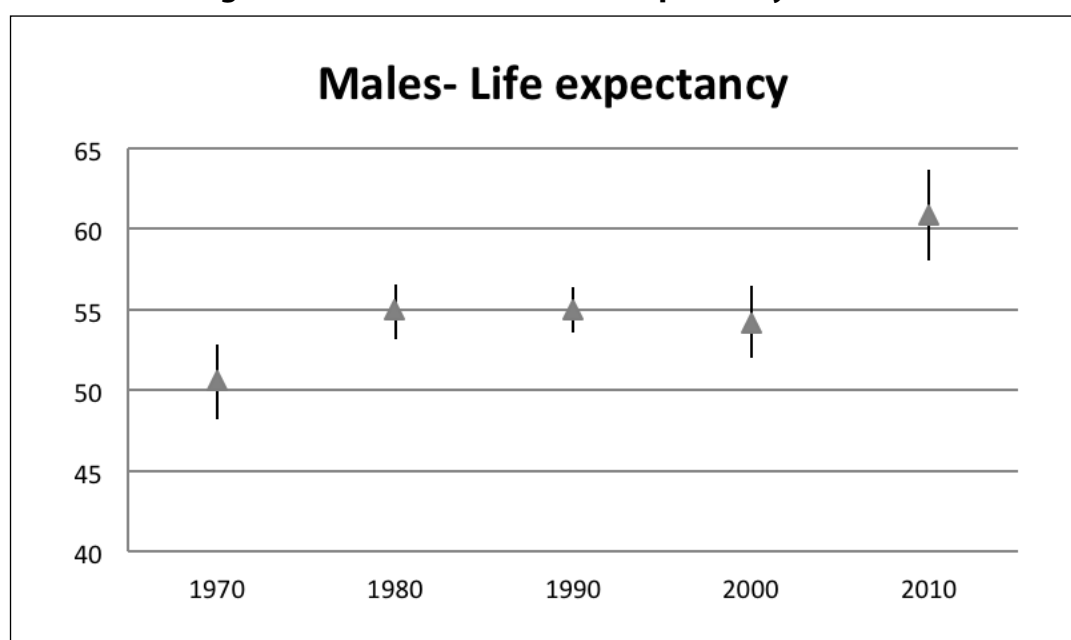
Source: Haidong Wang et al 2013

Figure 3.9b: Trends in female life expectancy at birth
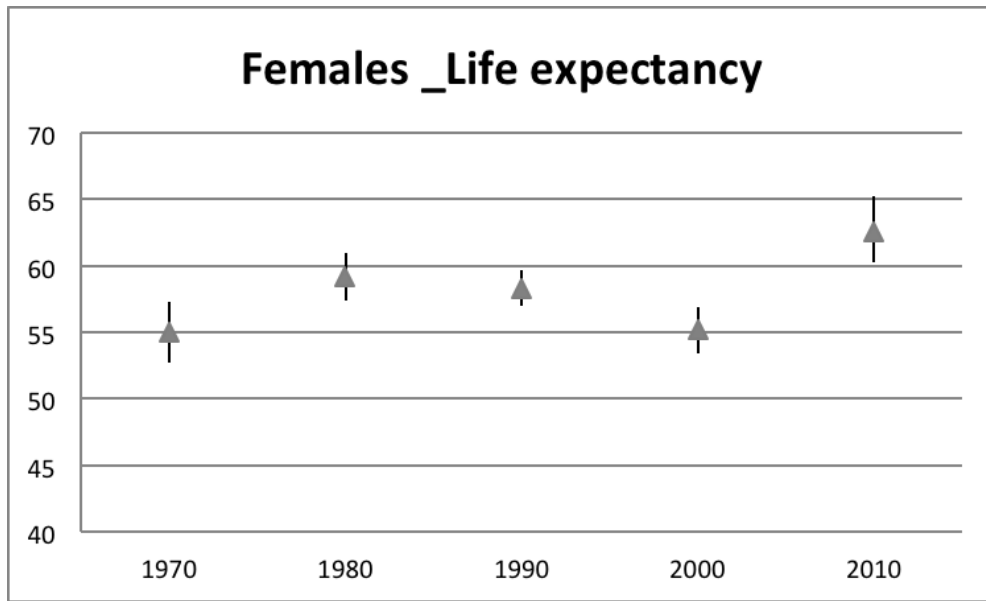
Source: Source: Haidong Wang et al 2013

3.3.3 Childhood mortality

Childhood mortality is the death of children between birth and before five years. Since factors influencing childhood mortality depend on age, it is important to distinguish mortality before age 1 and mortality across other age groups. Infant mortality refers to the death of children born alive before their first birthday. Under-five mortality refers to deaths of children born alive before their fifth birth day. Mortality during childhood are important indicators of children's well-being and, more broadly, of socioeconomic development (United Nations, 2012). Trends in indicators of childhood mortality are presented in Figure 3.10. While mortality stagnated in the early part of the last decade the country has made impressive gains in child survival.

Figure 3.10: Trends in childhood mortality from surveys
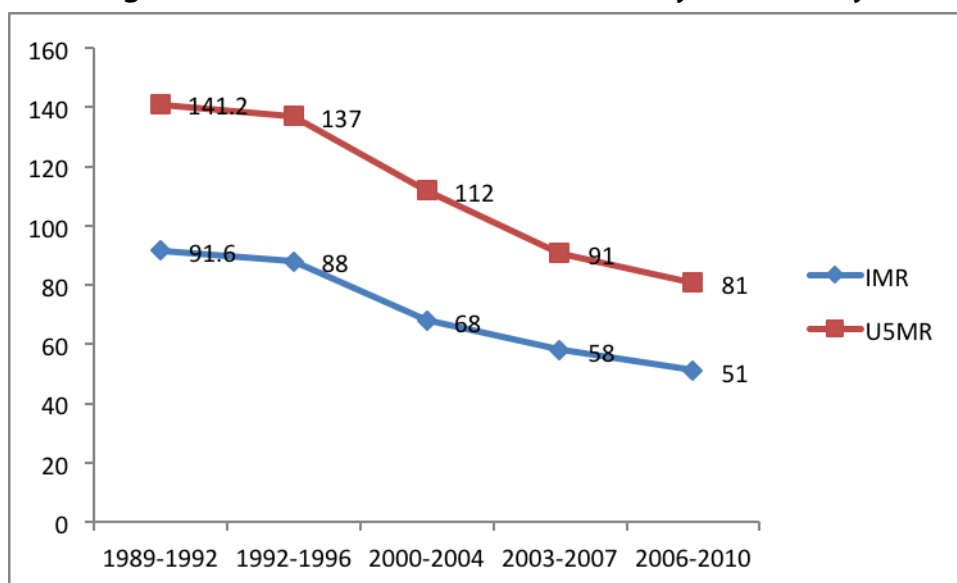
Sources: Tanzania Demographic and Health Surveys, 1991/92, 1996, 2004–05 and 2010. Tanzania Reproductive and Child Health Survey, 1999

The summary presentation of four decades of changes in childhood mortality obscures important secular trends that have occurred across different groups. Infant mortality continues to be lower in the northern regions of Arusha and Kilimanjaro (Table 3.7). The differences in mortality may be due to ecological differences particularly that of malarial infections. Early studies by Henin et al 1978 indicated the prevalence of malaria determined regional differences in childhood mortality.

Table 3.7 Trends in Infant mortality rate by Region (census data)

1978			1988			2002[1]		
Region	**IMR**	**Rank**	**Region**	**IMR**	**Rank**	**Region**	**IMR**	**Rank**
Kilimanjaro	76	1	Kilimanjaro	67	1	Arusha	41	1
Arusha	108	2	Arusha	75	2	Kilimanjaro	46	2
Dares Salaam	108	3	Singida	96	3	Manyara	69	3
Tanga	112	4	Tabora	101	4	Urban/West	70	4
Urban/West	112	5	Dar es Salaam	105	5	Dar es Salaam	79	5
South Unguja	120	6	Tanga	106	6	Singida	82	6
Pwani	121	7	Shinyanga	110	7	Tabora	83	7
South Pemba	123	8	Pwani	113	8	Mwanza	87	8
North Pemba	128	9	Ruvuma	113	9	South Unguja	87	9
North Unguja	132	10	Urban/West	113	10	Shinyanga	92	10
Dodoma	133	11	Kigoma	115	11	Kigoma	92	11
Kagera	133	12	Mwanza	115	12	South Pemba	95	12
Singida	137	13	South Pemba	119	13	Tanga	98	13
Mwanza	139	14	South Unguja	120	14	Morogoro	100	14
Morogoro	140	15	North Pemba	123	15	Pwani	101	15
Tabora	140	16	Mbeya	124	16	North Pemba	101	16
Mara	140	17	Mara	125	17	Mbeya	101	17
Ruvuma	145	18	Morogoro	125	18	Iringa	102	18
Shinyanga	150	19	Iringa	130	19	North Unguja	103	19
Lindi	151	20	Kagera	130	20	Ruvuma	104	20
Iringa	152	21	North Unguja	130	21	Rukwa	106	21
Mtwara	161	22	Rukwa	131	22	Kagera	110	22
Mbeya	161	23	Dodoma	132	23	Mara	113	23
Kigoma	163	24	Mtwara	138	24	Dodoma	114	24
Rukwa	170	25	Lindi	140	25	Mtwara	126	25
Manyara	-	26	Manyara	-	26	Lindi	129	26

Source: National Bureau of Statistics (2006).

Tables 3.8 and 3.9 show trends in infant mortality rates by various characteristics. Mortality rates by place of residence generally increased in the 1990s then declined. However, a notable feature in the most recent period is that infant mortality was higher in urban areas compared to the rural in 2010.

Infant mortality for children of women with lower education also rose in the 1990s and then declined. However, the difference in mortality by level of education of the women has narrowed considerably. Table 3.9 shows trends by wealth index. For all the groups mortality rates increase substantially in late 1990s then declined. As in the case of place of residence, the difference in mortality by wealth quintiles have narrowed considerably.

Table 3.8: Trends in IMR by place of residence and education

	1991/2	1996	1999	2004/5	2010
urban	57.1	83.1	87.3	73	63
Rural	61	97.1	113	85	60
Ratio (Rural :urban)	1.07	1.17	1.29	1.16	0.95
Rural –urban Difference	3.9	14	25.7	12	-3
No education	103.3	105.9	177.7	101	63
primary	95	100.6	114.0	84	67
primary complete	99.4	85	99.9	75	58
secondary	71.8	63.9		56	52
Ratio None: sec	1.44	1.66		1.80	1.21
Sec – none difference	31.5	42		45	11

⊠ refers to primary complete and above

Sources: Tanzania Demographic and Health Surveys, 1991/92, 1996, 2004–05 and 2010. Tanzania Reproductive and Child Health Survey, 1999

Table 3.9: Trends in IMR by wealth index

Year of survey	Wealth quintile					Pop Average	Low/high Ratio	Low-high diff
	Low	2nd	3rd	4th	High			
1996	87.3	118	95.6	102.1	64.8	94.1	1.35	22.5
1999	114.8	107.5	115.4	106.8	91.9	107.8	1.25	22.9
2004	88	97.1	87.8	69.8	64.2	82.5	1.37	23.76
2010	61	59	59	60	63	51	0.97	-2.0

Sources: Tanzania Demographic and Health Surveys, 1991/92, 1996, 2004–05 and 2010. Tanzania Reproductive and Child Health Survey, 1999

Childhood Mortality Rates by Demographic Characteristics

Table 3.10 shows the early childhood mortality by demographic characteristics. Mortality is higher among males compared to females. This childhood mortality is higher for mothers who are below age 20 but generally follows a J shape with age and birth order.

Table 3.10 Childhood mortality rates by demographic characteristics

Demographic Characteristics	Neonatal Mortality (NN)	Post-neonatal Mortality (PNN)[1]	Infant Mortality ($_1q_0$)	Child Mortality ($_4q_0$)	Under-Five Mortality ($_5q_0$)
Child's Sex					
Male	39	44	83	56	135
Female	29	53	82	52	130
Mother's age at birth					
< 20	45	55	101	62	157
20-29	29	46	75	49	120
30-39	33	52	85	59	139
40-49	45	37	82	*	*
Birth Order					
1	42	47	89	54	139
2-3	27	47	74	51	121
4-6	32	51	82	54	132
7+	42	52	94	63	151

Source: Tanzania Demographic and Health Surveys, 2010.

Differentials in childhood mortality (multivariate analysis)

Table 3.11 shows Cox proportional hazards regression of factors associated with infant mortality. The regression coefficients are the odds of mortality relative to the reference category and reflect the potential per unit time of risk of mortality relative to the reference group. It is only the level of education, and the birth interval that highly reflect the propensity to die before the first birth day. Mothers with no education were 55 percent more likely to lose their children at infant stages than those with at least secondary education. Women with primary education were 37 percent more likely to report infant deaths compared to those with some secondary education. Worthy to note is that education per se does not contribute to child survival but rather through other proximate determinants associated with it.

With other factors controlled for, child survival is still higher in Dodoma, Arusha, Kilimanjaro and Mbeya, Singida, Tabora, Rukwa regions compared to Dar- es- Salaam the capital city. Children with a short preceding birth interval of less than 24 months are more likely to die before first birthday. The factors associated with high childhood mortality are low education, short birth intervals and ecology particularly in malarial endemic regions.

Table 3.11 Hazards regression models of the factors associated with infant mortality in Tanzania

Variable Name	Odds ratio (exp (B))
Level of education of the mother	
Secondary+[a]	1.000
None	1.547**
Primary	1.368*
Type of place of residence	
Urban[a]	1.000
Rural	0.788
Occupation of the mother	
Agriculture	1.000
Not working	0.635**
Non-agriculture	1.165
Region	
Dar Es Salaam[a]	1.000
Dodoma, Arusha, Kilimanjaro	0.511**
Tanga, Morogoro, Pwani	0.728
Lindi, Mtwara, Ruvuma, Iringa	0.779
Mbeya, Singida, Tabora, Rukwa	0.539**
Kigoma, Shinyanga, Kagera	0.551*
Mwanza, Mara, Manyara	0.718
Zanzibar North, Zanzibar South, Town West	0.768
Pemba North, Pemba South	0.648
Maternal age at birth of child	
20-34 years[a]	1.000
< 20 years	0.874
35+ years	1.020

Birth order/Preceding birth interval	
2-3 & ≥24months[a]	1.000
2-3 &<24 months	1.533**
4+ &<24 months	1.629**
4+ & ≥24 months	1.026
First births	1.440**
Source of water	
Pipe/ Tap[a]	1.000
Borehole	0.926
Well	1.015
Surface	1.063
Other	1.098
Type of toilet facility	
Flush[a]	1.000
Pit	1.071
None/Other	0.953

* ρ < 0.10; ** ρ < 0.05; * ** ρ < 0.01 [a] Reference category
Source: Khasakhala Omedi,and Agwanda 2012

Major Causes of childhood mortality

The four main global killers of children under-five are pneumonia (18 percent), diarrhoeal diseases (15 per cent), pre-term birth complications (12 percent) and birth asphyxia (9 percent). Malnutrition is an underlying cause in more than a third of under-five deaths (African Economic Commission, 2012). In Tanzania, neonatal deaths account for 34 % of under five deaths of which birth asphyxia accounts for 29 % of the neonatal deaths. The leading cause of under five deaths is still malaria (19 %) followed by pneumonia (13 percent). However, Jones et al (2003) indicate that about two-thirds of child deaths could be prevented by interventions that are available today and are feasible for implementation in low-income countries at high levels of population coverage.

3.3.4 Adult mortality

Adult and maternal mortality rates are key indicators of the health status of a population. Adult mortality rate if often measured by the probability of dying between the ages of 15 and 60,that is, the probability of a 15-year-old dying before the age of 60 (denoted by $_{45}q_{15}$). Adult mortality is also highly correlated with the level of development, just as infant mortality (UN, 2012). According to world mortality reports of 2011, the male-to-female ratio of 45q15 is 1.5, meaning that men are 50 per cent more likely to die between the ages of 15 and 60than are women (UN 2012). The most recent estimates of 45q15 for Tanzania is 0.329 (UN 2012) indicating that for every 1000 young adults reaching age 15, 329 die before reaching their 60th birth day. Figure 3.11 shows adult mortality death rates from the recent demographic and health surveys. It general indicates that adult mortality between ages 15-49 have declined in the last five years before the most recent survey. However, in both periods it appears that there was much higher female mortality at prime age of childbearing (ages 20 to 34).

Figure 3.11: Adult mortality between age 15 and 60, 45q15, for both sexes combined (deaths under age 60 per 1,000 alive at age 15)
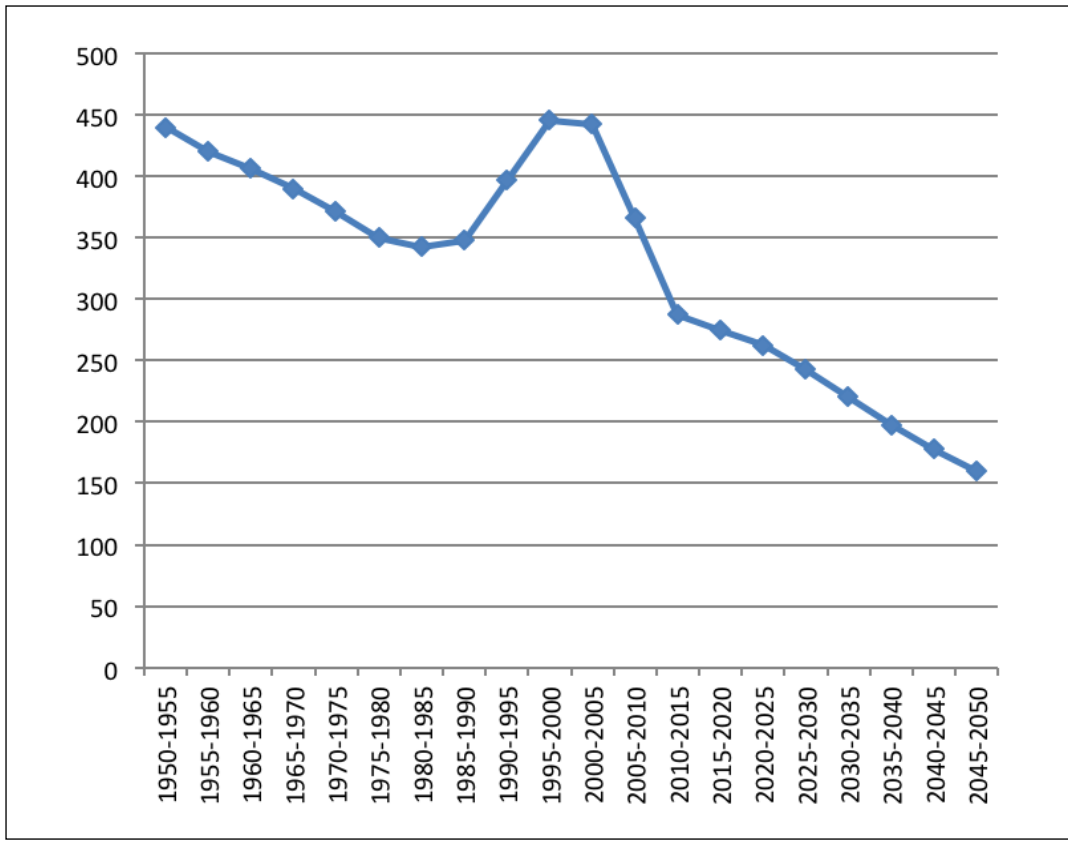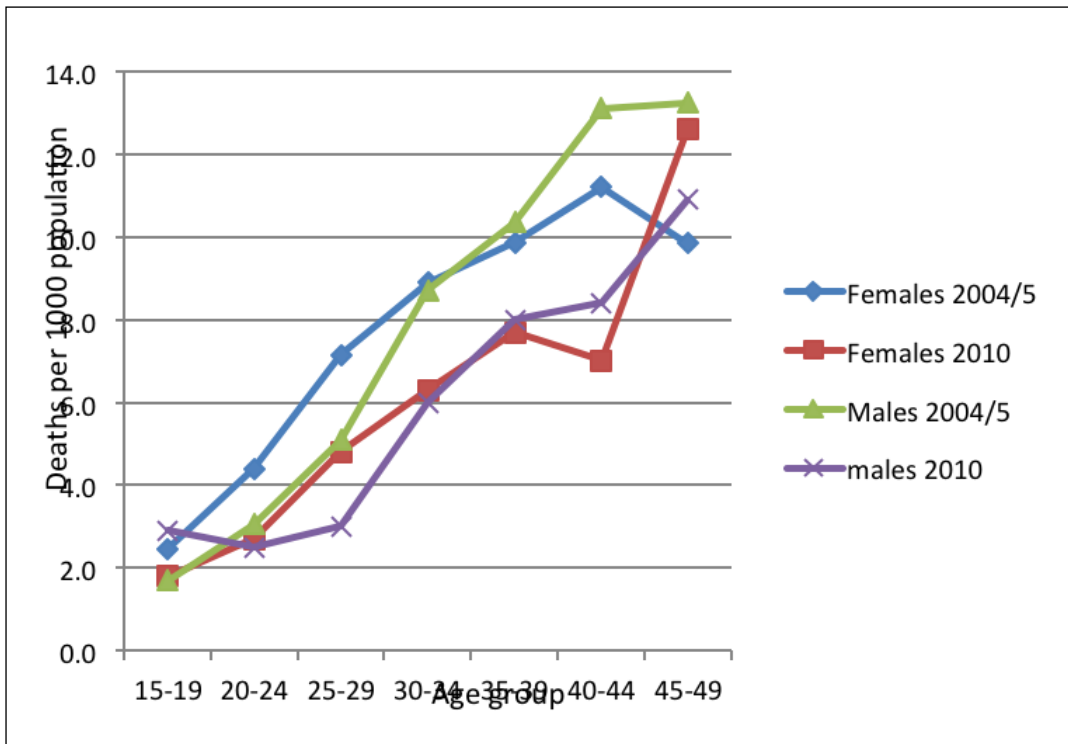

Figure 3.12: Trends in adult mortality rates age 15-49 by sex

Sources: Tanzania Demographic and Health Surveys, 2004–05 and 2010

3.3.5 Maternal mortality

Maternal mortality[10] is one of the indicators of reproductive health status of the population. Efforts to reduce maternal deaths have for decades been a focal point for several international agreements. To date, the reduction of maternal deaths is a core issue with regard to reproductive health rights especially for women's right. Maternal death is one of life's most tragic outcomes because the irony of this cruel death is that almost all is entirely preventable given proper medical surveillance and interventions.

Despite this recognition, efforts to monitor maternal deaths are hampered by lack of timely data and information. Indicators of Maternal mortality obtained from large scale surveys, such as DHS and MICS, are based on indirect techniques on the basis of questions asked regarding the death of sisters from a pregnancy related cause. This is known as the 'sisterhood method' (Graham et al., 1989), which has a number of limitations that may influence the estimates, including: distinction of pregnancy-related deaths from maternal deaths; production of estimates with wide confidence intervals, thereby diminishing opportunities for trend analysis; reliance on retrospective rather than a current maternal mortality estimate (referring to a period approximately 5 years prior to the survey); and the complexity of the analysis.

The maternal mortality ratio for Tanzania was estimated at 530 deaths per 1,000,000 live births and has remained almost at the same level for a while. According to the figures from UNDP Human Development Report (2000), the maternal mortality has increased to 592 by 2000. However, according to TDHS of 2004-05 estimated maternal mortality ratio was about 578 per 1000, 000 live births but due to sampling variability, the ratio could range between 466 and 690 per 1,000,000 live births. However by 2010 TDHS maternal mortality had decreased to 454 per 100,000 live births with 95 percent confidence intervals ranging from 353 to 556 deaths per 100,000 live births. According to Interagency Group (World Bank, UNICEF and UNFPA), maternal mortality ratio for Tanzania was about 460 per 100,000 but varies from 190 to 740 deaths per 100,000 live births. These are not comparable to estimates from other sources in that they are based on models whose aim is to adjust for lack of data, misclassification and under-reporting to provide the best possible estimates. The interagency group estimates that this level of maternal mortality translates to about 8500 deaths per year with about 18 % related to HIV and AIDS. Despite this level of maternal mortality, the interagency indicates that some progress is being made towards reducing maternal mortality in the country.

Research shows that the pathways to safe motherhood consist of interlinked steps: individual status, woman's information about contraception, danger signs during pregnancy and sexually transmitted diseases and access to appropriately trained health personnel (Tinker and Koblinsky 1993). However, a sustained and substantial reduction maternal morbidity and mortality pregnant women have access to adequate referrals and treatment to deal with emergency obstetric complications (Tinker and Koblinsky 1993).

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[10] Principal definitions and measures of maternal mortality
Pregnancy-related death is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the cause of death. This is a time-of-death definition.
Maternal death is the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes. This definition requires cause-of-death information in order to exclude incidental causes.
Maternal mortality ratio (MMR): number of maternal deaths during a given time period per 100,000 live births during the same time period.
Maternal mortality rate: number of maternal deaths in a given time period per 100,000 women of reproductive age, or woman-years of risk exposure, in the same time period.

Several scholars (Maine et al 1996, Koblisnky et al 1999) have identified determinants of maternal mortality including various plausible interventions, there are debates on whether the scarce resources available in Sub-Saharan Africa be concentrated on presence of skilled personnel, or on making emergency obstetric care available to those in need (Shiffman and Del Valle, 2006, Weil and Fernandez 1999). WHO (2005) observed that there is need for both interventions while Shiffman and Del Valle (2006) reiterate that for effective interventions to take place, there is need to understand all the features that influence maternal mortality irrespective of whether they can be manipulated by governments or individuals. The difficulty in improving safe motherhood is not the absence of the models but the fact that analyses and program direction may have focused on the proximate factors – biomedical causes without considering other distal factors (Shiffman and Del Valle, 2006).

3.3.6 Mortality from HIV/AIDS

The AIDS epidemic is one of the world's most significant current public health and development crises particularly for countries in Sub Saharan Africa. The epidemiological profile HIV/AIDS is unique compared to other infectious diseases. First, HIV has a very long incubation period during which an HIV-positive person is mostly symptom-free yet still infectious. Secondly, in the absence of treatment, it is almost always fatal thus the level of incidence and prevalence today shall determine future mortality impact of the epidemic. Third, while most infectious diseases affect the very young or the very old disproportionately, HIV infections and AIDS deaths are concentrated among adults of reproductive and working ages.

Table 3.12 shows the estimated effects of HIV on adult and childhood mortality. Although the probability of dying by age 5 due to HIV and AIDS may be small but HIV infection is more aggressive among children than adults, half die by 2 years (UNAIDS 2010). Mortality for children born to HIV+ mothers is higher than children born to HIV-mothers (UNAIDS, 2010). In the period 2010-2015, slightly over 50 percent of risk of adult mortality in Tanzania is expected to relate to AIDS. Thou small AIDS is also likely to depress longevity in childhood and it is expected that without AIDS life expectancy at birth would have been 4 years higher than is currently expected.

Table 3.12: Projected Adult Mortality, Under-Five Mortality, and Life Expectancy at Birth 2010-2015 with and without AIDS- Tanzania

	Indicator (both sexes combined)	With AIDs	Without AIDS	Absolute difference	Percent Difference
Adult mortality	Probability of dying between exact age 15 and exact age 60, per 1,000 (45q15)	329	218	111	51
Under Five mortality	Deaths under age 5 per 1,000 live births	81	77	5	6
Longevity	Life expectancy at birth (years)	59.3	63.7	-4.4	-7

Source: United Nations Department of Economic and Social Affairs/Population Division World Mortality Report http://www.un.org/en/development/desa/population/publications/pdf/ mortality/worldMortalityReport2011.pdf)

3.3.7 Implications for Social and Economic Transformation

One caveat is that mortality data are poorly reported in most of Sub-Saharan African countries. This is due to the fact that many developing countries still do not have a vital registration system that provides sufficient information required for reliable demographic estimates. Although

vital registration system does exist, its data are not complete, as a result it cannot be used for mortality analysis (NBS, 2012). The main source of mortality data for the country are censuses and demographic and health surveys (NBS, 2012).

The main conclusion from the available data and information is that there has been a major decrease in mortality, which represents significant progress in regard to human wellbeing and an impact on population growth. Tanzania has made progress in bridging the gap in childhood mortality between the poor and the wealthiest groups and between urban and rural areas. However, wide differentials in mortality remain by level of education and region of residence. It is important to note that regions with the lowest childhood mortality rates have also the lowest fertility levels indicating that it is important to bring down the levels of childhood mortality before initiating rapid fertility decline(cite references. The gains in life expectancy at birth observed over time reflect changes in mortality rates that occur across the various age ranges. UN (2012) indicates that much of the gains in life expectancy in Africa have been due to improvements in survival of children under 5 years but improvements in adult mortality have contributed little to gains in life expectancy. Part of this has been due to effect of HIV and AIDS during the early years of adult hood.

3.4   Migration

Migration is the process of moving from one location to another for a period of time. It consists of where a person comes from (place of origin), where s/he is going and where s/he ends up (place of destination).Migration is one of the three components of population change, besides fertility and mortality. However, migration is a complex phenomenon compared with fertility and mortality. This is because migration must be defined in both spatial and temporal dimensions. The complexity of migration arises from the number of parameters taken into account when describing population movement. These include type of change of boundary (internal vs. international); direction of the move (rural-rural, rural–urban etc); distance covered; timing of stay (long term verses short term); periodicity (repetitive). Some distinctions have been based on the causes of migration (UN 1993) that is between voluntary and involuntary movements. In terms of spatial dimension, migration involves movement across political or administrative boundary which may not need to remain the same forever. In this paper we focus on two broad distinctions – international migration and internal migration.

Migration influences the population structure, composition and size of a country. At national level, international migration is a key component of national population change. The Global Commission on International Migration included as Principle 2 in its six Principles of Action that *"migrants play an important role in promoting development and poverty reduction in countries of origin, as well as the contribution they make towards the prosperity of destination countries. This role should be recognized and reinforced.* International migration should therefore become an integral part of national, regional and global strategies for economic growth, in both the developing and developed world."

Besides being a key component of population change, migration has come to the top of the political and social agenda across all of Africa and researchers on migration have advocated for the greater inclusion of migration issues in the processes of development planning. The African Union Strategic Policy Framework on Migration in Africa encouraged member States to integrate migration and development policies particularly poverty reduction strategy papers in their national development plans.

3.4.1 Data and information on Migration

Information on migration in Tanzania can only be derived from the census data. The pre-independence censuses provided information to estimate internal and international migration by sex and tribe. The 1967 census included for the first time information on birth place and therefore enabled the determination of interregional migration flows and gross migration patterns for each of the administrative regions. The 1978 census was an improvement of the 1967 census where it was possible to estimate not only lifetime migration but also time specific migrations for the 25 regions (20 for Mainland Tanzania and 5 for Zanzibar administrative regions) (Mlay, undated). The 1988 census did not include questions related to previous places of residence (Muzzini and Lindeboom, 2008). In the 2002 census, respondents were asked where they usually lived at the time of the census and also where they lived a year before the census. Both questions were included in the long census questionnaire, which was submitted to 20 percent of the enumeration areas (Muzzini and Lindeboom 2008). The region (or country if outside Tanzania) and the location of the usual and previous residence was recorded.

3.4.2 International Migration

International migration involves movement across national boundaries and involves two kinds of movements - Immigration which involves movement of foreign born persons into the country while emigration involves movements of nationals out of their own country. Tanzania as in many other developing countries is a country of origin, transit and destination of international migration. Currently, four forms can be distinguished: voluntary defined in terms of movement across international boundaries, which includes labour migration; clandestine which is illegal; refugee movements a dominant form of forced migration involving movement from the contiguous states around Tanzania and finally, irregular migration in the form of migrant trafficking and smuggling is becoming increasingly significant in the region involving movements of people to the Middle East, and people from the Horn of Africa crossing through east African regions to southern Africa and subsequently to Latin America or southern Europe – notably Portugal and Spain. Because of lack of data, the focus of this section is on voluntary movements.

International migration for most countries in developing world is hampered by lack of data. Secondly, key aspects and what qualifies for international migration definition varies by discipline. There are generally relatively few studies on international migration because it is thought that the volume is small and does not warrant much change from the perspective of population change. The dominant type of international migration in Eastern Africa had been that of refugees many of whom may be undocumented labour migrants. Previous movements in the 1970s were dominated by movement of plantation workers (UN 1998). Available studies show that immigration occur due to variety of reasons such as:
- desire for individual gain;
- attempt to diversify risks to household/family income;
- program recruitment to satisfy employer demands for low wage earners in receiving countries; and
- an international displacement of peasants by market penetration within the peripheral regions.

However, new conditions are also emerging as a result of:
- spread of migrant networks;
- Institutions supporting transnational movements (such institutions also include worker recruitment as in the case of nurses to western countries, underground markets that create

conditions conducive to exploitation and victimization as in case of human trafficking);

- changing social meaning of work in receiving countries.

A number of studies however, have focused on the role of increasing unemployment and the effects of emigration on labour markets (UNFPA, UNITA, IOM and ILO 2002). Studies on migration of health professionals have tended to confine themselves to analysis of the numbers leaving individual countries, rather than exploring the range of dynamic effects.

Trends in net international migration rates

Due to paucity of data not much has been written about international migration in the East African region. The United Nations High-Level Dialogue on Migration and Development called for reliable information on migrants and migration to develop evidence-based policies that is capable of informing public policies as well as combating widely held misconceptions. Net annual international migration is net of the total number of immigrants less the annual number of emigrants into a country. Net migration rate is the difference of immigrants[11] and emigrants of an area in a period of time, per 1,000 inhabitants. A positive value represents more people entering the country than leaving it, while a negative value means more people leaving than entering it.

Figure 3.13a shows the estimates and projected volume of net migrants. The volume of international migrants to Tanzania has been low up to 1970 - 1975 periods when there was an upsurge mainly fueled by refugees into Tanzania from the southern part of Africa. The peak net migration to Tanzania occurred again 1990-1995 similarly due to refugees in western part of Tanzania from troubled neighbours of Burundi and Rwanda. The United Nations data suggest that there will be a net outflow of people from Tanzania to other countries between 2005 and 2015 thereafter it is expected to stabilize, but remain negative. The negative values shown in the figure 3.13a implies that more people are leaving the country than those who are coming in.

Figure3.13a: Net migration (per year), both sexes combined (thousands)
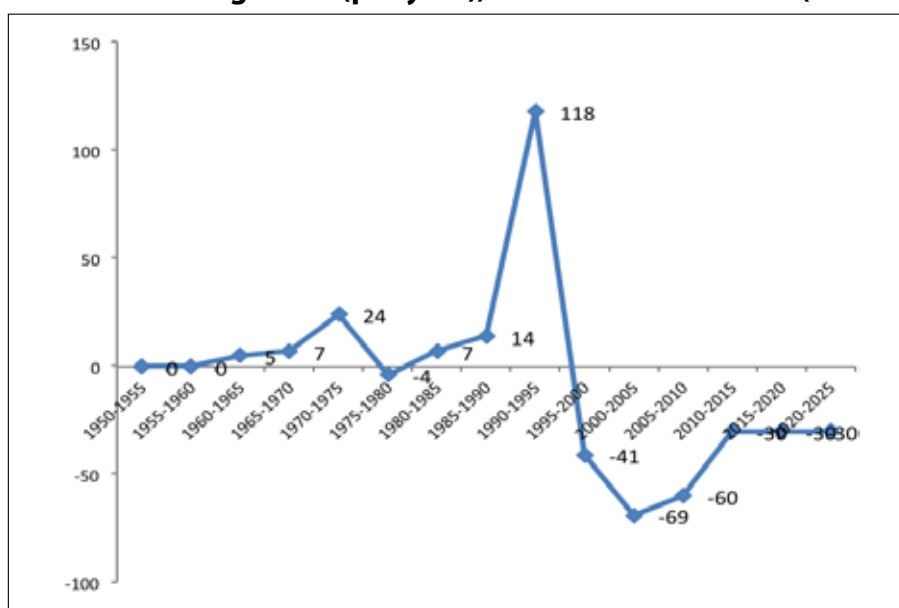
Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat**,**
World Population Prospects: The 2012 Revision, http://esa.un.org/unpd/wpp/index.htm

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[11] To emigrate means to leave one country or region to settle in another; or to migrate away from ones native place. To immigrate means to come to a country of which one is not a native, usually for permanent residence.

Figure 3.13b shows the estimates and projected net migration rates (per 100) to Tanzania from 1950s to present. Compared to natural growth rate (difference between birth and death rates), the net migration rate contribution to population change in Tanzania has been small indicating that the major source of population growth rate is due to rate of natural increase[12]. However, after 2000-2005, the rate of net migration is negative meaning that more are leaving the country.

Figure3.13b: Trends in crude birth rate, death rate and net international migration rates
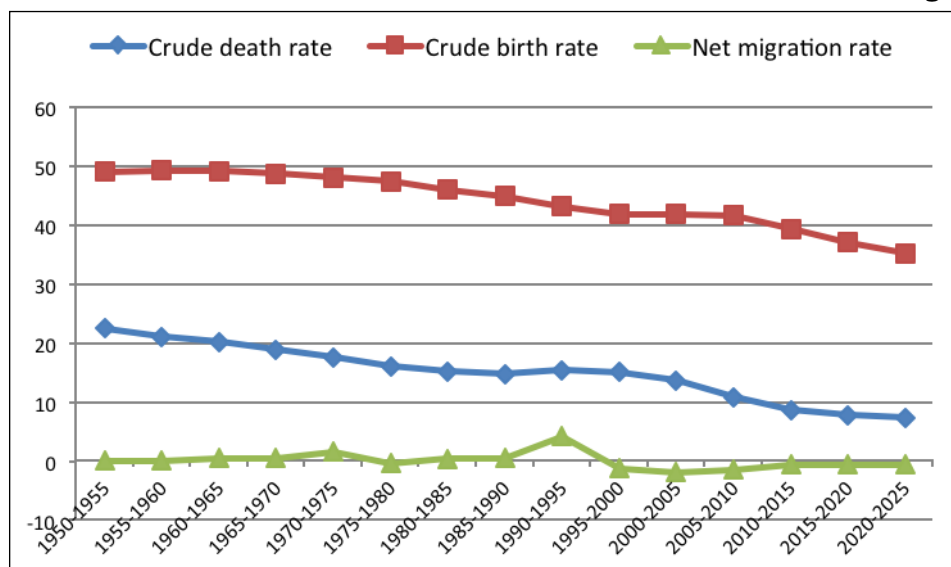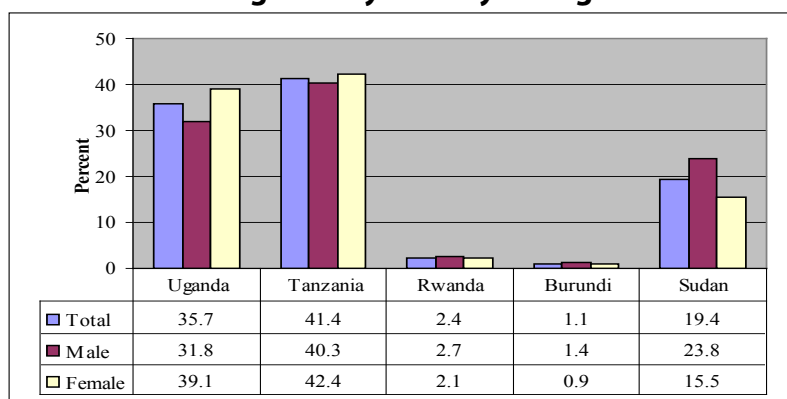

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, **World Population Prospects: The 2012 Revision, http://esa.un.org/ unpd/wpp/index.htm**

A closer look at the neighboring country Kenya (see Figure 3.14) majority of international migrants into Kenya are from Eastern African region and the highest proportion of those migrants are from Tanzania. Thus it may be the case that emigration from the country is expected to be dominated by cross border migration[13] which may have been due to revival of East African Community.

Figure 3.14: Eastern African immigrants by country of origin and sex 2009 Kenyan census

	Uganda	Tanzania	Rwanda	Burundi	Sudan
Total	35.7	41.4	2.4	1.1	19.4
Male	31.8	40.3	2.7	1.4	23.8
Female	39.1	42.4	2.1	0.9	15.5

Source: Ministry of Planning and National Development and Vision 2030 (forthcoming, Vol. VI), figure 4.3.

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[12] Mechanisms by which population changes over time is the result of natural increase (the balance of births and deaths) and migration (the balance of persons moving in and out of the country or area concerned). It can be depicted symbolically by what has sometimes been called by demographers the "balancing equation".

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

where P1 and P2 are the population totals at times 1 and 2, B and D are the births and deaths which occurred between times 1 and 2, and I are the immigrants who moved into the country and E are the emigrants who moved out of the country between times 1 and 2.

[13] Cross-border migration refers to the movement of people between states that share a common border.

According to remittances fact book of The World Bank in 2011, the major top destination countries for those leaving Tanzania are; Kenya, Uganda, the United Kingdom, Canada, Mozambique, Malawi, the United States, Burundi, Rwanda, and Australia. Further, emigration rate of tertiary-educated population is about 12.4%. A similar proportion (12.4%) of physicians trained the country emigrate to elsewhere.

International migrant stock

Data from UNDESA's Population Division shows that migrant stock in Tanzania has been declining (Table 3.14). Majority of the migrants are in the working age bracket of (age group 25-34 see figure 3.15). This trend has not changed even though volume of migrant stock has declined.

Figure3.15: Population pyramid Migrant stock 2010
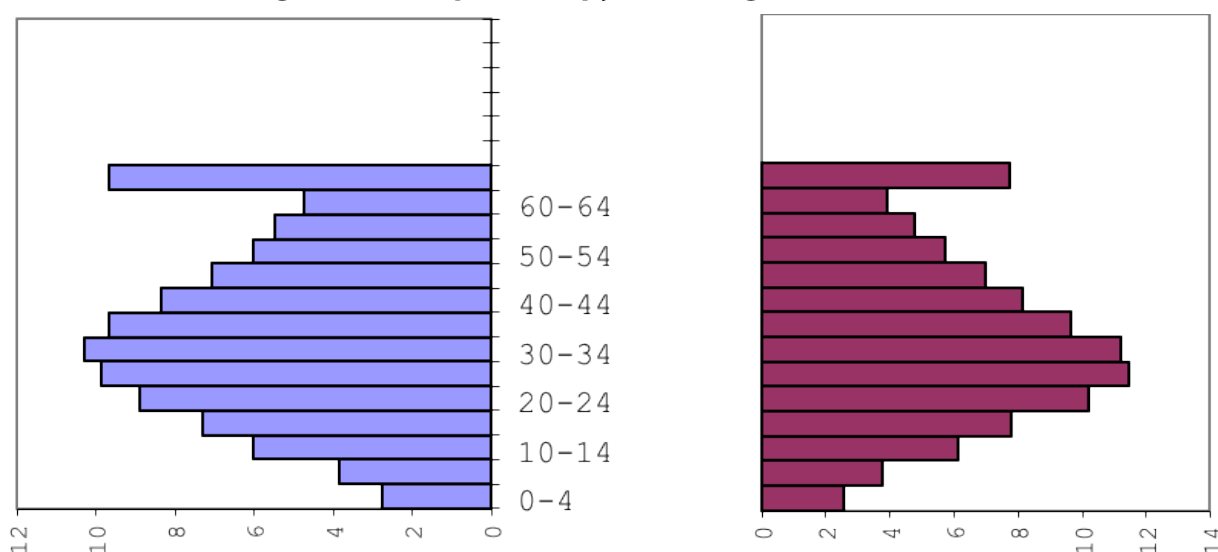
Source: United Nations, Department of Economic and Social Affairs, Population Division (2011).

The sex ratio of the migrant stock has been declining (Table 3.13) indicating more females are coming into Tanzania than males. The share of children mostly accompanying their parents is small indicating that most of the migrants are coming as young unmarried adults.

Table 3.13: Trends of international migrant stock in URT, 1990-2010

	1990	2000	2010
Male	291372	450867	326906
Female	284585	449198	332296
Total	575957	900065	659202
sex ratio	102.4	100.4	98.4

Source: United Nations, Department of Economic and Social Affairs, Population Division (2011). Trends in International Migrant Stock: Migrants by Age and Sex (United Nations database, POP/DB/MIG/Stock/Rev.2011).

The top source countries for international migrant sock are; Burundi, Mozambique, Kenya, the Republic of Congo, Rwanda, Zambia, Uganda, Malawi, India, the United States with 7 out of 10 being refugees (Remittances Fact book of The World Bank in 2011).

Implications of international migration

During the 1960s and 1970s, it was considered that African emigration, especially of professionals and the best educated, was an outrageous deprivation of human resources very much needed by the newly independent countries. In the new millennium, the debates hinge on both the costs and benefits of emigration (Hanson, 2008). The current prevailing international migration trends have been changing due to emerging new drivers at both places of origin and destination.

One of the core issues discussed in current literature is the role of remittances in development by emigrants from developing countries although such studies are few in Africa. Sanket et al 2010 estimated that remittance flows to Sub-Saharan Africa were expected to grow by 4.5 percent and 6.7 percent in 2011 and 2012 respectively and to reach $24 billion in 2012. However, lack of reliable and timely data for most African countries makes it difficult to judge the actual extent of the flows. Available evidence indicates that increases in remittances are associated with increased expenditure on education and health at family level (Hanson, 2008). Further, International remittances have been seen to help to diversify and also to raise household income substantially (de Haas, 2010) thus making remittances as the most tangible link between migration and development. However, some researchers have cautioned on such conclusions for example; simple increase in income does not necessarily lead to development (Ellerman, 2005).

One of the early concerns on the impact of emigration was the brain drain hypothesis. However, this hypothesis has been questioned in recent times because not all migrants are highly skilled. Where there is evidence, brain drain seems to be massive only in a minority of generally small and/ or very poor countries (de Haas 2010). In certain circumstances, brain drain can be accompanied by a significant brain gain because the prospect of moving abroad may stimulate the incentive to study among stay-behinds (WorldBank, 2005; Lowell and Findlay, 2002; Stark et al., 1997) but only if the opportunity to migrate increases the economic returns to education.

According to Hanson (2008), empirical work on global labor flows is still in an early state and available literature provides incomplete answers to some of the most urgent questions such as: do remittances be improve development or not?

3.4.3 Internal Migration

Early analyses of internal migration indicated that migration began as a result of colonial policies and practices (Eicher and Baker 1984). The Colonial tax systems required cash payments and therefore necessitated wage work, in addition, the colonialists also introduced cash crops but the white settlers monopolized their production. This made workers from several countries in the East African region such as Burundi, Malawi, Mozambique, and Rwanda to be recruited into Kenya, Tanzania, and Uganda for employment on agricultural estates. In the post-colonial era, these movements have been supplemented by increasing rural-urban migration within countries for employment or to earn a livelihood (DFID, 2004).

Migration patterns

The census data identifies four patterns of internal migration flows namely: rural-to-urban, urban-to-urban, urban-to-rural, and rural-to-rural. Past migrations involved long distances and mainly labour migrants to plantations and mining towns or regions and most involved single men rather

than families (Mlay undated). Urban migrants can be grouped into two: short distance intra-regional manly to the regional or district headquarters and long distance inter regional to major urban centres.

The largest migratory flows take place within the region and most of the in-migration to regional headquarters is from within the region or from adjacent regions (Table 3.14). However, large urban centres tend to attract higher proportions of migrants from non-adjacent regions than small urban centers.

Table 3.14: In-migrants by Migration Distance and by Regional Headquarters, 2001-02 (Percent)

	Same region	Adjacent region	Non-adjacent region
Dar es Salaam	_	14	86
Morogoro	37	16	47
Dodoma	35	18	47
Songea urban	42	12	46
Arusha	22	32	46
Lindi urban	39	19	42
Mtwara urban	44	15	41
Singida urban	43	16	41
Moshi	42	24	34
Mbeya urban	46	20	34
Tanga	57	9	34
Mwanza	38	29	33
Shinyanga	34	34	32
Kigoma	61	10	30
Iringa urban	55	18	28
Tabora	61	13	27
Sumbawanga	56	21	23
Bukoba	66	12	22
Musoma	61	21	18
Kibaha	20	63	27
Babati	42	44	13

Source: Muzzini and Lindeboom, 2008

At regional level, Muzzini and Lindeboom, (2008) conclude that rural-to-urban and urban-to-urban mobility are both important driving forces of migration at the regional level. A breakdown of migratory flows by origin and destination shows that urban-to-urban and rural-to-urban mobility are equally important migratory flows. On average, rural-to-urban mobility account for nearly half of the total turnover, while mobility between urban centers accounts for the remaining 49 percent of the turnover. These findings indicate that migration between urban centers accounts for a significant share of the mobility to and from urban centers. The business headquarters Dar-es- Salaam emerges is the main pole of attraction for urban migration. Although Dar- es- Salaam has the largest turnover, Mwanza is the highest net in migration according to the 2002 population census.

The analytical report of the 2002 census by national Bureau of Statistics indicated that other than movements within region and adjacent regions, long distance migration streams were observed from Mtwara region to Mwanza region and from Dar es Salaam region to Shinyanga regions. These movements appear to be caused by the presence of gold mines in both Mwanza

and Shinyanga regions. The other long distance migration stream is from Shinyanga to Mbeya that is largely caused by the heavy out-migration of the Sukuma to the Usangu Plains, Mbozi and Chunya districts in Mbeya region. The Sukuma have migrated in large numbers in search of lands for settlement and grazing their livestock. The other long distance more associated with the hunt for better employment opportunities is from Tanga region to Arusha region (NBS 2006).

Profile of migrants

Using 2002 census data, Muzzini and Lindeboom, (2008) compiled a profile of both urban and rural migrants and compared their household characteristics with those of the migrants. Their results (shown in Figure 3.16), indicate that when moving to urban area migrants have two options: join an existing household or establish a new household. Most migrants to urban areas join existing households. While rural households with migrants have better access to services than households with no migrants but Rural-to-urban migrants and urban-to-rural migrants have similar profiles.

(Percent of households)
Figure 3.16: Living Conditions of Urban Migrant Households by Origin of Migrants
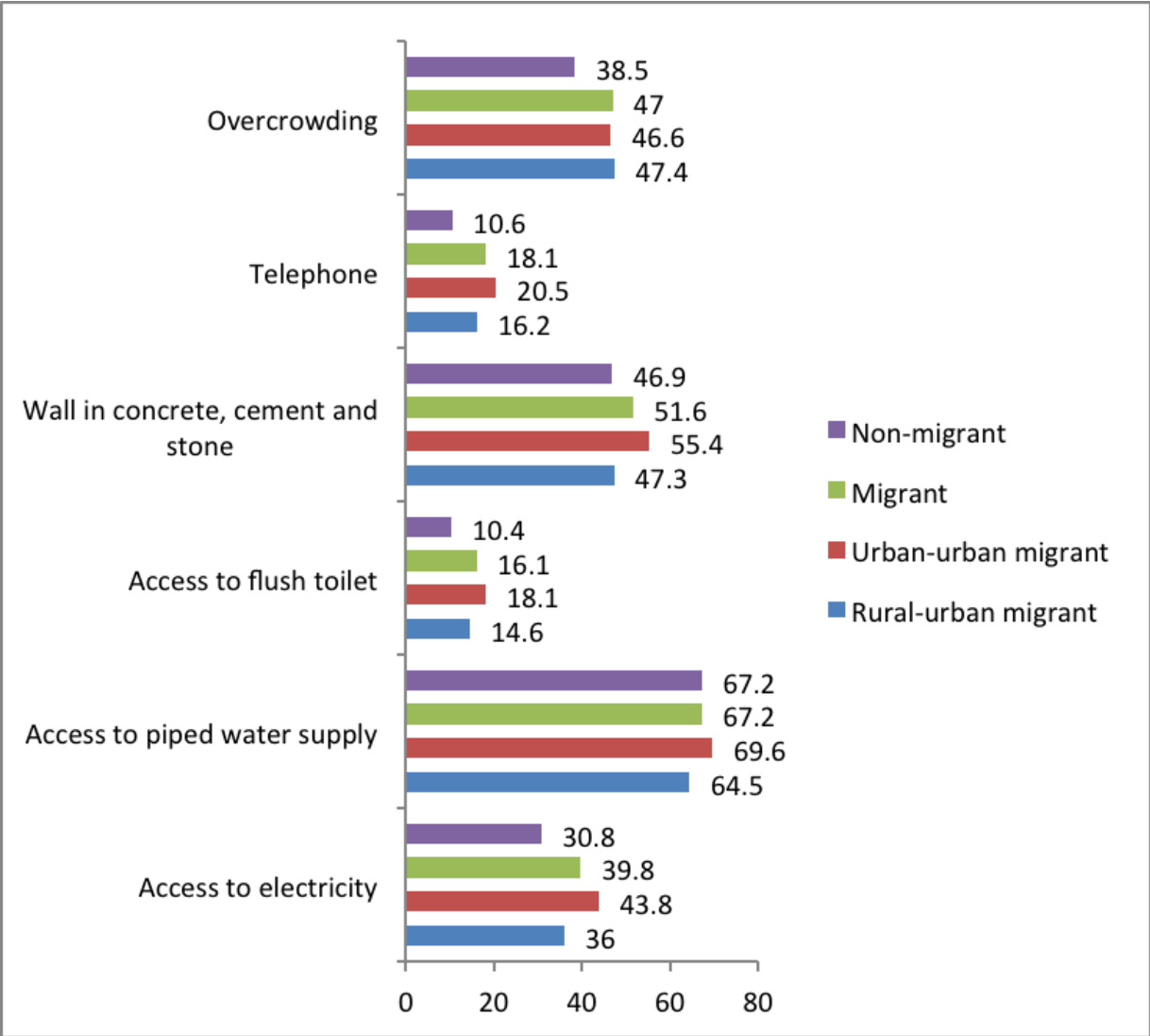
Source: Muzzini and Lindeboom, 2008

Rural-urban Migration and unemployment

There is hardly any reliable data and information on internal migration; this creates a challenge in establishing evidence of the causes of rural-urban and consequences on employment. That notwithstanding, Internal migration is also a demographic factor that significantly influences variations in population growth rates and unemployment between rural and urban areas in the country. The perceived or actual lack of opportunities in rural areas is the main push factor for young Tanzanians to the urban centres. Low productivity and output, shortage of basic needs and lack of employment and modern amenities in rural areas have forced young people to migrate to urban areas in the hope of meeting their expectations: but the majority of them end in frustration when they fail to realize them. One consequence of the high rate of urban population growth due to rural to urban migration is the rise of unplanned settlements (squatters/slums) characterized by pressure on available basic services including housing and secure tenure, safe and reliable water supply, sanitation, accessible roads, drainage and waste collection management.

3.5   Urbanization

Urbanization is the increase in the population of urban localities in proportion to the region's rural population. Globally, 52 percent of the population lives in urban areas which is a historic milestone. In 2010, sub-Saharan Africa was mainly rural with a little more than a third of the population (36 percent) living in urban areas. Much of the policy interest in internal migration has been with respect to rural-urban migration and the rate of growth in urban populations and that of larger cities. Internal migration a key driver of urbanization in Africa is also increasingly becoming dynamic and complex in nature.

3.5.1 Sources and Factors of Urban Growth

Generally, there are five sources of urban population growth in sub-Saharan Africa, namely: rural-to-urban migration; increase in the number of urban centres over space and time; natural urban increase; expansion of urban boundaries or reclassification of urban centres; and daily commuters. Daily commuters, is hardly captured in population censuses but they increase the daytime population of urban areas. These are people who commute to the city from the nearby rural areas or periurban towns on a daily basis for work or business. The growth of urban population in Tanzania is largely caused by rural to urban migration and reclassification of new urban areas. Urban natural increase occurs when there are more births than deaths, *while in-situ* urbanization is the absorption of rural and peri-urban settlements in the spatial growth of a larger adjacent city.

Figure 3.17a shows the proportion of the population living in urban areas since 1967. The trends show a rapid urbanization process particularly in Zanzibar where nearly half of the population is now living in urban areas. Figure 3.17b shows growth rate of urban population since 1967. The rapid growth rate occurred in the 1967-1978 period for the country with much of the growth being contributed by the urban growth rate in Tanzania mainland. This growth rate has however subsided to about 5 percent in the recent decade with Zanzibar having slightly lower growth rate.

Figure: 3.17a: Trends in Persons Living in Urban Areas as a Percentage of Total Population; Tanzania 1967, 1978, 1988, 2002 and 2012 Censuses
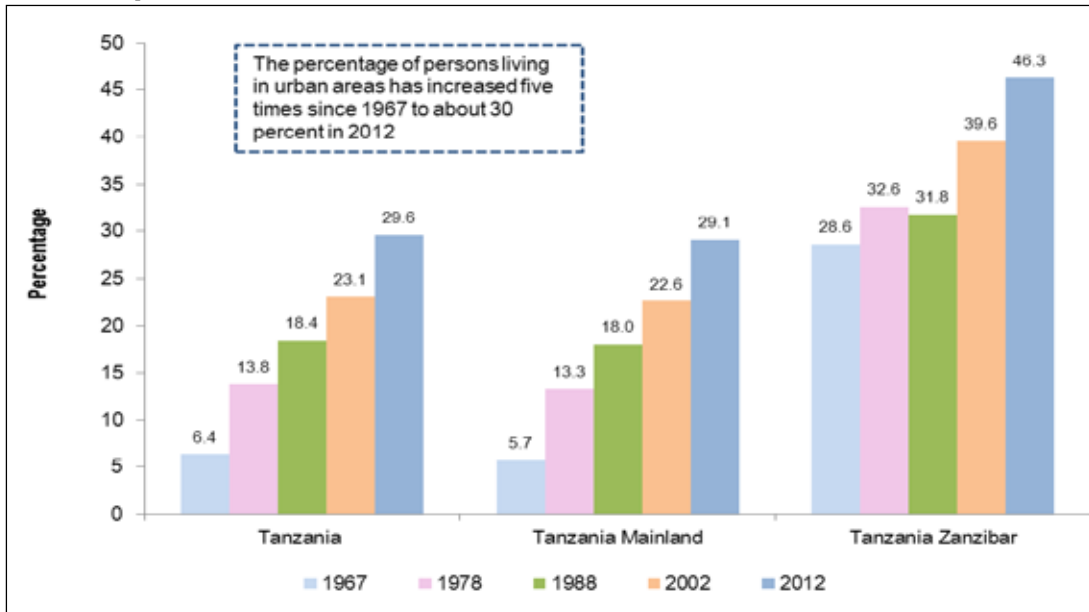
Source: National Bureau of Statistics (NBS) and Office of Chief Government Statistician (OCGS), Zanzibar. 2013.

Figure: 3.17b: Trends inter-censal urban growth rates
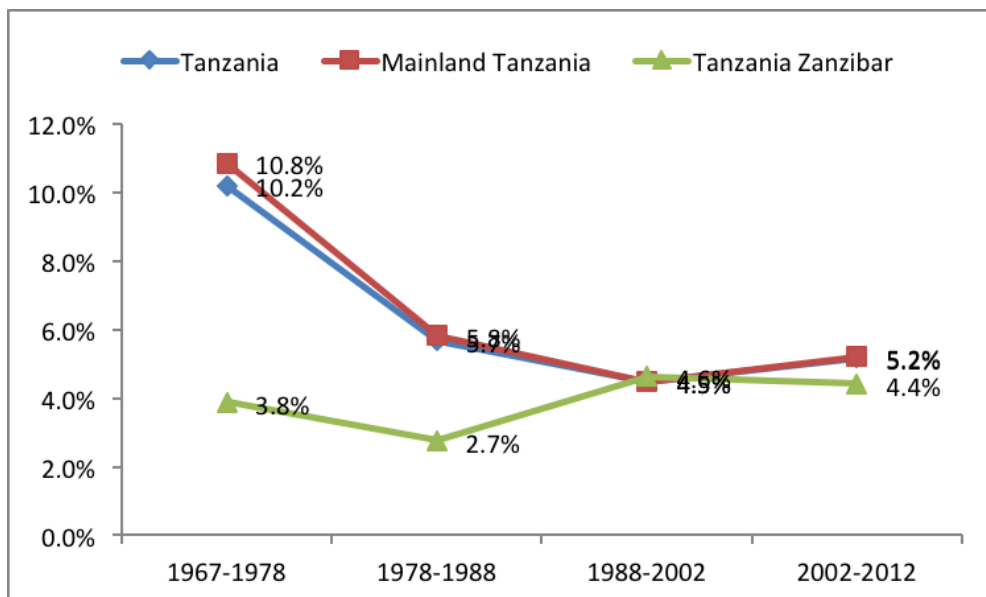
Source: National Bureau of Statistics (NBS) and Office of Chief Government Statistician (OCGS), Zanzibar. 2013.

3.5.2 Regional Variations in Urbanization

Demographic, social, economic and political variables impact greatly on the urbanization process resulting in varied urbanization levels, trends and patterns at levels. Being a commercial city, Dar es Salaam is the most urbanized with its entire population being urban (Figure: 3.18). Mjini Magharibi has the next highest proportion of persons residing in urban areas (84.5 percent). The lowest proportions were recorded in Simiyu (7.0 percent) and Kusini Unguja (6.1 percent) respectively.

Figure: 3.18: Trends in Persons Living in Urban Areas as a Percentage of Total Population, 2012
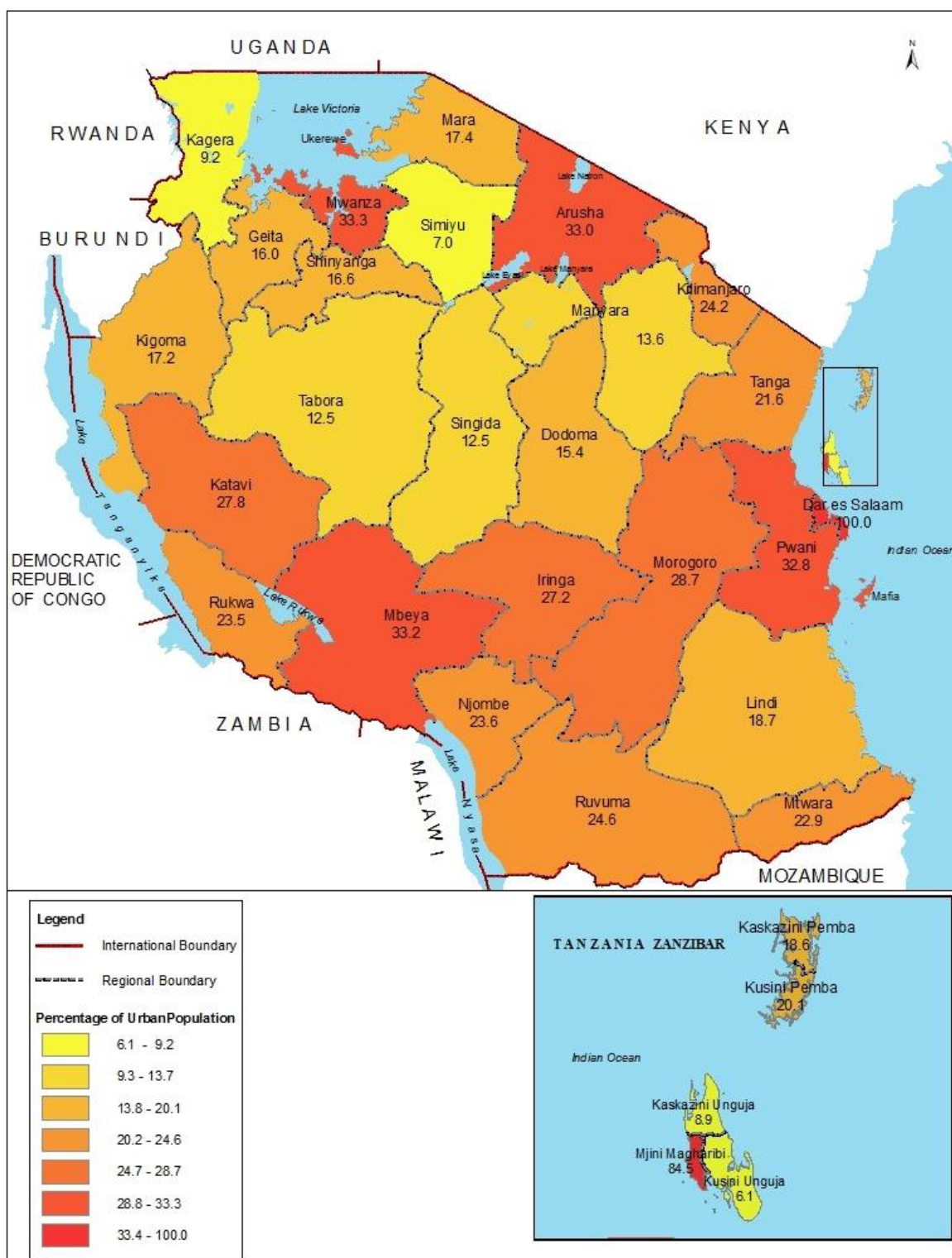
The case of Dar es Salaam

In absolute numbers, Dar es Salaam has the largest net inflow of urban migrants. As a result, it has dominated the urbanization process for over decades. Table 3.15 shows trends and projected

population of Dar es Salaam. By 2025, it will have population of over 5.6 million and will become one of the major metropolis in not only Tanzania but Eastern Africa.

Table 3.15: trends in population of Dar es Salaam

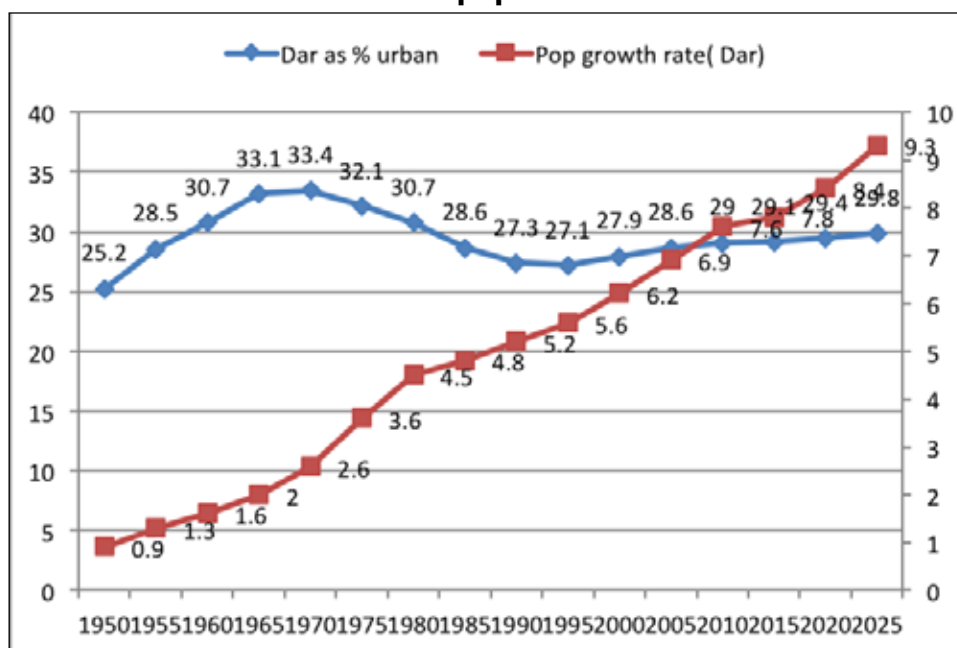| Year	1950	1970	1990	2000	2010	2020	2025
Population ('000)	67	357	1316	2116	3415	4395	5677

Source: Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2010 Revision and World Urbanization Prospects: The 2011 Revision Sunday, November 03, 2013

Figure 3.19 shows trends in proportion of Dar es Salaam population relative to total urban population (left axis) and the rate of population growth of Dar es Salaam (right axis). Initially the dominance of Dar es Salam as a major urban centre peaked in the 1970s (33 % of total urban population). This dominance declined in the 1990s with emergence and growth of other urban centres.

Figure 3.19: trends in proportion of population of Dar es Salaam as percent of the total urban population

Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2010 Revision and World Urbanization Prospects: The 2011 Revision Sunday, November 03, 2013; 7:27:12 PM.

Although the proportion of Dar es Salaam relative to the total urban population is expected to plateau, in the near future, it masks the rate of growth. The annual growth rate of population is expected to reach 8 percent and over 9 percent in 2020 and 2025 respectively. The unprecedented growth rate of Dar es Salaam is likely to over shoot the rate of provision of services, hence the need to stimulate growth of other smaller cities in the wake of rapid urbanization.

3.5.3: Urbanization, Migration and Economic Transformation

A fundamental challenge in sub Saharan Africa is that the urban population is growing very fast while the economic growth and development transformations necessary to support it and

enhance the quality of urban life are not occurring at the same rate (Bocquier et al. 2009). This trend of urbanization without growth has been termed perverse urbanization as it seems to contradict accepted economic models (Bradshaw, 1987).

Todaro's model of rural-urban migration explained the rural to urban migration as reflecting a comparison of expectations of urban employment with the expectation of employment in the rural area where expectation is a result of multiplying the chance of employment by the expected income (Todaro, 1969, Stiglitz 1976). This model was able to explain the presence of large numbers of unemployed or underemployed in the urban areas. However continuation of this trend has implications, some scholars such as Benciveng and Smith (1997) have argued that rural-urban migration and urban underemployment can create development traps including severe recessions that may be extremely difficult to escape. Benciveng and Smith (1997) suggest that a key focus should be on how policies such as agricultural subsidies or provision of urban services impact migration, urban under employment and capital formation.

A key lesson from Southeast Asia and China indicates that as the shares of GDP derived from industry and services become larger than agriculture's, so does the number of workers employed in these sectors. In countries with low initial levels of urbanization, rural–urban migration plays a major role in transforming the distribution of the population as people move to urban centres where new economic opportunities are concentrated. This has been and currently is the case for much of, where rapid economic growth is related to the expansion of manufacturing and is directly linked to rural–urban migration.

The process of urbanization is one of the most significant global social trends of the twenty-first century. The Report of the Global Thematic Consultation on Population Dynamics in 2013 suggested that the major urbanization opportunities for economic and social development is linked to prudent management of cities because cities have always been the centre for economic development and innovation. Due to higher population density in urban areas, governments can easily deliver essential infrastructure and services at relatively low cost per capita. If adjusted for income, people in urban areas tend to consume less energy per capita than in rural areas and energy savings are particularly large in the housing and transportation sector the report says.

Urbanization is a key demographic process of the coming decades, particularly in those regions that are still largely rural (UNFPA 2010). Economic transformation is hinged on transition of high population growth rate to low population growth rate. Urbanization is part of demographic transition and the transformation of a society from high to low birth and death rates - a major determinant of sustainable development.

Katseli et al (2006) review of migration to European Union countries concluded that there is empirical evidence on the economic and social costs and benefits of migration. In particular, migration can generate substantial direct and indirect gains for sending countries via employment generation, human capital accumulation, remittances, diaspora networks and return migration. But Portes (2002) cautions, that the positive relationship between migration and development is not automatic and requires proactive intervention of the state to create productive infrastructure in rural areas and scientific/technological institutions capable of providing necessary conditions for the developmental potential of migration flows to materialize.

It is now recognized that both international and internal migration raise similar questions about the relationships between migration and development, including the ways in which both poverty and development can serve as stimuli for migration and shape the direction, volume and composition of migration flows. It is also equally important to examine benefits of not only remittances and return migration but also questions of skill drain from sending regions and the impact of migrants on receiving economies. Both internal and international flows involve not only economic but also social remittances. These social remittances include changes in gender norms and fertility patterns or governance structure that may have long-range impact on development while others may be neutral or even detrimental in their effects.

In this new millennium, the management of migration has become one of the critical challenges facing states and other international actors. This is because migration presents some of the most complex inter-relationships of policy concerns for governments. The migration factor brings together a multitude of questions on global development, regional dynamics, domestic and foreign policy, national and international security, domestic stability, economic development, labour, human rights, health, housing and general welfare of those affected. Therefore, informed policy decisions require the understanding of both determinants as well as consequences of migration; hence the need for investments to conduct and support studies on migration. The paucity of migration data and information creates a challenge in creating evidence of the causes and consequences of migration. Tanzania as in many other countries in sub Saharan Africa does not have sufficient data on international migration. Similarly, data on internal migration are only available from censuses.

As to whether urbanization as a result of migration is positive for development require further investigation. While fertility is lower in urban compared to rural areas and that urban residence enjoy better basic services than rural, evidence available points to greater urban penalty in terms of child survival. Managing urban growth as part of national development planning, countries can address the challenges and harness opportunities linked to efficiency in provision of needs and lowering of resource scarcity threats.

4. Population and Reproductive Health Related Inequalities

Differences or variations in an attribute or attributes of; individuals, households, communities and society is referred to as inequalities. The differences or variations may be biological or natural while others are due to; social, economic and political arrangements in society. Those Inequalities that arise from social arrangements are unjust contrary to the common notions of fairness are often referred as inequities (Whitehead, 1990). According to Whitehead (1990), all inequities imply inequality but not all inequalities may be considered inequity.

Poverty[14] and inequality though different, are intimately connected because a significant fraction of high poverty rates encountered in some societies are attributable to acute levels of economic inequality (UNFPA, 2010). High levels of inequality have also been associated with a greater prevalence of conflict and violence in societies hence unable to respond to economic development challenges (Development, 2007). Human rights advocates suggest that discrimination is a key underlying cause of inequality is also linked to poverty because discrimination limits the ability of people to participate in development of poverty reduction strategies (Human Rights Watch, 2013; Development, 2007).

4.1 Levels of income inequalities

Although not the focus of this paper, one source of inequality is the differences in income levels. Figure 4.1 shows trends in Gini coefficient (which is a measure of income inequality[15]) for east African community countries. The higher the value of Gini, the higher level of inequality. Tanzania happens to be one of the countries in this region with lowest income inequality after Burundi. However, these measures may underestimate the extent of inequality. First, the data that is used to measure level of inequality and secondly, national measures mask the extent of sub national and community levels of inequality. The extent of income inequality can better be captured using various approaches of estimation rather than on only one indicator.

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[14] Overtime there have been debates and discussions on definition of poverty. Most commonly used measures have been based on food/calorie intake or income levels. More generally, poverty is multidimensional and denotes people's exclusion from socially adequate living standards and it encompasses a range of deprivations that include: economic (income, livelihoods, decent work), human (health, education), political (empowerment, rights, voice), socio-cultural (status, dignity) and protective (insecurity, risk, vulnerability)(see also 1995 United Nations World Summit on Social Development).

[15] Different measures can be used to capture inequality such as Lorenz curves/Gini coefficients and decile-type ratios. However, Gini type misses the large differences at the top and bottom of the distribution, which are better reflected in decile-ratios.

Figure 4.1: Trends in Gini coefficient among East African countries
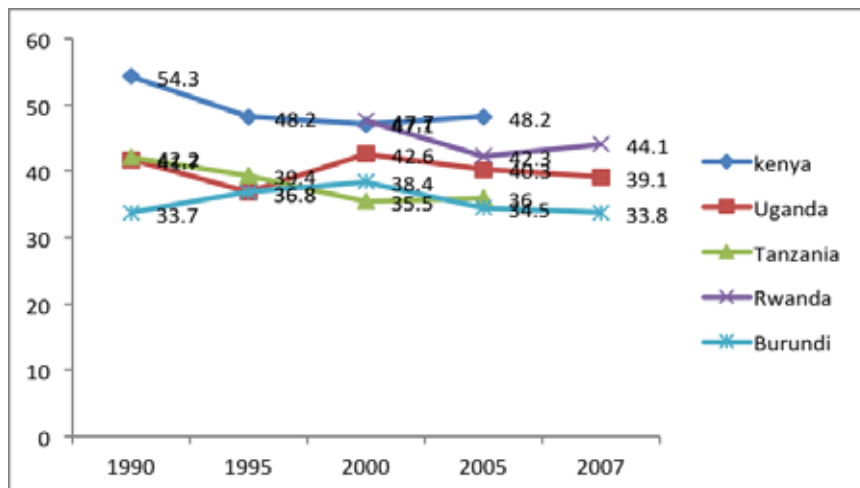
Source: The World bank Database

4.2   Demographic and Reproductive inequalities

4.2.1 Age distribution

Household Wealth Index[16] allows a stratification of the population into five strata (quintiles), using the standard DHS criterion. Although this stratification does not allow the identification of poverty as such, it provides at least a reasonable measure of the relative socio-economic position of population groups with respect to each other.

Though the population of Tanzania is still a youthful population, an examination of Figures 4.2 (a) and (b) shows the age structure of the poorest and richest quintiles are different. The pyramid for richest quintile shows a structure typical of societies that have started experiencing rapid changes in birth and death rates, while the one for the poorest quintile reflects high childhood dependency.

Figure 4.2a Population pyramid for poorest group

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[16]   If a sample or population is arranged from the lowest (earner, consumer, etc) to the highest, and the distribution is divided into 5 equal groups, the group of the poorest members is termed quintile 1 while the richest/least poor group is quintile

Figure 4.2b Population pyramid for the wealthiest group

Source: computed from Tanzania Demographic and Health Surveys 2010 data set

4.2.2 Early childhood mortality and fertility

Table 4.1 shows trends in indicators by wealth quintile and differences between the lowest and the highest quintile. Section 3 indicated differentials in mortality by background characteristics. The results showed narrowing of gap in childhood mortality between groups except by region of residence and educational attainment of the mother. While this is commendable, the results suggest that further reduction in childhood mortality is likely to improve other demographic outcomes. The major differences however occur in fertility outcomes and the utilization of family planning services. The poor women begin childbearing early, have higher number of births and do have the highest unmet need for contraception.

Table 4.1 Trends in indicators in childhood mortality and fertility by wealth index

	Total fertility rate(TFR)						Low/high	Low-high
	Low	2nd	3rd	4th	High	Average	Ratio	difference
1996	7.8	6	6.4	5.4	3.9	5.8	2	3.9
1999	7.8	6.4	6.1	5	3.4	5.6	2.3	4.4
2004	7.3	6.7	6.6	5.3	3.3	5.7	2.2	4.1
2010	7	6.8	6.1	4.7	3.2	5.4	2.2	3.8
	Adolescent fertility rate							
1996	151	130	165	160	93	135	1.624	58
1999	196	141	178	117	81	138	2.42	115
2004	172.5	159.2	163.8	129.2	71.4	132.5	2.418	101.2
2010	na	na	na	na	na	na	na	na
	Infant Mortality Rate(IMR)							
1996	87.3	118	95.6	102.1	64.8	94.1	1.347	22.5
1999	114.8	107.5	115.4	106.8	91.9	107.8	1.249	22.9
2004	88	97.1	87.8	69.8	64.2	82.5	1.37	23.76
2010	61	59	59	60	63	51	1.0	-2.0
	Under Five Mortality Rate(U5M)							
1996	140.1	179.8	148	152.8	97.5	144.8	1.437	42.6
1999	160	159.3	192.7	155	135.2	161.1	1.183	24.8
2004	137.3	156	146.8	117.4	93.3	132.2	1.471	43.96
2010	103	92	91	88	84	81	1.2	19.0

Na- not available

Sources: Tanzania Demographic and Health Surveys 1996, 2004–05 and 2010. Tanzania Reproductive and Child Health Survey, 1999

Changes in mortality, fertility rates and age composition of a given population are not only a possible cause of poverty, but may also result from poverty situations. Mason (2005) has argued that the relationship between demographic variables and the economy is not deterministic but rather, the economic outcome from demographic change is policy dependent. Lipton (1997) reported the existence of a large positive effect of fertility on subsequent poverty in a 28-country analysis. There is a wide and growing body of evidence in all developing regions showing that larger households have a much higher incidence of poverty (UNFPA 2004). This is largely due to the increased dependency burden, where more family members must divide a given level of income and consumption. The close association between trends in fertility and poverty is shown in Figure 4.3 below. The highest rates of population growth are seen in countries which have high fertility. Over time, this poverty is likely to be transmitted intergenerationally, as fewer resources are available to invest in children's, especially girls', education. Lowering fertility at the household level to levels desired by families in lower income strata can therefore have a large impact on poverty and hunger.

Figure 4.3: Relationship between Total fertility rate and poverty.
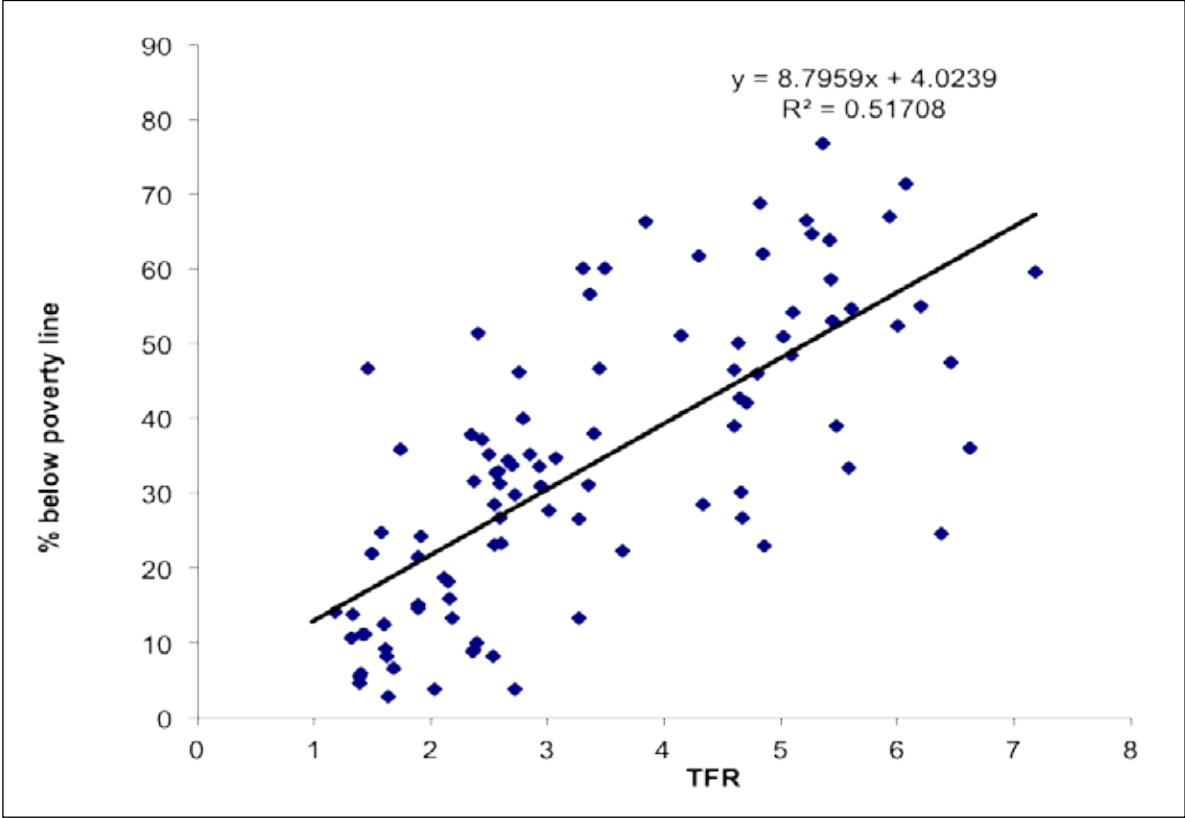
Source: computations from World Bank poverty tables and UNDESA publications on world fertility levels, the 2012 revision.

## 4.3 Conclusion and policy implications

Globally, organizations are demanding that the next development agenda incorporate issues on inequality. The existence of inequalities is a violation of rights and the focus of development must incorporate the needs of individuals. The use of averages for indicators masks high level of inequalities that exist between individuals, communities and regions.

5. Implications of Population Growth

The primary needs of the people, which development programmes aim to satisfy, cannot be gauged rationally without regard to the expected size, composition and distribution of the population at different geographic units and points in time hence the need for population projections. On the other hand, population projections can also be used to estimate the likely demographic impact of planning decisions and policy changes, as well as planning and policy implications of demographic change. Finally, population projections become an important input for programmes not only during target setting, but also for monitoring and evaluation of the programmes.

According to the most recent projections (see, Figure 5.1), the population of Tanzania is expected to grow from about 51.8 million in 2015 to about 70.2 million by 2025 (NBS, 2009). The source of growth is still birth rates with international migration playing negligible role. The future population poses a great challenge to the country's target of meeting the demands for social services and facilities, particularly in such areas as education, health, employment, housing, environmental security and general well being.

Figure 5.1: Projections of Future population URT
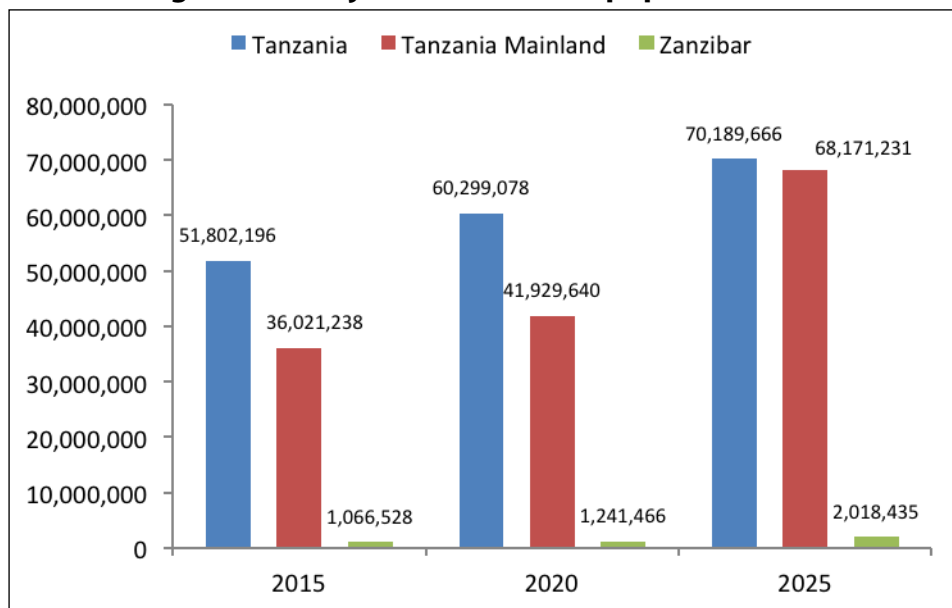
Source: National Bureau of Statistics, 2009

5.1   Components of Future Population growth

John Bongaarts (2009) recently developed population decomposition model that separates the different components of projected population growth (according to the UN Population Division's Medium Variant) into wanted fertility, unwanted fertility, population inertia, mortality, and international migration. These projections for United Republic of Tanzania are illustrated in Figure 5.2 and Table 5.1. Starting from a baseline level of 45.0 million in 2010, the standard (medium)

population would be 109.5 million by 2050. Table 5.1 shows the effect of removal of different components. If the unwanted fertility is removed the size of the future population would decline by 9.9 percent. The largest effect on future population is due to removal of momentum from a young age structure (-32.7%). If the effect of momentum is added together with the effect of high wanted fertility (-31.0%) and unwanted fertility (-9.9%) respectively they account for nearly all future growth. The combined effect of removing changing mortality and migration is just -1.7%. The implication of this simulation model is that the key to reducing future growth lies in reducing unwanted fertility and lowering the desire for large family sizes. However, the population will still continue to grow due to momentum arising from young age structure.

Table 5.1 Effects of components on population growth in United Republic of Tanzania during 2010-2050

Components	% Effect of Removal
Unwanted fertility	-9.9
Wanted fertility	-31.0
Migration and declining mortality	-1.7
Momentum	-32.7
Multiplicative total	-58.8

Source: Bongaarts, 2009

Figure 5.2: United Republic of Tanzania: Alternative projections
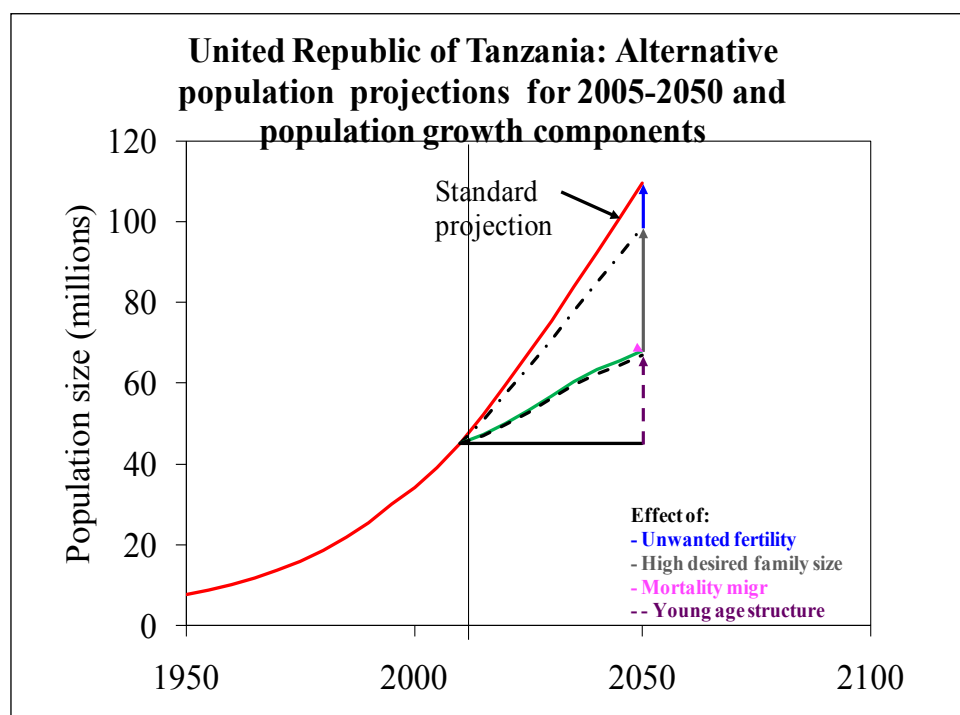
Source: Bongaarts, 2009

5.2   Implications of population growth on food production

Globally, food production (the key basic need) depends on cropland and water availability. In eastern Africa the major source of energy particularly in the rural areas is wood (PRB, 2012). As populations grow, energy use increases. Secondly, as wealth grows, energy use per capita also

increases. In the early stages of industrialization, this is typically accompanied by a decline in the efficiency with which energy supplies are used, resulting in more pollution per dollar of output. The pace of current population has implications on resources such as water, arable land and energy. If the current population of URT increases without change, then by 2025 the renewable water resources per capita shall be 1405.3 cubic meters which is below the threshold of 1667 cubic meters (Table 5.1). The available cropland per capita in hectares shall be about 0.16 hectares which is below the threshold level of 0.21 hectares.

Table 5.1: Trends on implications of population and basic natural resources

year	Cropland per capita (hectares)	Forest area per capita (hectares)	Renewable water per capita (cubic meters)
1975	0.501	0.9128011	6025.2
2005	0.277	0.7454747	2479.2
2010	0.256	0.4100373	2146.9
2025	0.162	0.3963041	1358.2
2050	0.083	0.1519629	696.0

Source: Population Reference Bureau 2012

## 5.4   Implications on Basic Education

Education is a fundamental human right: every child is entitled to it. It is critical to development as individuals and as societies, and it helps pave the way to a successful and productive future. Increasing education, which often facilitates quality labour force and general improvements in the standards of living particularly for women, is an important aspect for social and economic transformation. Projection of the school age population[17]is therefore an important element in education planning.

According to the Education Policy, Tanzania has three levels of education, namely; Pre-primary, Primary and Secondary levels. These levels are differentiated by the ages of pupils and levels of education. The first level is Pre-primary education which enrolls pupils of age between 5 and 6 years. The second level is primary education which enrolls pupils aged between 7 and 13 years while those aged between 14 and 17 years are in secondary education level. However, according to various reasons, some of pupils enroll in primary education below seven years and above 13 years. Two indicators are used to show enrolment levels in primary and secondary educations. These are Gross Enrolment Rate (GER) and Net Enrolment Rate (NER) respectively.

The projections of school going population (Figure 5.4) shows that by 2025 the number of pupils in primary school will slightly be over 11.7 million (NBS, 2009). If the NER and GER are the same (that is 100 percent enrollment ratio is achieved), then this will be the expected number of primary school enrollment. The implication is that more primary schools as well as streams should be expanded to meet this school going population. Using the standard pupil teacher ratio of 40:1, the number of teachers required is computed from the expected number of students based on the pupil teacher ratio. The computations are presented in Table 5.6. Assumptions on the transition rates based on attrition (exits) and recruitment have not been made.

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[17]   This means all children including the most vulnerable, excluded and marginalized. The provision of education must also take into account their right to a quality, rights-based education, and all sectors of society must be energized, engaged, and committed to action.

Figure 5.4: projected school going population[18]
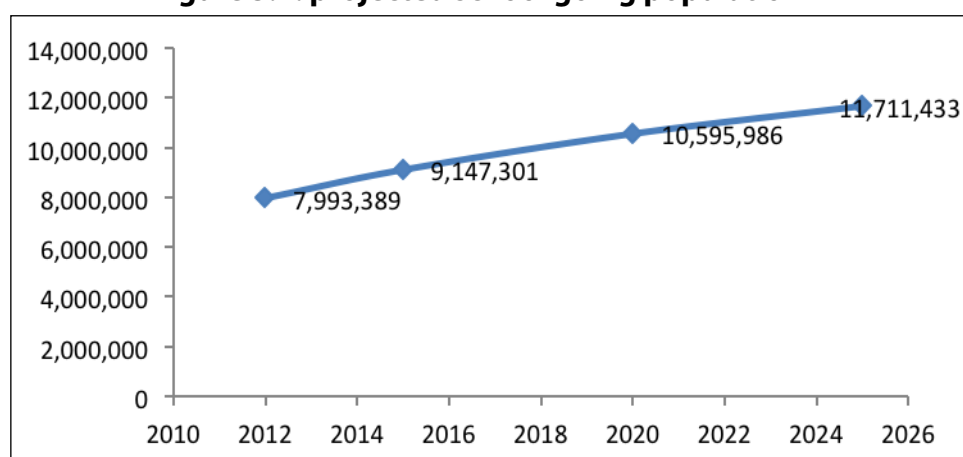
Source: National Bureau of Statistics, 2009

Table 5.6 shows the number of projected 7-13 year-olds, estimated total enrolment of pupils in primary schools, the required estimated teachers and streams or classes in Tanzania Mainland for 2015, 2020 and 2025 (NBS, 2009). The assumptions used to estimate teachers and streams/classes are as follows (based on BEST reports 2012):

(i)   The number of required teachers in primary schools uses the standard Pupils Stream Ratio of 1:40; and

(ii)   The number of required teachers in primary schools uses the standard Pupils Qualified Teacher Ratio (PQTR) of 1:25

The table indicates that, a total of 57,947 teachers or an average of 11,589 teachers per annum will be required between 2015 and 2020. Similarly, a total of 44,618 teachers with an average of 8,924 teachers per annum will be needed between 2020 and 2025.

With respect to streams, a total of 36,217 streams will be required between 2015 and 2020 with an average of 7,243 classes per annum. On the other hand, a total of 36,217 classes or steams with annual average of 7,243 classes will be required between 2015 and 2020, while an average of 5,577 streams should be built annually between 2020 and 2025. To achieve this requirement for teachers implies expanding the teacher training institutions to meet the number required annually.

Table 5.6: Estimated Required Primary Streams and Teachers in Tanzania Mainland, 2015, 2020 and 2025

| Year	Pop 7-13 years	Estimated Total Enrolment Std I-VII	Estimated Qualified Teachers1	Estimated Streams2	Changes of Teachers		Changes of Streams	
					Total	Annually	Total	Annually
2015	9,147,301	9,147,301	365,892	228,683				
2020	10,595,986	10,595,986	423,839	264,900	57,947	11,589	36,217	7,243
2025	11,711,433	11,711,433	468,457	292,786	44,618	8,924	27,886	5,577

Source: Computed using pupil: teacher ratio of 40;1 and required number of pupils per stream

Source: National Bureau of Statistics, 2009

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[18]   Details for the methodology of projections can be obtained from the national Bureau of Statistics projection report 2009. At the time of writing the report, projections based on the 2012 census were unavailable.

Figure 5.5 shows projected number of secondary school enrolments. At the current ratio of teachers to pupils and expected improvement of gross enrolment rate to an average of 60 %, the required number of qualified teachers will be 101,244 by 2025(Figure5.5b). This is almost double the current number of qualified teachers in secondary schools. However to reach 100 percent gross enrolment rates requires 14765 schools and 168735 teachers (Figure 5.5c).

Figure 5.5a: projected secondary school going population
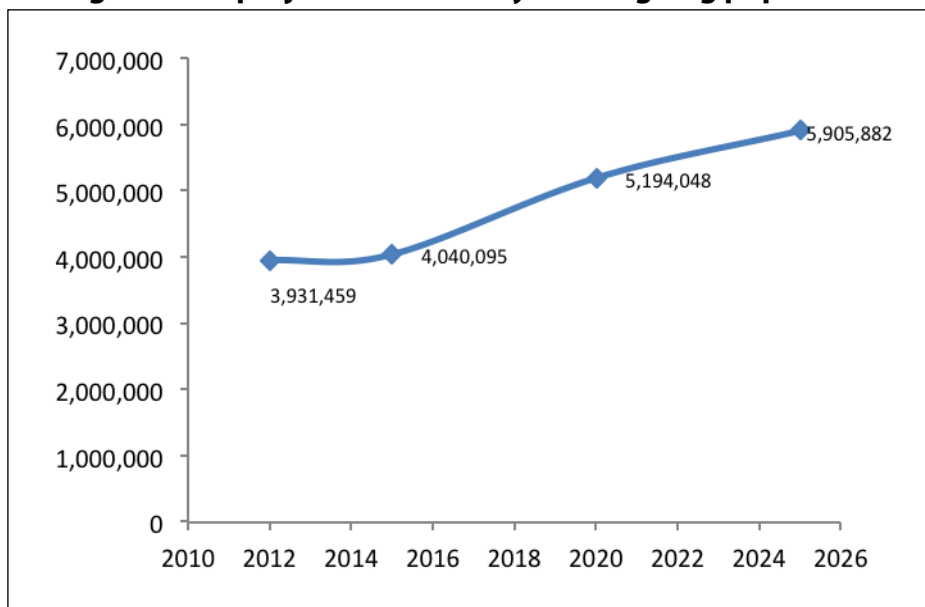
Source: National Bureau of Statistics, 2009

Figure 5.5b: projected required number of schools and qualified teachers (assuming 60%NER 2025)
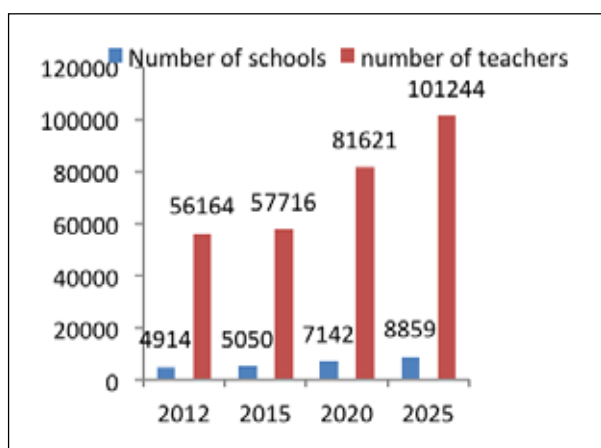
Figure 5.5c: projected required number of schools and qualified teachers (assuming 100 % NER)
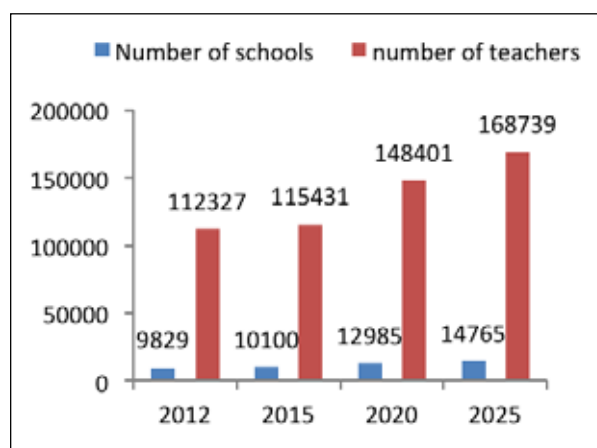
The projections suggest that future requirements for investments need to elevate the education system so that "basic education for all" will be secondary school plus vocational training so that each child has an opportunity to acquire basic skills. Secondly, addressing quality of education even at primary school with due consideration to appropriate teachers and teacher training programmes, syllabi, teaching and learning materials and environment, including buildings, laboratories and; improved access to and completion of girls at secondary and vocational education levels.

5.5   Implications on Labour force

The most direct and important link between population dynamics and economic and social development is the labour market (UNFPA 2010). For countries with a rapidly growing youthful population such as Tanzania to seize the potential of demographic bonus, they must create sufficient and sufficiently productive and remunerative employment opportunities for their labour force (UNFPA 2010). The challenge lies in policy responses, namely; i) efforts to promote employment-oriented economic growth) as well as ii) efforts to strengthen the employability of people which require human capital investments.

Tanzania's labour force is defined as the economically active persons in age-group 15-64 years. Previous Integrated Labour Force Survey (ILFS) 2000/01 indicated that the active labour force was 17.8 million with approximately 87% (15.5 million persons) employed. About 84% of the employment is engaged in traditional agriculture, 6% is in the informal sector, 4% is in the private formal sector, 3.5% is engaged in domestic work, 2% is with the government and 0.5% is in the parastatal sector. The difference between total labour force (17.8 million persons) and employed labour (15.5 million persons) is 2.3 million people (unemployed people), out of which 1.3 million are women and 1 million are men. About half of unemployed were living in urban areas. Unemployment for the city of Dar-es-Salaam was 46.5 percent while in the other urban areas it was 25.5 percent and in rural areas it was 8.4 percent. The ILFS findings also revealed that unemployment was a serious problem among the youth, and that young women were more vulnerable.

Current estimates show that between 650,000 and 750,000 persons have been entering the labour force every year with the agricultural sector, the informal sector and the formal private sector employing more persons. Overtime change in the number of labour force is shown in Table 5.7 below.

Table 5.7: Trend of Tanzania's Labour Force (Estimates in Millions)

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
15.5	16.1	17.0	17.6	18.3	18.5	19.0	19.7	20.4	21.9	22.3	24.1

Source: united Nations statistics division various reports

National Panel Surveys done in 2010-2011 (Table 5.8) shows that labour force participation is highest in rural areas than in urban, and the opposite is the case when it comes to unemployment rate. In terms of employment, the agricultural sector is said to posses' abundant workforce. While population is growing at 2.7 percent per annum and the total labour force is growing at around 2.3 per cent per annum, it is estimated that the agricultural labour force is growing at a maximum of 2.1 per cent per annum due to rural-urban migration and the growth of nonagricultural informal sector activities in the rural areas. The effective labour force is probably growing more slowly than this due to the effect of the HIV/AIDS and malaria pandemics.

Table 5.8: Labour Force Participation and Unemployment Rate

	Labour Force Participation rate	Labour Force Participation rate	Unemployment rate	Unemployment rate
Region	**NPS 1**	**NPS 2**	**NPS 1**	**NPS 2**
Tanzania Mainland	78.0	83.6	2.3	3.0
Dar es Salaam	68.0	72.6	16.0	13.0
Other urban	68.3	74.7	4.1	4.9
Rural	81.4	87.1	0.6	1.5

Source: Tanzania National Panel Survey Report, Round 2 2010-2011

According to RAPID model results, with persistent high fertility, annual new job requirements would increase from 531,000 in 2005 to 1,048,000 in 2025 and 1,468,000 in 2035 (Ministry of Planning, 2006). However, with declining fertility, annual new job requirements would be 822,000 in 2025 and 812,000 in 2035 (Ministry of Planning, 2006).

5.5.1 Unemployment rate

Information on unemployment rate is not readily available; there are no systematic efforts to collect information on unemployment in Tanzania. Nevertheless there is scratch information that is not reliable but good enough to provide some insight on the unemployment problem. According to the United Nations Statistics Division (2011), Tanzania's overall youth (15-24 years of age) unemployment was 8.8 percent; it was 7.4 percent for males and 10.1 per females

In terms of sources of employment, the formal sector is quite small and not being able to increase employment as fast as the increase in the labour force; in any case this sector absorbs only people with certain levels of education and skills. Between 2010 and 2011, for example, the formal sector was able to increase its employment by only 6.7 percent (see table below).

Table 5.9: Sector employment

Source of employment	2010	2011	Percentage Increase/decline
Formal Sector employment (numbers)	1,276,559	1,362,982	6.7
Private sector (%)	63.7	63.1	-0.6

Source: Employment and Earnings Survey 2010-2011

The private sector, which is considered the main engine of economic growth, is still small in Tanzania, and while it is growing, the rate of growth is slower relative to the growth of the labour force. On average the private sector absorbs 63 percent of the employed. According to the Employment and Earnings Survey (EES) report 2010-2011[19], the private sector share of employment declined by 0.6 percent between 2010 and 2011.

It should also be noted that, under-employment is also high particularly in the agricultural sector as well as the informal sector. The 80% (of total labour force) employed in traditional agriculture, 6% in the informal sector and other sectors are in many cases not productively engaged to full capacity. Many of them are therefore under-employed. Under-employment rate according to the 2001/02 ILFS was 11.2% in 2000/01 up from 4.3% in 1990/91 (Mhone 2005). Under-employment is said to have worsened in the rural areas compared to the urban areas, particularly because the main occupation for most of the rural dwellers is farming and/or rain fed agriculture which is very seasonal. This is the abundant idle labour which is not only underemployed, but in some cases unemployed. It therefore forms an important idle and/or unutilized capacity in the agricultural sector. This is obviously an area which Tanzania could have utilized by adopting appropriate policy interventions aiming at skills development and human resource absorption strategy.

5.6   Conclusion and Policy Implications

Experiences of South East Asian countries indicated that demographic dividend is delivered

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[19]   The Employment and Earnings Survey (EES) report is the only source of regional information showing the distribution of income, new workers recruited, current job vacancies and number of employees in the formal sector of employment. Therefore, the need for this report arises from the appreciation of information gap that persisted on employment and earnings. However, due to lack of financial resources, this series was discontinued for sixteen years before being resumed in 2001. The report referred above is the fourth since 2001.

primarily through three mechanisms (Bloom, Canning and Sevilla 2003, 39):

- Labour supply – the numbers available to work are larger and women are more likely to enter the workforce as family size decreases;
- Savings – working age people tend to have a higher level of output and also a higher level of savings;
- Human capital investments – with smaller numbers of children and cultural changes there will be greater investment in education and health.

The present population profile and its dynamics have far reaching implications for development and poverty alleviation in Tanzania. Studies have shown that two major factors will determine Tanzania's future economic growth prospects: growth in the working-age share of the population and ability to create jobs needed to absorb increasing labour force. The capacity of an economy to cope with changes in population size and age structures is most directly influenced by the growth of the economy and the rate of employment creation. Economic growth and employment creation, as well as economic diversification and upgrading, crucially depend on capital accumulation, technological progress, and structural change.

6. Institutional Framework for Handling Population Issues

Frequent changes in custodians of population issues and of poverty reduction initiatives has posed challenges, as the two interrelated concerns constrain their implementation within their changing institutions (President's Office Planning Commission and Ministry of Finance and Economic Affairs). This has adversely affected commitment in addressing them as an integral whole.

The current institutional structure mandated to oversee and coordinate population issues is the Social Services and Demographic Cluster of the **President's Office Planning Commission (POPC)**. In the absence of a formal, well staffed and high placed Population Planning Unit that has significant clout with other sector ministries and departments, the National Population Policy will remain the good policy that it is and nothing more. Furthermore, till the structures proposed in the National Population Policy – specifically the Tanzanian Council on Population and Development (TCPD); the National Population Technical Committee (NPTC) and Population Desks in all relevant Ministries at regional and district levels are established or reactivated, the structure will remain weak.

The need to comprehensively and urgently address the high fertility in Tanzania cannot be over-emphasized. The implication is to implement the policy issues as specified in the National Population Policy of 2006 and to integrate population policy issues in the planning and implementation of the national development plans as is indicated in the Africa position on ICPD at 2014 and beyond. The country is faced with favourable macroeconomic conditions. The macroeconomic picture portrays a fairly stable economic growth rate fluctuating between 6% and 8% over the last decade (6.5 % in 2012). These growth rates are modest when examined on per capita terms owing to the rapid population growth. The effect on socio-economic development would be significantly attenuated by the implicit huge public expenditures on education and health. Compounded by incessant inflationary pressures on consumption they are inadequate for mass welfare improvements and hence the need for a faster economic growth and a less rapidly growing population.

7. Summary and General Conclusions

Despite debates on the linkages between population and development, studies now show that issues on population go beyond the total numbers of people (size). All the components of population i.e. age structural composition, density, distribution and characteristics – must be considered in the context of sustainable development and human wellbeing. In addition, sources of change are the cornerstone to understanding the complex relationship between economic transformation and demographic transition. The speed at which the demographic transition takes place is important because different speeds create different social, economic and environmental challenges and opportunities for countries.

7.1 Summary

Tanzania's population almost tripled during the 35 years between 1967 (first post independence census) and 2012. At a rate of 2.7 percent[20] the national average population growth rate ranks as one of the fastest in the world and translates to a net total of about 1.2 million people being added to the population annually. At this rate Tanzania's population is projected to reach 70.1 million in 2025. The high rate of population growth is driven by persistently high level of fertility, reduced mortality and low international net migration.

The rate of past and current growth resulted in unprecedented large youthful population that will enter labour market in the near future and those that will determine the future population change. The increase in youth population has opportunities and as well as challenges. To gain from the ever-increasing youth population requires appropriate policies and programmes that harness their potential. On the other hand persons age 60 and above though are of much lower proportion, are increasing in large numbers that demand attention to their welfare.

A key source of growth is the persistent high fertility rates. Trend data indicate remarkable decline in fertility between 1991 and 2000 followed by a stall in fertility decline between 2000 and 2004 followed by a marginal decline by about 5.3 percent between 2005 and 2010. The major sources of marginal decline are; unchanging fertility rate among women in age groups 20-24 and 25-29; slow pace in uptake of contraception among lower socioeconomic strata; persistent high fertility in the western parts of the country coupled with desire for large family in the same regions and unchanging unmet needs for contraception. Education, urbanization and income levels play a significant role in reducing fertility. Large differences in fertility levels between regions and place of residence are due to differences in education, income and urbanization on one hand and the level of child survival. The northern regions have had the highest proportion of women with secondary education, rapid urbanization coupled with low childhood mortality have had the highest rates of fertility decline within the last decade.

Childhood mortality is a key indicator of a country's socio-economic well-being. Infant and under-five mortality rates are useful indicators for assessing progress in overall national development. A recent review of status of MDG indicates that Tanzania is among the countries in sub Saharan Africa

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[20] At an annual growth of 1.0% a population wills double itself in 70 years; at 2.0%, the doubling time reduces to 35 years.

that have made insufficient progress towards the achievement of mortality related indicators (MDG 4). However, the country has made progress in bridging the gap in childhood mortality between the poor and the wealthiest groups and between urban and rural areas. Differentials in mortality remain by level of education and region of residence. The four decades of changes in childhood mortality obscures important secular trends that have occurred across different groups. Infant mortality continues to be lower in the northern regions of Arusha and Kilimanjaro. It is important to note that regions with the lowest childhood mortality rates have also the lowest fertility levels indicating that it is important to bring down the levels of childhood mortality before initiating rapid fertility decline.

International migration contributes little to population change in Tanzania. An initially high rate of inflow was contributed by refugees into Tanzania from the southern part of Africa. The peak in migration to Tanzania occurred again 1990-1995 due to refugees in western part of Tanzania from troubled neighbours of Burundi and Rwanda. It is estimated that there will be net outflow from Tanzania to other countries. However, data and information is required to study the nature of international migration particularly the effect of economic and social remittances.

Tanzania as in many other countries in sub Saharan Africa does not have sufficient data on international and internal migration. Evidence available indicates greater rural to urban migration with rural to rural more confined to within region and neighborhood migration. Census data do not allow for estimation of circular migration which is thought to be rampant in this region in Africa.

The country now experiences rapid urbanization process particularly in Zanzibar where nearly half of the population is now living in urban areas. The rapid growth rate occurred in the 1967-1978 period. This growth rate subsided to about 5 percent in the recent decade with Zanzibar having slightly lower growth rate. There are five sources of urban population growth namely: rural-to-urban migration; increase in the number of urban centres over space and time; natural urban increase; expansion of urban boundaries or reclassification of urban centres; and daily commuters. Daily commuters, is hardly captured in population censuses but they increase the daytime population of urban areas.

The structure and dynamics of population in Tanzania have several implications on development. As population grows, so does the demand for resources. Rapid population growth of this magnitude results in increased social expenditures such as education and health thereby diminishing investment in other critical development sectors such as agriculture, science technology and infrastructure. Between 650,000 and 750,000 persons are being added to the labour force annually and about 2.3 million persons have remained jobless particularly women.

If the current population increases without change by 2025 the renewable water resources per capita shall be 1405.3 cubic metres which is below the threshold of 1667cubic meters while available cropland per capita in hectares shall be about 0.16 hectares which is below the threshold level of 0.21 hectares. In terms of primary education, an average of 11,589 teachers per annum will be required between 2015 and 2020. Similarly, an average of 8,924 teachers per annum will be needed between 2020 and 2025. To achieve this requirement for teachers implies expanding the teacher training institutions to meet the number required annually.

7.2   Conclusions

United Republic of Tanzania as several other developing countries is experiencing high fertility and low mortality rates at the same time, thus causing a "population boom. As a result it is witnessing unprecedented large youthful populations which in turn have a number of implications for growth and development. The expected large numbers of youthful workers joining the labour force can be an opportunity or a challenge. However, the economic opportunity can occur only once in a limited amount of time and only if harnessed. Studies show that the demographic bonus brought about surging youth population will not automatically occur without the active commitment of a government to design and implement appropriate policies and programmes. Such policies and programmes must promote: (i) high quality base of human resources, (ii) growth of employment, and (iii) high saving and investment rates. Studies on the experiences of South East Asian countries that experienced demographic bonus indicated that these countries had high employment rates (Mason 2001). In addition to growth rates of employment, productivity particularly in the service and manufacturing sectors improved substantially (UNFPA, 2010b).

Studies have indicated that part of what contributed to the early economic growth of South Korea and the other "Asian Tigers" was that, as they were making investments in health, education, and family planning, they also created policies that attracted foreign investment, promoted the export of locally manufactured goods, and created a minimum wage to raise standards of living (Gribble, 2012). As indicated in chapter three, there is need to address high fertility by providing family planning services. There is need to expand opportunities for higher education particularly for women and in rural areas. In addition, critically review the quality of education, including vocational skills essential for technological change as well as ensuring that educational provision is aligned with and tailored to the needs of both the local and global economy.

Finally, urbanization is inevitable and managing its trends and patterns constitute a major challenge and opportunity. Urban population is growing very fast while the economic growth and development transformations necessary to support it and enhance quality of life are not occurring at the same rate. If well managed, cities offer important opportunities for economic and social development because Cities have always been centres for economic development and innovation. Due to higher population density in urban areas, governments can more easily deliver essential infrastructure and services at relatively low cost per capita. Urbanization is part of demographic transition and the transformation of a society from high to low birth and death rates. Therefore planning and managing urban growth as part of national development planning, can enable the country to address the challenges and harness opportunities linked to efficiency in provision of needs and lowering of resource scarcity threats associated with high population growth rate.

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Appendix 1:

Population Distribution by Five-Year Age Groups and Sex – Tanzania Mainland, 2012 Census

Age Group	Both Sexes		Male		Female	
	Number	**Percentage**	**Number**	**Percentage**	**Number**	**Percentage**
Total	**43,625,354**	**100.0**	**21,239,313**	**100.0**	**22,386,041**	**100.0**
0 - 4	7,069,895	16.2	3,535,673	16.6	3,534,222	15.8
5 - 9	6,475,364	14.8	3,242,111	15.3	3,233,253	14.4
10 - 14	5,625,848	12.9	2,809,113	13.2	2,816,735	12.6
15 - 19	4,466,674	10.2	2,171,355	10.2	2,295,319	10.3
20 - 24	3,831,098	8.8	1,737,849	8.2	2,093,249	9.4
25 - 29	3,292,866	7.5	1,503,841	7.1	1,789,025	8.0
30 - 34	2,827,482	6.5	1,342,110	6.3	1,485,372	6.6
35 - 39	2,369,100	5.4	1,149,418	5.4	1,219,682	5.4
40 - 44	1,840,336	4.2	916,020	4.3	924,316	4.1
45 - 49	1,453,465	3.3	694,318	3.3	759,147	3.4
50 - 54	1,172,559	2.7	587,555	2.8	585,004	2.6
55 - 59	751,410	1.7	379,627	1.8	371,783	1.7
60 - 64	749,132	1.7	368,814	1.7	380,318	1.7
65 - 69	481,271	1.1	232,811	1.1	248,460	1.1
70 - 74	466,077	1.1	220,651	1.0	245,426	1.1
75 - 79	287,096	0.7	141,974	0.7	145,122	0.6
80+	465,681	1.1	206,073	1.0	259,608	1.2

Appendix 2:

Historical Stages of Demographic Transition

Stage 1. In this early stage of the demographic transition as observed in Europe, birth rates and death rates are both high. Modern medicine had not yet developed techniques to lengthen life substantially and standards of personal hygiene were comparatively low. Both rates fluctuated depending on circumstances. No demographic transition has occurred.

Stage 2. In this stage, standards of hygiene and more modern medical techniques began to drive the death rate down, leading to a significant upward trend in population size. The birth rate remained high, as much of the economy was based on agriculture.

Stage 3. Urbanization decreases the economic incentives for large families. The cost of supporting an urban family grew and parents were more actively discouraged from having large families. In response to these economic pressures, the birth rate started to drop, ultimately coming close to the death rate. In the meantime, however, in case of Europe, the increased population led to tremendous societal pressures that caused large scale migration (e.g., to the USA) and extensive global colonialization.

Stage 4. The last stage of the demographic transition in Europe was characterized by a higher, but stable, population size. Birth and death rates were both relatively low and the standard of living became much higher than during the earlier periods. The developed world remains in the fourth stage of its demographic transition. A good example of a country in this stage is Sweden. At stage 4, we speak of countries having completed the second or a full demographic transition.

The demographic transition did not occur overnight in Europe. It is anticipated that a transition like this will occur in all countries as they become further developed. However, time (many decades) will be needed for the birth and death rates to equilibrate - during which time the population will continue to grow rapidly.

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[1]   No infant mortality rate for the last census because analysis on the same has yet to be done

The Demographic Transition
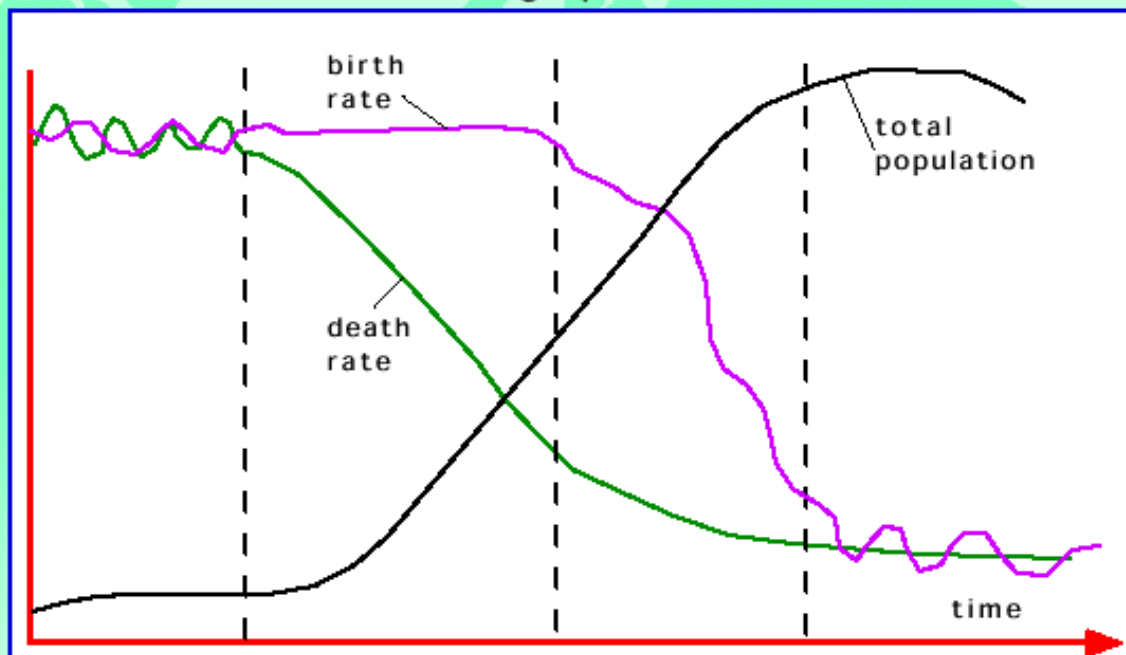
Stage 1	Stage 2	Stage 3	Stage 4
High birth rate high, but fluctuating death rate	Declining death rates and continuing high birth rates	Declining birth and death rates	Low death rates and low, but flutuating birth rates

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Vision:
The vision of ESRF is to become a national, regional and international centre of excellence in capacity development for policy analysis, development management and policy research by the year 2015

Mission:
ESRF's mission is to build capacities in economic and social policy analysis and development management.

Objectives:
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"This ESRF Discussion Paper is based on the output of the Tanzania Human Development Report 2014"