RAPID
The Change We Seek

Ghana

Republic of Ghana

National Population Council

RAPID

Population and Development

Effective Population Management
for Better Quality of Life

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CONTENTS

Acknowledgements

Foreword

The overall goal of the Medium-Term Economic Development Policy Framework, titled the Ghana Shared Growth and Development Agenda (GSGDA) 2010–2013, is to achieve and sustain economic stability while placing the economy on a path of higher growth in order to attain a per capita income of at least US$3,000 by 2020 while also achieving the Millennium Development Goals (MDGs).

The National Population Council (NPC) is a statutory body set up to advise the government on population-related issues. It is also mandated to coordinate, monitor, and evaluate all population-related programmes in Ghana, as well as conduct or commission research into existing and emerging population issues. This mandate is consistent with Article 37, Clause 4 of the 1992 Constitution of the Republic of Ghana, which states that, "The state shall maintain a population policy consistent with the aspirations and development needs and objectives of Ghana."

Population factors are crucial to the development planning of a country. When a population grows rapidly, social services need to expand to accommodate the growing numbers. The education sector has to plan for more students, teachers, and schools; the health sector has to anticipate the increased need for health facilities, doctors, nurses, and supplies; and the agricultural sector has to plan for greater food production and resource stress. A larger population puts greater pressure on a country's arable land, water, forests, and other natural resources; and as cities and towns expand, the need for more housing, water, transport, sanitation, and other urban services will increase. With such high economic ambitions, the economy of Ghana must diversify and support the growing population. Industries will need to grow and expand to provide employment, improve living standards, and reduce poverty. Despite the good economic growth that Ghana has been experiencing, the Ghanaian population is expected to be larger in the future than it is today due to the population momentum, regardless of current birth rates. However, the future population size and rate of population growth can be influenced by policy measures implemented now or in the future.

This booklet focuses on assessing some population factors and their impact on Ghana's socioeconomic development and ability to achieve its stated economic vision.

Abbreviations

AIDS	acquired immune deficiency syndrome
CPR	contraceptive prevalence rate
ECOWAS	Economic Community of West African States
FP	family planning
GDHS	Ghana Demographic and Health Survey
GDP	gross domestic product
GHS	Ghana Health Service
GPRS	Ghana Poverty Reduction Strategy
GSGDA	Ghana Shared Growth Development Agenda
HIV	human immunodeficiency virus
ICPD	International Conference on Population and Development
MDG	Millennium Development Goal
MICS	Multiple Indicator Cluster Survey
MOE	Ministry of Education
MOH	Ministry of Health
NPC	National Population Council
POA	Programme of Action
PHC	Population and Housing Census
RAPID	Resources for Awareness of Population Impacts on Development
RH	reproductive health
TFR	total fertility rate
UN	United Nations
UNFPA	United Nations Population Fund
WHO	World Health Organisation

Introduction

Development is complex, multidimensional, and intricately linked with population dynamics. In recognition of these factors, the 1995 International Conference on Population and Development (ICPD) Programme of Action (POA) recommended integrating population factors into development planning.

Ghana's 1994 Revised Population Policy has benefited from sustained democratic governance, economic stability, and economic progress. The population has an impact on all socioeconomic development indicators in Ghana, because it forms the human resource base for national growth and development and is the direct beneficiary of socioeconomic development. The effects of population growth have not occurred uniformly nationwide, just as population dynamics are not homogenous across the country.

Measures like the Ghana Poverty Reduction Strategies I & II (GPRS I & II) and the Ghana Shared Growth Development Agenda (GSGDA) were adopted to ensure Ghana's macroeconomic stability and have largely been successful—inflation has declined steadily, reaching and sustaining single-digit levels for more than a year. Substantial economic growth and increases in per capita income over time have accompanied the decline in inflation rates. Real GDP increased an average of 4.3 per cent from 1998 to 2002 and surpassed 8 per cent in 2008. Ghana's economic growth rate since 2008 has been estimated among the highest in the world, reaching as high as 14 per cent, largely due to the discovery of oil in commercial quantities (World Bank, 2011). However, this rapid economic progress could erode if the population continues to grow unsustainably. To ensure that development gains will not be reversed by rapid population growth, focused intervention programmes should be adopted. A rapid population increase slows development, makes investment in health and standard of living improvements more difficult, and threatens the precarious balance between people and natural resources.

Population growth is, therefore, an important factor to consider in Ghana's quest to develop programmes that promote economic development and reduce poverty. To help guide and inform the nation's efforts towards achieving the national targets, including the MDGs, by 2015, current and projected demographic patterns were used as a basis for investigating the impact of population growth on future development efforts. The analysis was conducted using the Resources for Awareness of Population Impacts on Development (RAPID) Model. Beyond 2015, the global agenda for development will continue to focus on eradicating poverty and promoting sustainable development while emphasising its numerous social, economic and environmental dimensions.

The RAPID analysis focused on contraceptive prevalence, which is a key determinant of individual fertility, and how it could potentially improve the well-being of individuals and the population as a whole. The analysis was based on information from the 2008 Ghana Demographic Health Survey (GDHS), the 2010 Population and Housing Census, and other data sources. It projects two contraceptive prevalence scenarios—a high contraceptive prevalence rate (CPR) scenario of 1.5 percentage point increase per annum and a low CPR scenario of 0.4 percentage point increase per annum. The data are projected to a target year of 2040 to examine the longer-term sectoral implications of achieving the MDGs in education, job creation, urbanisation, health and agriculture, and the national family planning goals of the 1994 Revised Population Policy. It concludes that the MDGs and future development targets may be difficult or prohibitively expensive to achieve if consistent efforts are not made to ensure a sustained high CPR.

This booklet and its accompanying presentation materials aim to create awareness among government and business leaders, community and opinion leaders, other civil society groups, and the general public about the consequences of low CPR growth and the need to support population policies and related programme implementation. Maintaining steady growth in CPR is crucial for national development planning and enhancing the quality of life for all of Ghana's population.

Ghana's Population Dynamics

Population Growth in Ghana

The population of Ghana grew from 2.3 million in 1921 to 12.3 million in 1984, and further increased to 18.9 million in 2000 and 24.6 million in 2010 (NPC, 2012). According to the most recent censuses, the annual population growth rate between 2000 and 2010 was 2.5 per cent, down from the 2.7 per cent annual growth rate between 1984 and 2000. At the current rate, the population is expected to double in 28 years.

Figure 1. Historical Population Growth in Ghana, 1921–2010
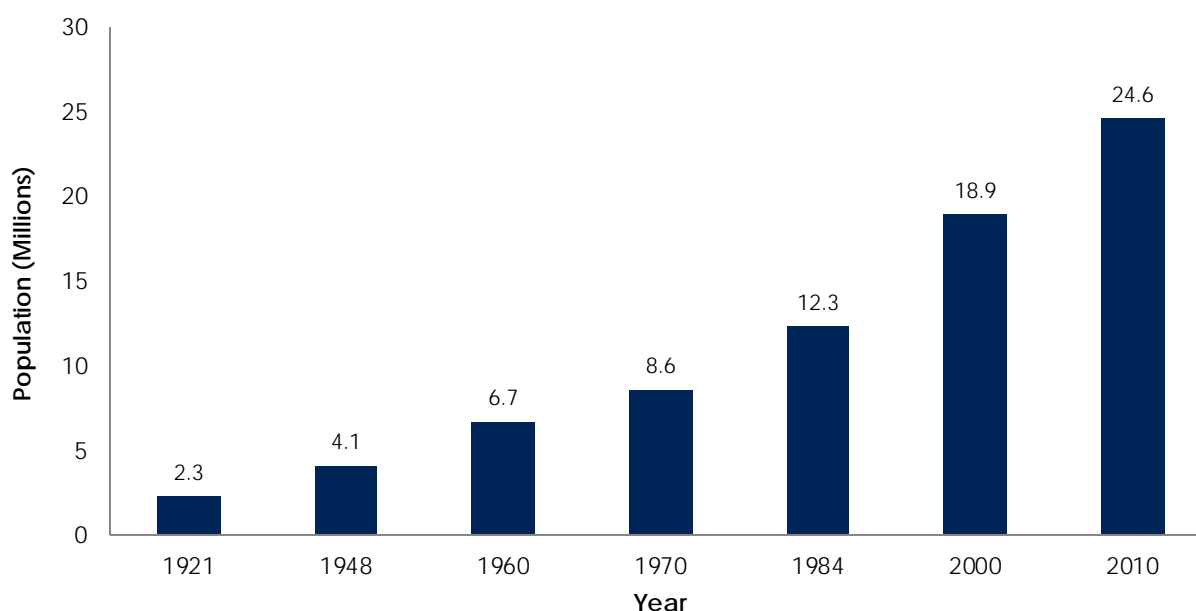
Source: Population and Housing Census, 2010, GSS

Population Age Structure

Rapid population growth in Ghana has produced a young population in which the 0–14 age group represented approximately 41 per cent of the total population in 2010. The youthful population has built-in momentum for further rapid growth when this large youth cohort reaches reproductive age. Population momentum indicates that even if fertility levels decrease, the large relative size of the young cohort ensures that when this group reaches childbearing age, the absolute number of births will remain high and the population will continue to grow. The median age of the population in 2010 was 20 years, which remained unchanged from 2000. The aged population (65 years and above) constitutes about 4.7 per cent of the total Ghanaian population. Figure 2 shows the population structure of Ghana as a broad-based pyramid, due to the large youthful cohort.

Figure 2. Ghana 2010 Population Pyramid (Age and Sex Distribution)
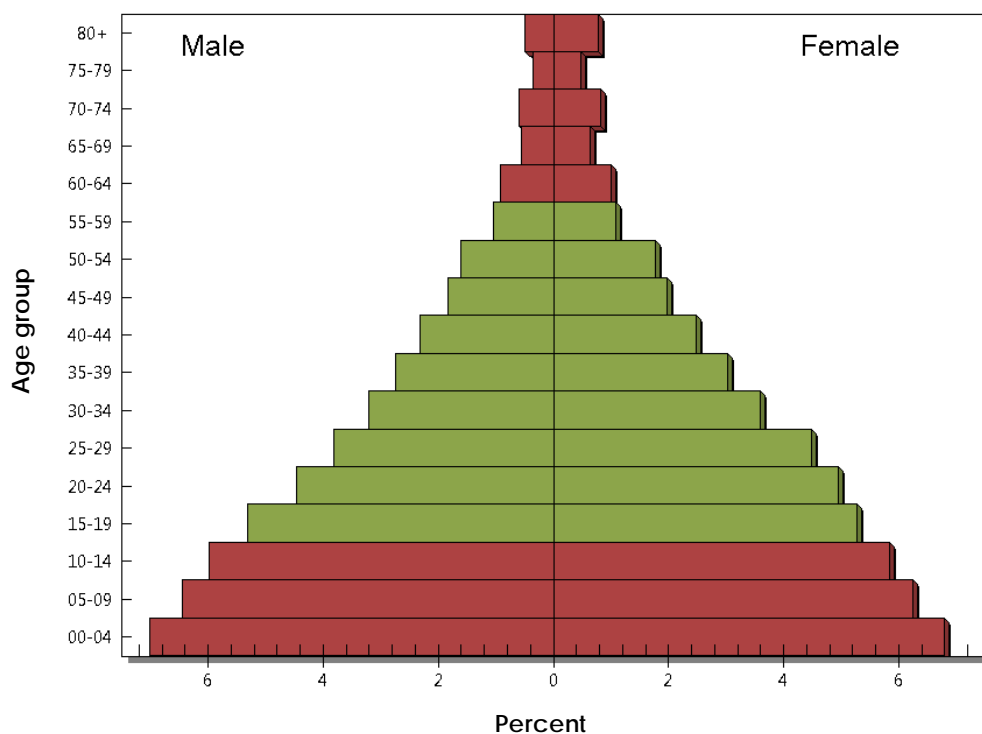
Source: Population and Housing Census, 2010, GSS

The built-in momentum for further rapid growth that characterises Ghana's population has several implications for current and future population dynamics. For example, the number of women of reproductive age (15–49 years) in Ghana will grow from 6.36 million in 2010 to 8.01 million by 2020. If the absolute number of childbearing women increases, the absolute number of births will also increase, even if the birth rate per woman declines. Thus, the higher the number of women of reproductive age, the faster the population will grow. Early age at first marriage is also an important fertility indicator because it determines the length of time a woman is exposed to the risk of pregnancy and is linked to the risk of early childbearing and higher fertility. The combination of continued early childbearing, a larger population of women of reproductive age, and a slower decline in fertility means that it will take over 30 years (Ghana RAPID, 2012) for Ghana to reach replacement-level fertility and for the population to stabilise. Gaisie (2005) has noted that, because of the youthful age structure of Ghana, a relatively high population growth rate will persist even with decreasing fertility. Even at a replacement-level total fertility rate (TFR—the average number of live births per woman) of 2.1, the population will increase by two-thirds due to population momentum before growth ceases. For instance, Japan reached replacement-level fertility in 1957, but because of its population momentum, it was projected to keep growing until 2006 (Medium-Variant United Nations Projection, 2001).

According to the 2010 Population and Housing Census (PHC), Ghana's population density is 103 persons per square kilometre, up from 79 persons per square kilometre in 2000. However, the population is unevenly distributed; the Greater Accra Region has the highest population density (1,236 persons per square kilometre), while the Northern Region has the lowest (35 persons per square kilometre).

The interplay between these demographic variables has direct and indirect impacts on poverty reduction, economic development and the quality of life.

Fertility and Ghana's Demographic Transition

Overall, Ghana's fertility has been declining, with a plateau occurring over the past decade. According to the GDHS, Ghana's TFR declined from 6.4 in 1988 to 4.4 in 1998, representing a remarkable decrease of 2 children per woman within 10 years. Recent data, however, show conflicting trends. The most recent GDHS (2008) estimates TFR at 4.0, the 2010 PHC recorded a TFR of 3.27, and the most recent Ghana Multiple Indicator Cluster Survey (MICS) (2011) shows TFR to be 4.3. These conflicting data suggest a slight or no decline in fertility over the past five years, indicating that achieving the 2020 national target of a TFR of 3.0 remains ambitious. With current fertility levels, the population is expected to double in less than 30 years. Therefore, it is crucial that the right programmatic structures are put in place to increase the rate of family planning uptake.

Contraceptive Prevalence Rate of Growth: Five years after implementing the Road Map for Repositioning Family Planning

Although Ghana has made progress in reducing the overall level of fertility among married women, it is important to increase national efforts to improve family planning and reproductive health (FP/RH) and raise awareness of population-related development issues. Population momentum will cause the absolute population to grow even after decreased fertility is achieved, so it is imperative for Ghana to adopt measures that expedite an increase in CPR to achieve a high quality of life for all Ghanaians. Currently, CPR is estimated at 21.6 per cent.[1] The recent trends in CPR are presented in Figure 3.

Figure 3. Trends in Contraceptive Prevalence Rate in Ghana, 1988–2010
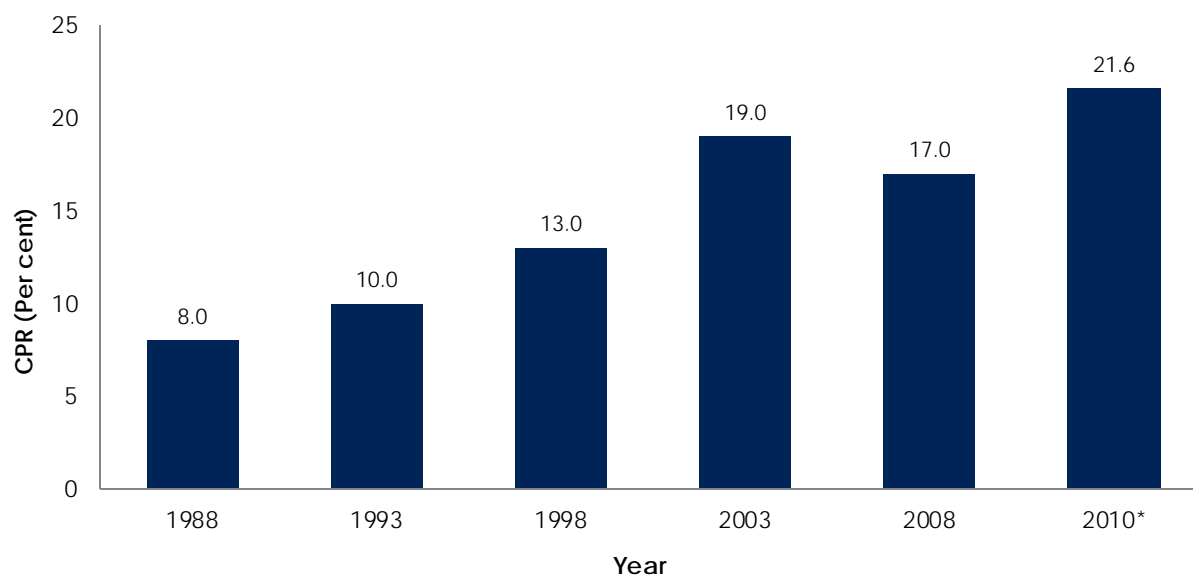
*2010 based on interpolation between GDHS, 2008 and MICS, 2011

Source: GDHS, 2008; MICS, 2011

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[1] Based on an interpolation between GDHS, 2008 and MICS, 2011.

The most recent data from the 2008 DHS, the 2010 PHC and the 2011 MICS are conflicting as to whether Ghana is on track to achieve its national TFR target of 3.0 by 2020. However, the country did not achieve the National Population Policy's expected CPR of 28 per cent in 2010, so it is unlikely that the expected CPR of 50 per cent in 2020 will be achieved. Similarly, as shown in Figure 4, none of the ten regions was able to meet the national CPR target of 28 per cent in 2010.

Figure 4. Regional Variations in Contraceptive Prevalence Rate, 2010
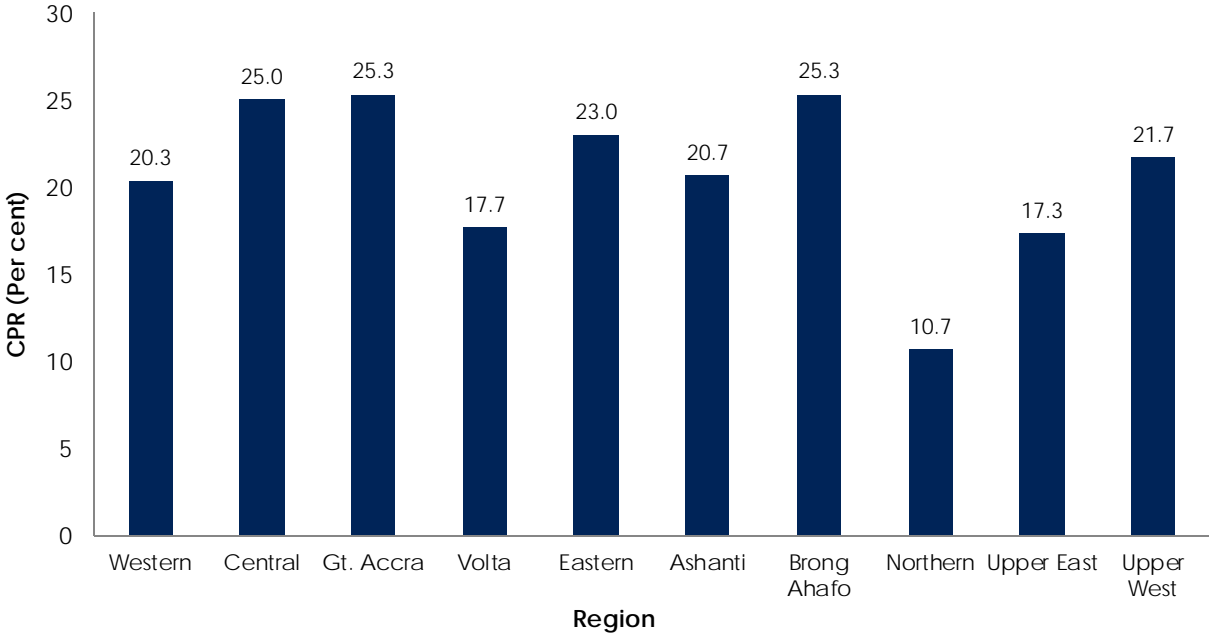
The achievement of these CPR goals is recognised as an integral part of the country's national strategy for improved health and economic development.

Ghana's CPR is higher than that of Nigeria and the countries within the Economic Community of West African States (ECOWAS) sub-region, but very low compared with other developing countries (see Figure 5). Urgent attention is required to improve the current prevalence rate in Ghana.

Figure 5. CPR in Ghana Compared with Selected Developing Countries, 2010
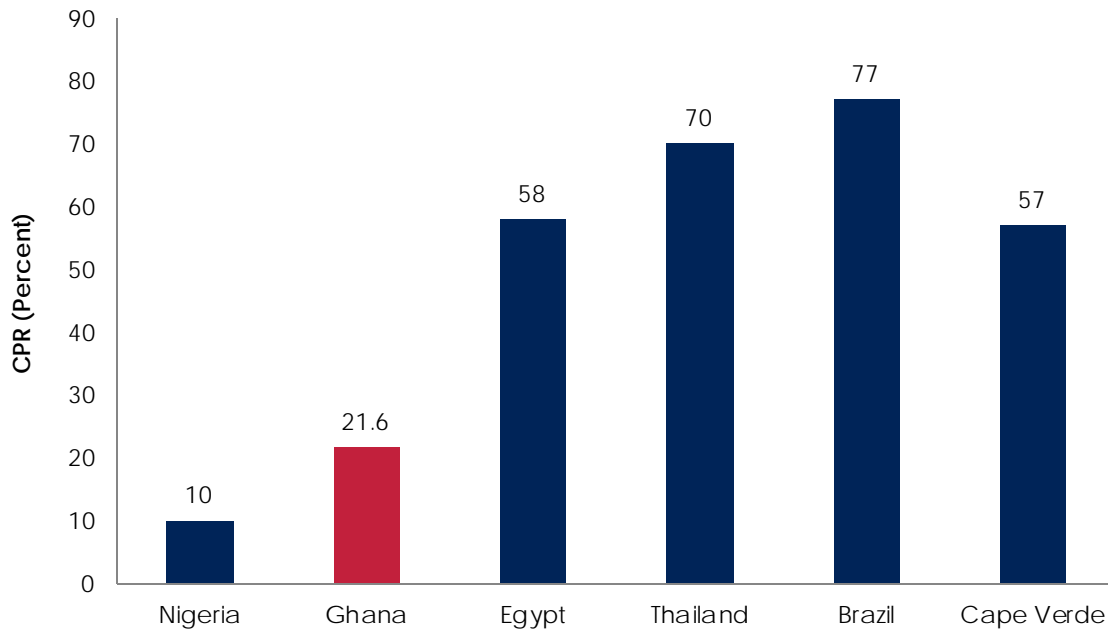
Source: Population Reference Bureau, World Population Data Sheet, 2010

The policy objectives of the Ghanaian government are achieving a continued decline in TFR by increasing CPR through voluntary means, and decreasing the unmet need for contraception. Policies and strategies to address the high unmet need for contraception include providing access to a wide range of high-quality FP services and methods through public and private channels; promoting dual protection through condom use; improving information, education, and communication with an emphasis on behaviour change communication; and individual counselling and education.

Challenges of Population Growth in Ghana

There are strong links between rapid population growth, high fertility, ill-timed pregnancies and poverty—a demographic-related poverty trap exists. And, indeed, demographic trends affect development prospects. (Millennium Project, 2005)

Population Growth Challenges for Ghana in Achieving the MDGs

In September 2000, 147 heads of state and government and 189 nations committed to the Millennium Development Goals (MDGs). The MDGs stand for a renewed commitment to overcome persistent poverty and address many of the most enduring failures of human development. The eight goals are to

1. Eradicate extreme poverty and hunger
2. Achieve universal primary education
3. Promote gender equality and empower women
4. Reduce child mortality
5. Improve maternal health
6. Combat HIV/AIDS, malaria and other diseases
7. Ensure environmental sustainability
8. Develop a global partnership for developmentGhana's MDG performance has been mixed; demonstrable progress made in MDGs 1, 2, 3, 6, 7, and 8, but it is unlikely that MDGs 4,5, and 6 will be achieved by the target year without increased efforts.

Ghana has a high proportion of married women with unmet need for family planning at 35.7 per cent (GDHS, 2008). This indicates that many women would like to plan, limit, or space their births, but lack the means to do so. Women are described as having "unmet need" when they do not desire a birth in the next two years but are not currently using any form of contraception. Unmet need in Ghana did not improve substantially between the 1998 and 2008 DHS reports, decreasing by only 1 percentage point. The USAID-funded POLICY Project conducted a survey of sixteen sub-Saharan countries (Moreland and Talbird, 2006). The survey was a simple analysis of how fulfilling the unmet need for family planning could help countries achieve the MDGs. The results confirmed that addressing unmet need (which ultimately increases CPR), leads to a reduction in population growth, which will generate savings in education, health, and other sectors. Tapping into this unmet demand could make strides towards increasing CPR, while simultaneously serving the health needs and improving the well-being of a large group of Ghanaian citizens. The benefits of family planning extend far beyond slowing the pace of population growth, and are fundamental to improving maternal, infant, and child health.

Maternal Health

Like other developing countries, Ghana has a high maternal mortality ratio, which was estimated to be 451 deaths per 100,000 live births, according to the 2007 Ghana Maternal Health Survey. The Ghana Stabilisation Report (2011) estimates the maternal mortality ratio to be at 350 deaths per 100,000 live births.

The maternal mortality ratio also varies by region, with the Volta and Upper East Regions exceeding 700 deaths per 100,000 live births. The current national maternal mortality ratio and the pattern of changes in maternal mortality suggest that the MDG Target of 184 deaths per 100,000 live births by 2015 is not feasible for Ghana.

Figure 6. Trends in the Maternal Mortality Ratio in Ghana, and MDG Target
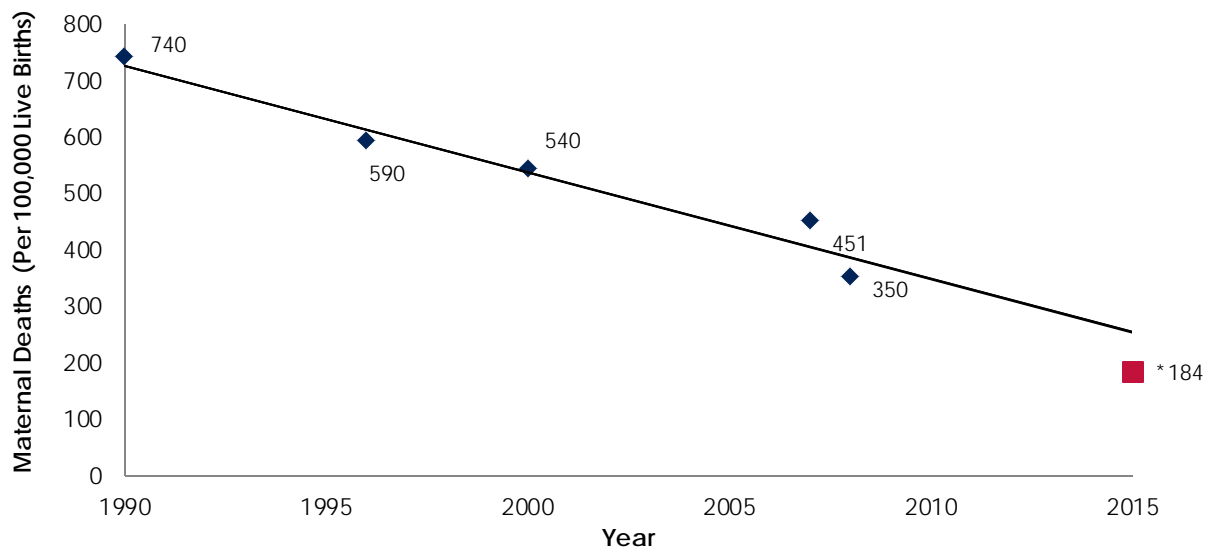
*MDG 2015 Target

Source: GDHS. 2008, Ghana Population Stabilisation Report, 2011

The use of family planning can improve maternal health in many ways. By using contraception, women can avoid the high risk of closely spaced pregnancies that jeopardise their health and that of their children. Furthermore, the gap between actual birth intervals and women's preferred birth intervals in Ghana is one of the largest in sub-Saharan Africa.

As shown in Figure 7, the causes of maternal deaths include abortion complications, haemorrhage, hypertensive disorders, miscarriage, obstructed labour, and sepsis.

Figure 7. Causes of Maternal Deaths (Verbal Autopsy)
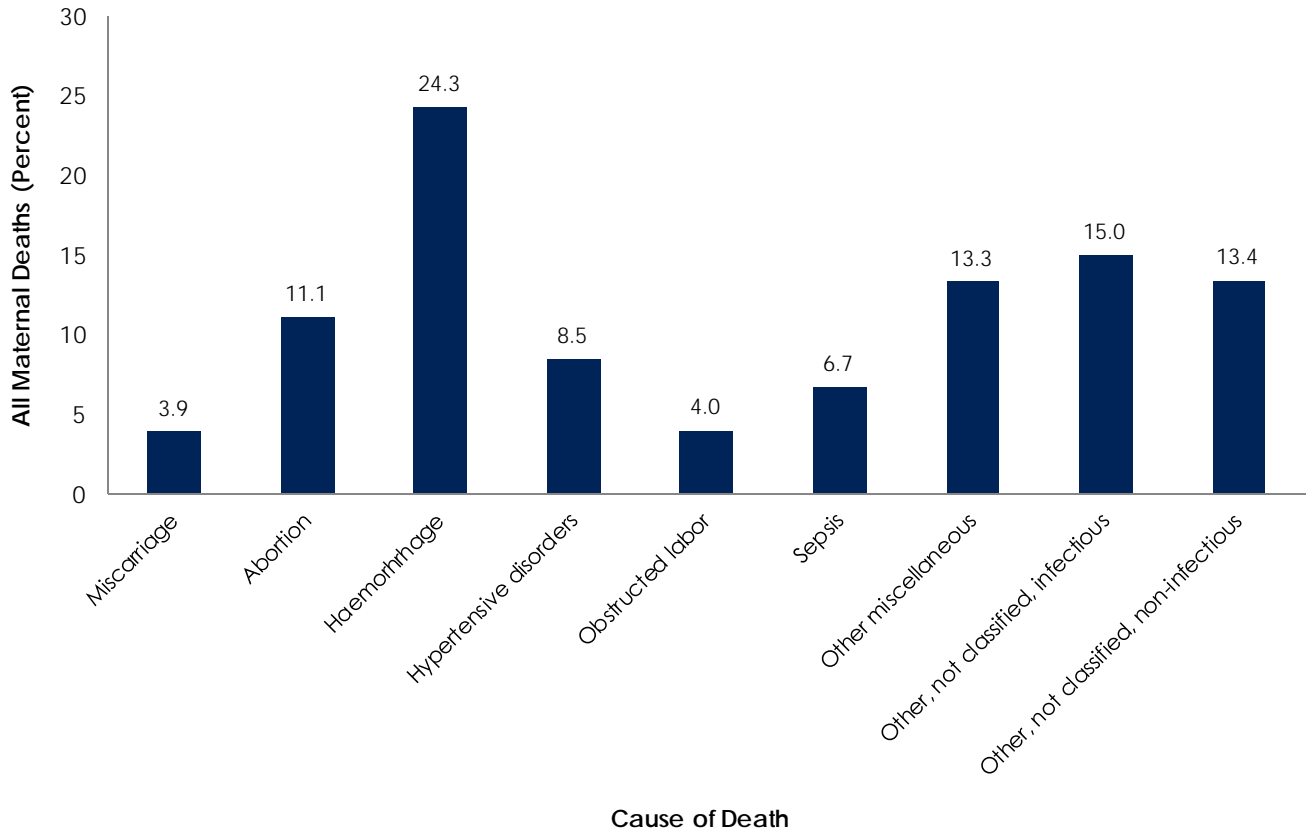
Source: Ghana Emergency Obstetric and Newborn Care Assessment, 2010

Unsafe abortion is an important cause of maternal death that accounts for approximately 11 per cent of all maternal deaths in Ghana. Abortion-related deaths occur as a result of unintended pregnancies, especially when these pregnancies are aborted using unsafe methods and by unskilled service providers. Additionally, for every girl and woman who dies from pregnancy-related causes, many more will suffer short- and long-term disabilities such as obstetric fistulas, ruptured uteruses, or pelvic inflammatory disease. In addition, early neonatal deaths and stillbirths are related to the same risk factors that cause maternal deaths and disability, as well as lack of neonatal care (National Population Council, 2006).

Another critical factor in maternal mortality is the lack of essential obstetric services. More than 80 per cent of pregnant women in Ghana seek antenatal care from skilled attendants, but the quality of these services varies. A much smaller proportion of pregnant women have their deliveries supervised by skilled attendants. The 2008 GDHS indicated that only 58.7 per cent of deliveries were supervised by a skilled attendant. To further improve maternal mortality, medically assisted deliveries must become more common.

Increasing the annual CPR will help to reduce both the unmet need for family planning and maternal deaths, while reducing the number of unwanted pregnancies and induced abortions. Meeting the MDGs for maternal health in Ghana is a huge challenge, but greater efforts must be made to achieve the 2015 target of reducing maternal deaths by three-quarters.

Infant and Child Mortality

Another important challenge at both the individual and family levels is reducing infant mortality by ensuring that births are well spaced and that early births are postponed. Unfortunately, Ghana's improvement in infant and child mortality has not been consistent. Between 1988 and 1998, GDHS showed a decline in this critical health indicator, which dropped from a high of 77 infant deaths per 1,000 live births in 1988 to 66 in 1993, and 57 in 1998 (GDHS, 1988, 1993, 1998). In 2003, infant mortality increased to 64 deaths per 1,000 live births, and dropped again to 50 deaths per 1,000 live births in 2008 (GDHS, 2003, 2008).

Under-five mortality has shown a similar trend, declining from 155 deaths per 1,000 live births in 1988 to 119 in 1993, and 108 in 1998 (GDHS, 1988, 1998). There was little improvement between 1998 and 2003, as mortality rose slightly to 111 deaths per 1,000 live births, but mortality further declined to 80 in 2008 (GDHS, 1998, 2003, 2008). This means that one in every 18 Ghanaian children dies before reaching age one, and one in 12 dies before his/her fifth birthday. The country has experienced declines in infant and child mortality, as illustrated in Figure 8, but the current ratio is still considered high. If Ghana is to achieve MDG 4, reducing the under-five mortality rate by two-thirds by 2015, the rate of decline must accelerate. The apparent stagnation in mortality decline signifies the difficulties Ghana faces in trying to overcome socioeconomic, fertility, and health system challenges.

Figure 8. Trends in Infant and Child Mortality, 1988–2011
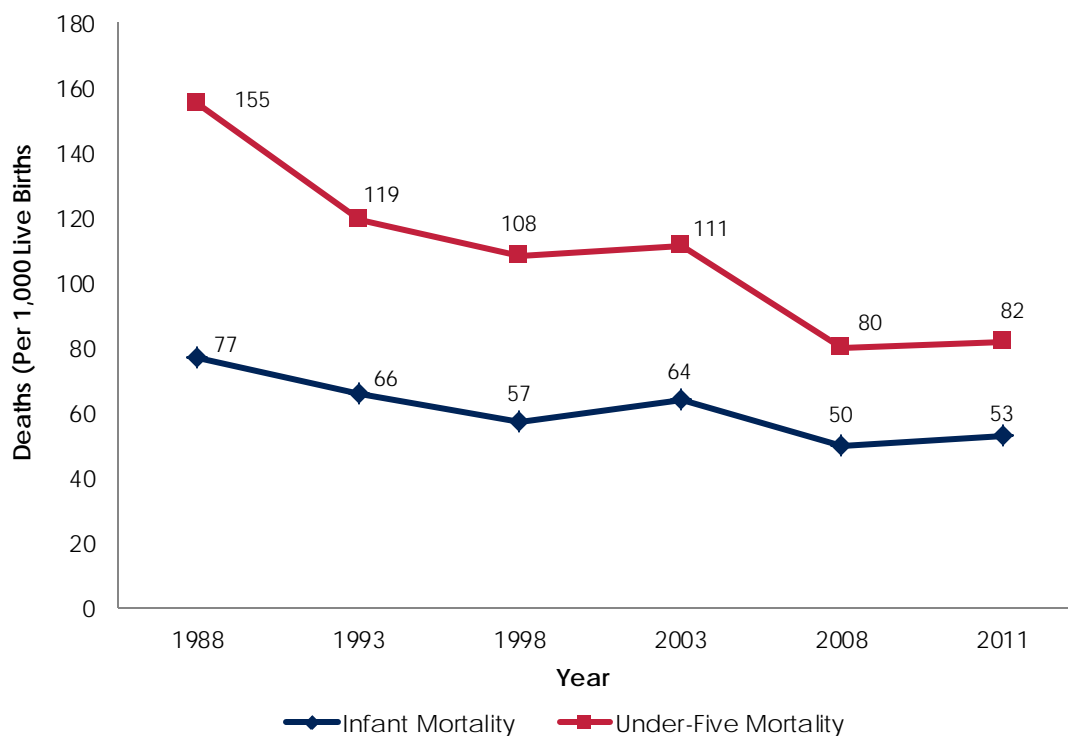
Source: GDHS, 1988–2008; MICS 2011

The age at which a woman gives birth, the time between births, and the birth order are critical risk factors in determining the health and survival of a baby. Women who become pregnant too young (under age 18) or are in advanced maternal age (over age 35) have pregnancies that are linked to higher rates of infant and child mortality. Children born to mothers younger than 18 years are at a particularly high risk for complications—almost twice the baseline risk of pregnancies that are not in any high-risk category. Young mothers are also more likely to be anaemic than older mothers, and a teenage mother's body will compete with her growing foetus for essential nutrients. Figure 9 shows the number of child deaths per 1,000 live births disaggregated by age of mother and illustrates that the youngest mothers also experience the lowest child survival rates.

Figure 9. Child Deaths by Maternal Age
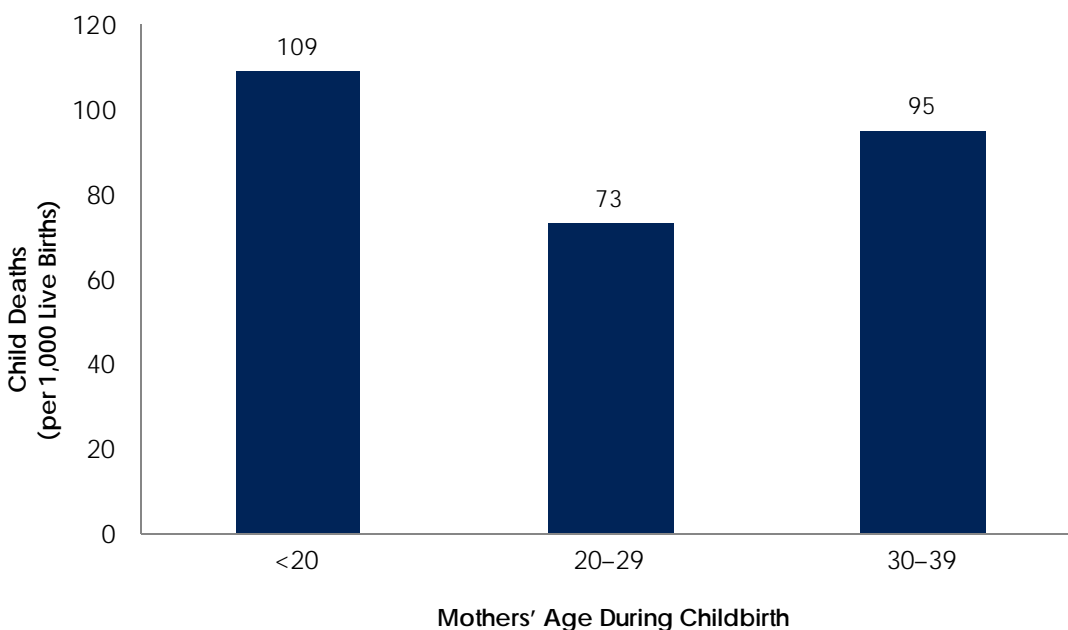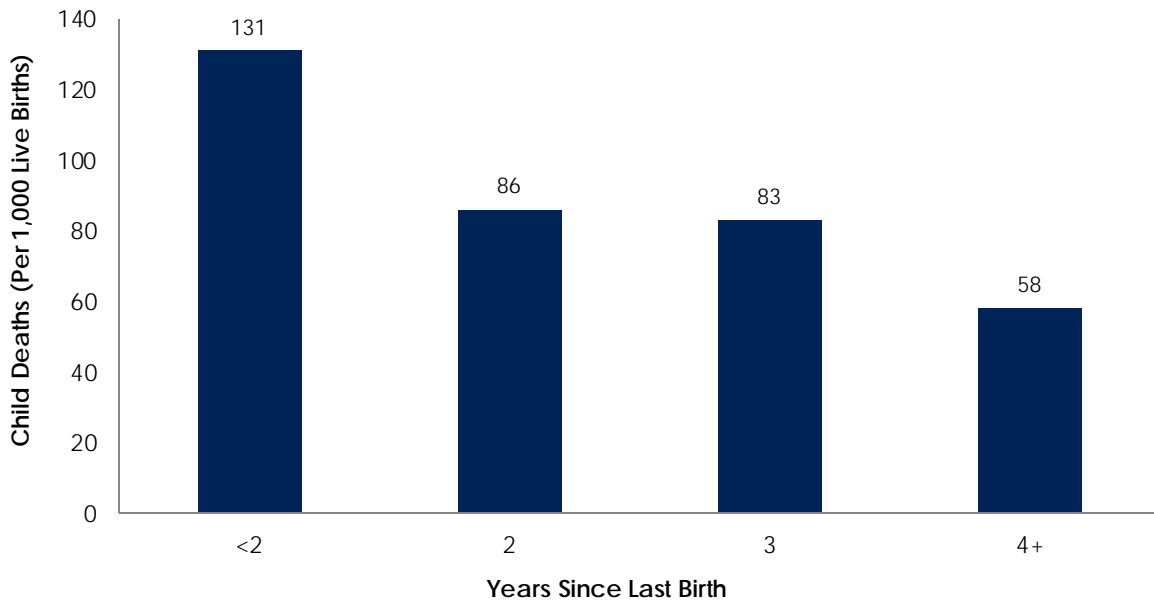

Source: GDHS, 2008

Children born within two years of a prior birth are twice as likely to die as those born three or more years apart (GDHS, 2008). When births are too close together, a woman's body does not have adequate time to recover from the physical stress of the previous pregnancy and childbirth, thereby reducing her chance of delivering a healthy baby (see Figure 10).

Figure 10. Child Deaths by Birth Interval

Source: GDHS, 2008

Close birth spacing can also reduce the resources available to the children in a family, such as financial resources, parental attention, or the number of months a mother breastfeeds her child. For similar reasons, and sometimes due to advanced maternal age, high birth order is also an important risk factor for infant mortality. As seen in Figure 11, child deaths are more likely to occur with first births (which usually take place when the mother is too young) and with high order births.

Figure 11. Child Deaths by Birth Order
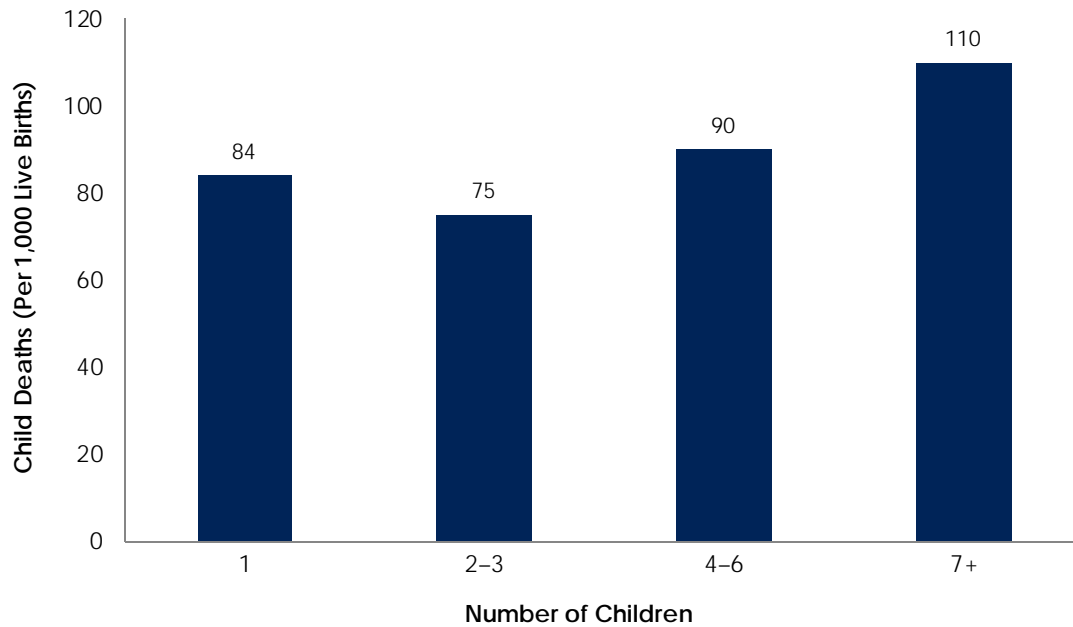
Source: GDHS, 2008

Challenges for Individual and Family Health

Population growth is influenced by the three components of population change: fertility, mortality, and migration. Fertility is a function of the collective reproductive health choices, attitudes, and behaviours of individuals and couples. More importantly, individuals and families feel the adverse effects of high fertility as a result of low CPR at the national, subnational and community levels. One of the most important adverse effects of low CPR is increased infant and child mortality. This analysis focuses on the individual and family-level impacts of population growth.

Ghana's high rates of maternal, infant, and child mortality indicate that the country has much to gain from family planning, such as reducing a woman's exposure to high-risk unintended pregnancies, reducing the number of abortions and abortion-related complications, and improving child survival. Preventing premature deaths and illnesses among mothers and children with high risk factors is a key objective of both the National Population Policy and the National Reproductive Health Policy and Standards produced by the Ministry of Health/Ghana Health Service (MOH/GHS). However, making the necessary services available to women and children is a challenge for the GHS. Furthermore, population growth puts an increased burden on the health delivery system as more women and children require access to maternal and child health services.

Impact of Rapid Population Growth on Development

Rapid population growth affects various sectors of the economy and can stall the rate of economic development. Sectors that are affected by rapid population growth include health, agriculture, education and the economy. This RAPID modelling explores the impact of two different population scenarios, one in which CPR increases rapidly (high CPR) and one in which CPR increases slowly (low CPR). The data are projected to a target year of 2040, and various indicators are examined to shed light on the sectoral implications of achieving the MDGs in education, job creation, urbanisation, health, and agriculture, as well as the family planning outcomes of the Revised Population Policy.

The high CPR projection predicts an annual increase in CPR of 1.5 percentage points, and the low CPR projection predicts an annual increase of 0.4 percentage points. The low projection reflects a continuation of recent CPR trends, and is consistent with the historic pattern of CPR increase. The high CPR projection represents faster growth than has previously been achieved. By 2040, the low CPR projection predicts a prevalence of 33.6 per cent, compared to the high CPR projection of 61.6 per cent (see Figure 12).

Figure 12. CPR Projections, 2010–2040
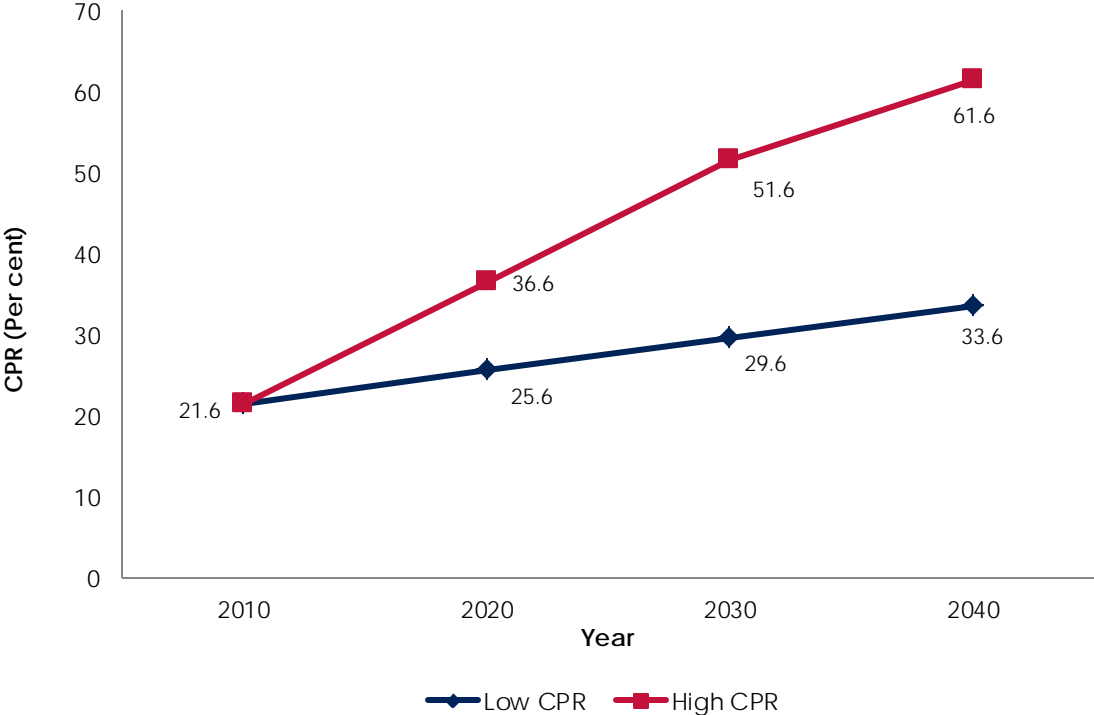
Source: Spectrum Model projections, 2013

Population growth is also slower in the high CPR scenario. By 2040, the high CPR scenario predicts a total population of 38.7 million, compared to the 45.8 million predicted by the low CPR scenario (see Figure 13). In other words, if the high CPR scenario were achieved, fertility would decrease but by 2040 the population would grow by 57 per cent. For the low CPR scenario, the population would grow by 85 per cent. The divergence of the high and low CPR projections represents a difference of 7.1 million people in 2040, which is more than a third of the current population.

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Figure 13. Total Population, 2010–2040
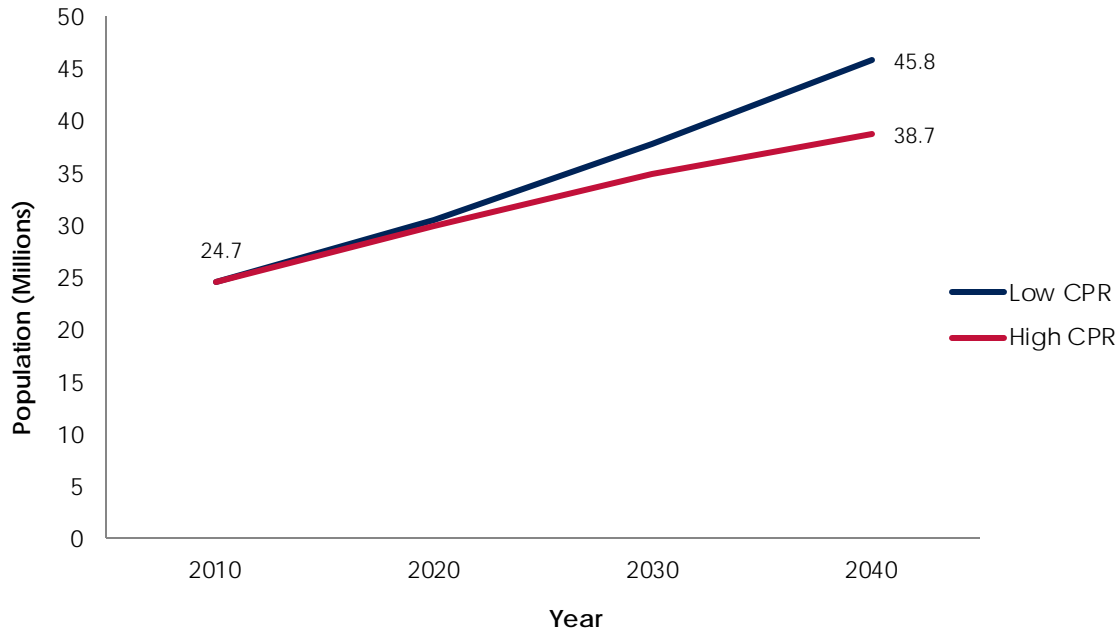
Source: Spectrum Model projections, 2013

Education

Vision
"Provide equitable access to good-quality child-friendly universal basic education, by improving opportunities for all children in the first cycle at kindergarten, primary and junior high school level" (MOE, 2010).

Introduction

Education plays a significant role in demography and also shapes the human resource base that is available for a country's future development and planning. This section presents the trends and projections for population and education. Rapid population growth is likely to pose profound social and economic problems in Ghana which may be addressed by merging family planning and education as strategies to reduce fertility and improve the quality of life for young men and women.

People's level of education strongly predicts use of contraceptives. Specifically, women with higher educational levels or those who are still in school but are sexually active are more likely to use contraceptives to prevent pregnancy until they complete school or achieve their career goals. Education allows females to attain agency and autonomy in decision making, both at home and in public places. As Caldwell (1980) put it, education is a significant predictor of childbearing and has an inverse relationship with fertility. Thus, fertility declines as education increases and the reverse is also true. The higher a person's education level, the more empowered she can be to make informed choices regarding her reproductive health.

Primary School Students

In the high CPR scenario (see Figure 14), there would be fewer primary school students over the projection period compared to the low CPR scenario.

Figure 14. Primary School Students, 2010–2040
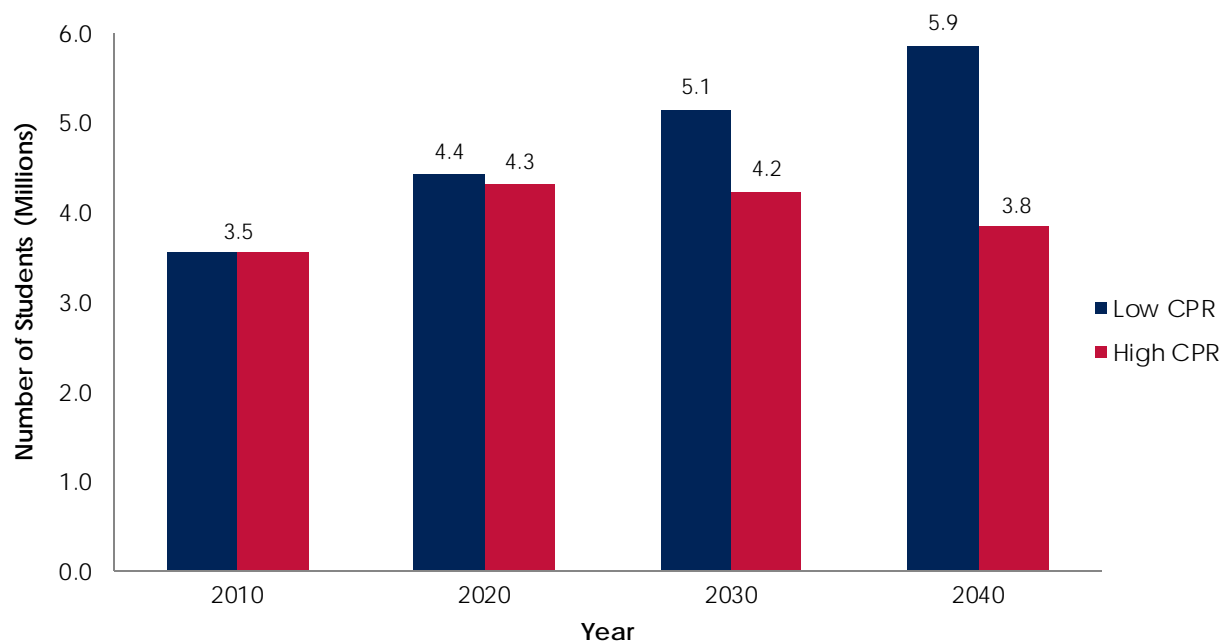
Source: Spectrum Model projections, 2013

The population of primary school students in Ghana is expected to be 3.84 million in 2040 with a high CPR projection, compared to 5.86 million in the low CPR scenario. This represents a 34.5 per cent reduction in population size if higher CPR is achieved or 2 million fewer students in 2040 alone. A smaller primary school student population will make more resources available to improve the overall quality of education. These could be channelled to training more teachers, providing incentives for teachers, and improving classrooms and curriculum development. Additionally, a more effective learning environment will help to achieve the MDGs.

Primary School Teachers Required

The high CPR scenario would require fewer teachers over the projection period. Figure 15 depicts the number of teachers required under each CPR scenario, given that the student-teacher ratio increases to 35–1 in 2015 and remains constant thereafter. The high CPR projection estimates that by 2040, 110,000 primary school teachers will be required to meet the needs of the primary school–age population. In contrast, the low CPR scenario estimates the need for teachers at 167,000 in 2040, 57,000 more than the high CPR projection. The difference reflects potentially significant savings in resources to train and hire teachers and the possibility of diverting these savings to improvements in the quality of education.

Figure 15. Primary School Teachers Required, 2010–2040
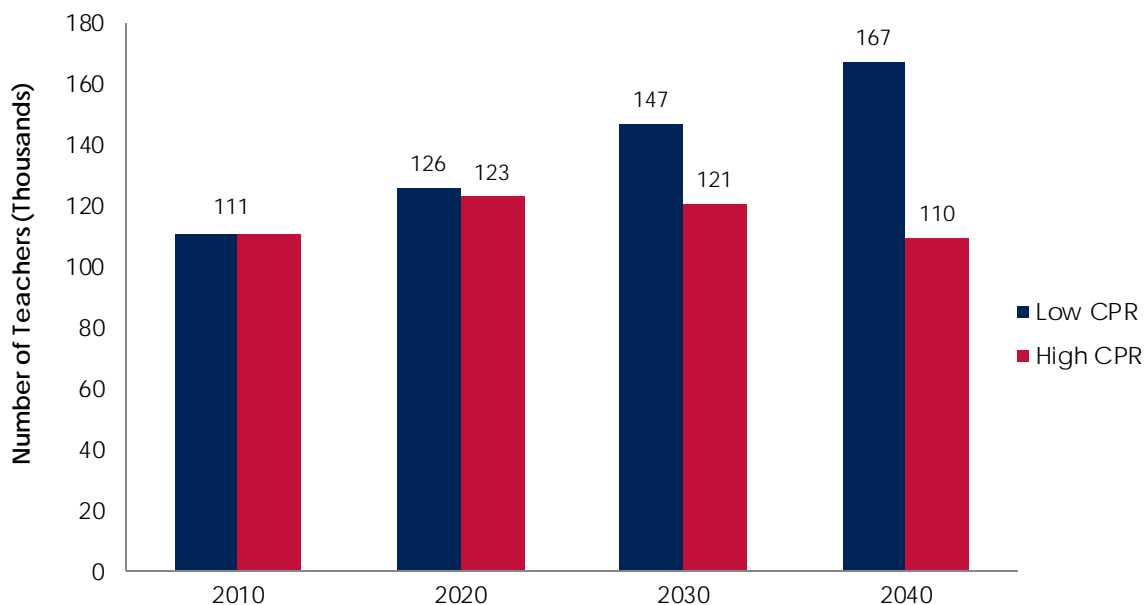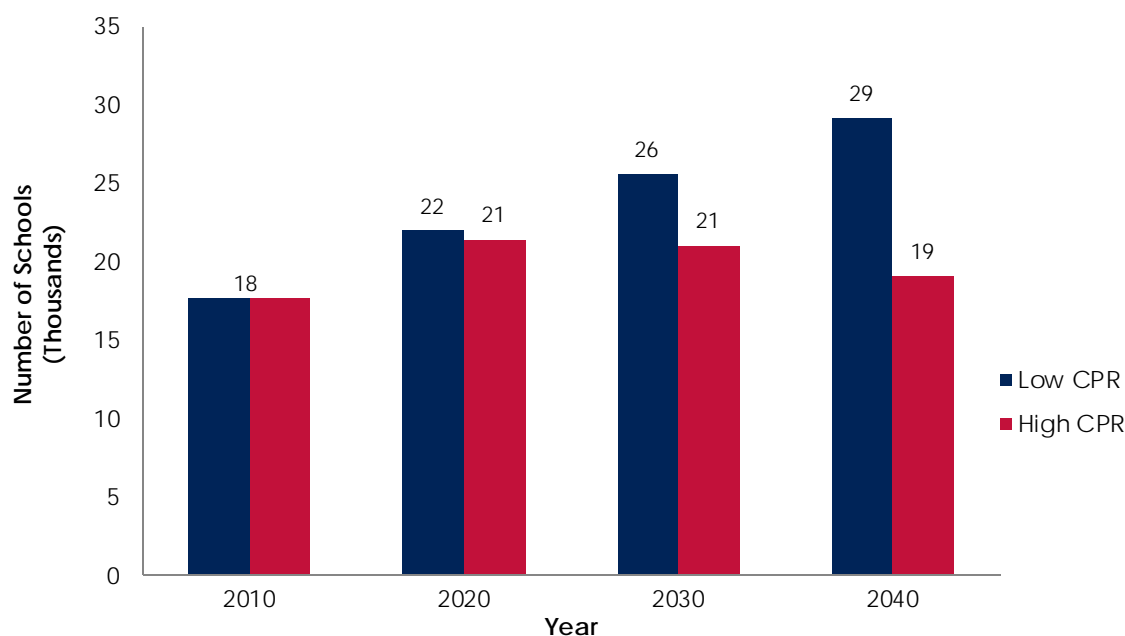

Source: Spectrum Model projections, 2013

Number of Primary Schools Required

Fewer primary schools would be required over the projection period in the high CPR scenario (see Figure 16). A comparison of the number of primary schools required shows that nearly 10,000 fewer schools will be needed in the high CPR scenario. In the low CPR projection, 29,150 primary schools would be needed to serve the growing population, compared to 19,100 in the high CPR case. Building new schools is costly, and the savings in the high CPR scenario could be used to improve the education sector by training more teachers, developing the curriculum, reducing tuition fees for low-income students, and improving the school feeding programme.

Figure 16. Primary Schools Required, 2010–2040

Source: Spectrum Model projections, 2013

Expenditures in Education

Regardless of the CPR scenario, expenditures needed for the education of primary school children will increase over the projection period due to an overall increase in population, due to population momentum. In addition, there is no discernible difference in primary school expenditures in the first few years of the projection because changes to current fertility levels do not immediately affect the size of the population enrolled in primary school. However, starting in 2017, the annual expenditures required will differ by CPR scenario (see Figure 17). By 2040, the annual primary expenditure is calculated to be US$1.64 billion in the low CPR projection, and US$1.07 billion in the high CPR projection, a savings of more than half a billion dollars in one year alone. The difference between the education expenditure trajectories demonstrates the potential magnitude of CPR's impact on population.

Figure 17. Primary School Expenditure Required, 2010–2040
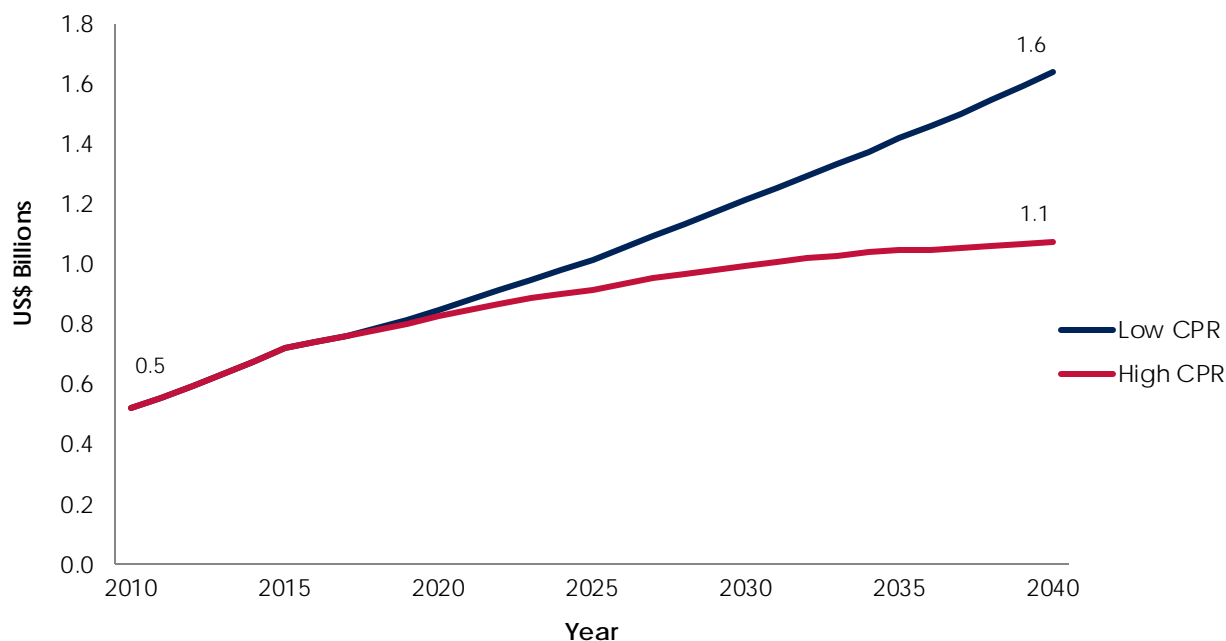
Source: Spectrum Model projections, 2013

The resources saved in the high CPR projection could be channelled into other sectors of the economy to create employment for young adults, improve the quality of education, or increase remuneration for educators.

Improving educational retention and attainment can better position Ghana for economic growth by building an educated and well-trained foundation of human capital. School enrolment is associated with delayed marriage and delayed childbearing, and by extension, improved maternal and child health. If women and girls stay in school longer, they are more likely to use family planning or delay marriage and childbearing and avoid high-risk pregnancies associated with younger age. Moreover, it is necessary to educate young people about reproductive health, so they are empowered with the information to make good decisions for their health and well-being. The results of the education analysis call for advocacy and policy changes to meet the needs of women and families, and make improved CPR a reality. The government must be encouraged to reposition family planning as a priority, thereby enhancing the education of girls and boys.

Health

Introduction

According to Article 25 of the Universal Declaration of Human Rights (UDHR), "everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control" (UDHR, 1948). The right to good health care is not only essential but also a responsibility of the government of Ghana (Constitution of Ghana, 1992).

The health of the nation directly affects the socioeconomic indicators that define national economic and socio-political growth. In fact, good health is a prerequisite for the economic and social development of any country. Ghana considers health to be an integral part of its development because without improvements in health care, economic development will stall and the human resource base cannot function at its full capacity.

The health sector in Ghana is led by the Ministry of Health, and among its several agencies is the Ghana Health Service, the ministry's implementing agency. The mandate of the GHS is to provide and prudently manage comprehensive and accessible health services, with special emphasis on primary health care at the regional, district and sub-district levels, in accordance with approved national policies.

The objectives of the service are to

- Implement approved national policies for health service delivery in the country;

- Increase access to good quality health services; and

- Manage prudently the available resources for the provision of health services.

Vision/Policy Objective
"Improving access to quality maternal, child and adolescent health services." (Ghana Shared Growth and Development Agenda, 2010–2013).

Nurses Required

In the high CPR trajectory, fewer births will translate to less pressure on health service providers. The two CPR scenarios demonstrate varying levels of health care personnel requirements. Figure 18 reveals that by 2040, the number of nurses required in Ghana will increase to 31,211 under the high CPR projection, or 36,811 under low CPR—a difference of 5,600 nurses. This calculation assumes that the population-to-nurse ratio remains constant at 1,244 people per nurse. In situations where more nurses cannot be educated, trained, and hired, the ratio will increase and the quality of care will be reduced. Nurses play a major role in health service delivery and the larger number of nurses required under low CPR demonstrates how much the health sector will have to expand to maintain the current level of health care. The difference between the two scenarios' required number of nurses is actually underestimated, because Ghana wishes to improve its health care.

Figure 18. Nurses Required 2010–2040
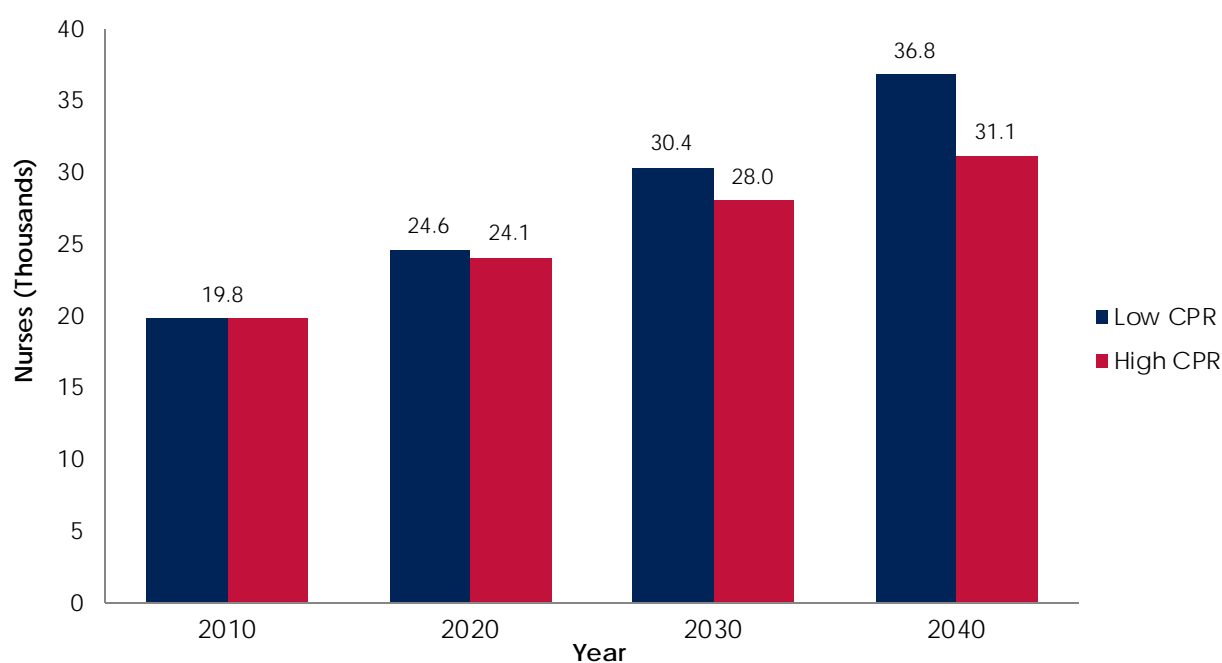
Source: Spectrum Model projections, 2013

To maintain current levels of health care, significant human resource expansion in the health sector is required under low CPR. In this situation, more nurses must be trained and more nursing schools established. This pattern will also apply to other health care personnel, such as doctors, orderlies, and pharmacists, and contribute to increases in the resources required to maintain or improve current levels of health care.

Hospital Beds Required

The high CPR scenario will require fewer hospital beds and decrease pressure on the health service sector. In 2010, Ghana had 16,800 hospital beds (see Figure 19). Assuming the person-to-bed ratio remains constant at 1,461 people per bed, the number of beds required would increase to 31,300 by 2040 if the low CPR scenario were achieved. However, if the high CPR scenario were achieved, only 26,500 beds would be required for the total population, a difference of 4,800 beds. Furthermore, the number of hospital beds needed is only a proxy for the scale-up of resources needed in the health sector, since expansion is not limited to providing more hospital beds. Thus, to maintain current levels of health care quality, less pressure on hospital resources would be exerted if the high CPR scenario were achieved.
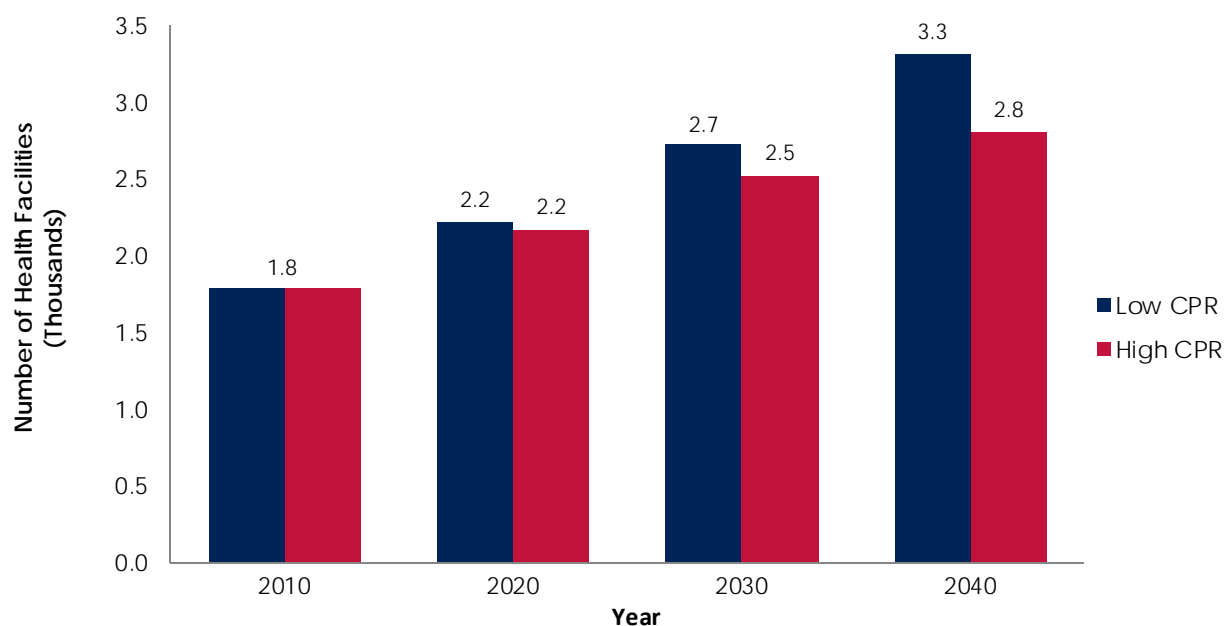
Figure 19. Hospital Beds Required
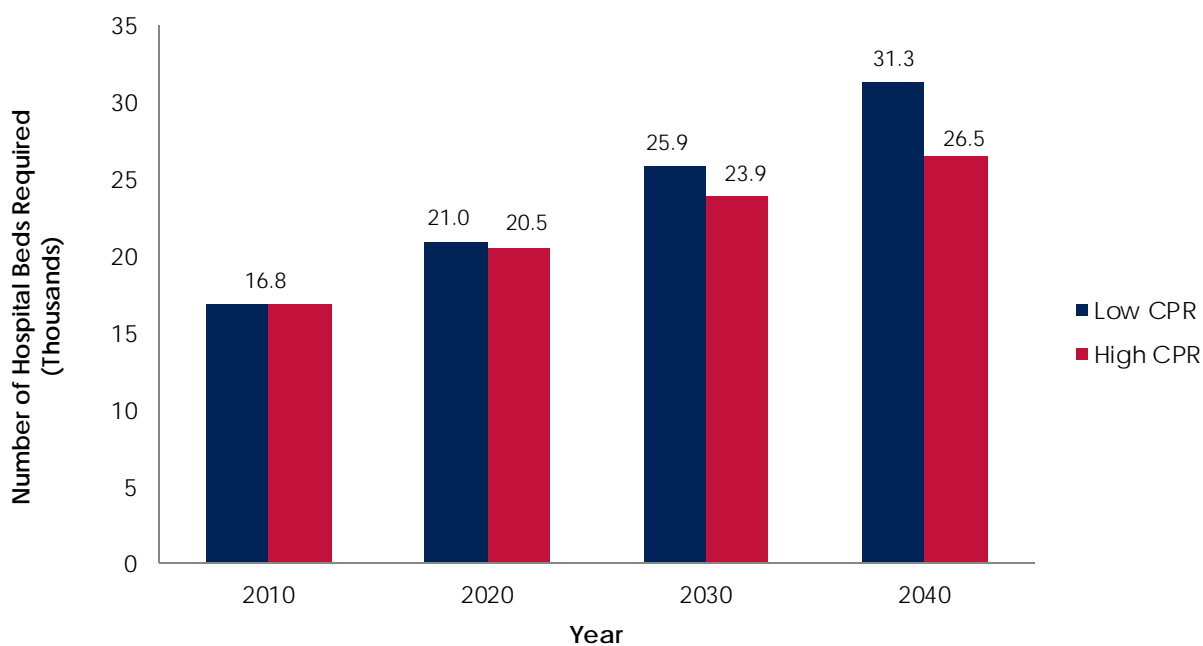
Source: Spectrum Model projections, 2013

Health Facilities Required

Fewer health centres would be required under high CPR projections, allowing for funds to be saved and used to improve the quality of health (see Figure 20).

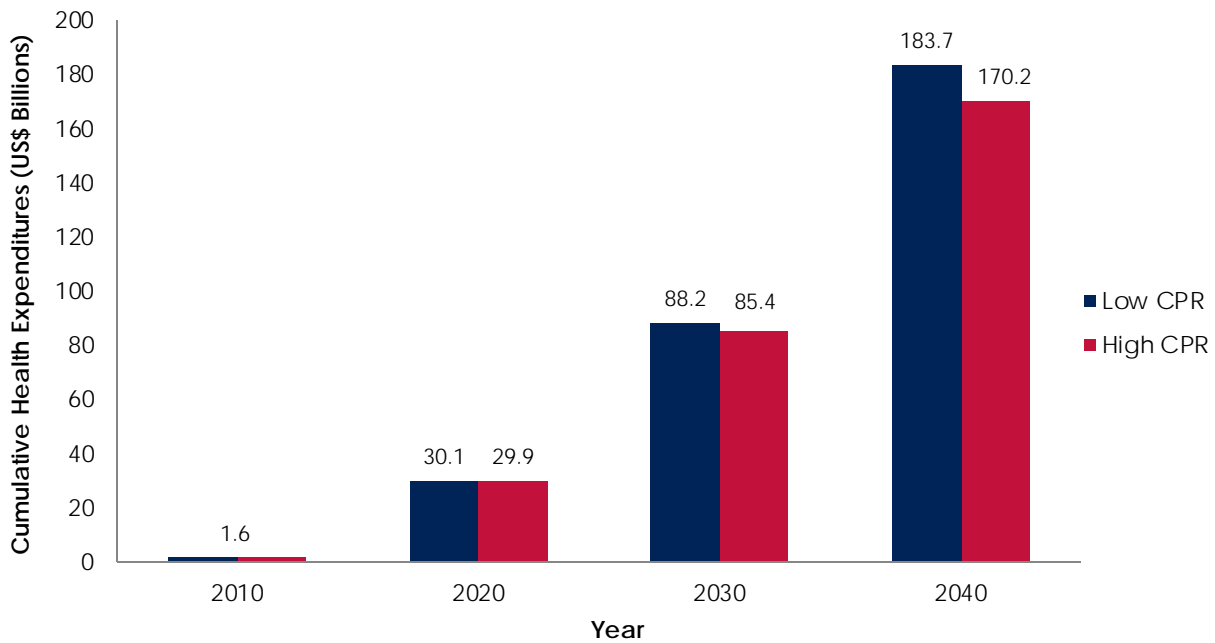**Figure 20. Health Facilities Required, 2010–2040**

Source: Spectrum Model projections, 2013

Assuming that Ghana's ratio of people to health centres remains constant at 13,838 per facility, in 2040, 3,309 health centres would be required in the low CPR scenario and 2,798 in the high CPR scenario. Because the high CPR scenario would require 511 fewer health service centres, it would put less pressure on the health sector, existing facilities, and medical equipment. As with health care personnel and hospital beds, a higher CPR makes maintaining or improving the current level of health care easier by allowing the government to expand the country's health facilities gradually.

Expenditures in Health

The results of the RAPID analysis demonstrate that slowing population growth decreases the need to expand health sector staffing and infrastructure. This will not only incur savings, but also contribute to Ghana's social and economic development and achievement of the national development goals. Figure 21 shows that by 2040, the cumulative health expenditures for the low CPR scenario will exceed the expenditures of the high CPR scenario by US$13.5 billion.

Figure 21. Cumulative Health Expenditures

Chart: Cumulative Health Expenditures (US$ Billions) by Year, comparing Low CPR and High CPR.
- 2010: Low CPR and High CPR 1.6
- 2020: Low CPR 30.1, High CPR 29.9
- 2030: Low CPR 88.2, High CPR 85.4
- 2040: Low CPR 183.7, High CPR 170.2

Source: Spectrum Model projections, 2013

The lower the CPR, the more funds the government must spend on health, which puts additional pressure on the country's budget. Funds that would be saved in a high CPR scenario could be used to provide better quality health care. Finally, the government must sponsor family planning activities and educate the populace about the adverse effects of low contraceptive usage on population growth and development.

Agriculture

Introduction

Agriculture is a key sector of Ghana's economy. It contributes a significant proportion to the gross domestic product (GDP), employs just over half of the total labour force, and contributes substantially to government revenue.

Vision
Ghana strives "to accelerate the modernisation of agriculture and ensure its linkage with industry through the application of science, technology, and innovation" (Ghana Shared Growth and Development Agenda, 2010–2013).

Arable Land Per Capita

Under the high CPR scenario, more arable land will be available to support each person (see Figure 22).

Figure 22. Arable Land Per Capita, 2010–2040
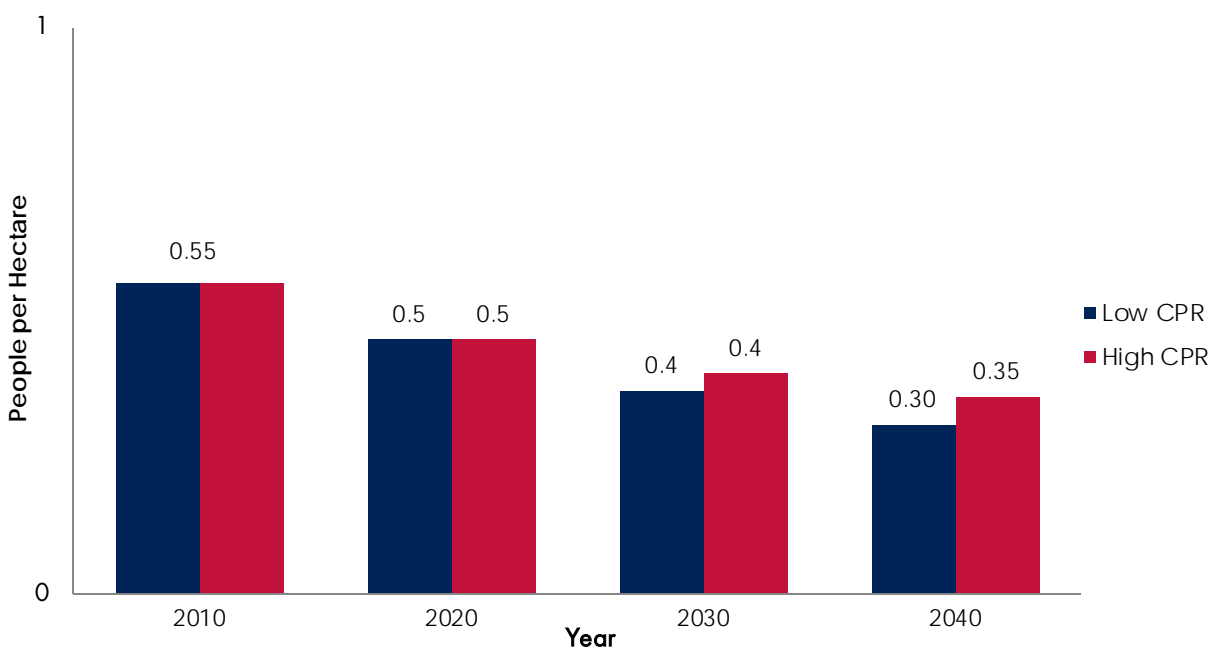
Source: Spectrum Model projections, 2013

In the high CPR projection, arable land per capita is expected to decrease from 0.55 hectares per person in 2010 to 0.35 hectares in 2040, which leaves 0.05 hectares more per person than is projected for the low CPR scenario. This means that even with decreased fertility, the amount of arable land available to support one person will decrease over time due to population momentum. However, the decrease is less extreme in the high CPR scenario, allowing for less overexploitation of resources, deforestation, erosion, and loss of soil quality, compared with the low CPR scenario. If the pressure on natural resources decreased, Ghana would be able to make better progress towards eradicating hunger and ensuring environmental sustainability, both of which are part of the MDGs.

Cassava Requirements

As shown in Figure 23, Ghana will require less cassava (a proxy for agricultural consumption) to support the population under the high CPR scenario.

Figure 23. Cassava Requirements, 2010–2040
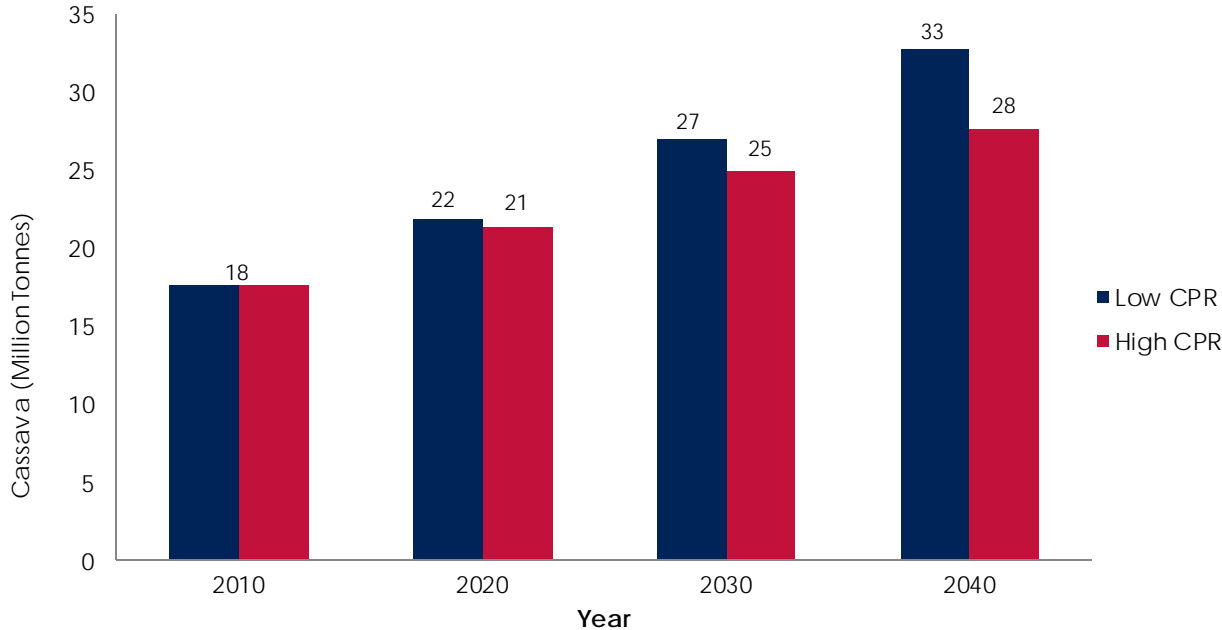
Source: Spectrum Model projections, 2013

Population growth will continue to be a major determinant of demand for major food crops in the future. The 2010 base year cassava requirement was nearly 18 million tonnes, and this is expected to increase to 33 million tonnes by 2040 if the low CPR projection prevails. In contrast, the cassava requirement in the high CPR scenario is projected to increase to approximately 28 million tonnes in 2040—a difference of nearly 5 million tonnes. This means that with a higher CPR, the cost of producing or importing 5 million tonnes of cassava could be channelled into other sectors of the economy, or used to improve the efficiency and environmental sustainability of agricultural production in Ghana.

If pragmatic measures are not put in place to accelerate CPR growth so it is consistent with the high CPR projection level, more cassava will have to be produced or imported. The same applies to other agricultural food staples, such as maize and rice. If sufficient volumes of staple crops cannot be produced domestically, resources and foreign exchange meant for the growth and development of other economic sectors will need to be used for importing food to feed the population. Thus, meeting the family planning needs of Ghanaian families and improving CPR can create savings and self-sufficiency in the agricultural sector.

Labour and Economy

Introduction

Ghana's economy has been strengthened by relatively sound management, a competitive business environment, and sustained reductions in poverty levels. However, rapid population growth could have an adverse impact on these recent economic strides. Ensuring a healthy, educated, and productive population is essential to a country's ability to maintain and improve its economic and social welfare. Improving and

increasing contraceptive prevalence will decrease fertility and slow population growth, helping to facilitate the achievement of further economic development. The basic goal is to establish an open and liberal market economy that optimises the economic growth rate and ensures the maximum welfare and economic well-being of all Ghanaians.

Vision

Ghana's economic vision is to achieve and sustain economic stability, with the aim of attaining an annual per capita income of US$3,000 by 2020, simultaneous to achieving the MDGs.

Gross Domestic Product (GDP) Per Capita

The gross domestic product is one of the primary indicators used to measure the health of a country's economy and under high CPR, GDP per capita is expected to grow more quickly (see Figure 24).

Figure 24. GDP Per Capita, 2010–2040
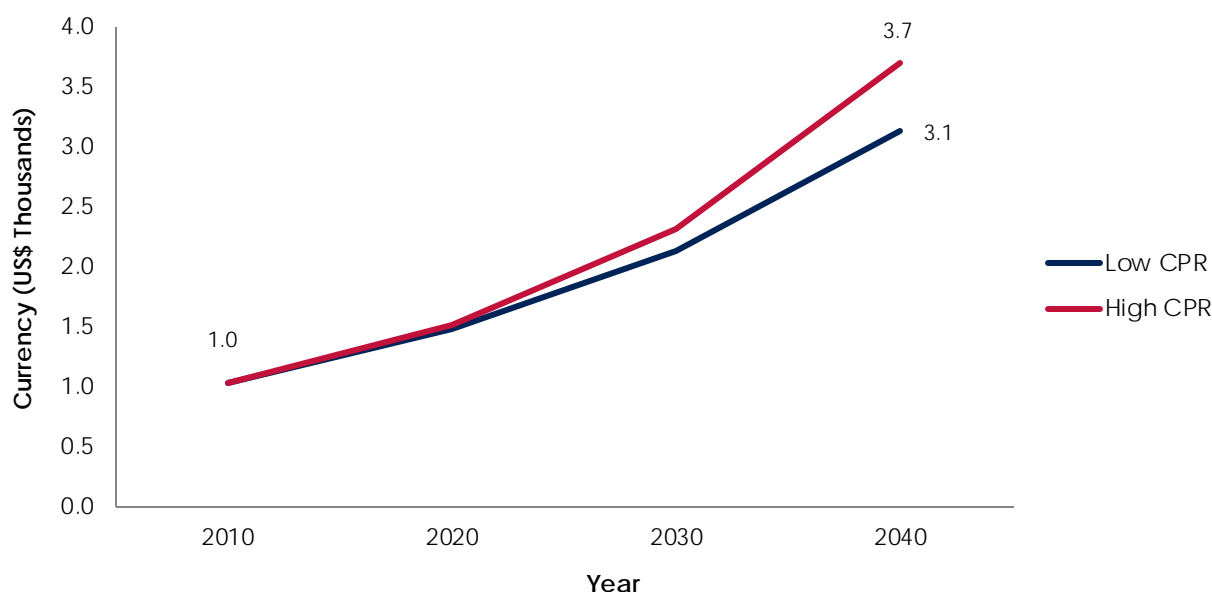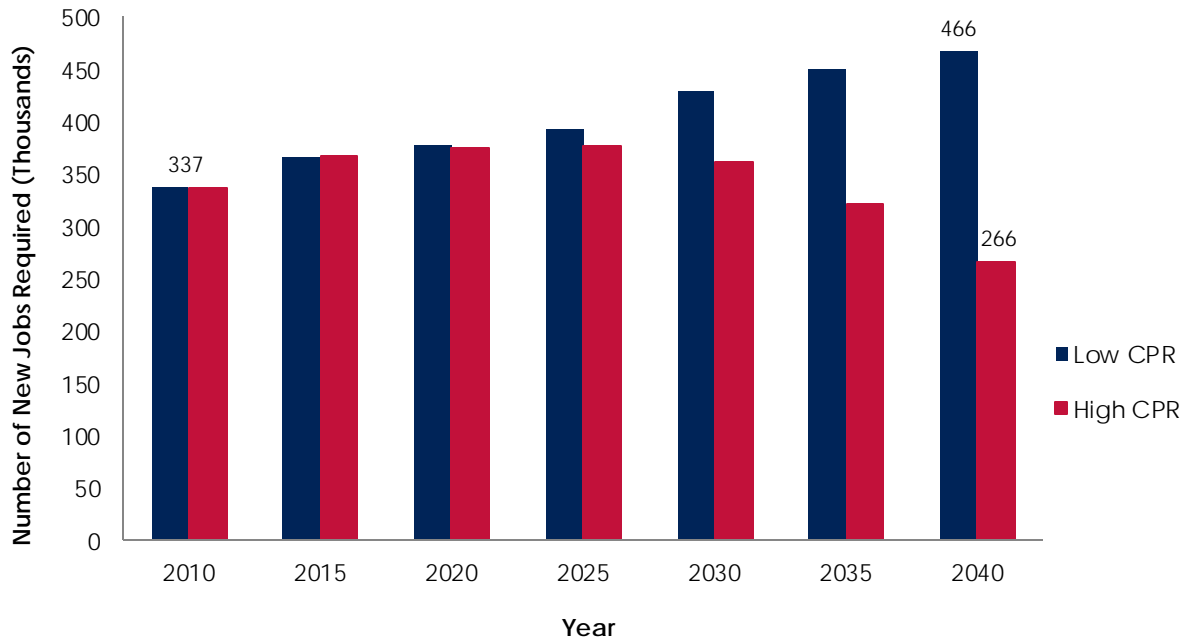

Source: Spectrum Model projections, 2013

Assuming a constant 6 per cent annual GDP growth rate in both scenarios, the projected GDP per capita grows faster in the high CPR case. From the 30-year projection, a high CPR, which leads to a smaller population, results in a GDP per capita of US$3,690 in 2040. In comparison, the low CPR case is calculated to result in a US$3,120 GDP per capita, 15.4 per cent less than the high CPR scenario. Thus, when measures are taken to increase CPR more quickly, the nation's GDP per capita will be positively affected. Furthermore, the increased investment in health and education made possible by a more slowly growing population will lead to a more productive labour force, which will ultimately lead to a more robust economy and an improvement in the standards of living of the population.

New Jobs Required

Under high CPR, fewer new jobs are needed to meet the needs of the growing population. If fertility is high and low CPR growth is sustained, annual new job requirements would rise continuously, reaching more than 466,000 in 2040 (see Figure 25). In contrast, annual new job requirements would be 266,000 in

2040 with the higher CPR projection and lower fertility. When population growth rates are lower, fewer new jobs are needed to meet the demands of the working population, more funding is available for the social sector and youth unemployment is lower. If the job market cannot expand to meet the needs of the growing population, unemployment is expected to worsen, creating unfavourable socioeconomic outcomes.

Figure 25. New Jobs Required, 2010–2040

Source: Spectrum Model projections, 2013

Dependency Ratio

High CPR leads to fewer dependents per working-age person, or a lower dependency ratio, which can help improve the economy.

The dependency ratio describes the number of dependents per working age adult. The overall dependency ratio is calculated using the total number of dependents, which consists of children ages 0–14 and elderly people (age 65+) who are past working age and also need to be supported. Rapid population growth creates a young population, which contributes greatly to a higher dependency ratio. Ghana has a predominately young population (see the pyramid in Figure 2) and its dependency ratio of 76 is much higher than that of more developed nations.

Figure 26. Dependency Ratio, 2010–2040
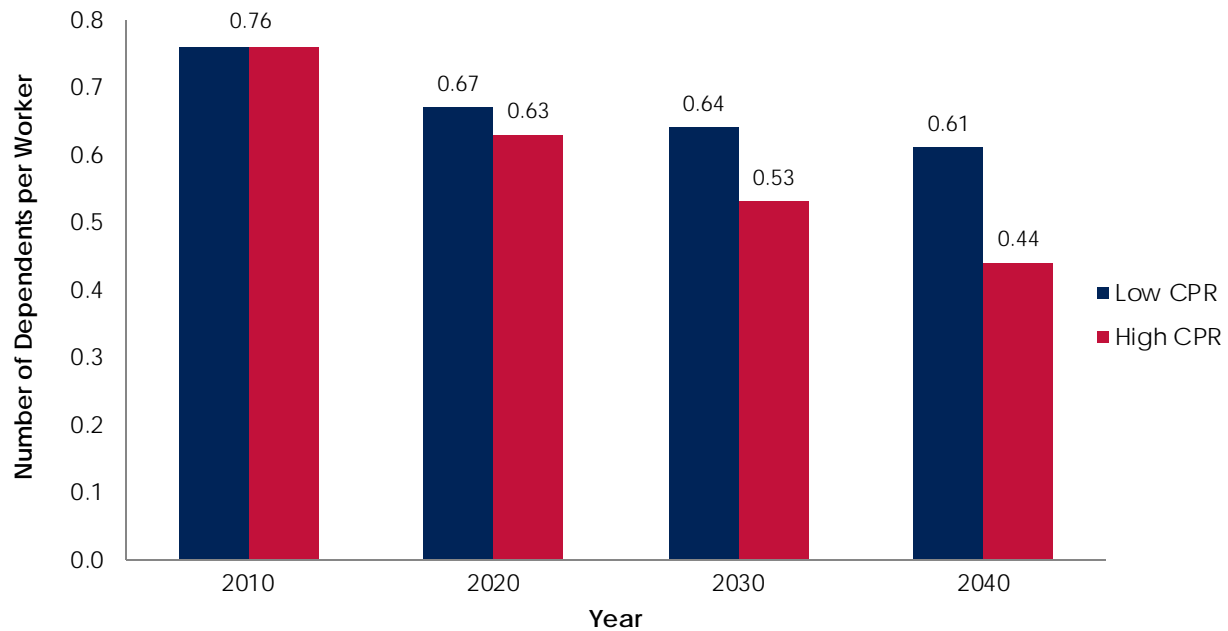
Source: Spectrum Model projections, 2013

According to the low CPR scenario, which reflects more rapid population growth, the dependency ratio will decrease from 0.76 dependents per worker in 2010 to 0.61 by 2040 (see Figure 26). The dependency ratio with high CPR will be 0.44 by 2040, considerably lower than the low CPR scenario. A lower dependency ratio means more income-generating workers, which can help to expand the economy. Moreover, at the family level, having fewer dependents allows surplus resources to be allocated towards savings, investment, or improving the standard of living. A lower dependency ratio also helps position Ghana for a possible demographic dividend—an economic boom with the prerequisite of a high proportion of economically active adults.

In the *State of Ghana Population Report 2003* (Government of Ghana and United Nations Population Fund, 2004), capital formation was noted for creating sustained economic development and effectively reducing poverty. High unemployment and high dependency ratios at both the household and national levels lead to increased spending and consumption, and lower savings and investment, both of which weaken national capital formation. In 2000, Ghana's gross national savings rate (as a per cent of gross national income) was 13 per cent, compared to 23 per cent for the rest of the world. In general, significant economic development will only occur if the savings rate is over 20 per cent; above 25 per cent it is classified as "good," and "very good" if above 30 per cent (Braun, 2003). In a situation of high fertility, rapid population growth, and a high dependency ratio, resources will be diverted from savings and investment in new capital to capital maintenance and labour costs. Decreased investment would then lead to lower productivity and low per capita income.

Urbanisation

Introduction

Urbanisation is the process in which an increasing proportion of a country's population lives in cities and city suburbs. Ghana is undergoing rapid urbanisation and a subsequently skewed distribution of the

national population, resulting in a higher concentration of people in large cities, mainly Accra and Kumasi. Internal migration and disproportionate population concentration are largely due to an unequal distribution of economic growth and opportunities, as well as resource exploitation in Ghana. Urbanisation presents opportunities for poverty reduction and sustainable development, but also poses challenges, such as rural communities becoming places with high proportions of children and the aged. This shift will have serious repercussions on agricultural production.

In view of this, the effect of urbanisation on communities' and people's needs must be considered when examining the rapid growth of cities.

Total Urban Population
As shown in Figure 27, under high CPR, the urban population is projected to grow more.

**Figure 27. Total Urban Population, 2010–2040**
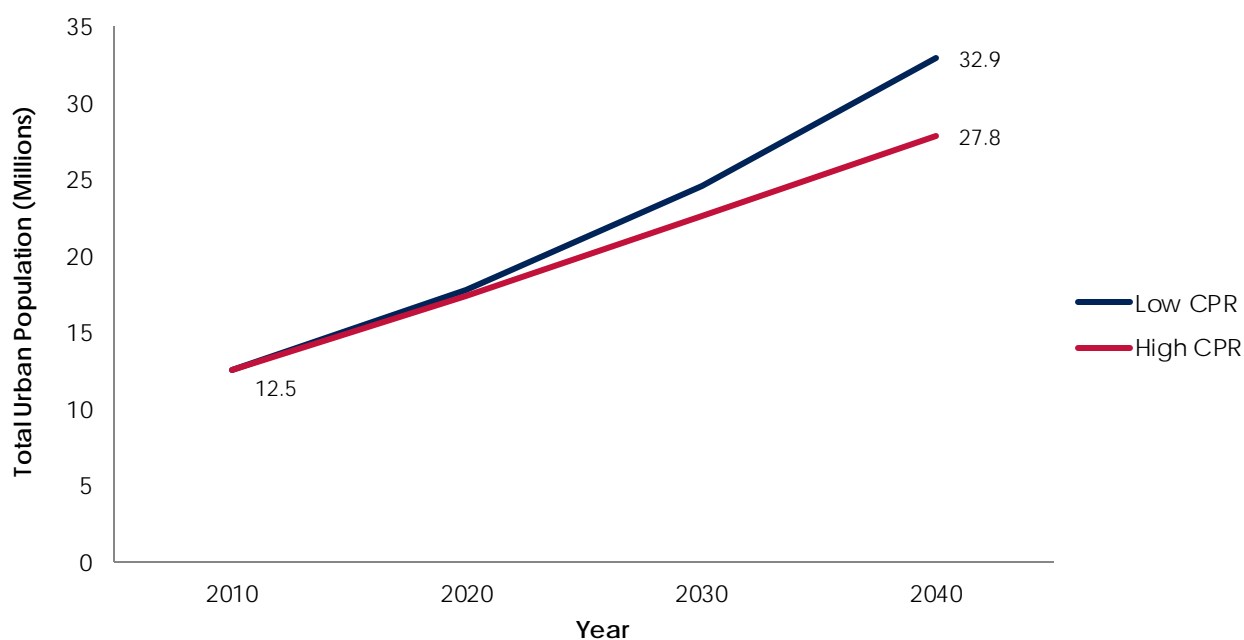
Source: Spectrum Model projections, 2013

Figure 27 shows that the total urban population of Ghana in 2010 was 12.55 million and is expected to grow to 27.85 million by 2040 with a prevailing high CPR projection. For the low CPR projection, the urban population is estimated to increase to 32.94 million in 2040, a difference of more than 5 million urbanites. The increased magnitude of the urban population can have many resource implications, such as providing adequate social amenities and building infrastructure for a rapidly growing urban population. With the higher CPR scenario and a smaller urban population, fewer people need clean water, sanitation, safe housing, and social services in cities. Without these important services, the urban population's health and well-being will suffer, creating undesirable health outcomes, social unrest and large subgroups of vulnerable/marginalised urbanites. The level of urbanisation varies significantly across the regions of Ghana, with Greater Accra being the most urbanised.

Annual New Urban Houses

Under high CPR, the annual number of new urban houses required—assuming there are four persons per household—is projected to grow more slowly, and eventually plateau (see Figure 28).

Figure 28. Annual New Urban Houses, 2010–2040
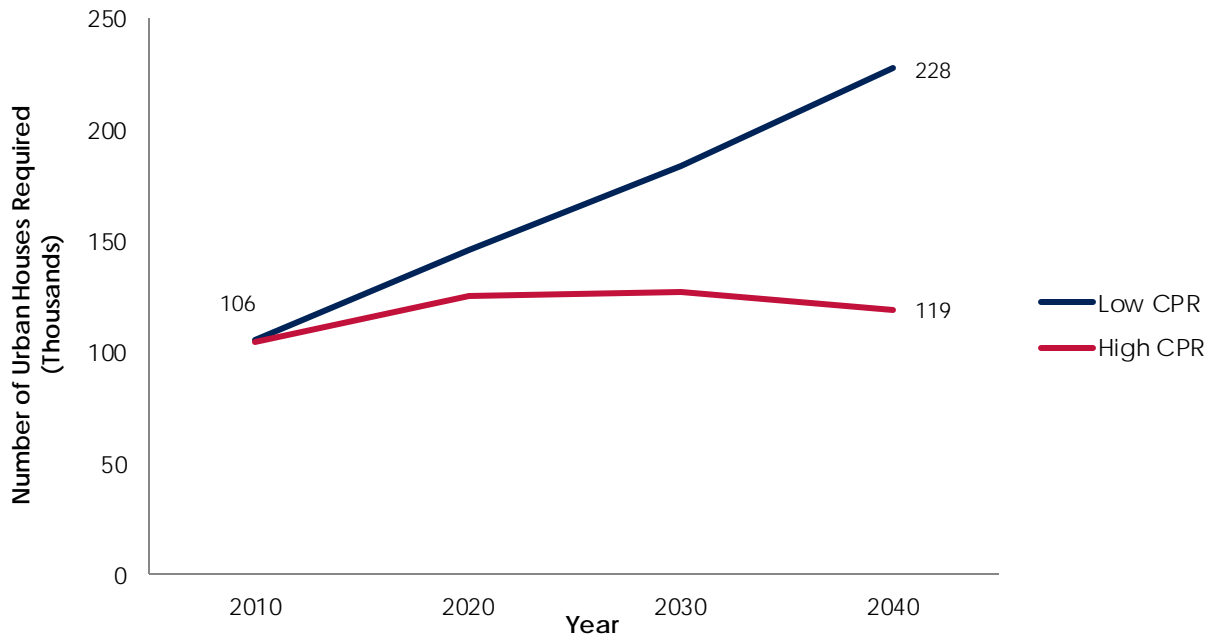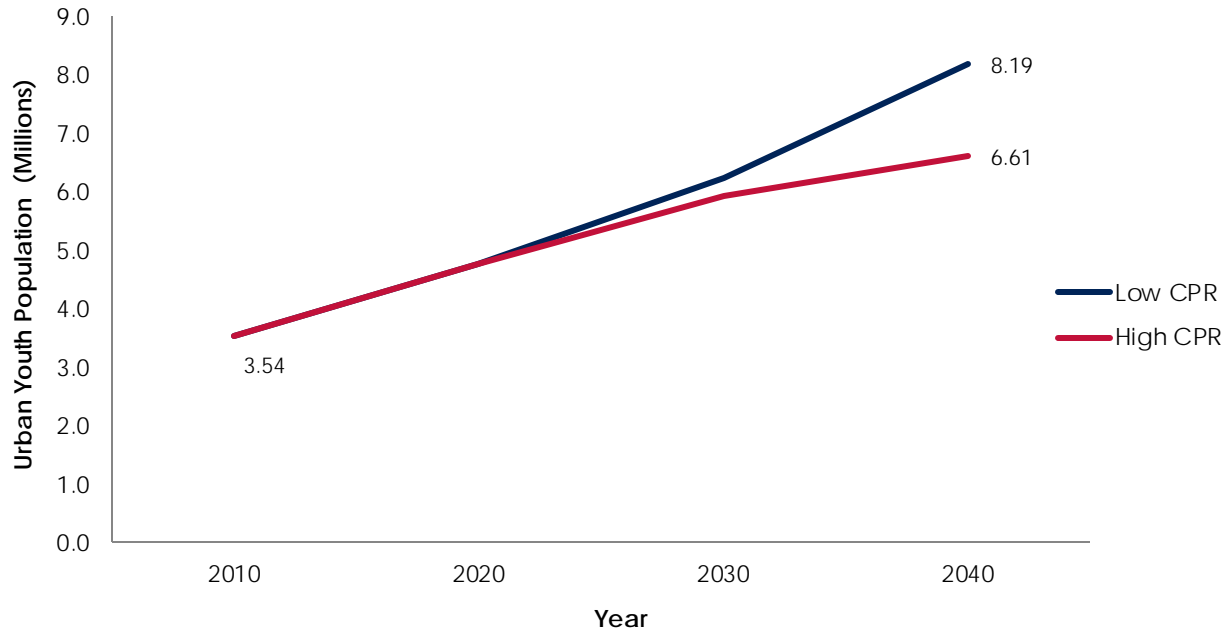

Source: Spectrum Model projections, 2013

Figure 28 shows that with the low CPR scenario, the number of new urban houses needed annually is expected to increase from 106,000 at the end of 2010 to nearly 228,000 in 2040. However, with the high CPR scenario, the number of new urban houses needed each year will only increase to 119,000 in 2040, 109,000 fewer houses in the final year than the low CPR scenario.

Rapid urban growth and building new urban houses each year puts continual pressure on urban infrastructure, including water and sanitation, roads and transport, and energy. The associated high housing demand leads to deficits in urban housing, the creation of slums, and adverse social and health-related outcomes.

Urban Youth

Under high CPR, the urban youth population will grow more slowly. According to the low CPR projection (Figure 29), the urban youth population in Ghana is expected to increase from 3.54 million in 2010 to 8.19 million in 2040. However, in the high CPR scenario, this population is expected to be 6.61 million in 2040, a difference of nearly 1.6 million fewer urban youths. Therefore, high CPR can help address youth unemployment and related social problems such as crime, violence, and health issues, which can arise when there is a lack of opportunities for urban youth.

Figure 29. Urban Youth, 2010–2040

Source: Spectrum Model projections, 2013

Rapid population growth in the context of an urbanising world puts tremendous pressure on cities to build up too quickly and unsustainably, without proper urban planning and infrastructure. Increasing pressure on urban infrastructure affects a population's quality of life, and could result in substandard housing, social unrest, and environmental damage. However, urbanisation, development, and employment are also interrelated, so it is important not to halt urbanisation, but ensure that it proceeds sustainably and contributes positively to development.

Demographic Dividend

The demographic dividend refers to the window of opportunity that allows for faster rates of economic growth as fertility rates decline when combined with effective socioeconomic policies. Investment in family planning can help Ghana achieve higher CPR growth, improving the health of women, children, and families, and incurring significant savings in various development sectors. Seizing the demographic dividend, however, the country can realize a boost in economic growth and productivity that can raise incomes and allow families and governments to improve the well-being of future generations.

The demographic dividend is only possible when fertility rates decline sharply and significantly, leading to a lower dependency ratio. Typically, the window of opportunity for the demographic dividend opens when the dependency ratio reaches 60 dependents supported by every 100 working-age adults, which tends to occur when a country's TFR is around 3. Ghana's current dependency ratio is 76 dependents per 100 working adults, and the fertility rate is 4.0 (GDHS, 2008).

Thus, with increased growth in CPR, Ghana can achieve the sharp decline in fertility necessary for the demographic dividend, and incur savings from reduced needs among the urban population and in the health, education, and agricultural sectors. Ghana can re-invest these savings in social and economic development to capitalise on the demographic dividend window of opportunity. For the demographic dividend to be realised, jobs—especially outside the agriculture sector—must be readily available for new entrants to the labour force, who must be properly educated and trained. Other important factors include a stable economic climate for savings and investment, women's ability to enter the workforce, trade openness, and good governance.

The "Asian Tigers" comprising Indonesia, Thailand, Singapore, Malaysia, and South Korea are often cited as having taken advantage of their demographic dividends from the early 1960s to the late 1990s. The low dependency ratios that resulted from sharply declining fertility and slowed population growth in these countries contributed to the accumulation of physical and human capital. Furthermore, prudent investments in population and family planning, health, education, nutrition, and technology enabled them to achieve high economic growth rates.

The demographic dividend offers Ghana the opportunity to stimulate economic development and improve the well-being of its citizens, but its success ultimately requires integrated demographic, economic, and social policies.

Conclusion

Over the past 20 years, Ghana has experienced a decline in the overall level of fertility. TFR decreased considerably from 1988 to 1998, and more slowly between 2003 and 2008. Despite this progress, the decline has not been uniform among subgroups of reproductive-age women. Fertility is higher among low-income women, rural women, and women with lower levels of education. Women in the Northern and Central regions of Ghana also have higher levels of fertility. Moreover, CPR improvements over the past 20 years have been minimal, and a large percentage of women still have an unmet need for family planning.

This RAPID analysis assessed the difference between the continuation of the current annual trend of CPR growth of 0.6 percentage points and a higher annual CPR growth rate of 1.5 percentage points. By looking at the impact of CPR on population growth, this RAPID model closely examined the potential savings in various development sectors, such as health, education, agriculture, and labour, and due to factors such as urbanisation. Under low CPR, the population of Ghana is projected to increase from 24.6 million in 2010 to 45.8 million in 2040. In contrast, the high CPR trajectory projects a population of 38.7 million in 2040. Thus, the high CPR projection, which allows for rapid improvements in CPR and unmet need, leads to decreased fertility and slower population growth. A slower growing population enables savings in various sectors, which can be re-invested into the economy to achieve the demographic dividend, meet MDG targets, or reach post-MDG sustainable development goals. Thus, advocating for improved CPR and increased uptake of long-term family planning to better meet the needs of Ghanaian women and families has multiple benefits, such as facilitating development and lessening the pressure on the government.

Helping Ghanaians to achieve their desired level of fertility would significantly improve the health of women and families by reducing the unintended fertility that contributes to rapid population growth, and improving development prospects. Furthermore, women must be empowered to access and obtain accurate information and comprehensive family planning counselling so they are equipped to make informed decisions for themselves and their families. Providing the necessary reproductive health services to women, men, and adolescents and ensuring consistent CPR growth represents a tremendous challenge to the government of Ghana. It is therefore imperative that all stakeholders in development, population, and reproductive health address these issues together, carefully considering the full range of policy and programme options, and implementing the multisectoral changes that are needed to meet these challenges.

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