



# HARNESSING THE DEMOGRAPHIC DIVIDEND FOR UGANDA



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for International  
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## **List of Acronyms**

GDP	Gross Domestic Product
NDP II	Second National Development Plan
NPA	National Planning Authority

## **Foreword**

Uganda's long-term development effort, initiated in 2010, is driven by Uganda Vision 2040 which is to be implemented through 10-Year Development Plans and six medium term National Development Plans. Vision 2040 recognised population as the most important resource in the country's development process.

Uganda's population has been growing at a high rate of more than 3 per cent over the last 30 years mainly due to high fertility, resulting in Uganda's population being one of the youngest populations in the world. Uganda Vision 2040 also recognized the country's high fertility and resultant high population growth rate and youthful age structure as the biggest hurdles to the realization of the Vision.

However, the past 15 years have seen the beginning of a decline in the fertility levels signalling the onset of opportunity for turning around the country's development profile to achieve the much desired socio-economic transformation. The confidence in this path is built along the experience of the East Asian countries like Malaysia, Thailand, etc., which took advantage of the transformed age structure of their populations to accelerate their development levels by between 25 to 35 percent over a period of 30 years. It is with this central paradigm in mind that the National Planning Authority commissioned this study, as a follow-up of the 2014 work to explore the possibility of Uganda experiencing a demographic transition and eventually harnessing a demographic dividend.

Uganda Vision 2040 recognises that today's young people will be the drivers to achieve the Vision. It is therefore imperative that the right interventions are made to ensure that the aspirations set out in the Vision 2040 are met, and harnessing of the demographic dividend as one of the strategies for the eventual attainment of those targets.

The National Planning Authority will work with Government Agencies, Civil Society Organisations, the private sector and Development Partners to identify critical interventions that will make a difference in the lives of the country's population especially the young persons to prepare for the socio-economic transformation process.



**Prof Obwoya Kinyera Sam**

**AUTHORITY MEMBER**

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## **Acknowledgement**

In line with its mandate to generate development plans and advise the president on policies and strategies for the development agenda, the national planning Authority (NPA) commissioned the Demographics Dividend report for Uganda. The report builds an earlier modeling work undertaken in 2014

The overall purpose of the exercise was to assess Uganda's prospects of harnessing the demographics dividend in light of Uganda Vision 2040 to inform the development of the third National Development Plan 2020/21-2024/2025 (NDP III) and Ten-year Perspective plan 2020/21-2029/30.

In this regard, I would like to deeply appreciate the Demographic Dividend Steering Committee (DDSC) which provided technical oversight throughout the development of this work. The Steering Committee comprised of several organizations including the National Population Council; School of statistics and planning (Makerere University) and the ministries of finances, Planning and economic Development; Gender Labour and Social Development; Education and Sports; Local Government; and Health.

In addition, the assignment benefited from Probonal technical input from Dr. Scottl Moreland of the futures Group who provided the most recent and updated version of the DemDiv Modelling Spreadsheet.

Special appreciation is accorded to the UK Department of Foreign and International Development (DFID) and to the United Nation Population Fund for the financial and technical support through the reducing fertility rates and Improving Sexual Reproductive health outcomes in Uganda (RISE) Project.

A handwritten signature in black ink, appearing to read 'Joseph Muvawala', written over a horizontal line.

Joseph Muvawala (PhD)

**Executive Director**  
**National Planning Authority**

## Executive Summary

### Background

Uganda's long-term Vision is 'A transformed Ugandan society from a peasant to a modern and prosperous country within 30 years' with the per capita GDP increasing from USD 506 in 2010 to USD 9,500 by 2040. The Uganda Vision 2040 is operationalized through 5-year medium-term plans. The second National Development Plan covering the period 2015/16 – 2019/20 adopted harnessing or reaping the benefits of the Demographic Dividend as one of the key strategies to promote productivity, employment and inclusive growth in the country by 2020. In order to earn the benefits of the Demographic Dividend, countries should prioritise investments in human capital to ensure a healthy and well-educated population; accelerate economic growth and job creation to ensure that the 'surplus' labour force is gainfully employed and has strong purchasing power; and enforce accountability and efficiency in the use of public resources and delivery of social services.

The comprehensive reforms that countries must enact and implement to harness the Demographic Dividend can be categorised into the following five pillars:

1. Accelerating demographic transition through investments that facilitate rapid **fertility decline**, enhance child survival, and improve education and general empowerment of women
2. Enhancing investments in high-level **education** to develop a well-educated, skilled, and innovative labour force
3. Enhancing investments in health to nurture **a healthy and productive labour force**
4. Economic reforms to accelerate **economic growth** and job creation for the rapidly expanding labour force
5. Fiscal policies and **governance reforms** to enhance savings, attract foreign direct investment (FDI), and ensure efficiency and accountability in the use of public resources

All the five policy pillars are interrelated; they reinforce each other and should be implemented concurrently to drive the country towards the economic prosperity that can accrue from the Demographic Dividend.

The process of developing the third National Development Plan (NDP III) covering the period 2020/21 – 2024/25 is desirous to model the Demographic Dividend using the most recent data.

### The Modeling and Results

The overall objective was to model the country's population profile beyond the 2014 work and provide policy options and targets towards the realization of Uganda's Demographic Dividend to inform the future direction of the country's planning.

The modeling was done using the DemDiv Model and covered a 23-year period with the base as 2017 and the end period as 2040. The choice of the base period was based on the point of convergence of most data sets available. The following assumptions were made with respect

to the status of the economy in 2040. Two distinct scenarios were generated and these are described below:

1. **Economy Scenario** (Economic Emphasis Only) – assumes that extra intervention in the economic policies, while the education and health sectors maintain the routine interventions as in the Base Scenario;
2. **Combined Scenario** (both Economic emphasis and Human Capital development) - assumes that extra intervention in the economic policies, education and health sectors.

The findings of the modelling reveal that because of the momentum already built, Uganda's population will continue grow irrespective of whichever scenario is followed. Similarly, the population entering the labour market will continue to increase from 800,000 in 2018 to 1.4 million in 2040.

With respect to economic growth, Uganda has had slower growth between 2009/10 – 2017/18 than was initially anticipated. Maintaining the development path that was projected in 2014, the country's GDP will only increase to USD 293 billion by 2040, giving a GDP per capita of USD 4,583. This falls far below the national development target and therefore, the country needs to implement strong reforms in the economy and quality of human capital to achieve the Vision 2040 development target.

Introducing economic reforms without associated improvements in the quality of human capital would increase Uganda's GDP from the 2017 level of USD 27.9 billion to USD 495 billion in 2040. The associated GDP per capita would be USD 6,735. However, the modelling has shown that Uganda's economy would grow faster if the combined model that concurrently prioritizes job-oriented economic reforms and investments in human capital are implemented, starting in 2018. Under his approach, Uganda can attain the Vision 2040 target of being a higher middle income country in 2040 with a GDP per capita of USD 9,523.

## **Conclusion**

Uganda's Vision 2040, seeks to transform the country from a 'predominantly peasant and low income country to a competitive, modern and prosperous upper middle income country' by 2040. The vision highlights the potential role of the Demographic Dividend in realising the envisaged socio-economic transformation. It advocates for reducing the dependency ratio by reducing fertility levels, keeping school-age children (particularly girls) in school, and improving the health service delivery system.

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## **1.0 Background**

Uganda's long-term Vision is 'A transformed Ugandan society from a peasant to a modern and prosperous country within 30 years' with the per capita GDP increasing from USD 506 in 2010 to USD 9,500 by 2040. Uganda Vision 2040 is operationalized through 5-year medium-term plans among which the first National Development Plan (NDP I) was concluded in 2015 while the second National Development Plan (NDP II) runs up to 2020.

The NDP II prioritized infrastructure and human capital development as fundamental enablers for socio-economic transformation. However, the country's annual budgets during this period have so far put more emphasis on infrastructure without corresponding investments in human capital development.

### **1.1 The Demographic Dividend window for Socio-economic Transformation**

Uganda Vision 2040 recognizes the rapid population growth, young age structure and consequent high child dependency burden as the main threats to the achievement of the envisaged socio-economic development. However, the Vision document underscores harnessing the Demographic Dividend as instrumental in facilitating socio-economic transformation by turning the erstwhile population burden into an asset.

The demographic dividend is an opportunity for economic growth, development, and improved well-being that arises as a result of changes in the population age structure. When fertility rates decline significantly, the share of the working-age population increases in relation to previous years. The larger working-age population, if properly nurtured, can enable a country increase GDP and raise incomes.

The Vision 2040 framework acknowledges the progress Uganda has made over the years in improving the population and development situation. In this regard, harnessing the Demographic Dividend is central for achieving Uganda Vision 2040, which is set to be achieved within a six medium-term National Development Plans frame.

Reaping the Demographic Dividend is however not automatic. In order to earn the Demographic Dividend, countries should prioritise investments in human capital to ensure a healthy and well-educated population; accelerate economic growth and job creation to ensure that the 'surplus' labour force is gainfully employed and has strong purchasing power; and enforce accountability and efficiency in the use of public resources and delivery of public services.

Consequently, the second National Development Plan covering the period 2015/16 – 2019/20 adopted harnessing or reaping the benefits of the Demographic Dividend as one of the key strategies to promote productivity, employment and inclusive growth in the country by 2020. This means that the country has to invest in its abundant human resource as one of the key fundamentals that have to be strengthened in order to exploit the identified opportunities. The investment should produce a healthy, well educated and appropriately skilled, innovative and productive population, hence human capital, that effectively contributes to socio-economic transformation.

The comprehensive reforms that countries must enact and implement to harness the Demographic Dividend can be categorised into the following five pillars:

1. Accelerating the demographic transition through investments that facilitate rapid fertility decline, enhance child survival, and improve the education and general empowerment of women;
2. Enhancing investments in high-level education to develop a well-educated, skilled, and innovative labour force;
3. Enhancing investments in health to nurture a healthy and productive labour force;
4. Economic reforms to promote economic growth and job creation for the created human capital;
5. Fiscal policies and governance reforms to enhance savings, attract foreign direct investment (FDI), and ensure efficiency and accountability in the use of public resources.

All the five policy pillars are interrelated; they reinforce each other and should be implemented concurrently to drive the country towards the economic prosperity that can accrue from the Demographic Dividend. If any of the pillars slows down or moves in a wrong direction, all the other pillars will also slow down, making the entire system dysfunctional, and thereby limiting the extent to which a country can harness the dividend. Furthermore, the Demographic Dividend is not an event that happens or is achieved in a given year, rather it is an accumulation of economic gains that accrue over many years as the population age structure changes to include more working-age people and the requisite investments are made in human capital development and job-oriented economic growth.

As part of the NDP II preparation, Uganda's National Planning Authority (NPA) undertook a country population situation analysis to ascertain the status of key population variables as well as the country's performance on the other demographic dividend pillars to re-assess Uganda's prospects of achieving this dividend.

## **1.2 Objectives**

The first Demographic Dividend for Uganda was undertaken in 2014. This study was part of the general process towards the preparation of the Second National Development Plan (NDP II). The analytical report from this study recommended several interventions which guided the identification of priority areas for NDP II.

However, after two and half years into NDP II implementation, available evidence seems to suggest that Uganda's performance towards harnessing of the Dividend fell short of the projection. For example, the annual GDP growth rate between 2009/10 and 2017/18 was recorded as 5.2 as opposed to 8.2 per cent which was anticipated in Uganda Vision 2040. Further, the process of developing the NDP III (covering the period 2020/21 – 2024/25) has begun, and it is desirable to update the modelling of the Demographic Dividend using the most recent data sources including the National Population and Housing Census (NPHC) 2014, the Uganda Demographic and Health Survey (UDHS) 2016, the Uganda National Household Survey (UNHS) 2016/17, the Uganda National Manpower Survey (UNMS)

2016/17 and updated social and economic series such as GDP, GDP per Capita, among others.

Consequently, it became necessary to update the 2014 modelling to take care of the changes in the state of the economy and data availability that had been observed. The overall objective of the current exercise was to remodel the country's population profile beyond the 2014 work and provide policy options and targets towards the realization of Uganda's Demographic Dividend to inform the future direction of the country planning, programming and budgeting processes.

Hence, the specific objectives of this study were to:

- i. Review the state of implementation of the recommendations made in the first modelling study (2014);
- ii. Using the newly available data run new models on Uganda's demographic and economic parameters to assess the critical factors in the country's development path; and
- iii. Make a general assessment of the country's prospects for harnessing the demographic dividend and make appropriate recommendations.

## 2.0 Socio-economic status in Uganda

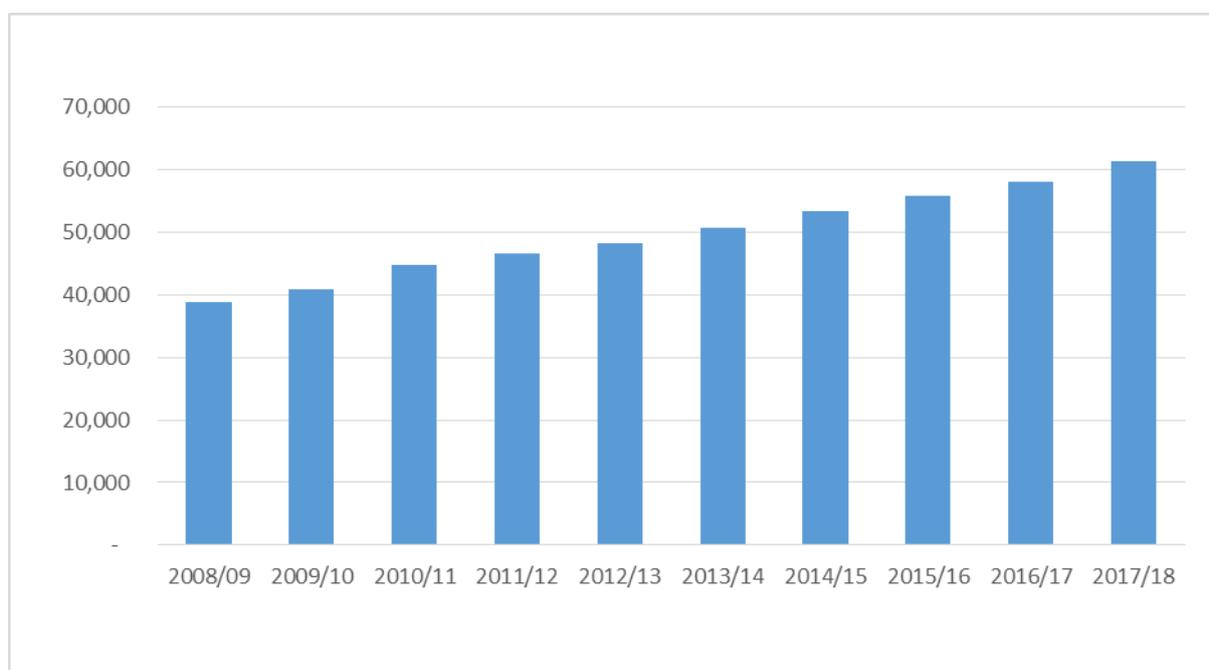
As Uganda invests in the realization of upper middle-income status by 2040, it is imperative that it prioritizes human capital development that can adequately contribute to the realization of these goals. This involves changing from a predominantly peasant to a competitive science and technology-driven economy. Achieving a faster socio-economic transformation will depend on the country's capacity to strengthen the fundamentals for exploiting the youthful population and thus harnessing the Demographic Dividend by turning the young population into a productive and innovative human capital that will contribute to the economic growth of the country for decades to come.

### 2.1 The Economy of Uganda

Uganda has made some progress towards achieving the desired socio-economic transformation as envisioned in the Vision 2040. The economy has registered progress and the quality of life of households in Uganda has tremendously improved.

The country has consistently maintained economic stability over the past 30 years, with the economy continuously growing and with fairly low inflation. The Gross Domestic Product (GDP)<sup>1</sup> increased from 38.8 trillion shillings in 2008/09 to 61.4 trillion shillings in 2016/17 (Fig 2.1). The average GDP growth rate was 5.2 percent between 2008/09 and 2017/18. The highest growth rate (9.4 percent) was registered in 2010/11 while the lowest (3.6 percent) was registered in 2012/13.

**Figure 2.1: GDP at constant 2009/10 market prices (Billion shillings)**



Source Uganda Bureau of Statistics.

<sup>1</sup> The figures are in constant (2009/10) market prices

### **2.1.1 Sectoral contribution to GDP**

Since financial year 2008/09, sectoral contribution to GDP has remained fairly constant with agriculture, forestry and fishing contributing about 25 percent, industry about 20 percent, services about 47 percent and taxes on products about 8 percent, as shown in Figure 2.2. Therefore, about half of Uganda's GDP is attributed to agriculture, forestry, fishing and industrial activities. Despite the deliberate economic interventions for construction of transport and communication infrastructure and utility projects and expansion of the mining and quarrying activities, the share of these industrial activities has remained the same.

### **2.1.2 Economic performance by activity**

Over the period 2008/09 to 2017/18, the activities that have registered the greatest growth are: Information and Communication with an annual average growth rate of 14.8 percent, Financial and Insurance Services (9.8 percent), Mining and Quarrying (9.6 percent), Public Administration (7.7 percent), Electricity Generation, Transmission and Distribution (7.7 percent), Construction (7.2 percent) and Accommodation and Food Services (6.9 percent).

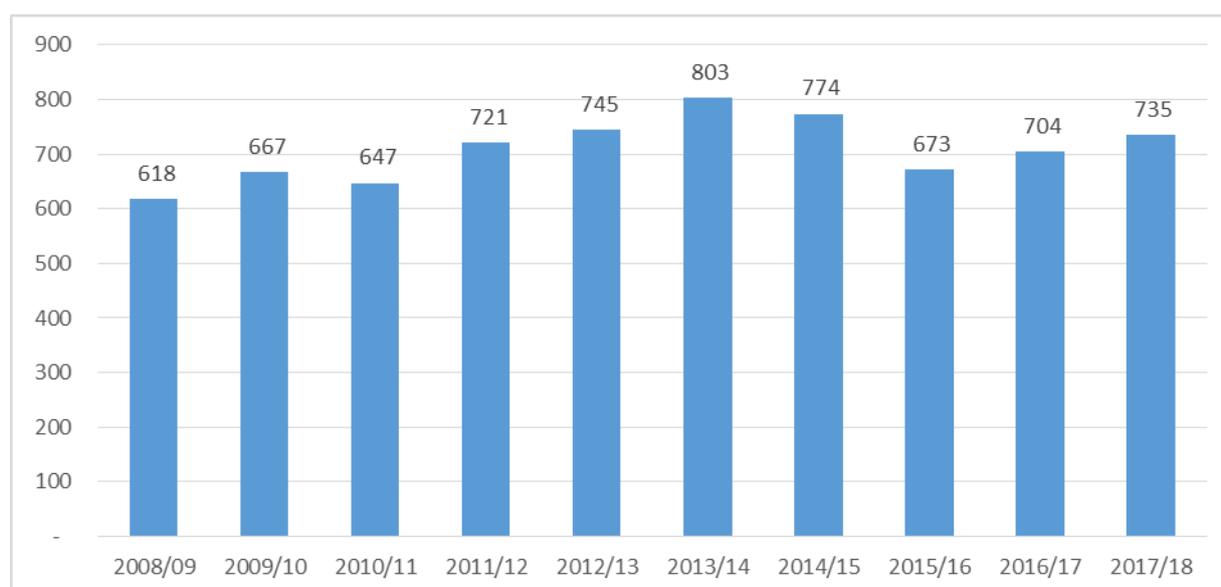
The value added for Information and Communication activities increased more than four fold, registering the fastest growth since 2008/09. Construction, Education and Real Estate activities have also consistently registered steady growth over the same period.

The consistent growth in education services which has been registered over the period is critical for human capital development in order to harness the Demographic Dividend. However, for effective human capital development, growth in value added in education services must be appropriately balanced with quality enhancement in education. The levels of health, income, and gender disparities should also be appropriately eased out.

### **2.1.3 GDP per capita**

The GDP per capita for 2017/18 was estimated at USD 735 (Figure 2.2), indicating a gap of 29.2 percent from the target of the 2020 target for graduation to middle income status. The trend of GDP per capita has been bumpy with an annual average of US\$ 709 over the period 2008/09 – 2017/18. Over the same period, the highest GDP per capita of USD 803 was registered in 2013/14.

**Figure 2.4: GDP per capita (USD), Uganda, 2008/09 – 2016/17**



Source: Uganda Bureau of Statistics

Given its current demographic and socio-economic situation, Uganda’s population is projected to increase from 37.7 million in 2017 to 71.9 million in 2040 (see Section 4.5.1). In order to meet the Vision 2040 target of a GDP per capita of USD 9,500 in 2040 from the current level of USD 740, Uganda has got to increase its GDP from the current USD 28.5 billion in 2017 to USD 683.1 billion in 2040, which is nearly 25 times higher in a period of 23 years. This is equivalent to an annual average increase of USD 29.7 billion.

### 2.1.4 External Trade

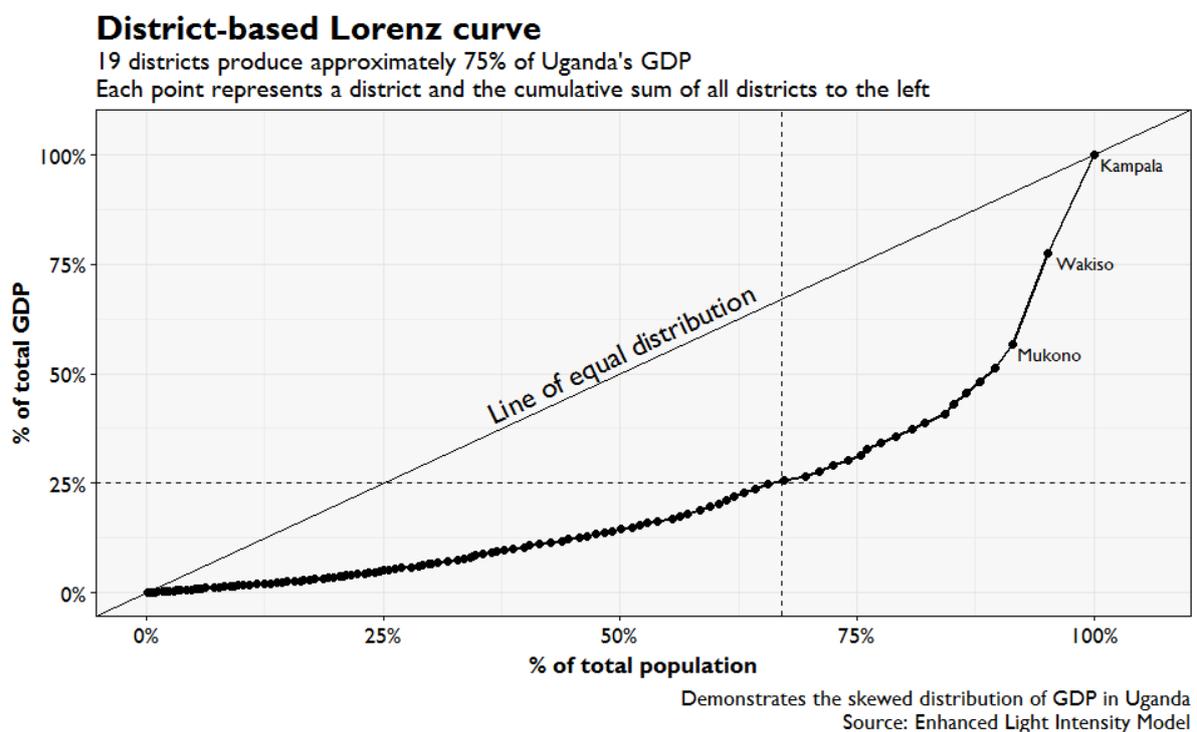
The sustained momentum in growth for trade & repairs and manufacturing activities to meet the consumption levels resulted into an increase in imports of 15.9 percent from USD 4,503 million in 2008/09 to USD 5,217 million in 2016/17 (Figure 2.5). Similarly, the sustained momentum in growth for food crop growing activities is a result of increased demand from the local and external markets within the region. This is reflected in the growth of exports of food crops by 36.3 percent from USD 2,395 million in 2008/09 to USD 3,265 million in 2016/17.

There has been significant and steady growth in exports of food and livestock compared to the growth in exports of manufactured goods, excluding machinery and transport equipment which has registered bumpy and slow growth. Exports of food and livestock grew by 59.7 percent from USD 944.6 million in 2008/09 to USD 1,508.5 million in 2016/17. Exports of manufactured goods, excluding machinery and transport have declined by 3.0 percent from USD 1,205 million in 2008/09 to USD 1,169 million in 2016/17.

### 2.1.5 Household incomes

The incidence of income poverty in Uganda declined from 38 percent in 2002/03 to 19.7 percent in 2012/13. However, the trend has now changed considering the 2016/17 findings (21.4%). The distribution of income across individuals shows who benefits or misses out on the development opportunities available in society. Despite the growth registered over time, studies have shown that there is uneven distribution of the income among the different segments of the population as shown in Figure 2.7. The UNHS 2016/17 shows that, overall, income inequality as measured by the Gini coefficient stood at 0.42. Further, the National Transfer Accounts (NTA) study of 2018 has shown that the burden of spending on education and health has fallen more disproportionately on poorer households.

**Figure 2.7: District based Lorenz curve for GDP in Uganda, 2014**



### 2.2 Population situation in Uganda

Uganda's population grew from 9.5 million in 1969 to 34.6 million in 2014. The population growth rate currently stands at 3.0 percent per annum down from 3.2 percent observed between 1991 and 2002. This means an increment of over one million persons annually.

**Table 2.1: Population size, Inter-censal Population changes, 1969 - 2014**

Census year	Male	Female	Total	Inter-censal Period	Average Annual Growth Rate (%)
1969	4,812,447	4,722,604	9,535,051	1969-1980	2.7
1980	6,259,837	6,376,342	12,636,179		
1991	8,185,747	8,485,558	16,671,705	1980-1991	2.5
2002	11,824,273	12,403,024	24,227,297	1991-2002	3.2
2014	17,060,832	17,573,818	34,634,650	2002 - 2014	3.0

Source Uganda Bureau of Statistics

The size, age-sex structure and spatial distribution of the population are determined by the past fertility, mortality and migration (internal and international) behaviour of the population. As a result of the past high fertility, declining mortality hence increasing life expectancy, Uganda has one of the youngest populations in the world with a median age of 15.9 years. The age-dependency ratio is 103 percent, which means that for every 100 persons of working age, there are 103 dependants.

Table 2.2 shows that the highest proportion of Uganda's population is young, with more than half of the population (55 percent) being aged less than 18 years. One in five persons of the population is of primary school going age (6-12 years) and the share of youth (18-30 years) stands at 22.9 percent.

**Table 2.2 Percentage Distribution of the Population by Age, 1969-2014 and 2017 projection.**

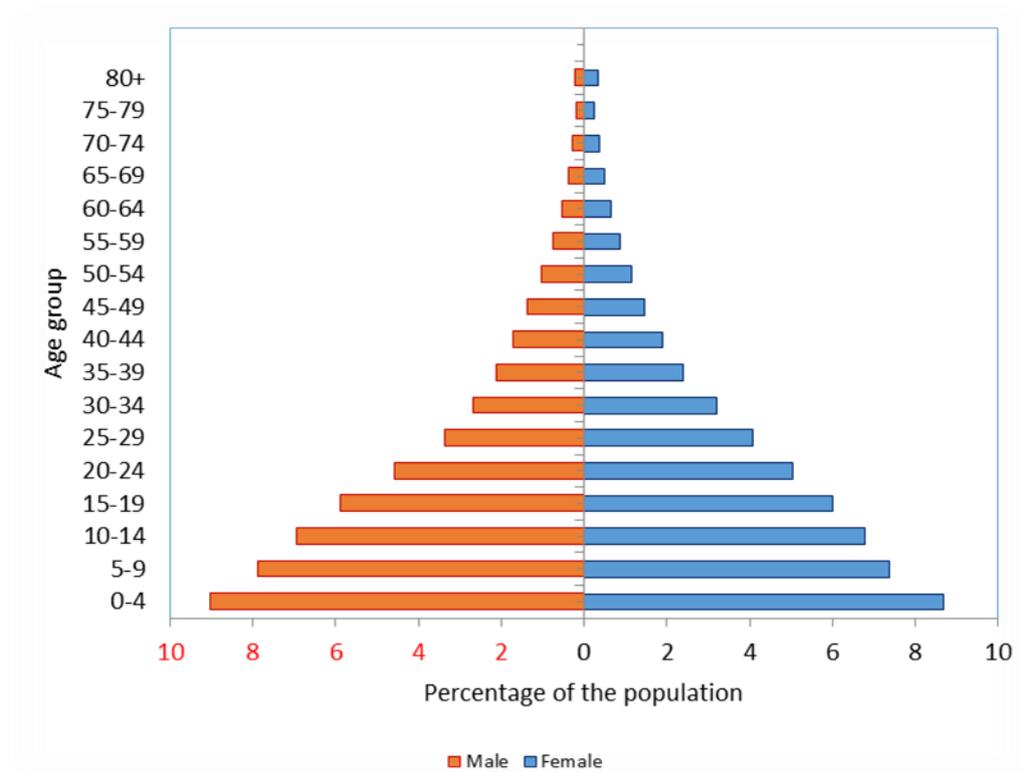
Age Category	1991	2002	2014	2017*
Less than 18	56.4	58.5	55.1	54.1
6 – 12	20.0	22.0	21.3	20.6
18 – 30	21.0	20.0	22.5	22.9
18 – 64	42.9	40.9	44.2	45.6
60 or More	5.0	4.5	4.1	3.7

\* Based on Population Projections by Uganda Bureau of Statistics

Source Uganda Bureau of Statistics.

A population pyramid is a pictorial representation of the age distribution of a given population. Uganda's population pyramid (Figure 2.8) is broad-based, implying that the majority of the population is young, characteristic of a country with high fertility.

**Figure 2.8: Population Pyramid in Five-Year Age Groups, Uganda, 2014**



Source Uganda Bureau of Statistics.

Over the past 10 to 15 years, Uganda has witnessed a decline in fertility levels from a Total Fertility Rate (TFR) of 6.9 children per woman in 2001 to 5.4 children in 2016. Similarly, the country also experienced a mortality decline, with the life expectancy at birth increasing from 50.4 years in 2002 to 63.3 years in 2014. Given the current levels and age pattern of fertility coupled with a young age structure of the population, Uganda’s population is destined to continue growing and doubling every 23 years for some time to come. However, if the current trends of declining fertility and mortality are accelerated, the population age structure will transform from being broad based to one with a bulge in the working-age population providing a window of opportunity for rapid economic growth if the right social and economic policies are developed and corresponding investments made.

The majority of the Ugandan population (75 percent) lives in rural areas, although the country has experienced high levels of urbanisation in the past 15 years. The population living in gazzated urban areas increased from about 1.7 million in 1991 to 7.4 million in 2014, a nearly five-fold increase in 14 years. The increase is attributed to four factors, namely, 1) gazzeting of new urban areas, 2) natural growth, 3) expansion of the boundaries of existing urban areas and 4) Rural - Urban migration. It is estimated that by mid-2018, the urban population had increased to 8.4 million.

The growth in urban population between 2002 and 2018 has been highly driven by gazetting of new urban areas, which increased from 75 to 259 over the 16 year period. However, it is of grave concern that this source of urban growth does not create an urban character in the

population. Hence, the observed increase in urbanisation levels did not have a commensurate change in socio-economic behaviour of the population so as to have an influence on the fertility, employment levels and the general conditions of life.

### 2.3 Health situation in Uganda

Over the past two decades, the health situation in Uganda has registered improvement, despite some challenges in implementation of commitments against set targets at both national and international levels. The Uganda Health Sector Development Plan 2015/16 – 2019/20 has prioritized contribution to the production of a healthy human capital for wealth creation and this will go a long way in reducing child mortality and facilitating a decline in fertility, as well as ensuring that Uganda's future labour force is healthy, well educated and productive. The specific program areas include: Ensuring health promotion through the life course approach that allows the sector to identify, and focus interventions needed at the different stages of life. The specific program areas include;

**a) Reproductive, Maternal and New-born Health<sup>2</sup>** - in this area, quality antenatal care serves to identify potential maternal health problems or conditions so that appropriate preventive or treatment services can then be provided, thus improving health outcomes for both mothers and newborns.

Antenatal coverage is almost universal, with 97 percent of women age 15-49 years (that had a live birth during the period 2011 – 2016) having received antenatal care (ANC) from a skilled provider during their most recent pregnancy. However, only 29 percent of women had their first ANC visit during the first trimester of pregnancy and 60 percent completed at least four ANC visits as recommended by the Ministry of Health.

**b) Child Health (for children 29 days – 5 years)** - the program aims to have universal coverage of routine immunization and scale up effective coverage of a priority package of cost effective preventive child survival interventions (such as breast feeding, cord care, Vitamin A supplementation, ORS-Zinc for diarrhoea, oral amoxicillin for pneumonia and de-worming). Most children start the vaccination with the Polio-0 (P0) which is given immediately after birth, whose coverage currently stands at 95 percent. However, there is a high dropout especially for Polio 3. The percentage of children aged 12-23 months in Uganda who received all basic vaccinations increased from 37 percent in 2001 to 55 percent in 2016.

**c) School age, adolescent and young people's health (for those age 6 – 24 years – nearly half of the population)** – it aims at functionalizing adolescent friendly corners and promoting good nutrition, sexual and reproductive health education in schools and appropriate services in communities. This will ensure a healthy and educated generation that will sustain the work force.

**d) Adult health (for those age 25 – 59 years)** - it aims to ensure universal access to all preventive, promotive, curative and rehabilitative services while ensuring quality of the care given. Enhancing the coverage and quality of these interventions will go a long way in

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<sup>2</sup> Reproductive, Maternal (for those age 15 - 49 years) and New-born Health (0 to 28 days of life)

reducing morbidity and mortality, as well as ensuring that Uganda's future labour force is healthy and productive.

### **2.3.1 Fertility and Family Planning**

In order for a country to reap the economic benefits of the potential Demographic Dividend, there is need for more investment in family planning, which leads to a fertility decline by enabling couples to have only the children they want to have. When the fertility rates decline significantly, the share of the working-age population increases in comparison to that of the child population, thus reducing the dependency burden. A larger working-age population can enable a country to increase GDP and raise incomes. Workers are in turn able to save and invest rather than spend on supporting a large non-working (child) population.

Fertility in Uganda remained persistently high for over 3 decades and only started declining after 2000. Between 2000 and 2016, the Total Fertility Rate (TFR) decreased by 1.5 children from 6.9 in 2000 to 5.4 in 2016. The high fertility in Uganda is attributable to a number of factors among them; a pro-natalist culture (preference of many children); low median age at first marriage (18.7 years) and first childbearing (19.2 years); and low uptake of contraceptives. The ideal family size for Ugandan women is 4.8 children, while that for men is 5.4 children. This desire for big families keeps the fertility rates high and poses a challenge to demographic transition in the long run and subsequently to attaining the Demographic Dividend.

Fertility levels are lower in urban than rural areas, among women with post-secondary education and those in higher wealth quintiles. As more women attain higher education and engage in employment, the fertility is expected to decline at a much faster rate.

The Health Sector Development Plan 2015/16 – 2019/20 prioritizes Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCAH), in line with other global initiatives such as 'Every Woman, Every Child' which focuses on improvement in women's and children's health outcomes as well as the 'Family Planning 20/20 Initiatives' which aims at expanding access to family planning information, services, and supplies in the world's poorest countries.

In 2016, the Contraceptive Prevalence Rate (CPR) was recorded at 39 percent among currently married women aged 15-49 years, with 35 percent of currently married women using modern methods of contraception. These figures represent a big improvement from the 18 percent recorded in 2001. Among the sexually active unmarried women, 51 percent were using a contraceptive method, with 47 percent using a modern method.

In Uganda, women want to delay or stop childbearing, yet many are not using contraception. The total demand for family planning services was estimated at 67 percent in 2016, implying existence of an unmet need for family planning of 28 percent. This is a slight decline from 35 percent in 2000. The 2<sup>nd</sup> National Development Plan (NDP II) aims to address the barriers in accessing family planning.

One of the major challenges of Family Planning use is discontinuation, which reduces the impact of family planning. Nearly half (45 percent) of episodes of contraceptive use in the five years preceding the 2016 survey were discontinued within 12 months (Uganda Bureau of

Statistics and ICF, 2018). This is further worsened by low use of long acting reversible contraceptive methods (LARCs), even though it is increasing.

### **2.3.2 Nutritional Status**

Infants and young children should be fed a minimum acceptable diet (MAD) to ensure appropriate growth and development. Poor nutrition is linked to low cognitive ability which in the long run affects the development of the child. Poor nutrition may lead to increased risk of weakened growth, disease, impaired mental development, and ultimately, death. Similarly, poor nutrition of pregnant mothers has effects on the pregnancy outcome, child survival as well as lifelong development effects.

In Uganda, only 15 percent of children age 6 – 23 months were fed a minimum acceptable diet in 2016. About 3 in 10 (29 percent) of the Ugandan children age 6 – 59 months were stunted (too short for their age). The prevalence of stunting among children has declined from 45 percent in 2001 to 29 percent in 2016. The proportion of children who are underweight has also declined, although less dramatically, from 18 percent in 2001 to 11 percent in 2016. The rates of wasting and overweight have remained fairly constant since 2001. Given that this is the population that will be part of the labour force in future, it is critical that their nutritional status and overall health status improve so as to ensure their productivity when they join the labour force.

### **2.3.3 Morbidity**

Overall, there was a reduction in the proportion of the population who were ill or injured from 40 per cent in 2012/13 to 28 per cent in 2016/17<sup>3</sup>. Health care seeking behaviour in Uganda stands at 83 percent. On average, people in Uganda suffer from illness for about 7 days and lose about 3 days of productive time per episode. This pattern has been consistent since 2012/13. Cumulatively, this has a significant impact on the labour force and its contribution to economic productivity through reduced quality of outputs because of absenteeism from work and by staff functioning at reduced capacity even after they have returned to work.

#### **a) Communicable Diseases**

Uganda has a huge disease burden mainly due to malaria, pneumonia, diarrhoea and new borne diseases in children. Household surveys have shown that Malaria/fever (26 percent), respiratory infections (18 percent), followed by severe headache (7 percent) were the most prevalent symptoms of illness reported by the population.

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<sup>3</sup> This is self-reported illness or injury

## **Malaria**

Malaria has a substantial impact on health. It is a non-income component to include in a measure of long term development given that it has direct and indirect costs that have led to substantial loss in GDP. It leads to school absenteeism and reduced productivity.

The prevalence of malaria in children age 6 to 59 months decreased from 55 percent in 2015 to 30 percent in 2016. Increased use of Long Lasting Insecticide Treated Nets (LLINs) is one of the key strategies to prevent malaria. According to the UDHS, the percentage of children under age 5 who slept under an ITN the night before the survey increased from 10 percent in 2006 to 62 percent in 2016. A similar trend is observed among pregnant women, with an increase from 10 percent in 2006 to 64 percent in 2016.

Malaria infection during pregnancy is a major public health problem in Uganda, with substantial risks for the mother, the foetus, and the neonate. Intermittent preventive treatment of malaria in pregnancy (IPTp) is a full therapeutic course of antimalarial medicine given to pregnant women at routine antenatal care visits to prevent malaria. The share of women who took three or more doses of SP/Fansidar during their last pregnancy increased from six percent in 2006 to 28 percent in 2014-15 before declining to 17 percent in 2016.

## **HIV/AIDS**

Uganda Vision 2040, states that the HIV/AIDS sub-sector will contribute to improving human capital development by having “a population free of HIV and its effects” by 2040. The spiralling economic impacts of HIV on Uganda’s economy have been reflected through loss of skilled and experienced labour force; reduced labour productivity due to poor health of infected labour force; increased household expenditures on health care and related services; and reduced savings and therefore reduced investments at household and community levels.

Uganda has over time achieved good progress in the fight against HIV/AIDS pandemic, and reduced the prevalence of the disease in the general population from 18 percent in the early 1990s to 6.2 percent in 2016/17. The total number of adults and children of all ages living with HIV in Uganda is estimated to be 1.3 million. The HIV prevalence among the population (15 – 49 years) is six percent. Despite the significant progress in the national HIV response, the burden of HIV infection in the country is still unacceptably high. The Uganda Population-based HIV/AIDS Impact Assessment (UPHIA) showed that adults age 15-49 years had a suppressed HIV viral load (VLS) of 57.4 percent; thus making great progress toward the national goal of having population level VLS of at least 73 percent by 2020. Recent estimates indicate a further decline in AIDS-related deaths from 31,000 in 2014 to 28,000 in 2015. Despite the campaign of fast-track initiative on ending HIV/AIDS in Uganda by 2030, only 57 percent of the adults infected with HIV/AIDS were on antiretroviral treatment.

## **b) Non-Communicable Diseases**

Non-Communicable Diseases (NCDs) and their risk factors are a growing public health problem in Uganda. Evidence from empirical studies estimate that NCDs currently account for 11 – 13 percent of the burden of disease in Uganda. The UNHS of 2016/17 showed that

six percent of the population age 10 years and above were reported to have at least one of three non-communicable diseases namely diabetes, high blood pressure or heart disease.

The health sector has initiated programmes for prevention and treatment of lifestyle diseases focusing mainly on prevention and control. With this measure in place, Uganda will realise an improvement in the health status and economic productivity of its labour force. There is an improvement in some of the risk factors such as the use of tobacco among women and men which decreased from three percent and 26 percent in 2000/1 to 0.8 per cent and 9 per cent respectively in 2016. In response, NDP II has adopted a strategy of life-long lifestyle and behaviour change sensitisation for the population.

### **2.3.4 Mortality**

Over the past four decades, Uganda has experienced a general improvement in both childhood and adult mortality. However mortality levels in Uganda remain generally high. The Under-five Mortality Rate declined from 128 deaths per 1000 live births in 2006 and again to 64 deaths per 1000 live births in 2016. The key driver of the under-five mortality is the persistently high neonatal mortality which was 33 deaths per 1000 live births in 2000 and only declined to 27 deaths per 1000 live births in 2016.

Over the years, malaria has been the leading cause of death among infants and the under-fives. Efforts to end preventable child deaths through the implementation of the ‘Sharpened Plan’<sup>4</sup> will result in healthier children who have the opportunity to grow into productive adults, who both contribute to and benefit from the accrued economic growth.

Adult mortality has also improved over time. The probability of dying between exact ages 15 and 50 years was 144 per 1,000 among women and 223 per 1,000 among men in 2016, a reduction from 201 per 1,000 women and 252 per 1,000 men in 2011. Maternal deaths represent 18 percent of all deaths among women age 15-49 years (UDHS 2016), and the associated Maternal Mortality Ratio was 336 deaths per 100,000 live births. The most common causes of maternal mortality are preventable, and these are haemorrhage (42 percent), obstructed or prolonged labour (22 percent) and complications of unsafe abortion (11 percent). The other direct causes of maternal deaths are hypertensive disorders and postpartum sepsis.

Overall, Life Expectancy at Birth has increased from 48.1 years in 1991, to 50.4 years in 2002 and again to 63.7 years in 2014. The Life Expectancy at Birth is higher for females than males, although the magnitude of the gap is decreasing.

## **2.4 Education situation in Uganda**

Uganda’s education system has several levels of education. These include Pre-primary (1 – 3 years), Primary level (7 years), Secondary level (4 and 2 years), Business, technical and vocational education training and tertiary education levels.

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<sup>4</sup> Reproductive, Maternal, New-born, Child and Adolescent Sharpened Plan for Uganda 2016/17 – 2019/20

Over time, the education system has undergone a series of reforms since independence. These include liberalization of the education sector, introduction of Universal Primary Education (UPE), Universal Secondary Education (USE) and the Uganda Post O-Level Education and Training, Skilling Uganda and most recently Early Childhood Development, among others. The Ugandan education system has showed a systematic progress in almost all sub sectors after these reforms.

## **2.4.1 Primary and Secondary Education**

### **a) Primary Education**

Following the introduction of Universal Primary Education (UPE) in 1997, primary school enrolment increased from 3.0 million in 1996 to about 9 million in 2017 and the Net Enrolment Rate (NER) increased from 85 percent in 2012 to 92 percent in 2016. However, there is high primary school dropout and repetition which negatively affect the primary school completion. Between 2005 and 2010, the drop-out rate was 53.3 percent.

The Pupil Classroom Ratio (PCR) and Pupil Teacher Ratio (PTR) have declined over time showing that the available education infrastructure does not match with the increasing enrolment. The primary school education expenditure as a percentage of GDP had stagnated at two percent up to 2013, before declining to one percent in 2016.

### **b) Secondary Education**

Secondary level enrolment increased from 728,000 in 2005 to 1.4 million in 2017. This tremendous increase is attributable to the introduction of the Universal Secondary Education (USE) programme in 2007. The Net Enrolment Rate also increased from 15 percent in 2005 to 24 percent in 2016. However, the transition rate from Senior Four to Senior Five does not tally with Completion Rates at Senior Four. This shows that as more complete Senior Four, fewer numbers actually join Senior Five.

### **c) Expected Years of Schooling**

The Expected Years of Schooling is a measure of the total number of years of education that a child entering the education system can be expected to complete. A higher school life expectancy indicates greater probability of achieving a higher level of education. The Mean Years of Schooling measures the quantity of formal education received by the adult population above the age of 25 years. The Expected Years of Schooling and Mean Years of Schooling have stagnated at 10 years and about 5 years respectively in the last decade.

## **2.4.2 Tertiary Education**

Following the liberalization of the Education Sector, more private universities have come on board. This has led to an increase in the enrolment at tertiary level to about 300,000, of which about 45 percent are females. The liberalization will however call for the introduction and enforcement of stricter standards to ensure that the expected quality of tertiary education is maintained in all these upcoming institutions.

### **2.4.3 Skills Development**

In 2012, the Government of Uganda through the Ministry of Education and Sports (MoES) launched a Business, Technical, Vocational Education and Training (BTVET) Strategic Plan 2011 – 2020, entitled ‘Skilling Uganda’, which denotes a paradigm shift for skills development in Uganda. The plan underscores a systemic shift in skills development in the country. The BTVET system will be transformed from an educational sub-sector into a comprehensive system of skills development for employment, enhanced productivity and growth. The objective of the system will be to create employable skills and competencies relevant in the labour market instead of educational certificates. It will embrace all Ugandans in need of skills, not only primary and secondary school leavers.

However, BTVET has not been universally embraced as can be observed from enrolments of less than 500,000 in 2016, with the males constituting about two-thirds of the total BTVET enrolment. This leaves the country with an unfortunate prospect of a large and unskilled labour force, with low productivity potential and hence minimal contribution to economic growth.

### **2.5 Labour and employment creation**

The Government of Uganda recognizes employment creation as a central tenet to the national socio-economic development process and has put in place policies and programmes to enhance skills levels, and increase labour productivity. These include The National Employment Policy (2011); National Action Plan (NAP) for Youth Employment; The Uganda Decent Work Country Programme (DWCP); The Externalization of Labour programme; Buy Uganda – Build Uganda (BUBU) initiative; Promoting youth entrepreneurship and self-employment and the Skills development programmes.

The working age population in 2016/17 stood at 19 million, of whom 15 million were actually working. The most common types of activity were found to be subsistence agricultural activities involving about 40 percent of the working population. Only 18 per cent of the labour force are primarily engaged in non-agricultural wage employment, an increase from 14 per cent observed in 2012/13. Persons in urban areas are more likely to be engaged in wage employment (44 percent) compared to their rural counterpart (17 percent).

In 2016/17, about 9 million out of 19 million persons of working age were employed for pay or profit, an increase from the 7.7 million recorded in 2012/13. Thus, Uganda, like many other African countries, is faced with high rates of unemployment, underemployment and general labour under-utilisation. There is thus a concern over the under-utilisation of the country’s human resource and potential, particularly the youth, as most of them are either unemployed or underemployed.

The unemployed persons in Uganda are mainly those with no skills, constituting 91 percent of the working age population. These remain deprived of employment opportunities due to a mismatch between supply and demand in the labour market. The overwhelming majority (85 percent) of the employed persons are in informal employment outside the Agriculture sector. The proportions are higher among young people (aged 15-24 years) at 96 percent and the youths (aged 18-30 years) at 91 percent. The informal sector is largely dominated by women, youths and those with low levels of education.

**Table 2.3: Activity status of the working population by residence, 2012/13 – 2016/17**

Activity status	2012/2013			2016/2017		
	Rural	Urban	Uganda	Rural	Urban	Uganda
Paid Employee - Not Casual Laborer in Agriculture	8.2	33.8	14.1	10.9	41.1	18.2
Paid Employee - Casual Laborer in Agriculture	15.1	5.3	12.9	5.6	2.5	4.9
Self Employed	27.6	39.1	30.3	31.7	36.5	32.9
Contributing Family Workers	4.3	4.5	4.4	4.5	4.9	4.6
Subsistence Farmers	44.7	17.3	38.4	47.3	14.9	39.5
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

*Source Uganda Bureau of Statistics.*

## 2.6 Governance in Uganda

Governance refers to how public institutions conduct public affairs and manage public resources. Good governance is key to accelerating economic and social transformation through creation of the required and conducive legal and socio-political environment. It comprises the mechanisms, processes and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations and mediate their differences. Good governance practices at all levels of government are a pre-condition for creating an enabling environment for sustainable human development.

Good governance is the backbone on which the development processes are based to ensure services are delivered to citizens and that peace reigns in the nation. Uganda needs to consolidate the principles of good governance which include constitutional democracy; protection of human rights; the rule of law; free and fair political and electoral processes; transparency and accountability; Government effectiveness and regulatory quality; effective citizens participation in development processes; and peace, defence and security of the citizens and the country. The other principles of good governance include Rule of Law, Transparency, Responsiveness, Consensus, Equity and Inclusiveness, Effectiveness and Efficiency, Accountability and Participation

According to the Budget Speech 2018/19, Uganda is now at peace and without any civil conflict, which provides a suitable environment for investment, and security of persons and property rights.

The rule of law now permeates all spheres of life, with a sound Judiciary and the enforcement of contracts being guaranteed by commercial law and a commercial court system. In 2017, more than three quarters (77 percent) of the adult population in Uganda believed that human rights were respected in the country.

Accountability is one of the cornerstones of good governance. It entails ensuring value for money in the provision of public services. Uganda has put in place a number of laws and institutions including the Office of the Auditor General, Inspectorate of Government and the Public Accounts Committee of parliament, to perform an oversight function in the management of public resources and delivery of services. Similarly, regulations and mechanisms have been put in place to ensure equity and fairness by public officers and

institutions. However, the Budget Monitoring and Audit Reports highlight weak compliance to financial regulations.

Transparency International publishes the Corruption Perception Index (CPI) annual report. Ranking of the country is greatly based on the extent to which members of the public have paid bribes or been asked to pay bribes to access services especially from the public sector. In 2017, Uganda was ranked 151 of 180 countries in the world. Thus, a lot more needs to be done to build investor confidence in the country.

### 3.0 Contextualizing Harnessing the Demographic Dividend

The Demographic Dividend refers to the accelerated economic growth that may result from a decline in a country's birth and death rates and the subsequent change in the age structure of the population. With fewer births each subsequent year, a country's young dependent population declines in relation to the working-age population. Having more working-age adults and fewer people to support, the country has an opportunity for rapid economic growth if the right social and economic policies are developed and investments made. These can help accelerate economic growth through increased productivity of the bigger labour force, greater participation of women in the labour force due to reduced fertility and the attendant child rearing responsibilities, greater household savings, and lower costs for basic social services provided to children.

The effects of the Demographic Dividend operate in two major phases. The first Demographic Dividend refers to the increase in economic output as a result of the increase in the number of workers. The second Demographic Dividend refers to the increase in output that is created by the enhanced human capital investments per child and increased savings and investments that households and governments make as a result of reduced costs of taking care of children. Having quality human capital and more financial resources help enhance capital formation and development of economic infrastructure, which are critical for attracting more capital formation and igniting further economic growth. The experience of the East Asian countries including Malaysia, South Korea, Singapore, Hong Kong and Thailand has shown that the Demographic Dividend could account for between one quarter and one third of the economic growth that these countries experienced between 1970 and 2000.

**Table 3.1: Demographic and Socio-economic Indicators for Selected Countries, 1960 & 2017**

Country and Year	Population (Millions)	TFR	Population Growth Rate	Under-Five Mortality Rate	GDP per Capita (USD)	GDP per Capita (USD) - PPP
<b>1960</b>						
Uganda	10.0	7.1	3.5	220	62.3	na
Malaysia	8.2	6.0	2.9	85	299	na
<b>2017</b>						
Uganda	37.7	5.4	3.0	64	740	2,354
Malaysia	31.6	2.0	1.6	7	9,813	29,041

**Source:** Population Reference Bureau – World Population Datasheet, 2017; World Bank – World Economic Outlook, Worldometers, UNDESA – World Population Prospects: The 2017 Revision, Key Findings and Advance Tables

However, attaining the Demographic Dividend is not automatic. Countries such as Tunisia, South Africa and most Middle East countries managed to attain the desired age structure, but without the necessary employment creation, and hence failed to reap the dividend. Therefore, to harness the Demographic Dividend, countries must implement policies that will accelerate

rapid decline in fertility, as well as ensure that the resulting surplus labour force is healthy, well educated, skilled, and economically engaged. Having quality human capital is key to the optimization of productivity and associated socio-economic benefits that a country can reap from the demographic transition. Even more critical, the economy must have the capacity to generate enough quality jobs for the surplus labour force in order to harness the Demographic Dividend.

### **3.1 Harnessing the Demographic Dividend for Uganda**

Uganda, like many countries, embarked on various initiatives to operationalize the Demographic Dividend as a central framework for accelerating socio-economic development in line with the African Union's Agenda 2063. The motivation for pursuit of the Demographic Dividend is based on the experiences from the East Asian countries which were at the same level of development with Uganda in early 1960s, but have since transformed into first world economies. Currently their experiences are what Uganda envisages to emulate in the coming twenty three years.

Uganda's Demographic Dividend agenda started with the review of the 1994 International Conference on Population and Development – Plan of Action (ICPD-PoA). Countries had been implementing the International Conference on Population and Development, and progress was monitored every five years. The 2013 Africa Region conference recommended for countries to focus on harnessing the Demographic Dividend through addressing population age structure. In the case of Uganda, it was realised that the population was growing at a fast rate (3.2 percent), and it was recommended to not only reduce the growth rate but also ensure change in age structure.

Uganda Vision 2040 underscores that harnessing the Demographic Dividend is instrumental in facilitating socio-economic transformation. The second National Development Plan (NDP II) covering the period 2015/16 – 2019/20 also adopted harnessing or reaping the benefits of the Demographic Dividend as one of the key strategies to promote productivity, employment and inclusive growth in the country by 2020. However, the the rapid population growth, young age structure and consequent high child dependency burden are potential threats to the realization of the Demographic Dividend and associated socio-economic development.

### **3.2 Uganda's progress towards harnessing the Demographic Dividend**

The National Planning Authority in 2014 spearheaded the study on harnessing the Demographic Dividend for Uganda. The detailed analytical report recommended among others accelerating the Demographic Transition, creating a healthy workforce, enhancing the coverage and quality of education and skills development, accelerating employment-oriented economic growth and ensuring that young people are productively engaged; and enabling fiscal policies and governance. These interventions guided the identification of priority areas on population and human development in NDP II. A review of the socio-economic status shows some progress but not as fast as was initially anticipated.

As of midyear 2017, Uganda's population was estimated to be 37.7 million, with an annual growth rate of 3.0 percent. The mortality situation improved overtime, with improvements observed in Infant, Child, Adult and Maternal mortality (see section 2.3). Overall, life expectancy at birth increased from 50.4 years in 2002 to 63.3 years in 2014.

There has been a strong commitment to family planning during this period. Consequently, the use of modern contraceptive methods increased from 18 in 2000 to 35 percent in 2016, and the Total Fertility Rate declined from 6.9 children to 5.4 children per woman over the same period. Despite these achievements, there has not been much change to age structure of the population so far. However, if the decline in fertility is sustained, the age structure will transform from a youthful one to an older structure.

The performance with respect to the social indicators was slower compared to the projection. The mean years of schooling for persons aged 25 years and above were projected to increase to 5.7 for females and 7.2 for males. However, survey results revealed that these were only 4.8 and 5.0 respectively. Similarly, the expected years of schooling which were projected to increase to 12 for either sex were only 11.2 and 11.9 for females and males respectively. The slow progress in the education indicators is as a result of a slowly declining Primary School Net Enrolment Rate and increasing School Drop-out Rate. The Labour Force Participation Rate went down from 59.8 percent in 2012/13 to 52.3 in 2016/17. The proportion of the population living in poverty increased from 19.7 percent in 2012/13 to 21.4 percent in 2016/17, an equivalent of about 10 million people living below the poverty line.

Over the past ten years, Uganda's economy has been growing but not as fast as initially projected. The 2014 modelling of the Demographic Dividend projected that by 2017, the GDP per capita would be USD 980 in 2017, and further rise to USD 9,567 in 2040. By 2017 the per capita GDP was USD 740, which is 24.5 percent short of the projection. The Vision 2040 projected that average GDP growth rate would be 8.2 percent per annum up to 2025 before it gradually declines to an average of 7.8 percent in the last five years of the Vision period. However, there has been a delay in accelerating growth and therefore Uganda has not been able to double its GDP even with the introduction of new technologies and the expansion of the infrastructure.

## 4.0 Modeling of the Demographic Dividend for Uganda

The 2014 modelling of Uganda’s Demographic Dividend was developed using the DemDiv Model with 2011 as the base-year. However, implementation of the recommended policy interventions only started in 2015 with the beginning of the NDP II. It was felt that the period between the base period and the current period is too short for the country to have achieved significant results. It was therefore decided to use the same model (the DemDiv) for updating of the modelling of the Demographic Dividend for Uganda using the updated information.

The DemDiv Model has two inter-related components namely the demographic component and the economic component. The demographic component projects the population, its age-sex structure and characteristics. This information is fed into the economic component which projects total production as a function of the labour force, capital formation and total factor productivity. The detailed explanation of the DemDiv model is given in Appendix 3.

### 4.1 Base year information

The input indicators for the model are categorised into five groups namely Health and Family Planning, Education, Economic competitiveness, Economy related information and Population size and structure as listed in Table 4.1.

**Table 4.1: Input Information into the DemDiv Model**

Sector	Input Indicators
<b>Health and Family Planning</b>	<ol style="list-style-type: none"> <li>1. Contraceptive Prevalence Rate (Modern methods) for currently married women</li> <li>2. Post Partum Insusceptibility (PPI) in Months</li> <li>3. Sterility (Percent of All Women 45-49 who are childless)</li> <li>4. Percent of females aged 15– 49 years who are Married (including those in consensual unions)</li> <li>5. Total Fertility Rate</li> <li>6. Percent Births at Risk (avoidable risk only)</li> <li>7. Infant Mortality Rate</li> <li>8. Under-5 Mortality Rate</li> <li>9. Maternal Mortality Ratio</li> <li>10. Contraceptive Effectiveness Rate for Modern Methods</li> <li>11. Contraceptive Effectiveness Rate for Traditional Methods</li> <li>12. Female Life Expectancy at Birth</li> <li>13. Life Expectancy Difference (Females – Males)</li> </ol>

<b>Sector</b>	<b>Input Indicators</b>
<b>Education</b>	14. Expected Years of Schooling for females 15. Expected Years of Schooling for males 16. Mean years of schooling for females aged 25 years and above 17. Mean years of schooling for males aged 25 years and above 18. Mean years of schooling for persons (both sexes) aged 25 years and above
<b>Global Economic competitiveness Indicators</b>	19. Imports as a percentage of GDP 20. Public Institutions 21. Labour Market Flexibility 22. Financial Market Efficiency 23. ICT Use
<b>Economy</b>	24. Capital Formation per capita 25. Initial Employment (18–64 Years) 26. Initial Employment Growth Rate (18–64 Years) 27. Gross Domestic Product per Capita (USD) 28. Ratio of Capital Stock to Population 18 – 64 Years 29. Initial GDP Growth Rate 30. Capital Stock Growth Rate
<b>Population (used for Population projections)</b>	31. Base period population by sex and five year age groups 32. Net Migration (Rates or absolute numbers)

#### **4.2 Assumptions made for the modeling**

The base used in the update of the modelling is 2017 calendar year. However, where the input requires information at a given point in time, information as at mid-2017 is used. The projection period is 2017 to 2040. The assumptions made are with respect to the Family Planning, Education and economic competitiveness of the country in 2040, the terminal year of the modelling. The values relating to the intermediate years are obtained by interpolation between the base period and the end year.

The modelling exercise examined three investment possibilities. The first of these is the ‘Do Nothing’ possibility which assumed going on with general expenditure model without any

particular focus. On the other hand, focused investment options were provided in two distinct scenarios. These are described below:

#### 4.2.1 Economy Scenario (Economic emphasis only)

This scenario assumes new investments largely in physical infrastructure development only the usual recurrent expenditure on human capital development. Due to the economic interventions and the routine expenditures of human capital, the quality of human capital (education and health) is expected to improve slightly compared to the current status. This scenario many elements of what the Government is pursuing today.

Sector	Assumptions
Human capital Development	To increase the <b>Expected Years of Schooling</b> from the current levels (11.2 for females and 11.9 for males) to 14 years for either sex i.e. completion of secondary education;
Family Planning	A moderate increase in use of Modern Family Planning Methods from the current level to 50 percent
Economy	The target is to have Global Competiveness Indicators for Uganda in 2040 similar to those of Malaysia in 2017 (see Section 3.0).

#### 4.2.2 Combined Scenario (Economic emphasis and Human capital development)

This scenario assumes that besides the extra investment in the physical infrastructure development, there will be targeted investment in human capital development.

Sector	Assumptions
Human capital Development	The target is to ultimately provide each learner with post-secondary training either in BTVET or other Tertiary settings, and eliminate gender differences in educational attainment.
Family Planning	Use of modern contraceptive methods (CPRm) increases from the current level to 65.0 percent in 2040. This is equivalent to satisfying almost all the current demand for Family planning.
Economy	The target is to have Global Competiveness Indicators for Uganda in 2040 similar to those of Malaysia in 2017, which has attained the Demographic Dividend through fertility reduction.

Appendix 6 gives the assumptions made for these indicators under each of the scenarios.

#### 4.2.4 Detailed description of the Economic Competitiveness Indicators

The target is to have Global Competiveness Indicators for Uganda in 2040 similar to those of Malaysia in 2017.

**a) Governance of Public Institutions** - The governance index for Uganda for 2017/18 was 3.5 while that for Malaysia was 5.0. A modest increase to 3.6 was set for the Base scenario while an increase to 6.05 was used as the target for the Economy Scenario.

**b) Labour market flexibility** - The labour market efficiency index for Uganda for 2017/18 was 4.6 compared to 4.7 for Malaysia. For the Base Scenario, an improvement to 4.7 is envisaged given the current growth in tertiary enrolment. Vision 2040 targets that the sectoral labour force distribution would change from 2010 to 2040 as follows: agriculture (from 65.6 to 31 percent); Industry (from 7.6 percent to 26 percent) and Services from (26.8 percent to 43 percent). This implies a significant structural change in the labour force that would call for high flexibility of labour given improvement in skilling. Thus, the estimate for the Economy Scenario was set at 5.5.

**c) Financial market efficiency** - The financial market efficiency index for Uganda for 2017/18 was 3.7 compared to 5.0 for Malaysia. A modest increase to 3.8 was set for the Base Scenario while an increase to 6.0 was set for the Economy Scenario. This is likely to be achieved given the envisaged expansion of the financial markets like securities markets, mobile banking, internet banking, agent banking and Islamic banking facilities.

**d) ICT Use** - The ICT use index has stagnated at 2.8 since 2013/14 and rose slightly to 2.9 in 2017/18. It was estimated at 4.9 for Malaysia for 2017/18. A modest increase to 3.0 was set for the Base Scenario while for the Economy Scenario, the index was set at 6.2. This represents a significant improvement which is in line with the Vision 2040 target. It is envisaged that this improvement will be achieved given the projected change in share of ICT goods and services exports to total exports to 40 percent.

**e) Share of imports to GDP** – The Base scenario was set at 20 percent while the Economy Scenario was set at 10 percent because of the anticipated local production of oil, which constitutes about 18 percent of the total imports currently.

## 5.0 Results of the Demographic Dividend modelling for Uganda

The initial modelling of the Demographic Dividend for Uganda was done in 2014, and covered the period 2011 to 2040. The modelling projected three scenarios namely ‘Business as Usual Scenario’, ‘Economy Scenario’ and ‘Combined Scenario’.

Under the **Business as Usual Scenario**, where the prevailing lacklustre performance in both the economic and demographic environments was projected to continue, Uganda would achieve limited economic growth and development, and the per capita GDP would increase from USD 506 in 2011 to USD 927 in 2040. The **Economic Emphasis Scenario**, in which the country prioritises economic reforms and invests in economic infrastructure to the level articulated in Vision 2040 and enjoyed by the benchmark countries, projected that per capita GDP would increase to USD 6,084. This would be a sizable improvement from the 2010 income level, but still far short of the Vision 2040 target.

In the **Combined Economic and Demographic Emphasis Scenario (V2040)**, the country would prioritise economic and demographic reforms, coupled with human capital investments to achieve the socio-economic transformation envisaged in Vision 2040. This would result in the GDP per capita increasing to USD 9,567. This is in line with the Vision 2040 target and would move Uganda into the upper middle-income category.

There has been a delay in accelerating growth and therefore Uganda has not been able to double its GDP even with the introduction of new technologies and the expansion of the infrastructure. The possible explanation arising out of the current modelling seems to be that there has not been corresponding attention to and investment human capital development. Over the past seven years, Uganda’s economy has been growing but not as fast as initially projected (Annex 4). By 2017 the GDP per capita was USD 740, which is 24.5 percent short of the projection for the same year.

At the current rate, where all the progressive assumptions and recommendations from the 2014 modeling are not met, the country would only achieve an estimated GDP per capita of USD **4,583** in 2040. This is 52 percent short of the Vision 2040 target of a GDP per capita of USD 9,500.

### 5.1 Population Size and Structure

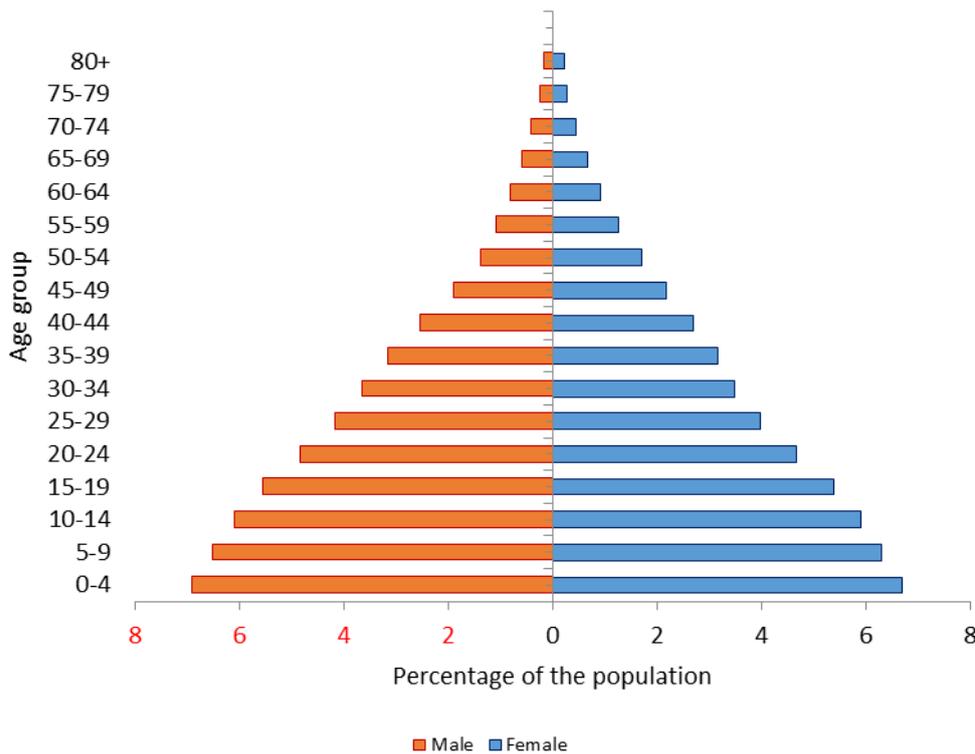
The projection period for the current modelling is 2017 to 2040 and the results presented here refer to the year 2040 (the end year for the Vision 2040). The results are summarised in Table 5.1.

Given the current structure of population with nearly half of the population aged less than 15 years, the population will continue to grow rapidly for decades, irrespective of whichever development path the country takes. Under the Economy Scenario, the total population is projected to increase to 73.4 million in 2040, with an average annual growth rate of 2.9 percent per annum. However, with a combination of economic reforms, fertility reduction and targeted human capital development, the population is expected to grow at a slightly slower rate (2.5 percent per annum) giving a projected population of 67.5 million in 2040.

Selected Characteristics	
Population (Millions)	73.4
Population less than 15 years (Millions)	43.0
Total Fertility Rate	3.8
Life Expectancy at Birth	71.1
Dependency Ratio (%)	71
Working Age Population (Millions)	38.0
GDP per Capita	6,735

Under the *Economy Scenario*, the Life Expectancy at Birth for females is projected to increase from 64.5 to 71.1 years in 2040, while the Total Fertility Rate reduces marginally from 5.4 to 3.8 children per woman. The total population is projected to increase to 73.4 million persons. The reduction in fertility does not lead to a significant change in the age structure of the population, with 43 percent of the population being below 15 years of age and the Dependency Ratio at 71 percent. The age structure remains quite youthful with a broad-based population pyramid although the base is slightly narrower than that observed in 2017 (Figure 5.1). Such an age structure is not conducive for harnessing the potential Demographic Dividend.

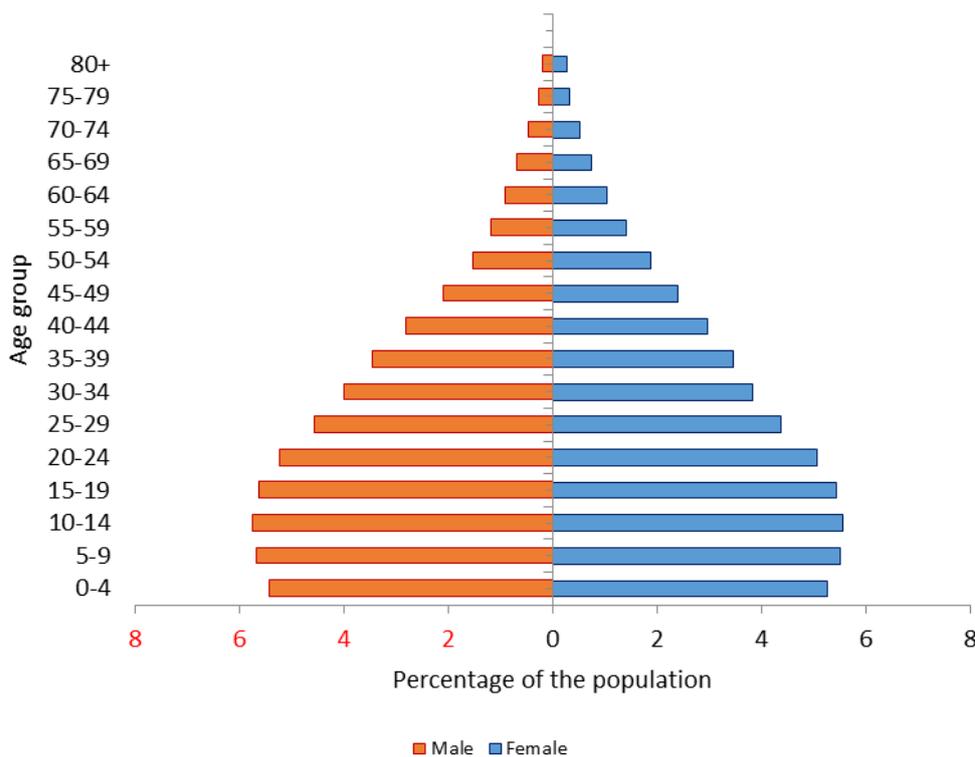
**Figure 5.1: Population Pyramids (under the Economy Scenario), Uganda, 2040**



Under the *Combined Scenario*, the economic reforms, increased use of family planning and targeted investment in human capital are likely to result into marked improvements in the quality of life of the population leading to a reduction in the Total Fertility Rate from 5.4 to 2.5 children per woman and the Life Expectancy increasing from 64.5 to 75.3 years in 2040. The population is projected to increase to 67.5 million persons. A notable change is in the age structure which transforms from a child-heavy one to one with a youth bulge developing just before the working age groups as shown in Figure 5.2. The children below 15 years would be only 38 percent of the population. Similarly, the Dependency Ratio reduces substantially from 97 percent in 2017 to 58 percent in 2040. It is the youth bulge that will enable the country is to reap the Demographic Dividend when that population group ‘splashes’ into the working-age bracket.

Selected Characteristics	
Population (Millions)	67.5
Population less than 15 years (Millions)	42.7
Total Fertility Rate	2.5
Life Expectancy at Birth	75.3
Dependency Ratio	58
Working Age Population (Millions)	38.2
GDP per Capita	9,523

**Figure 5.2: Population Pyramid under the Combined Scenario, Uganda, 2040**



**Table 5.1: Summary Results from the modelling by Scenario, Uganda 2040**

Indicator	2040 Projection	
	Economy Scenario	Combined Scenario
Total Population (Millions)	73.4	67.5
Average Annual Population Growth Rate 2017 – 2040 (%)	2.9	2.5
Population aged less than 15 years (Millions)	43.0	42.7
Dependency Ratio (%)	71	58
Total Fertility Rate	3.79	2.48
Life Expectancy at Birth - Females	71.1	75.3
Working Age Population (Millions)	38.0	38.2
Share of Working Age Population (%)	51.8	56.6

## 5.2 The Working-age Population

Uganda defines the working age population as persons aged 14-64 years. However, for purposes of the current modelling, the working age is defined as the population aged 18-64 years. This revision in the definition is based on the fact that one of the assumptions of the modelling is that the school going children will complete 13 years of formal schooling. Therefore, they will not be available for employment before the age of 18 years. It also eliminates possibilities of child labour which is undesirable for the country. It should be noted that exclusion of the population aged 14-17 years has minimal effect on the labour force given that they constituted only six (6) percent of the employed population in 2016/17.

The size of the working age population (18-64 years) will continue to increase irrespective of scenario. The population aged 18-64 years is projected to increase from 16.4 million in 2017 to 38.0 under the Economy Scenario, while for the combined Scenario, it would be slightly higher at 38.2 million. The small difference in the size of the working age population between the scenarios is attributed to the fact that by 2040, the fertility reduction interventions under the combined scenario would have had an impact on a very small segment (18-22 years) of the working population. However, big differences are realised in the share of the working age population to the total population. The proportion increases from 43.4 in 2017 to 51.6 percent in 2040 under the Economy Scenario, while it is projected to increase to 56.6 percent in the combined scenario.

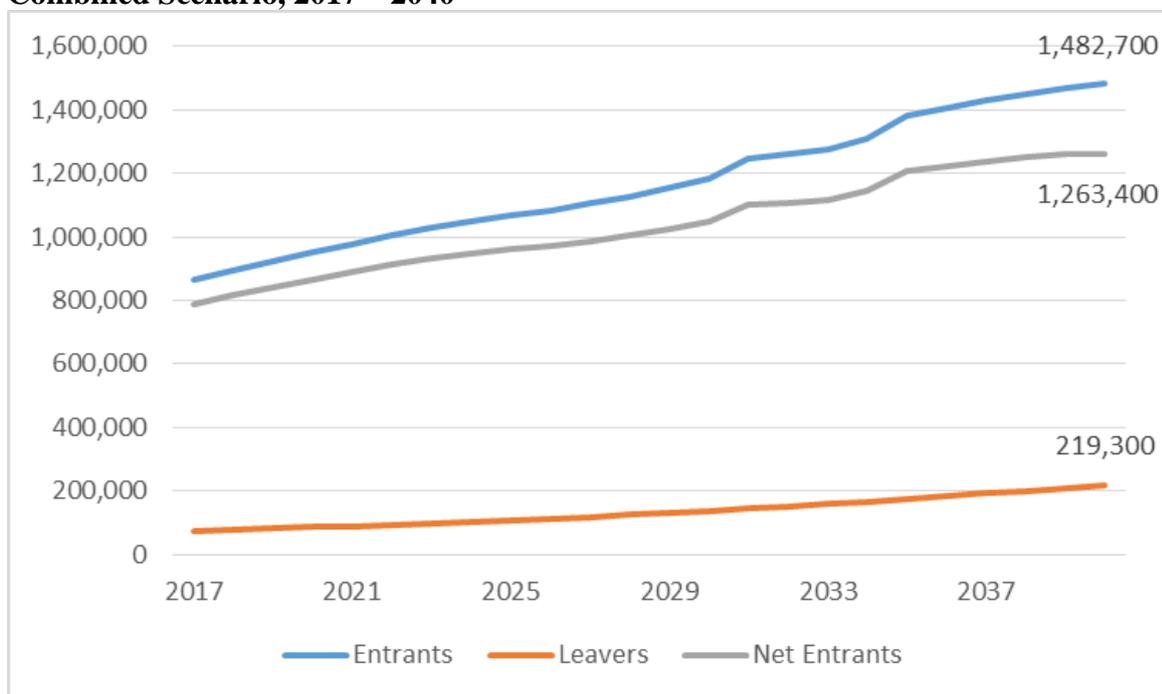
Owing to the high population momentum that the Ugandan population has accumulated over time, it will take several decades before the country can experience significant impact of the effects of the current fertility decline on the number of people entering the working age range.

Under the combined interventions scenario, the net intrants into the labour market (new entrants less retiring population) is projected to increase from 800,000 in 2017 to one and quarter million in 2040 (Figure 5. 3 and Annex 7). This is the number of new jobs that the economy must create so as to properly utilise the existing labour force to increase total

production. Currently, more than one third of the employed population aged 18-64 years are experiencing some form of labour under-utilisation.

The gap between the working-age population (aged 18-64 years) and the population that would be in employment is projected to increase from 7.9 million persons in 2017 to 15.7 million persons in 2040 under the combined scenario or 20.3 million persons under the Business as Usual scenario. However, the ratio of the gap to the eligible working age population declines, from 48.2 percent in 2017 to 41.0 percent in 2040 under the combined scenario. Thus, while the demographic bonus can be realized through the increase in the share of the working age population relative to dependent children, there is a need to create enough jobs for the ever increasing working age population. It is only when the working age population is meaningfully engaged in employment that the country can reap the full economic dividend.

**Figure 5.3: New Entrants, Leavers and Net Entrants into the Labour Market under the Combined Scenario, 2017 – 2040**



The quality of human capital is key to achieving the desired rapid growth. The distribution of the projected working-age population by age structure and schooling status is as given in Table 5.2. The distribution is quite similar for both scenarios. Only one in 40 persons (2.5 percent) are deemed to have the appropriate skills to immediately benefit from the Labour Market. About two thirds of the labour force in 2040 are either currently in school or have not yet entered the school system. These present a window of opportunity for enhancing their productivity through formal schooling and skilling. About 30 percent are outside the school going age and they either never went to school or left without adequate skills, and hence would need tailored programmes to increase their skills and productivity.

**Table 5.2: Age and Schooling Status Composition of the projected working age population in 2040 by Scenario**

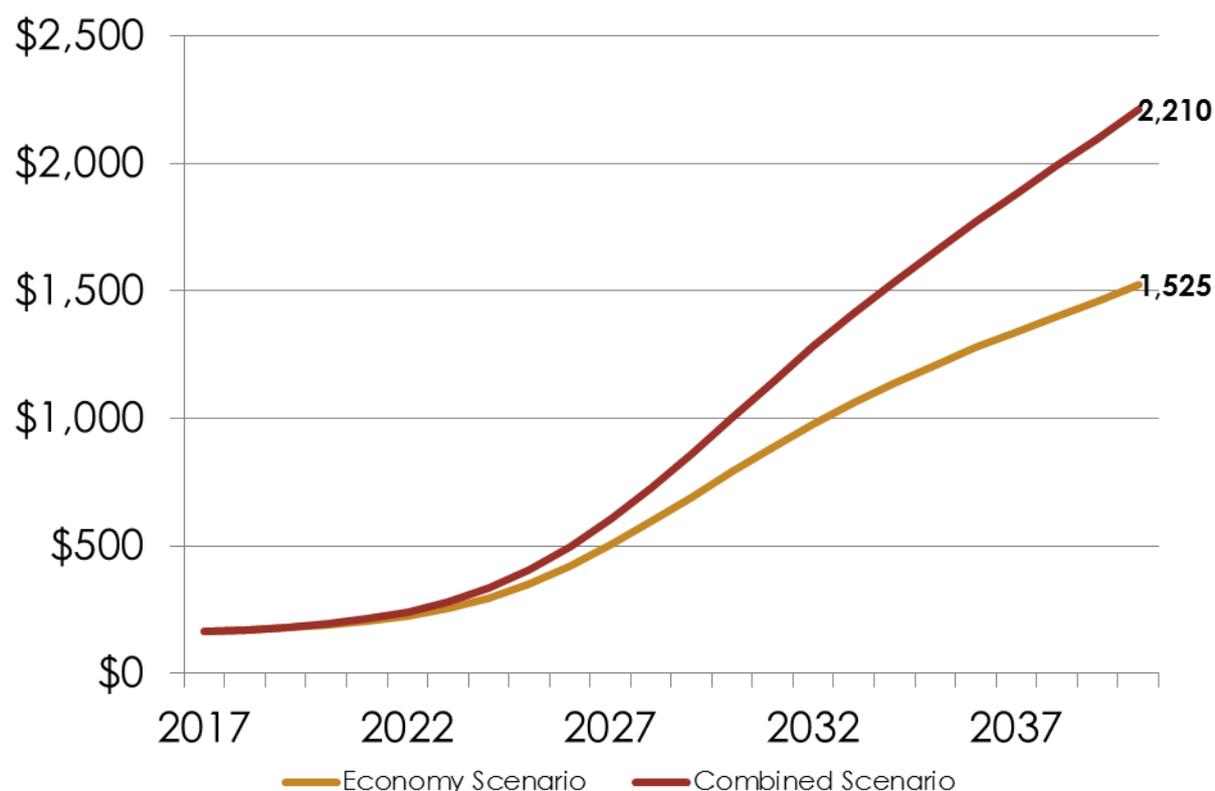
Age in 2040	Economy Scenario		Combined Scenario		Description
	Population	Percent Share	Population	Percent Share	
18 - 22	7,432,000	19.5%	7,220,000	18.9%	Born after 2017
23 - 28	7,504,000	19.7%	7,574,000	19.8%	Pre-school Age
29 - 35	6,602,000	17.4%	6,661,000	17.4%	Primary School age and currently in School
	742,000	1.9%	748,000	2.0%	Primary School age but currently out of School
36 - 47	4,109,000	10.8%	4,152,000	10.9%	Secondary School age and currently in School
	1,179,000	3.1%	1,192,000	3.1%	Secondary School age but currently out of School
41 - 64	5,352,000	14.1%	5,436,000	14.2%	Post School age with No Education/Incomplete Primary Education
	3,289,000	8.6%	3,341,000	8.7%	Post School age with Primary/Incomplete Secondary Education
	901,000	2.4%	915,000	2.4%	Post School age with Complete Secondary Education
	932,000	2.5%	947,000	2.5%	Post School age with Post-Secondary Education
<b>18 - 64</b>	<b>38,042,000</b>	<b>100.0%</b>	<b>38,186,000</b>	<b>100.0%</b>	<b>Total Working-age Population</b>

### 5.3 Capital Stock and Formation

Capital is one of the important factors which determine the quantity and the composition of output in an economy. It therefore, occupies a central position, to the process of production and hence development. Capital includes dwellings (modern and traditional), other buildings, structures (dams, roads, railways, airports and water pump stations), transport, ICT and other equipment and machinery, biological and mineral resources and, research and development.

Under the combined interventions scenario, Capital formation per capita is projected to increase from USD 163 in 2017 to USD 2,210 in 2040 (Figure 5.4). This implies increases in labour productivity hence increased rate of economic growth and, consequently higher standard of living for the population. For Uganda to maximize the gains from its capital, an effective combination of its capital with other factors like skilled workforce, healthy population, effective government policies, social justice, attitude of the people to work, among others should be considered. Therefore, economic development in Uganda should be considered as a multidimensional phenomenon which should be a result of a combination of social, cultural, political, and economic factors, including capital.

**Figure 5.4: Capital formation per capita by Scenario, 2017 – 2040**



### 5.4 GDP and GDP per capita

Under the Business as Usual Scenario, the total GDP is projected to increase from USD 27.9 billion to USD 80.9 billion in 2040. If only strong economic reforms are implemented, the total GDP is projected to grow from the current level of USD 27.9 billion in 2017 to USD 495 billion in 2040. However, combining economic reforms with improvements in the quality of human capital would further increase GDP to USD 643 billion.

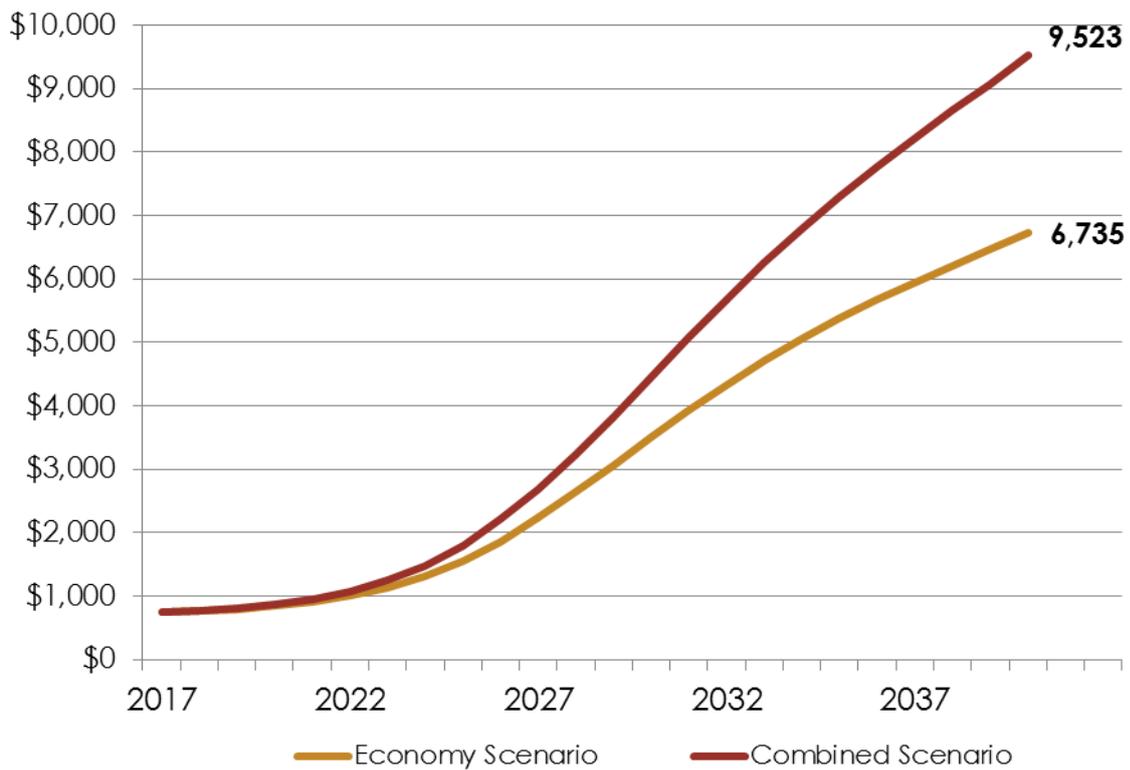
The Demographic Dividend is the extra GDP realised when combined interventions (human capital interventions are implemented on top of economic interventions) compared with what is realised when only economic interventions are implemented. In this case, in the year 2040, the difference would be USD 148 billion. In other words, as a result of the additional investments in human capital (health and family planning; education and skilling), Uganda's GDP will be 23 percent higher than the level where it would be in 2040 if the country only focused on economic investments. It is thus clear that the best development results are achieved when combined economic and human capital interventions are designed and implemented concurrently.

The average annual GDP growth rate over the past nine years was 5.2 percent. However, the highest growth rate was realised in FY 2010/11 (9.4 percent). If the momentum built was upheld, then the country would be on the right path to achieving its development target.

Table 5.2 shows that implementation of strong economic reforms (Scenario 2) would increase the GDP per capita from USD 740 in 2017 to USD 6,735 in 2040. However, if combined

economic and human capital interventions are implemented in (Scenario 3), the GDP per capita would further increase to USD 9,523 in 2040. In other words, implementation of interventions in Education, skilling and Family Planning to reduce the fertility would lead to a 41 percent increase in the GDP per capita in 2040.

**Figure 5.5: GDP per Capita by Scenario, 2017 – 2040**



The modelling further shows that Uganda can attain middle-income status (GDP per capita of USD 1,039) in 2024 if the combined model that concurrently prioritizes job-oriented economic reforms and investments in family planning and education is implemented, starting in 2018.

**Table 5.3: Summary Results from the modelling by Scenario, Uganda 2040**

<b>Indicator</b>	<b>2040 Projection</b>	
	<b>Economy Scenario</b>	<b>Combined Scenario</b>
Employment (Millions)	22.4	22.5
Gap between Working age Population and Employment (Millions)	15.6	15.7
Gap as a percentage of Working Age Population	41.0	41.0
Capital formation per Capita (USD)	1,525	2,210
GDP (USD Billions)	494.5	642.6
Implied Average Annual GDP Growth Rate 2017 – 2040 (%)	13.1%	14.4%
GDP per Capita (USD)	6,735	9,523

## 6.0 Potential Intervention Areas

To achieve the best development results, the country needs to implement reforms that lead to a reduction in the dependency ratio through consistent and rapid reduction of fertility levels as well as have interventions aimed at increasing labour productivity through having a healthy, properly educated and appropriately skilled human capital. In addition, the country should introduce economic reforms geared towards labour market flexibility and global competitiveness.

### a) Fertility reduction

***The intervention should focus on reducing dependency with a special focus on reduction of child dependency ratio through fertility decline:*** Although the Government has recently shown a stronger commitment to encouraging lower fertility rates, it ought to focus its efforts on the key determinants of fertility to be most effective. There is need to invest in reducing the current high unmet need for family planning to less than five (5) percent. From the findings of the modeling, Government policy should focus on a broad spectrum of multi-sectoral interventions and inputs. This could be done by specifically targeting the rural and hard to reach areas, and switching from short-term to Long Acting Reversible Contraception methods (LARCs).

***Unmet need for family planning can be addressed on both the supply and demand sides.*** Unmet need for family planning has a significant impact on fertility. Most obviously, supply-side constraints need to be addressed. Distance to the source for obtaining contraceptives, stock-outs of contraceptives among providers and legal constraints should be the focus of policy to combat gaps in family planning need as well as comprehensively addressing the issue of side effects.

***Promote better urbanization:*** Increasingly population movements are flowing from rural to urban areas in Uganda. This can be a positive trend as it helps both economic growth and demographic transition. Adopting an Urban character would lead to a healthier life, as nearly all health indicators are better in Uganda's urban areas. However, urbanization also needs to be carefully managed, for otherwise it leads to traffic jams and development of slums, giving rise to poor sanitation and waste management. The current urban population growth rate challenges the Government to make sure that public investment in infrastructure and social services does not lag behind. For the country to benefit from urbanization to the full extent, the Government will need to invest more in creation of regional cities to reduce on the problem of primacy. It will also need to invest in better social services and skilling in rural areas in order to make the migrants more employable in the regional cities, and in the infrastructure connecting rural and urban areas.

### b) Human Capital Development

***Education of women is essential to empowerment and harnessing returns to human capital investment.*** The model showed the importance of simultaneous investments in both education and fertility decline, and the results are relevant for policy intervention. High primary school drop-out is a barrier to development of any kind. Universal primary education has been implemented since 1997 and the Government also began the implementation of universal secondary education in 2007. There is great need to make both primary and post-primary education compulsory and to target the attendance of girls in particular. Designing of a national incentive program to keep girls at school and the establishment of a long-term strategy for boosting their skills base remains a burning priority.

### c) Employment Creation

The Demographic Dividend can only be attained if the population age-structure is conducive, and the economy generates employment to fully utilise the working-age population. Currently, the bulk of the labour force is unskilled; there are high levels of labour underutilization, heavy engagement in subsistence agriculture, and high informal employment.

***Economic autonomy for Ugandan Women:*** Enabling female economic autonomy increases household incomes. This, in turn, reduces vulnerability to sickness and mortality and contributes to faster poverty reduction. Lack of decision-making power for women leads to poor health outcomes. It also excludes women from productive economic and social activities. Of the limited formal employment available in Uganda, only 19 percent is represented by women. Worse still, the share of women in wage employment in the non-agricultural sector, another key indicator of women's empowerment, has reduced.

Other proposed interventions on employment creation may include:

1. Economic reforms should be able to generate 1 million to one and half million jobs annually to absorb the population that is entering the job market in the country.
2. Develop a strategy of attracting labour to the low productivity sectors. Identify and prioritise the job creating economic activities (such as labour friendly intensive industrialisation) to absorb the surplus labour that is created through increased use of ICT.
3. Create up to a minimum of 35 million jobs in the next 5 years. Create jobs that optimally utilize the time and skill of the labour force.
4. Enhance the financial viability, productivity, and competitiveness of micro, small and medium-sized private sector enterprises, resulting in increasing employment opportunities for the current poor.
5. Preparing the young people to be ready for jobs. There are 700,000 jobs that are projected to be needed each year in the next 40 years. This can be achieved by creating a human capital-augmented labour.
6. Heavy engagement (32 percent of the working population) in subsistence farming, which has low productivity. There is need to shift the excess population out of agriculture to more productive sectors along the production value chain especially in SMEs while improving production technologies at the farm.
7. Urban areas especially Greater Kampala have higher chances of job opportunities for the skilled/educated and hence higher productivity. Facilitate the systematic growth of Regional Urbanization centers in the country to encourage urbanization for employment but in a regionally balanced manner in line with the NDP II.
8. Aim to increase the productivity and sustainability of businesses, based on realistic market potential to fill value chain gaps, which will result in increased long-term formal employment opportunities especially for the less privileged.
9. Creation of critical skills to be created to ensure area-based value chain investment and planning.

10. An equal investment in human capital with infrastructural investment is needed to secure maximum returns from labour and infrastructure.

**d) Governance and accountability**

**(i) *Monitoring and evaluation framework:***

Results of the policies need to be examined against the original national commitments and pledges made with methodologies in place to evaluate the policy interventions. Uganda will need to design the best institutional setting to implement the policy interventions or strengthen existing institutions.

**(ii) *Government and non-governmental coordination***

In addition to the multi-sectoral intervention approach, an inter development partners engagement is required including DFID, ILO, UNDP, UNICEF, UNFPA among others for to avoid duplication of efforts in implementation of development programs and ensuring intervention from the holistic perspective

**(iii) *Governance strengthening.***

In order to instil confidence in both local and foreign investors there should be good governance and appropriate economic infrastructure. In order to achieve this, government needs to adopt a micro and macro governance framework that allows inward growth with outward focus by strengthening import substitution strategies, export promotion and expedited growth of local industries and agriculture for export purposes. This may include revisiting the local taxation regime to encourage local industries to produce for both local consumption and export.

## **6.0 Conclusion**

Uganda's economy has been steadily growing for the past ten years. The total GDP in constant 2009/10 prices increased from UGX 38.8 trillion in 2008/09 to UGX 61.4 trillion in 2016/17. Despite the steady growth in the economy, unemployment has remained high at 9.7 percent, while the Composite Labour Under-utilization Rate is 35.1 percent. Nearly 40 percent of the working population are engaged in subsistence farming as their main activity.

Alongside the economic growth, Uganda's population also grew from 24.2 million in 2002 to an estimated 37.7 million in 2017. The rapid growth in the population was a result of high fertility and declining mortality, which in turn led to a young population with more than half of the population being below the age of 18 years,

Uganda's Vision 2040, seeks to transform the country from a 'predominantly peasant and low income country to a competitive, modern and prosperous upper middle income country' by 2040. The Vision highlights the potential role of the Demographic Dividend in realising the envisaged socio-economic transformation. It advocates for reducing the dependency ratio by reducing fertility levels, keeping school-age children (particularly girls) in school, and improving the health service delivery system.

Maintaining the development path that was observed over the past nine years (2009/10 – 2017/18), the country's GDP will to increase to USD 81 billion in 2040, which falls far below the national development target. Therefore, the country needs to implement strong reforms in the economy and enhance the quality of the human capital to achieve the development targets. Introducing economic reforms without associated improvements in the quality of human capital would increase Uganda's GDP from the 2017 level of USD 27.9 billion to USD 49.5 billion in 2040. The associated GDP per capita would be USD 6,735. However, the modelling has shown that Uganda's economy would grow faster if the combined model that concurrently prioritizes job-oriented economic reforms and investments in human capital are implemented, starting in 2018. Under his approach, Uganda can attain the Vision 2040 target of being a higher middle-income country (GDP per capita of USD 9,500) in 2040.

### **Potential areas of further research**

One of the limitations of the DemDiv model is that the economic model takes the economy as single-sector model. Further work would include sector specific modelling to project the potential contribution of each sector towards harnessing the Demographic Dividend.

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## Appendices

### Appendix 1: Contributors to the Report

#### I: Members of the Demographic Dividend Steering Committee

No.	Name	Institution	Designation
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25.	Ms. Margret Nakirya	Consultant/Economic policy
26.	Mr. Johnstone Galande	Consultant/Demography

## **Appendix 2: Glossary of terms**

**Expected years of schooling** – these are the number of years during which a child entering infant school can expect to spend in full-time and part-time schooling in the course of their life cycle, based on the school enrolment rates of the time. These expected years are calculated on the young people of less than 30 years old.

**Mean years of schooling** – these the average number of completed years of education of a country's population, excluding years spent repeating individual grades. MYS estimates produced by the UIS cover the population aged 25 years and older

**Total Fertility Rate (TFR)** - the average number of children born per woman in her reproductive life

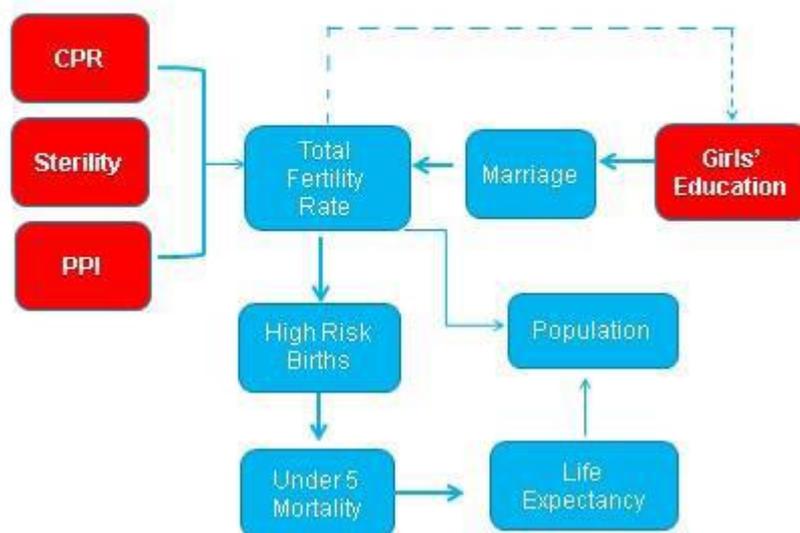
**Population Momentum** – the tendency for population growth to continue beyond the time that replacement-level fertility has been achieved because of the relatively high concentration of people in child-bearing years.

### Appendix 3: About the DemDiv Model

The DemDiv model projects change in GDP per capita based on age structure, trade openness, institutional quality and life expectancy. The model is a two-part model describing demographic changes and economic changes with equations to estimate employment and investment, along with an estimation of GDP. The demographic component underlies the model structure, projecting population size and structure, child mortality, dependency ratio, fertility, and life expectancy. These demographic calculations then feed into the economic model, which consists of three equations describing capital formation, employment growth, and total factor productivity as a function of age structure and other social and economic variables. The two linked model components interact over the projection period to describe the effects of changing age structure and inputs to the economic model on economic output and employment over time.

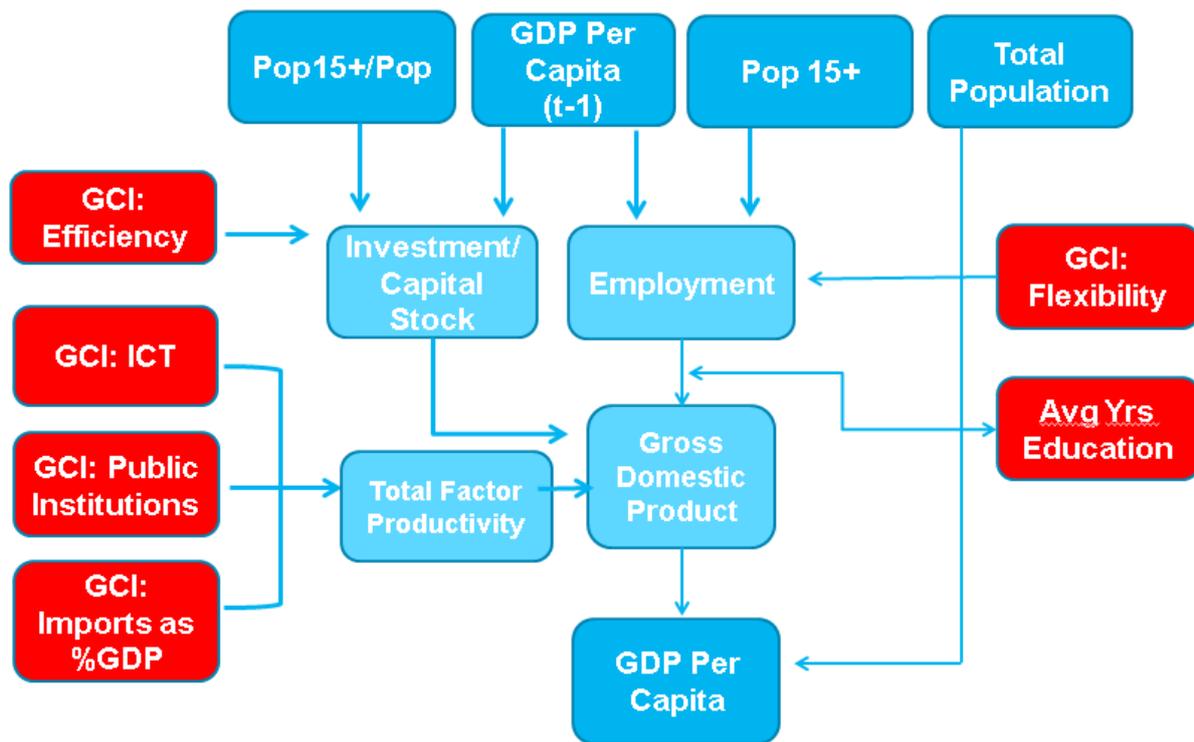
The demographic sub-model projects the determinants of fertility and mortality and thereby, population growth and age structure as shown in the figure below.

Theoretical Framework:  
Demographic Sub Model



The economic model uses results from the demographic model and a separate set of policy inputs to project GDP and GDP per capita (see Figure 2). Change in GDP is projected as a function three components namely capital, employment and Total Factor Production (TFP)..

**Figure 2: Economic Model**



**Limitations of the model and the input information**

Like any model, the DemDiv model has its limitations

1. A critical input into the DemDiv model is the level of employment and estimated growth in employment rates. This indicator is heavily affected by the way in which various countries measure employment. The UBOS definition of employment was adopted from the ILO definition which is ‘Working for pay or profit’ and it excludes individuals engaged in production for home consumption such as subsistence farming.
2. The statistical relationships that were estimated using international cross-section data and that underlie the behavioral equations such as those for Total Factor Production (TFP), employment, investment and child mortality are assumed not to change over time. In addition, the cross-sectional relationships are assumed applicable to any country in the dataset.
3. There are some linkages between population growth and the economy that have not been incorporated into the model. These include such issues as childcare effects on labour supply, population- induced technical progress (“Boserup” effects) and the role of land in production.
4. The economic model is a single-sector model. A two- or three-sector model that accounts for shifts in production, demand and labour supply between multiple sectors (most obviously, agriculture and non-agriculture) may capture more sophisticated dynamics. We opted for a simpler model because of the ease of communicating its structure and results to our target audience.

#### Appendix 4: Comparison of indicators from the 2014 Modelling and from Censuses and Surveys

Input indicator	2017 Estimate	
	Projection	Survey
Expected Years of Schooling - Female	12.0	11.2
Expected Years of Schooling - Males	12.0	11.9
Mean Years of Schooling - Female	5.7	5.38
Mean Years of Schooling - Male	7.2	7.30
Mean Years of Schooling – Both Sexes	6.5	6.34
Contraceptive Prevalence Rate – Modern methods	31.9	34.8
Post-partum Insusceptibility (months)	11.0	10.9
Sterility	2.6	1.40
Labor Market Flexibility	5.48	4.60
ICT Use	2.11	2.90
Financial Market Efficiency	3.80	3.70
Public Institutions	3.71	3.50
Imports as a percentage of GDP	38.41	25.57
Percent of women 15 – 49 years who are Married (including those in consensual unions)	60.7	60.6
Total Fertility Rate	5.1	5.4
Proportion of Births at Risk (avoidable risks only)	58	59.5
Infant Mortality Rate	42	43
Under-five Mortality Rate	66	64
Pregnancy-related Mortality Ratio	437	368
Female Life Expectancy	60.9	64.5
Capital Formation per capita	148.4	160
Employment (millions)	9.8	9.1
Labour Force Participation Rate		52.3
GDP (USD billions)	39.2	27.9
GDP per capita (USD)	968	740

### Appendix 5: Base-year (2017) information for the modelling

<b>Input Indicator</b>	<b>Level of Indicator</b>
<b>Health</b>	
1. Percent of females aged 15 – 49 years who are Married/in consensual unions)	60.6
2. Total Fertility Rate	5.4
3. Percent Births at Risk (avoidable risk only)	59.5
4. Infant Mortality Rate	43
5. Under-five Mortality Rate	64
6. Maternal Mortality Ratio (Maternal deaths per 100,000 live births)	336
7. Contraceptive Effectiveness Rate for Modern Methods	0.95
8. Contraceptive Effectiveness Rate for Traditional Methods	0.5
9. Female Life Expectancy at Birth	64.5
10. Life Expectancy Difference (Females – Males)	1.7
<b>Economy</b>	
11. Capital Formation per capita	160
12. Initial Employment (millions)	8.5
13. Initial Employment Growth Rate (ages 18 – 64 years)	3.7
14. Gross Domestic Product per Capita (USD)	740
15. Ratio of Capital Stock to Population 18 – 64 years	3,144
16. Initial GDP Growth Rate	5.0
17. Capital Stock Growth Rate	9.9
18. Capital Stock Depreciation Rate	4.0
19. Primary Education costs as a percentage of GDP	5.91
20. Labour Force Participation Rate	59.0

**Appendix 6: Baseline and 2040 Assumptions for the modelling under the various scenarios**

Input Indicator	Baseline (2017)	2040 Assumptions	
		Economy Scenario	Combined Scenario
<b>Education</b>			
1. Expected Years of Schooling for female	11.20	14.0	16.0
2. Expected Years of Schooling for males	11.90	14.0	16.0
3. Mean years of schooling for females aged 25 years and above	4.80	8.0	10.0
4. Mean years of schooling for males aged 25 years and above	7.00	9.0	11.0
<b>Family Planning</b>			
5. Contraceptive Prevalence Rate (Modern methods) for currently married women	34.8	50.0	65.0
6. Postpartum Insusceptibility (PPI) in Months	10.9	11.0	11.0
7. Sterility (Percent of all Women 45-49 who are childless)	1.4	1.5	1.5
<b>Economic Policies</b>			
8. Public Institutions	3.50	6.1	6.1
9. Imports as a percentage of GDP	25.57	10.0	10.0
10. Labour Market Flexibility	4.60	5.0	5.5
11. Financial Market Efficiency	3.70	6.0	6.0
12. ICT Use	2.90	5.5	6.2

## Appendix 7: Net Entrants into the Labour Force by Scenario, 2017 – 2040

Year	Economy Scenario			Combined Scenario		
	Entrants	Leavers	Net Entrants	Entrants	Leavers	Net Entrants
2017	863,000	75,000	788,000	863,000	75,000	788,000
2018	894,000	78,000	816,000	894,000	78,000	816,000
2019	923,000	82,000	841,000	923,000	82,000	841,000
2020	949,000	85,000	864,000	950,000	85,000	865,000
2021	977,000	89,000	888,000	977,000	89,000	888,000
2022	1,004,000	92,000	912,000	1,005,000	93,000	912,000
2023	1,028,000	96,000	932,000	1,029,000	97,000	932,000
2024	1,048,000	101,000	947,000	1,049,000	101,000	948,000
2025	1,066,000	105,000	961,000	1,067,000	106,000	961,000
2026	1,083,000	111,000	972,000	1,085,000	112,000	973,000
2027	1,102,000	117,000	985,000	1,104,000	118,000	986,000
2028	1,125,000	123,000	1,002,000	1,127,000	124,000	1,003,000
2029	1,152,000	129,000	1,023,000	1,155,000	131,000	1,024,000
2030	1,182,000	136,000	1,046,000	1,186,000	137,000	1,049,000
2031	1,243,000	142,000	1,101,000	1,247,000	144,000	1,103,000
2032	1,254,000	149,000	1,105,000	1,260,000	151,000	1,109,000
2033	1,270,000	156,000	1,114,000	1,277,000	159,000	1,118,000
2034	1,303,000	163,000	1,140,000	1,312,000	166,000	1,146,000
2035	1,370,000	171,000	1,199,000	1,381,000	174,000	1,207,000
2036	1,413,000	179,000	1,234,000	1,407,000	183,000	1,224,000
2037	1,454,000	187,000	1,267,000	1,429,000	191,000	1,238,000
2038	1,492,000	195,000	1,297,000	1,450,000	200,000	1,250,000
2039	1,532,000	204,000	1,328,000	1,469,000	210,000	1,259,000
2040	1,567,000	213,000	1,354,000	1,483,000	219,000	1,264,000

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