HARNESSING THE DEMOGRAPHIC DIVIDEND IN UGANDA

AN ASSESSMENT OF THE IMPACT OF MULTISECTORAL APPROACHES
Acknowledgements

Harnessing the demographic dividend in Uganda demands targeted efforts to optimize the relationship between economic and population growth. This publication provides unique insight into the complex interplay between various economic and social forces, as well as public investment decisions through which Government can best leverage unprecedented economic opportunities brought about by the current demographic transition.

The research and drafting of this report was led by the Economic Policy Research Institute (EPRI), in close collaboration with the Ministry of Finance, Planning and Economic Development, the National Planning Authority, the National Population Council, the Uganda Bureau of Statistics (UBoS) and UNICEF Uganda.

Frances Ellery provided editorial inputs and Rachel Kanyana designed this publication and its associated advocacy materials.
HARNESSING THE DEMOGRAPHIC DIVIDEND IN UGANDA

An Assessment of the Impact of Multisectoral Approaches
Foreword

With over half its population under the age of 18, Uganda has one of the youngest populations in the world. This is only expected to increase over the coming decades as the number of children, adolescents and youth in Uganda is forecasted to rise from 27.5 million in 2015 to 75.9 million in 2080. Based on these population dynamics, Uganda is uniquely positioned to harness the economic and social benefits of a young and growing dynamic population.

The optimized relationship between population growth and accelerated economic growth, also referred to as the demographic dividend, is not automatic. Harnessing the demographic dividend hinges on key and strategic public investment choices. First and foremost, it is critical that the dependency ratio, the share of working age adults to children, continues to decline. Accompanying this decline, there is a need to prioritize the education, health and protection of children as reaping the demographic dividend requires a healthy and educated workforce.

For Uganda, achieving this demographic dividend will not only accelerate economic growth, getting us closer to attaining middle-income status, it also has the potential to boost key social outcomes crucial to improving the daily lives of Ugandans. While the benefits of harnessing the demographic dividend are well understood, how to get there is less clear. Seizing this limited window of opportunity is not straightforward, particularly as challenges remain – the total fertility rate remains high, and the pace of progress in social outcomes is slowing down. These must be addressed to ensure that the demographic transition turns into a demographic dividend.

In filling the evidence gap to enrich the policy dialogue and support decision making, this report represents a bold effort to assess different investment scenarios that could unlock the potential of the much-anticipated demographic dividend. One of the key messages from the analysis is the importance of not only increasing investments in social sectors as articulated in the report, but also the added value of leveraging strategic synergies from multisectoral interventions. It is therefore our hope that this publication can help guide policy makers towards better investment options in support of Government’s quest to achieve Vision 2040.
# Table of Contents

**FOREWORD** ........................................................................................................................................... I

**ABBREVIATIONS AND ACRONYMS** ................................................................................................. V

**EXECUTIVE SUMMARY** ..................................................................................................................... VI

Objective .............................................................................................................................................. vii  
Empirical approach ................................................................................................................................. vii  
Main findings .......................................................................................................................................... ix  
Policy recommendations ......................................................................................................................... xi

**CHAPTER 1: INTRODUCTION** ............................................................................................................ 1

**CHAPTER 2: THE DEMOGRAPHIC DIVIDEND** .................................................................................. 3

2.1 What is it and why is it relevant? ...................................................................................................... 4 
2.2 The stages of the demographic dividend .......................................................................................... 5  
2.3 The global preconditions of the demographic dividend ................................................................. 6  
2.4 How to exploit the demographic dividend ........................................................................................ 6  
2.5 Lessons learned from country experiences ..................................................................................... 7

**CHAPTER 3: THE PROSPECTS OF A DEMOGRAPHIC DIVIDEND IN UGANDA** ..................... 10

3.1 Africa and the demographic dividend .............................................................................................. 11 
3.2 Uganda and the demographic transition ......................................................................................... 12

**CHAPTER 4: ANALYSIS OF THE DEMOGRAPHIC DIVIDEND IN UGANDA** ....................... 15

4.1 Methodology ......................................................................................................................................... 16 
4.2 Policy relevance .................................................................................................................................. 18

**CHAPTER 5: RESULTS** ....................................................................................................................... 20

5.1 Inputs .................................................................................................................................................. 21 
5.2 Intermediate outcomes ...................................................................................................................... 22  
5.3 Outcomes ........................................................................................................................................... 29  
5.4 Impacts .............................................................................................................................................. 31

**CHAPTER 6: CONCLUSIONS** .......................................................................................................... 35

6.1. Policy recommendations .................................................................................................................. 36

**BIBLIOGRAPHY** .............................................................................................................................. 40
FIGURES

Figure 1. Illustration summarizing the main inputs, outcomes and impacts of the methodology viii
Figure 2. The stages of harnessing the demographic dividend 5
Figure 3. Africa’s dependency ratio, 1950–2100 11
Figure 4. Population Pyramids for Uganda for 1970, 2015, 2030 and 2050 13
Figure 5. Illustration summarizing the main inputs, outcomes and impacts of the methodology 16
Figure 6. Government sectoral expenditure as a percentage of total expenditure, 2003–2016 21
Figure 7. The modelling of mean years of education across three scenarios from 2015 to 2065 23
Figure 8. The modelling of expected years of schooling across three scenarios from 2015 to 2065 24
Figure 9. The modelling of the contraceptive prevalence rate across three scenarios from 2015 to 2065 25
Figure 10. The modelling of under-five mortality across three scenarios from 2015 to 2065 26
Figure 11. The modelling of infant mortality across three scenarios from 2015 to 2065 28
Figure 12. The modelling of female life expectancy across three scenarios from 2015 to 2065 30
Figure 13. The modelling of the total fertility rate across three scenarios from 2015 to 2065 31
Figure 14. The modelling of total population across three scenarios from 2015 to 2065 32
Figure 15. The modelling of GDP per capita across three scenarios from 2015 to 2065 32
Figure 16. Major age-cohorts as a percentage of the total population 33

TABLES

Table 1. Main results of analysis, 2019, 2040 & 2065 x
Table 2. Key social indicators for the Republic of Korea, Singapore, Thailand and Hong Kong 8
Table 3. Sectoral national expenditure, 2019, 2040 & 2065 22
Table 4. Under-five deaths prevented under Policy Scenarios 1 and 2 compared with the Base Scenario 27
Table 5. Infant deaths prevented under Policy Scenarios 1 and 2 compared with the Base Scenario 28
Table 6. Main results of analysis, 2019, 2040 & 2065 34

BOXES

Box 1. Demographic dividend 4
Box 2. The various stages of the demographic dividend along with examples from the Africa region 12
Box 3. The three scenarios of the DemDiv model 18
### Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AD</td>
<td>Adolescent development</td>
</tr>
<tr>
<td>CGE</td>
<td>Computable General Equilibrium Models</td>
</tr>
<tr>
<td>CPR</td>
<td>Contraceptive prevalence rate</td>
</tr>
<tr>
<td>CPRm</td>
<td>Modern contraceptive prevalence rate</td>
</tr>
<tr>
<td>DemDiv</td>
<td>Demographic Dividend Model</td>
</tr>
<tr>
<td>DemProj</td>
<td>Demographic Projection Model</td>
</tr>
<tr>
<td>ECD</td>
<td>Early Child Development</td>
</tr>
<tr>
<td>GCI</td>
<td>Global competitive index</td>
</tr>
<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
</tr>
<tr>
<td>GNI</td>
<td>Gross National Income</td>
</tr>
<tr>
<td>GoU</td>
<td>Government of Uganda</td>
</tr>
<tr>
<td>IAMs</td>
<td>Integrated Assessment Models</td>
</tr>
<tr>
<td>ICPD</td>
<td>International Conference on Population and Development</td>
</tr>
<tr>
<td>ICT</td>
<td>Information and communication technologies</td>
</tr>
<tr>
<td>IMF</td>
<td>International Monetary Fund</td>
</tr>
<tr>
<td>MAMS</td>
<td>World Bank’s Maquette for MDG Simulations</td>
</tr>
<tr>
<td>MDGs</td>
<td>Millennium Development Goals</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-governmental organization</td>
</tr>
<tr>
<td>OLS</td>
<td>Ordinary Least Squares</td>
</tr>
<tr>
<td>OWP</td>
<td>One Way Permit</td>
</tr>
<tr>
<td>PBB</td>
<td>Project-based budgeting</td>
</tr>
<tr>
<td>PPI</td>
<td>Postpartum insusceptibility</td>
</tr>
<tr>
<td>PPP</td>
<td>Purchasing power parity</td>
</tr>
<tr>
<td>SDGs</td>
<td>Sustainable Development Goals</td>
</tr>
<tr>
<td>TFR</td>
<td>Total fertility rate</td>
</tr>
<tr>
<td>UBoS</td>
<td>Uganda Bureau of Statistics</td>
</tr>
<tr>
<td>UDHS</td>
<td>Uganda Demographic and Health Survey</td>
</tr>
<tr>
<td>UGX</td>
<td>Ugandan shilling</td>
</tr>
<tr>
<td>UNDESA</td>
<td>The United Nations Department of Economic and Social Affairs</td>
</tr>
<tr>
<td>UNECA</td>
<td>United Nations Economic Commission for Africa</td>
</tr>
<tr>
<td>UNFPA</td>
<td>The United Nations Population Fund</td>
</tr>
<tr>
<td>UNICEF</td>
<td>The United Nations International Children’s Emergency Fund</td>
</tr>
<tr>
<td>USAID</td>
<td>The United States Agency for International Development</td>
</tr>
<tr>
<td>USD</td>
<td>United States dollars</td>
</tr>
<tr>
<td>WASH</td>
<td>Water, sanitation and hygiene</td>
</tr>
</tbody>
</table>
Executive Summary
For a long time, a common misunderstanding prevailed among policy makers that a larger population of young people would automatically set the stage for achieving a demographic dividend. This is no longer the case. Instead, many sub-Saharan African countries are now aiming to decrease their birth and death rates, while improving their education and health systems in order to decrease the dependency ratio. This will allow for a smaller number of children per household, resulting in larger investments per child, more freedom for women to participate in the national labour market and more household savings for old age – thereby providing a window of opportunity for future economic growth. Without these demographic improvements through multiple investments into health care, education and labour, a country may not be able to increase the capabilities, health and opportunities of its people, thereby undermining improved growth rates and jeopardizing sustainable development.

Uganda is one of these countries that could embark on a journey of improved economic growth. In its current state, Uganda will be facing a projected population of 176 million by 2080, four times the number witnessed today, mainly as a result of its high fertility rates, high population growth rates and high child dependency ratio. Left untouched, the current policies could constitute a major barrier to social transformation and development in Uganda and may hinder the achievement of its 2040 National Development Agenda. However, the country’s declining child mortality rate and increasing female life expectancy also provide hope for the potential initiation of the demographic transition – a phenomenon that underlines the fact that Uganda’s age structure is more important than just its population size when considering future economic opportunities.

With a high fertility rate of more than four children per woman and an increasing share of working-age individuals, Uganda finds itself in the pre-dividend stage of its demographic transition. To achieve the demographic dividend, Uganda must therefore invest and implement appropriate policies to (i) initiate this transition and (ii) create an environment for a skilled and healthy future labour force in order to reap the benefits of the demographic dividend – accelerated economic growth.

Objective

The assignment at hand aims to analyse the social and economic context of Uganda, analyse its demographic trends, and identify the current status of the demographic transition along with specific investments that could help deliver a demographic dividend. This will involve a detailed situational analysis followed by an innovative modelling exercise to assess the possible gains achieved by Uganda when applying different investment scenarios.

Empirical approach

The model is structured on the idea that population growth and economic growth are closely linked, and that proper policy structuring could aid a country in attaining economic gains during periods of population increase. In other words, the demographic dividend optimizes the relationship between population and economic growth.

In order to understand the conditions and analyse the magnitude of the potential demographic dividend in Uganda, the report first estimates the impact of sectoral investment options that are of interest and relevance to the Government of Uganda (GoU) on key indicators important for achieving the demographic transition. These key indicators are then used as basic inputs (intermediate outcomes) in a modified USAID-funded Health Policy Project DemDiv model to estimate demographic outcomes, and its subsequent population impacts (Figure 1).

To estimate the impact of sectoral expenditures as a share of GDP on key indicators, the model first uses translog regression specifications, rather than single-sector unit-cost and multisectoral Cobb-Douglas approaches to produce key indicators. In doing so, the approach not only models total cost more accurately, but also unlocks the identification of synergy-producing input-outcome elasticities among sectors. In turn, these outcomes affect population growth and GDP per capita, allowing for the estimation of a demographic dividend.
As part of the approach, three scenarios were established to estimate the impact of sectoral expenditures on the demographic dividend in Uganda. The first consists of the Base Scenario, where existing expenditures as a share of GDP in each major sector grow at the rate of GDP. From this baseline, the model establishes two policy scenarios: Scenario 1 increases sectoral expenditure as a share of GDP by identified target growth rates yet does not allow for cross-sectoral synergies – meaning the extent to which one sector’s spending influences the effectiveness of another sector’s spending; while Scenario 2 allows for an increase in sectoral expenditures as a share of GDP and takes advantage of cross-sectoral synergies.

The aim of the modified USAID DemDiv model is to be a tool that can inform policy makers of the potential benefits of the demographic dividend by providing evidence of the impact of increased investment in multisectoral policies towards achieving such benefits. Ultimately, a country’s ability to exploit the demographic dividend depends highly on the government’s increased ability to design, implement and deliver interventions and programmes in a multisectoral manner.
The empirical findings demonstrate the powerful returns to comprehensive and integrated approaches. These findings therefore support the GoU’s efforts to transition to programme-based budgeting (PBB). The PBB reform focuses on thematic programmes rather than sectors or outputs. As a result, this refined and forward-looking approach encourages the use of cross-sectoral and integrated interventions to ensure the achievement of planned outcomes. The shift away from the previous approach, output-based budgeting, to PBB is also reflected in the third National Development Plan (NDP III). In the NDP III there are 5 objectives supported by 18 programmes which extend beyond any given sector.

**Main findings**

Whether a country is able to achieve the demographic dividend is largely dependent on the investment choices made by the government. While Uganda’s total fertility rate is declining, further pro-poor social and economic development policies are needed in order to improve education and health outcomes, increase formal labour force participation and come closer to the replacement rate of 2.1 children per woman, a key precondition to achieve the demographic dividend. In fact, the analysis at hand has shown that the maximum demographic dividend in terms of GDP per capita [US$6,925] by 2065 can be attained by not only increasing key sectoral expenditures as a share of GDP but by designing and implementing cross-sectoral policies in education, health, agriculture, social development, and water and the environment. Adopting these cross-sectoral policies is also in line with the ongoing PBB reform and aligned with the NDP III. Both PBB and the NDP III emphasize intersectoral programming and outcomes over sector-based programming to tackle challenges such as weak outcomes resulting from ‘uncoordinated programming and planning, weak harmonization and sequencing of programmes and sub-programmes.’

These multisectoral actions, Scenario 2 in the model, would allow Uganda to attain:

- an average of 14 years of schooling for female pupils by 2041
- a school life expectancy of 17 years for females by 2036
- an under-five mortality rate / infant mortality rate equal to roughly 17.6/1 deaths per 1,000 live births by 2065, respectively
- the maximum contraceptive prevalence rate of 80.0% by 2041 (*Table 1*).

Over the next 45 years, **this policy scenario would prevent the deaths of approximately 844,000 children under the age of five and more than 1.1 million infants when compared with Policy Scenario 1.** Furthermore, higher educational attainment is achieved much earlier, allowing for greater productivity gains and therefore a higher rate of economic growth as a result of an individual’s higher returns to education.

Taken together, these separate outcomes will reduce total population by a factor of 1.2 when compared with the status quo/Base Scenario, achieving a level of 73 million by 2040 and 93.8 million by 2065. This is a result of a significant decrease in Uganda’s total fertility rate to 1.8 children per woman in 2065 – a rate of reduction that is larger than that expected in 90 per cent of African countries. Consequently, a lower population along with increased economic growth will result in a higher GDP per capita. According to Scenario 2 in the study, Uganda could potentially achieve a GDP per capita equal to roughly US$7,000 by 2065. Compared with the base scenario, this would equate to a demographic dividend equal to US$2,567 per capita. While Policy Scenario 1 also achieves a significant increase in Uganda’s GDP per capita, Policy Scenario 2 is favoured as, in addition to increasing GDP per capita, it also results in striking improvements in the aforementioned intermediate outcomes (average and expected years of schooling, infant and child mortality as well as the contraceptive prevalence rate). If these socioeconomic improvements are combined with the economic sub-model, the country could be on track to achieve Vision 2040 targets, although ambitious economic targets would be required. As the

---

1 Ministry of Finance, Planning and Economic Development, First Budget Call Circular 2020/21
2 To produce these estimates out to 2065 the simulation model calculates spending scenarios based on historic economic performance. While this allows for credible results, this approach acknowledges that it excludes other projections such as improved domestic revenues from oil among other economic variables. If these projections are realized this will likely improve GDP per capita in the future.
model shows, it is therefore imperative for the GoU to recognize that an increase in spending on social sectors undertaken in a cross-sectoral manner is needed in order to exploit synergies and achieve this dividend.

**TABLE 1. MAIN RESULTS OF ANALYSIS, 2019, 2040 & 2065**

<table>
<thead>
<tr>
<th></th>
<th>Baseline Scenario</th>
<th>Scenario 1</th>
<th>Scenario 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inputs at district level</strong></td>
<td></td>
<td>2019</td>
<td>2040</td>
</tr>
<tr>
<td>Per capita health expenditure (UGX)</td>
<td>9,349</td>
<td>20,179</td>
<td>53,506</td>
</tr>
<tr>
<td>Per capita education expenditure (UGX)</td>
<td>37,939</td>
<td>82,159</td>
<td>217,846</td>
</tr>
<tr>
<td>Per capita WASH expenditure (UGX)</td>
<td>1,970</td>
<td>4,264</td>
<td>11,307</td>
</tr>
<tr>
<td>Per capita agriculture expenditure (UGX)</td>
<td>1,591</td>
<td>3,639</td>
<td>9,648</td>
</tr>
<tr>
<td>Per capita social development expenditure (UGX)</td>
<td>214</td>
<td>463</td>
<td>1,227</td>
</tr>
<tr>
<td><strong>Intermediate outcomes</strong></td>
<td></td>
<td>2019</td>
<td>2040</td>
</tr>
<tr>
<td>Female average years of schooling (Years)</td>
<td>3.8</td>
<td>4.0</td>
<td>5.1</td>
</tr>
<tr>
<td>Female expected years of schooling (Years)</td>
<td>10.8</td>
<td>13.4</td>
<td>10.8</td>
</tr>
<tr>
<td>Under-five mortality rate (Deaths per 1,000 live births)</td>
<td>58.0</td>
<td>55.0</td>
<td>81.0</td>
</tr>
<tr>
<td>Infant mortality rate (Deaths per 1,000 live births)</td>
<td>39.0</td>
<td>20.0</td>
<td>21.0</td>
</tr>
<tr>
<td>Modern contraceptive prevalence rate (%)</td>
<td>27.5</td>
<td>43.1</td>
<td>72.2</td>
</tr>
<tr>
<td><strong>Outcomes</strong></td>
<td></td>
<td>2019</td>
<td>2040</td>
</tr>
<tr>
<td>Female life expectancy (Years)</td>
<td>62.0</td>
<td>63.1</td>
<td>56.4</td>
</tr>
<tr>
<td>Total fertility rate (Children per woman)</td>
<td>6.1</td>
<td>4.4</td>
<td>2.1</td>
</tr>
<tr>
<td><strong>Impacts</strong></td>
<td></td>
<td>2019</td>
<td>2040</td>
</tr>
<tr>
<td>Total population (Millions)</td>
<td>44.5</td>
<td>86.7</td>
<td>149.05</td>
</tr>
<tr>
<td>GDP per capita (USD)</td>
<td>848.0</td>
<td>1,694.0</td>
<td>4,358.0</td>
</tr>
</tbody>
</table>

Comparisons

<table>
<thead>
<tr>
<th></th>
<th>Upper-middle income</th>
<th>Lower-middle income</th>
<th>Low-income</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Africa’s GDP per capita (USD)</td>
<td>6,330</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kenya’s GDP per capita (USD)</td>
<td>2,010</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tanzania’s GDP per capita (USD)</td>
<td>1,170</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ethiopia’s GDP per capita (USD)</td>
<td>951</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Calculations based on authors’ own projections.

Nevertheless, it is important to understand that the demographic dividend does not permanently provide benefits. In fact, there is a limited window of opportunity to advance economic growth. Thus, as favourable policies take time to design, implement and take effect, the Government of Uganda is encouraged to commence with sectoral investments and the creation of policies as soon as possible and in line with the ongoing PBB reform. A failure to act immediately could have negative consequences for the future prospects of Uganda.
Policy recommendations

The Government of Uganda can ensure benefiting from the demographic dividend in the future by investing in and improving existing policies in agriculture, health, education and social development as evidenced by the fact that the outcomes and impacts under Policy Scenario 2 were better than those exhibited under the Base Scenario and Policy Scenario 1. This includes rethinking its balance between the allocation of expenditures towards social and economic sectors, since its current public expenditure has not been sufficiently redistributive and nor has it sufficiently encouraged inclusive growth. Jointly, these two actions can help Uganda get back on track towards meeting its medium- and long-term development targets.

Consequently, the GoU must ensure that current and future investments are made into high-quality education and health care for all. Investments in high-quality health care promote female health, a reduction in the total fertility rate, and an increase in female labour force participation and the standard of living. This allows for an increase in productivity and higher wages, resulting in higher consumer expenditure on nutrition, education, health and savings. Alongside the investments already being made into universal primary and secondary education, it is recommended that the GoU invests in/improves the implementation of tertiary educational institutions, early childhood development programmes, adolescent development programmes, preventative health care and family planning programmes, as well as universal health insurance. By doing so, it will not only be able to increase education to the maximum level attainable (14 years), but will also reduce infant (under one year) and under-five child mortality to levels that are in line with the Sustainable Development Goals (SDGs) – fewer than 25 under-five deaths per 1,000 live births in 2054 and fewer than 12 infant deaths per 1,000 live births by 2033 (see Policy Scenario 2).

Alongside investment in human capital development (supply side), the GoU needs to generate jobs and formalize its economy to prevent the majority of the population continuing to work in jobs that do not provide health insurance, social protection or pension benefits. Furthermore, the necessary infrastructure for formalization needs to be put into place. The majority of those working informally are in the agricultural sector. The GoU therefore needs to invest in modernizing the agricultural sector in order to improve the standard of living of agricultural workers and provide increased employment opportunities for the high number of unemployed. These policy developments/improvements are of great importance when considering that the shift in the population’s age structure – due to lower fertility and improved education and health – will result in a larger share of the working-age population compared with the dependent population (ages 0–14 and 65 and over). As the working-age share of the population grows, the GoU will need to implement skills development and training programmes in order to avoid an increase in the nation’s level of unemployment, especially that of its young people. By providing job access and security in the formal sector, Uganda can greatly profit through its various channels of taxation, thereby further increasing economic expansion as well as ensuring an extension of the demographic dividend.

Once appropriate policies are in place to generate employment, working-age adults will be able to earn a higher wage and thus save more money and at a younger age than previous generations. Increased savings will allow individuals to undertake personal and business-related investments, fuelling growth and potentially increasing GDP/GDP per capita. In order to do so, the GoU needs to invest not only in the creation of jobs, but also in youth programmes. Furthermore, increased investment in health and education will allow for a decrease in the financial burden of the adult population, consequently increasing their savings and their disposable income.
Chapter 1

Introduction
High fertility rates have led to young and fast growing-populations in many African countries. However, with economic and social improvements, this trend is slowly changing. In fact, falling fertility rates present an opportunity for an economic boost as the size of the working-age population (15–64 years) becomes increasingly larger than the dependent population (0–14 years and 65 plus). As a country’s dependency ratio falls, the economic growth potential increases. This trend is commonly referred to as the demographic dividend. In the context of Uganda, further improvement of its indicators – fertility rates of close to six children per woman of reproductive age, a life expectancy of 59 years and under-five mortality rates equal to 64 deaths per 1,000 live births (2016) – is needed in order for the demographic dividend to be reaped.

Whether a country is able to achieve the demographic dividend is largely dependent on the investment choices made by the government. If budgets do not adequately support the education, health and protection of children as well as promote broader economic growth and job opportunities, then young workers will either be unprepared to contribute to the labour market or unable to find decent work. Under this scenario, rising poverty and inequality, social and political instability and emigration are potential outcomes. However, if a government strategically invests in children and young people, the population boom can increase economic growth, improve economic opportunities, and ensure long-term peace and prosperity.

The demographic transition – whereby a country exhibiting high birth rates and short life expectancy evolves into one of fewer births and longer lives – is already well advanced in countries such as Botswana and South Africa. In many other countries in Africa, fertility trends are just starting to decline, opening a possible window of opportunity in the forthcoming decade. Yet, it is important to highlight that the demographic dividend is not automatic. In order to exploit it, governments need to address many challenges through the implementation of appropriate policies and investments including: (i) continued high fertility rates; (ii) the overconsumption of resources by growing populations that limit social and productive investments; (iii) insufficient or mismanaged social sector resources; (iv) few and/or low quality jobs; and (v) limited opportunities for women to enter the labour market.

Naturally, this potential for economic benefits has been met by growing enthusiasm among policy makers. To meet this enthusiasm, research work has increasingly focused on modelling the potential returns of the dividend and shedding light on the different policy options and investments at countries’ disposal to reap the demographic dividend. In light of this, the assignment at hand aims to analyse the social and economic context of Uganda and its demographic trends, and identify the current status of the demographic transition along with specific investments that could help deliver a demographic dividend. This will involve a detailed situational analysis followed by an innovative modelling exercise to assess the possible gains achieved by Uganda when applying different investment scenarios. Based on the results, the report will conclude by providing policy recommendations for consideration by the GoU.
Chapter 2

The Demographic Dividend
2.1 What is it and why is it relevant?

The relationship between population growth and economic growth is not a new topic, and research largely agrees that population growth and growth in per capita output are not independent. Nevertheless, the nature of the relationship between both variables seems to be highly dependent on the particular circumstances, notably the age structure of the population in the various countries and regions under observation (Box 1). By reducing the number of annual births, a country’s working-age population relative to its youth population grows larger. With increasingly more individuals in the labour force and fewer young dependants, a country has an opportunity for growth if the government adopts the right social and economic policies and undertakes the right investments into the five dividends: education, health, agriculture, social development, and water and the environment. Progress in these five areas is vital in not only achieving the potential demographic dividend, but also in achieving a country’s national development goals and the 2030 SDGs.

**BOX 1. DEMOGRAPHIC DIVIDEND**

The demographic dividend is 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 year, a country’s young dependent population declines in relation to the working-age population. With fewer children to support, a country has a window of opportunity for rapid economic growth, if conducive social and economic policies are developed and investments made. Thus, the demographic dividend refers to the potential economic benefit for a society, when fertility and mortality decline, and the ratio of working-age adults increases relative to young dependants.

The size of the dividend depends on how much people produce (as measured in per capita labour income) and consume (per capita consumption) at each age. Therefore, how much of the dividend is realised during this demographic window of opportunity hinges on key features of the economic life cycle. The productivity of young adults depends on the quality of education, employment practices, the timing and level of childbearing, and policies that make it easier for young parents and women to work. Productivity at older ages depends on health and disability, tax incentives and disincentives, and, particularly, the structure of pension programmes and retirement policies.

The dividend period is quite long, lasting five decades or more, but eventually lower fertility reduces the growth rate of the labour force, while continuing improvements in old-age mortality speed up the growth of the elderly population. At this stage, other things being equal, per capita income grows more slowly and the dividend turns negative (IMF, 2006).

Improvements in the health dividend are often measured by child mortality – an essential indicator for child health and welfare. Reducing it is paramount for attaining healthy adulthood and significantly affects a family’s preferred size. Improvements in the education dividend – measured by educational attainment rates, mean years of education and expected years of schooling, for both men and women – are of key importance as they are central to achieving sustainable development. Access to education, especially for girls, provides an opportunity for heightened economic growth. By increasing enrolment rates and the mean years of schooling, a country can increase the skills levels, delay the year of first marriage and pregnancy, and increase the labour force participation rates of women. Through investing in a healthy and educated society, along with investments in social development, agriculture, and water and the environment, the country is geared towards increased productivity, an increase in wages and disposable income, a reduction in poverty, and increased savings and investments – as long as appropriate employment policies are implemented. Moreover, further gains in each of these areas are possible if the government improves its governance, as measured by the absence of civil conflict and corruption. Together, these factors improve a country’s economy as measured in terms of GDP per capita. In order to achieve the maximum benefit of each of the five dividends, countries are strongly advised to also invest in voluntary family planning and to make improvements in child health, youth employment and girls’ education. Ultimately, a country’s probability of achieving significant gains in each of these five areas is largely dependent on how successful it is in initiating its demographic transition.3

3 (Population Reference Bureau, 2019)
2.2 The stages of the demographic dividend

Typically, in the early first stage of a demographic transition, both the birth and death rates are high. Countries at this stage are usually underdeveloped, with high dependency ratios. At the second stage of the demographic transition, the number of children rises rapidly as mortality falls. The key reason is likely to be an improvement in medical care, the supply of sanitation and water, and the quality and security of food. This results in an increasing share of working-age individuals along with a lower dependency ratio, creating the window of opportunity to exploit the demographic dividend. Subsequently, at a late-dividend stage, fertility begins to decline, reducing the number of children as the share of the working-age population increases at a rate slower than in the mid-dividend stage. The reduction in birth rates is a result of increased use of family planning methods as well as employment opportunities for women, and changes to society, equality and human behaviour. With lower infant and child mortality rates, households will want fewer children, while simultaneously seeking to improve the livelihood of the children they will have. Along with this, women will increasingly enter the labour force instead of remaining in unpaid housework. Consequently, the late-dividend stage provides an opportunity for strong economic growth, yet with a closing window of opportunity. During the last stage, the post-dividend stage, low mortality and fertility rates increase the share of the older population, a process known as population aging (Figure 2). Countries at this stage of the demographic transition often exhibit fertility rates below replacement levels. While most developing countries are still working their way through the demographic transition, most developed countries face the post-dividend stage having largely completed this demographic transition from a largely rural agrarian society with high fertility and mortality rates to a predominantly urban industrial society with low fertility and mortality rates.4

**FIGURE 2. THE STAGES OF HARNESSING THE DEMOGRAPHIC DIVIDEND**

<table>
<thead>
<tr>
<th>Stage 1: Pre-dividend</th>
<th>Stage 2: Early-dividend</th>
<th>Stage 3: Mid-dividend</th>
<th>Stage 4: Late-dividend</th>
<th>Stage 5: Post-dividend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth Rate</td>
<td>High</td>
<td>Rapid fall</td>
<td>Low</td>
<td>Very low</td>
</tr>
<tr>
<td>Death Rate</td>
<td>High</td>
<td>Rapid fall</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Population Growth</td>
<td>Slow</td>
<td>Slower increase</td>
<td>Slow increase</td>
<td>Slow decrease</td>
</tr>
</tbody>
</table>

**Demographic transition**

Birth Rate

Death Rate

Population Growth

Many children, few elderly

Many children per worker

Fewer children per worker

Few children, many elderly

Fewer people

The 5 stages (shown in the graph above) can be summarised as follows:

- Fertility and mortality are high (population increases very slowly)
- Mortality starts to decline, especially among children and young adults (population increases)
- Fertility also starts to decline (population growth slows down)
- Fertility and mortality are both low (low population growth)
- Fertility levels fall below replacement levels (population will decline over the long term). Also called the second demographic transition.

Source: (UNICEF, 2014)
Countries with the greatest demographic opportunity for development are those entering the intermediate period with a working-age population in good health, with high-quality education, decent employment opportunities and a lower proportion of young dependants. Smaller numbers of children per household generally lead to higher investments per child, more freedom for women to enter the formal workforce and more household savings for old age, creating the potential for substantial national, economic payoff – the ‘demographic dividend’. History shows there is a real possibility of countries missing their chance at a dividend. The opportunity to reap a demographic dividend occurs during a finite window that gradually closes as the working generation ages.

2.3 The global preconditions of the demographic dividend

The key first step towards achieving the demographic dividend is to foster conditions to reduce fertility. This can be achieved if certain preconditions relating to the five dividends are met. First, knowledge is a crucial precondition in achieving the demographic dividend. Not only does investment in voluntary family planning provide families with information on contraception and other family planning methods, it also influences the decision-making process of households. In fact, research has found that a sustained decline in fertility is only possible if three specific conditions are met: (i) individuals must understand that fertility can be controlled through their own actions, (ii) individuals must realize the benefits that result from having fewer children, and (iii) individuals must have access to contraception methods and knowledge on their use, possibly through government-sponsored information campaigns and holistic family planning services. Once these conditions are met, social norms on fertility change. Particularly in developing countries, women want to be relieved of the burden and risks associated with successive pregnancies, while also wanting to partake in family planning programmes. In addition, increased investment in high-quality health care decreases the prevalence of infant and child mortality as well as morbidity and malnutrition, thus further reducing the need for larger families. Simultaneous investment in high-quality education decreases the prevalence of child marriage and early pregnancy, while also promoting gender equity and female labour force participation. It also allows a rise in women’s autonomy and decision-making power in the household, especially with regards to the household budget. The latter allows them to understand the costs of an additional child and thus may contribute to a decline in fertility. Overall, these actions allow for a continuous fertility transition along with reduced child dependency. By introducing appropriate policies that support the realization of these preconditions, the GoU would be moving towards strengthening the five dividends, thereby improving the existing linkages between the national development goals, the 2030 SDGs and the country’s demographic transition.

2.4 How to exploit the demographic dividend

However, a country’s investment in the five dividends is not enough to reap the demographic dividend. It also requires concerted government efforts to implement multisectoral socioeconomic policies that not only improve education and health, but also: promote domestic savings, foreign direct investment and national investment; improve the business environment in order to match labour demand and supply; reduce trade barriers; and improve technological adaptation – while also promoting labour force participation. Such investments not only allow for the economic development of a country, but also create individual opportunities and aspirations allowing parents to realize the benefits of having fewer children. Furthermore, with increased development, a higher prevalence of urbanization is often witnessed. This releases families from social pressures and permits them to make their own decisions about the timing and spacing of pregnancies. Nevertheless, although these actions are necessary, there may be various drivers that prohibit rapid gains, including low per capita income, political unrest and inflation, as well as geographic disadvantages.

---

5 (UNFPA, n.d.a)
6 (Coale, 1973); (UNFPA, 2018)
7 (McDonald & Moyle, 2018)
8 (Bloom, Canning, & Sevilla, The Demographic Dividend - A New Perspective on the Economic Consequences of Population Change, 2003); (Canning, Raja, & Yazbeck, 2015); (Guengant, 2011); (Mehrotra, 2015).
9 (UNFPA, n.d.a)
In addition to these drivers, the **institutional landscape** of the country is paramount to achieving the demographic dividend. Corruption needs to be tackled, and governmental processes need to be transparent and properly governed. Furthermore, national policies and international conventions need to be adequately designed, implemented and monitored. Today, there are still countries in which there remain legal, educational and economic barriers to reducing fertility. These include laws prohibiting access to contraception for specific marital and age categories, limited sex education, poor quality of education, gender discrimination, low wages, long working hours, informal working conditions, gender-based violence, etc.\(^{10}\) By failing to remove these barriers, countries are not enabling women’s autonomy, leaving them dependent on male breadwinners, denying them access to formal employment, and amassing a mental and physical toll on women – all of which counteract the realization of the demographic dividend.\(^{11}\) A country is thus encouraged to **mobilize resources** for development through the implementation of sound policies guided by reliable evidence. In sum, **cross-sectoral coordination, governance and dialogue** between policy and research actors is crucial.\(^ {12}\)

### 2.5 Lessons learned from country experiences

In order to achieve the above-mentioned preconditions and exploit the demographic dividend, several lessons can be learned from countries that have successfully managed the transition. In a number of countries – most notably Japan and some European countries – an aging population means that a relatively small cohort of working age people will be called upon to support growing numbers of retirees, slowing economic growth unless there is a substantial rise in productivity and per capita output. In African countries, a different type of dependency exists, where high fertility rates have resulted in a young and fast growing population, with a relatively small working-age population supporting large numbers of children.\(^ {13}\) Nevertheless, within the next three decades, these countries – including Uganda – could be well on their way to exploiting the demographic dividend. This section highlights some successful country examples.

Countries in East Asia, including the Asian Tigers, started off with demographics very similar to those exhibited by sub-Saharan African countries today, yet managed to successfully achieve the demographic dividend between 1965 and 1990. It has been noted that one-third of GDP growth experienced during this period was attributed to the demographic dividend.\(^ {14}\) This dividend was achieved through the overall reduction in infant mortality and fertility rates, along with the simultaneous use of family planning programmes. From 1950 to 2000, infant mortality fell from 116 to 26 deaths per 1,000 live births. Likewise, with the heightened use of contraceptives, fertility rates declined from 5.6 to 1.8 children per woman over the same time period. Nevertheless, as mortality fell faster than fertility, the working-age population became proportionally larger over time – representing the window of opportunity for the demographic dividend. Thus, by 1990, more than 65 per cent of the population in East Asia was of working age.\(^ {15}\) This increase, along with growing employment opportunities and strong education and training, allowed East Asia to prosper.

As seen in **Table 2**, several of the most successful transitioning countries, including the Republic of Korea, Singapore, Hong Kong and Thailand, managed to improve key indicators in the social sector. In addition, dramatic declines in fertility, along with improvements in the quality of education and health, have led to increases in female labour force participation rates and consequently gross national income (GNI) per capita. Each of the four countries has managed to exploit its demographic dividend, almost quadrupling its GNI within the past four decades.

---

10  (UNFPA, 2018)
11  (UNFPA, 2018)
12  (Eloundou-Enyegue, 2013)
13  (Peterson, 2017)
14  (Bloom & Williamson, 1998); (Bloom, Canning, & Sevilla, The Demographic Dividend - A New Perspective on the Economic Consequences of Population Change, 2003)
Regardless of the key strategies (policy interventions) used, international experience highlights that an increase in health outcomes, an improvement in education and female empowerment have a positive impact on the economy of a country. The Republic of Korea, through its 1962 national family planning campaign, reduced its birth rate from 5.6 births per woman in 1960 to 2.2 births in 1985, and eventually to 1.2 births in 2005 – a rate well below the replacement rate. Over the same period, as a result of key reforms in public health, education and family planning, life expectancy increased dramatically from 53 to 79 years. In addition to implementing a more egalitarian schooling system, the country also followed an export-oriented development strategy. Combined, these factors resulted in improvements in education and health, an increase in female labour force participation and, consequently, an accumulation of national savings and capital, which led to high economic growth.

Singapore, on the other hand, was witnessing a low population growth rate along with a demand for low-skilled labour that could not be filled with its own labour force. The country therefore underwent a strategic shift in its migration policy, resulting in the level of net migration surpassing the native population growth rate by 2000. This strategic shift can be divided into two main policy areas: i) anti-natalist population policies from 1965 to 1986, which were in favour of skilled immigration and maintained a tight control over population growth through family planning programmes; and ii) more open immigration, pro-natalist policies resulting in a pro-population growth phase since 1987.17

---

16. Source: (UNDESA, 2017); (World Bank, 2019); (Shirai, 2012)
17. (Gee & Chao, 2018)
While a strong emphasis on human capital was critical in both Singapore and South Korea, Thailand’s key strategy consisted of expanding access to and use of voluntary family planning services, including contraception, in order to reduce its very high fertility rates. Furthermore, social norms in Thailand started to change dramatically, especially regarding marriage and having a large family. Combined, these two factors had a significant impact on total fertility rates, which declined from 6.1 children per woman in 1960 to 3 in 1980. Furthermore, Thailand rapidly expanded its education sector. This was largely a result of its commitment to increasing the availability of education and the rapid growth in the numbers of school-age children. Thus, in 1978, compulsory education was expanded from four to six years of schooling. Furthermore, Thailand developed and implemented an extensive vocational education programme, while simultaneously creating open universities in order to increase the number of Thai citizens in higher education. More recently, to sustain economic progress, Thailand has introduced a Child Support Grant, aimed at fostering human capital development to meet higher productivity requirements to counter a gradually aging population.

Hong Kong also witnessed a change in its social behaviour and norms as a result of its rapidly growing economy. As people became wealthier and moved to urban areas, they also became more educated and increased their labour force participation. This was especially the case for women, resulting in a decline in the proportion of stay-at-home married women of child-bearing age as well as a decline in total fertility rates of married women. Furthermore, heightened investment in health services along with anti-smoking campaigns has increased life expectancy and decreased the mortality rate. In addition, the One Way Permit (OWP) scheme – designed to reunite individuals living in mainland China with their families in Hong Kong – accounted for 93 per cent of total population growth from 1997 to 2001. The majority of individuals entering the country were of working age.
Chapter 3

The Prospects of a Demographic Dividend in Uganda
3.1 Africa and the demographic dividend

In most regions of the world, the demographic transition allowed for growth in the share of the working-age population as early as the 1970s and 1980s. While Europe, North America, Asia and Oceania reached their peak between 2005 and 2015, Latin America will do so in 2020. This indicates that the window of opportunity for these regions has either ended or will end in the near future. Africa’s window of opportunity, on the other hand, still lies ahead. While progress has been slow, the continent is now starting its demographic transition, with the share of its working-age population projected to increase until 2070.

Compared with other regions, Africa exhibits the highest rates of child, old-age and total dependency ratios, despite overall declines in the coming decades (Figure 3). At present, the continent has a total dependency ratio of 80.2, which is projected to have declined to 55.4 in 2080. Given the right policies and investments, this demographic transition allows for the potential economic growth of the entire region. As well as investments in and access to high-quality education and health care, investment is needed in regional and national labour markets in order to match labour supply with demand and lead to the productive absorption of the growing working-age population. A demographic transition with lower fertility rates is already underway in South Africa and Botswana, while other countries in Africa are about to see this transition in the coming decades (Box 2).

FIGURE 3. AFRICA’S DEPENDENCY RATIO, 1950–2100

Note: The dependency ratio is a standardized indicator calculated by adding together the under-14 and over-65 population and dividing it by the working population (15–64).

Source: Authors’ own calculation based on the medium variant population projections provided by the United Nations, Department of Economic and Social Affairs, Population Division (2015).

21 (Johns Hopkins University, 2019)
3.2 Uganda and the demographic transition

Over the past decades, Uganda has witnessed significant population growth – from 2.7 per cent in 1950 to 3.4 per cent in 2015, resulting in the population going up from 5.2 million in 1950 to 43 million in 2016. Compared with other African countries, Uganda’s population growth rate is the fourth largest after Angola, Equatorial Guinea and Niger. This rate is bound to decline over the coming decades, reaching a level of 2.4 by 2040, 2.1 by 2050 and 1.2 by 2080. Nevertheless, despite these slowing growth rates, Uganda’s population will more than quadruple in size by 2080, reaching a total of 176 million. Thus, the population of Uganda has inbuilt momentum to continue growing for at least another century.

The population pyramids in Figure 4 show the change in Uganda’s population structure over time, with a significant change evident as of 2030. From 1970 to 2015, the age structure of the nation was roughly identical as a result of very slow fertility declines. In fact, the total fertility rate per woman declined only from 7.1 children in 1970 to 5.4 children in 2016 – still one of the ten highest rates on the African continent. According to the United Nations, Department of Economic and Social Affairs (2015), Uganda’s fertility rates are projected to decrease significantly over the coming three decades, reaching a level of 3.1 children per woman by 2050 and 2.34 by 2080. This rate of reduction is larger than that exhibited in 90 per cent of African countries.

Box 2. THE VARIOUS STAGES OF THE DEMOGRAPHIC DIVIDEND ALONG WITH EXAMPLES FROM THE AFRICA REGION

Pre-dividend countries
Countries in this category have a high rate of total fertility (above 4 children per woman) and have witnessed an increasing share of working-age individuals. They are classified as pre-dividend as their window of opportunity for accelerated economic growth has not yet opened due to rapid population growth resulting in a high child-dependency ratio. Countries under this category include, among others, Uganda, Chad, Angola, Mali, Somalia and Niger.

Early-dividend countries
Countries in this category have a total fertility rate of fewer than 4 children per woman and experience a relative increase in the working-age population. These countries experience a lower child dependency ratio and are thus classified as early-dividend countries. Countries under this category include, among others, Lesotho, Zimbabwe, Ethiopia, Namibia, Nigeria, Liberia, Kenya and Ghana.

Late-dividend countries
Countries witness a large yet declining share of working-age individuals and experienced a total fertility rate above replacement level approximately one generation ago. While these countries are still in a position to harvest the benefits of the demographic dividend, they will face challenges in the future. Countries at this stage of the demographic dividend include Mauritius, the Seychelles, South Africa, Botswana and Cabo Verde.

Post-dividend countries
Countries witness a rapidly increasing elderly population, a decreasing share of working-age population, while having experienced a total fertility rate below replacement level approximately one generation ago. No African countries have reached this stage to date.
Despite Uganda’s falling fertility rates, the number of births in the country will increase steadily to 16 million births in the coming six decades as a result of the increasing number of women of reproductive age. Furthermore, life expectancy at birth has risen significantly over the past decades. While Ugandans were expected to live a total of 40 years at birth in 1950, this has increased to 60 years in 2016 and is expected to increase even further to 76.5 by 2080. The improvements achieved have largely been a result of an improvement in the expected years of schooling as well as an overall improved Human Development Index. Uganda will simultaneously witness a decline in under-five mortality rates between 2016 and 2080 from 64 to 22 deaths per 1,000 live births. This will be the result of increased education of mothers, a rising GDP per capita, declining fertility levels, increased vaccination coverage, improved water and sanitation, and a wide variety of funded health programmes throughout Uganda. Consequently, the number of children (0–14 years), and youth (15–24 years) will rise from 27.5 million in 2015 to 46.5 million in 2080. As a share of the total population, however, an overall decline is expected from roughly 69 per cent in 2015 to 43 per cent in 2080 as a result of falling fertility – one of the largest reductions when compared with other African countries.

In 2015, the working-age population of Uganda was 19.9 million. This will increase to 47.9 million by 2040 and 113.8 million by 2080. As a share of the total population, the working-age population will increase from 48.4 per cent in 2015 to 55.6 per cent in 2040 and 60.9 per cent in 2080. With this increase, Uganda’s dependency ratio will change, declining from 101.6 in 2015 to 54.5 by 2080, after which it will start to increase again. It is extremely important that Uganda is in a position to absorb this large working-age population into the labour market. In 2015, the total youth labour force participation rate was 54.4 per cent (15 to 24 years), with a gender disparity in favour of Ugandan men (57.2 per cent for young males compared with 51.6 per cent for young females). While these rates are above the average exhibited for the world and Africa (45 per cent), they are below one-third of the rates exhibited in other African countries. For example, Tanzania attained a youth labour force participation rate of 70.2 per cent in 2015, Ethiopia 69.4 per cent and Rwanda 64.4 per cent. Thus, Uganda can still greatly benefit from increasing its youth labour force participation rate, especially that of young women.

In conclusion, with the implementation of appropriate policies, continued investment in specific sectors and increased labour force participation, especially of youth, this temporary age structure can boost economic growth in Uganda. While rapid population growth resulted in an increase in its child-dependency ratio from 79.8 in 1950 to 97.2 in 2015, improvements in life expectancy and a decline in under-five mortality along with a drop in fertility rates will see the country’s child-dependency ratio declining over the coming decades. Along with an increased proportion of the Ugandan population moving into their productive years and fertility going down to below four children per woman, this allows for the potential exploitation of the demographic dividend. Currently, Uganda is at Stage 1 of harnessing the demographic dividend – the pre-dividend stage (see Figure 2).

---

23 Appropriate policies are policies that lead to having a smaller school-age population and a larger working-age population in order to be able to reap the benefits of the demographic dividend. These policies include providing family planning, increasing the quality and provision of health care services (especially to children in the case of nutrition programmes, pre-and-postnatal services, vaccination programmes, reproductive health information campaigns, etc.), as well as increasing the quality and provision of education, including vocational and training programmes for adolescents and adults (especially girls). (Initiating the demographic dividend by achieving a fertility decline, 2013).
Chapter 4
Analysis of the Demographic Dividend in Uganda
Given its demographic profile, Uganda is well positioned to harness the demographic dividend. However, not many studies have yet shed light on how this can be done. This section provides a high-level insight into the modelling approach used to estimate the potential benefits of the demographic dividend in Uganda and its relevance to poverty, shedding light on the most optimal avenue through which the GoU can exploit its demographic opportunities.24

4.1 Methodology

As mentioned previously, the methodology in this report relies on the strength of the original USAID DemDiv model, i.e. the clear relationship it establishes between outcomes and impacts (typically one of the most contested steps in modelling), while modelling sectoral investment options that are of interest and relevance to the GoU. To achieve this, the model is comprised of three sub-models (Figure 5).

FIGURE 5. ILLUSTRATION SUMMARIZING THE MAIN INPUTS, OUTCOMES AND IMPACTS OF THE METHODOLOGY

Source: Authors’ own illustration.

24 A more detailed description of the methodology can be found in Appendix III. Appendices available online at: https://www.unicef.org/uganda/documents/harnessing-demographic-dividend-uganda-assessment-impact-multi-sectoral-approaches.
The first model projects total and per capita sectoral expenditure as a share of GDP of the five dividends (education, health, social development, agriculture and water and the environment) based on 2080 – the year in which Uganda’s dependency ratio reverses and the opportunity of reaping the demographic dividend starts to close – expenditure target growth rates. The 2080 expenditure targets can be defined as percentage increases in final sector expenditure relative to the baseline expenditure scenario (e.g. a 50% increase in education expenditure as a share of GDP by 2080 relative to the baseline year (2019)). The identification of the specific 2080 expenditure targets was based on several statistical iterations. While the maximum increase in sectoral expenditure as a share of GDP was capped at 50%, it was found that the optimal outcomes were achieved when the expenditure targets equated to the following: 50% increase in health and education spending as a share of GDP; 20% in social development; 30% in water and environment; and 40% in agriculture. These outcomes were also in line with literature presented on countries that have reaped the benefits of the demographic dividend as outlined in Appendix VI. For example, increasing health expenditure as a share of GDP by 50% would equal to 2.6% of GDP by 2080, a value in line with countries in East Asia that have successfully harnessed the demographic dividend. Obtaining expenditure targets below these levels by 2080 would lead to sub-optimal results, while achieving targets above the provided levels could potentially lead to even better outcomes. Based on these targets, individual year expenditure values were interpolated to reflect smooth growth to this spending level.

The second sub-model, a translog regression, models the impact that per capita sectoral expenditure as a share of GDP has on a set of key indicators consisting of the modern contraceptive prevalence rate (CPR), mean years of schooling by gender, school life expectancy by gender, and under-five and infant mortality rates using a translog regression. These key indicators were informed by the five dividends as well as the preconditions outlined in the sections above. The indicators are important to analyse as they are key drivers in lowering fertility and boosting Uganda’s health and social outcomes. Furthermore, these sectors have a strong impact on the wellbeing and development of children and adolescents – the country’s potential productive workforce. The design of the translog regressions was determined by three policy scenarios (see Box 3). Aside from the Base Scenario, the model implements two policy scenarios, both of which include an increase in their sectoral expenditure as a share of GDP by specified 2080 targets yet differ in terms of whether cross-sectoral synergies – the extent to which one sector’s spending influences the effectiveness of another sector’s spending – are exploited or not.

25 2080 was used as the target year as this seemed to be a realistic timeframe over which the GoU could adjust its spending. Furthermore, 2080 marks the year in which Uganda’s dependency ratio starts to increase again, highlighting the fact that the window of opportunity to reap benefits from the demographic dividend is closing.

26 The increase in expenditures were capped at 50% as this is already a significant increase from the base year given Uganda’s fiscal space constraints.

27 It is important to note that the modelled increase in national expenditure is completely absorbed at the subnational level.


29 The subsequent estimations of the translog functions can be found in Appendix IV available online at: https://www.unicef.org/uganda/documents/harnessing-demographic-dividend-uganda-assessment-impact-multi-sectoral-approaches.
The outcomes of the translog regressions were basic inputs into the third-sub model – the modified USAID DemDiv model, which offers an estimate of the impact of cross-sectoral synergies on Uganda’s development, enabling government ministries and agencies with cross-sectoral reach and mandate to advocate for comprehensive, integrated development planning in Uganda’s quest to achieve and maximize the demographic dividend. The basic inputs allowed for the direct calculation of endogenous outcomes such as life expectancy and total fertility rate, which were utilized to generate the projections of the total population of Uganda and consequently its GDP per capita, thereby quantifying the country’s demographic dividend (see Figure 5).

BOX 3. THE THREE SCENARIOS OF THE DEMDIV MODEL

The USAID DemDiv model provides the GoU with various scenarios that illustrate how investing in a multitude of sectors simultaneously can achieve synergies and thus better outcomes than investing solely in the status-quo or a single sector. Further details on increase in sectoral expenditure as a share of GDP can be found in Annex

BASE SCENARIO
Constant growth and no synergies
This scenario reflects a no change scenario. The GoU continues to invest in its sectors and implement policies as it has done so far. This implies that sectoral expenditure is projected to grow at the rate of GDP for the next 35 years, while no cross-sectoral synergies are achieved.

POLICY SCENARIO 1
Exponential growth and no synergies
Under this scenario, the analysis identified the optimal growth rates by which sectoral investments need to grow in order to maximize the demographic dividend. It was found that by 2080 the GoU would need to increase sectoral expenditure by the following: 50% increase in education spending; 50% in health; 20% in social development; 40% in agriculture, and 30% on water and the environment. This scenario does not take advantage of cross-sectoral synergies.

POLICY SCENARIO 2
Exponential growth and synergies
Under this scenario, the GoU not only increases its sectoral expenditure by the amounts described in Scenario 1, it also diversifies its sectoral investment portfolio in order to create cross-sectoral synergies.

4.2 Policy relevance

Ultimately, a country’s ability to exploit the demographic dividend depends highly on the government’s increased ability to design, implement and deliver interventions and programmes in a multisectoral manner. With the right policies in place, the resulting demographic transition can offer an opportunity for further economic development in Uganda. This would not only improve children’s health and education, but would also allow for an increased income and savings for households. Furthermore, Uganda could achieve a reduction in poverty and inequality, and could also raise the standard of living and the GDP per capita.

31 To produce these estimates out to 2065 the simulation model calculates spending scenarios based on historic economic performance. While this allows for credible results, this approach acknowledges that it excludes other projections such as improved domestic revenues from oil among other economic variables. If these projections are realized this will likely improve GDP per capita in the future.
32 The results (outcomes and impacts) of the modified DemDiv model could only be illustrated up to the year 2065 as the underlying programme for estimation under the third sub-model could only project 50 years into the future. As such, the specific expenditure growth rates per sector for the year 2065 equated to 39% in health, 38% in education, 21% in social development, 25% in WASH, and 34% in agriculture when compared with 2019 expenditure levels of the relevant sectors.
33 Appropriate policies are policies that lead to having a smaller school-age population and a larger working-age population in order to be able to reap the benefits of the demographic dividend. These policies include providing family planning, increasing the quality and provision of health care services (especially to children in the case of nutrition programmes, pre-and-post natal services, vaccination programmes, reproductive health information campaigns, etc), as well as increasing the quality and provision of education, including vocational and training programmes for adolescents and adults (especially girls). (Initiating the demographic dividend by achieving a fertility decline, 2013).
In fact, the adoption of conducive socioeconomic policies could aid the breakdown of existing information and policy silos as well as foster the fulfilment of Uganda’s aspirations for socioeconomic transformation and transition as stipulated in its Vision 2040. These aspirations include:

- Accelerating fertility decline by enhancing investments in family planning
- Investing in female education
- Reforming the educational system to build a skilled and innovative labour force
- Enhancing investments in health care to create a healthy population and labour force
- Strengthening governance, accountability and efficiency in the use of public resources to instil investor confidence and ensure good value for money in all government investments.
- Adopting a multisectoral approach in line with the GoU’s ongoing programme-based budgeting (PBB) reform. In FY2017/18 PBB was introduced to ensure the budget prioritizes achieving national policy objectives instead of simply quantifying outputs. The objective of moving away from output-based budgeting to PBB was to strengthen the link between objectives, allocations, outputs and outcomes.
- In Uganda, under PBB, a programme is a collection of related activities, working towards a common purpose. Given that achieving policy objectives often requires working across a number of sectors, shifting to PBB adopts a more thematic approach to planning and budgeting based on cross-sectoral interventions. The shift away from the previous budgeting framework, output-based budgeting, to PBB is also reflected in the third National Development Plan (NDP III). In the NDP III, which covers the period 2020–2025, there are five objectives supported by 18 programmes. On this basis, the GoU intends sectors to work together to achieve an outcome within a programme. If the transition is successful, PBB provides a framework for sectors to harness multisectoral synergies.

Slow progress in achieving the desired multisectoral investments could result in Uganda potentially delaying or even missing its window of opportunity for a demographic dividend. The findings of the modified model offer critical insights to help advance the debate on PBB and related multisectoral planning to achieve the demographic dividend as it provides impact pathways on how changes in sectoral expenditure as a share of GDP can result in changes to population and economic growth as well as the identification of sectoral costs associated with achieving the demographic dividend. This is important as current empirical evidence on policy options is lacking. In fact, the direct analysis of localized policy action and outcomes should provide more intuitive and unique relationships between the relevant key indicators and per capita sectoral spending in Uganda. Furthermore, the adoption and/or support for a whole-of-government approach with relation to the creation of policies, the division of sectoral funds and the sharing of information could be supported by the investigation of cross-sectoral synergies in the modified DemDiv model used in this study. In fact, evidence from various countries – in which most ministries have separate budgets, communication channels and monitoring systems – has emphasized the crucial role of strong institutional and coordination frameworks, especially with regards to achieving the SDGs. The achievement of such goals requires strong interagency coordination, deep interlinkages between targets and programmes across sectors, and political will to foster cross-sectoral synergies, as well as the better identification of policy approaches, more cost-effective interventions and progressively increasing investments which can be harnessed as part of the transition to PBB. Moreover, the evidence-based impacts and outcomes of the modified DemDiv model may contribute to the integration of a ‘whole-of-finance’ approach to Uganda’s development strategies, costed sector plans and public financial management, allowing for the effective and developmental delivery of comprehensive policies.
Chapter 5

Results
The following section discusses the inputs and demographic projections (basic inputs/intermediate outcomes) derived from modelling the key indicators using sectoral production functions and analyses their interpretation vis-à-vis Uganda’s demographic dividend. The estimations and projections are presented using three scenarios. Under the Base Scenario, the intermediate outcome indicators are derived using a simple unit-cost approach and spending on key sectors are kept constant as a percentage of GDP. Scenarios 1 and 2 use unit-cost and translog functions respectively and sectoral expenditures as a share of GDP are increased to maximize outcome achievements (see Box 3).

5.1 Inputs

Following independence and years of civil war, during the 1990s and 2000s Uganda became a donor-dependent country, with more than 50 per cent of the government budget consisting of foreign aid. Throughout this time, the GoU, along with its development partners, focused largely on pro-poor development programmes, including basic health care and primary education. In the most recent past, it has shifted its policy priorities from developing its human capital to expanding its productive sectors and increasing spending on infrastructure (Figure 6). This move was driven largely by Uganda’s Vision 2040 – to become an upper-middle income country by that year. However, the recent slowdown in economic growth and the country’s deteriorating social indicators suggest that the GoU may need to reconsider its balance between economic and social sector spending.


Source: Authors’ own calculations based on World Bank BOOST data for Uganda.

---

35 To produce these estimates out to 2065 the simulation model calculates spending scenarios based on historic economic performance. While this allows for credible results, this approach acknowledges that it excludes other projections such as improved domestic revenues from oil among other economic variables. If these projections are realized this will likely improve GDP per capita in the future.

36 (Ulriksen & Katusiimeh, 2014)

37 (UNICEF, 2018b)
Of the five sectors chosen for the analysis, Uganda spends the largest proportion of its GDP on education (1.73% per cent in 2019). This is followed by health care, agriculture and WASH. The lowest proportion of Uganda’s GDP is dedicated to social development at a mere 0.07% per cent of GDP (Table 3). Depending on whether the sectors grow at a rate equivalent to that of GDP (linear scenario) or at the targeted growth rates described in Section 4 (growth scenario) will have an impact on the outcomes as well as the demographic dividend achieved by Uganda.

If Uganda continues with its status-quo policies, sectoral expenditure as a percentage of GDP will minimally change in four of the five sectors identified in the analysis. If, however, the GoU decides to increase its sectoral expenditure to the 2080 targets specified in Section 4, substantial progress could be made, especially if cross-sectoral synergies are reaped.

**TABLE 3. SECTORAL NATIONAL EXPENDITURE, 2019, 2040 & 2065**

<table>
<thead>
<tr>
<th>Sector</th>
<th>2019 (UGX millions)</th>
<th>2040 (UGX millions)</th>
<th>2065 (UGX millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health</td>
<td>944,233</td>
<td>3,654,850</td>
<td>16,361,347</td>
</tr>
<tr>
<td>% of GDP</td>
<td>0.83%</td>
<td>0.83%</td>
<td>0.84%</td>
</tr>
<tr>
<td>Education</td>
<td>1,958,351</td>
<td>7,470,226</td>
<td>33,441,498</td>
</tr>
<tr>
<td>% of GDP</td>
<td>1.73%</td>
<td>1.76%</td>
<td>1.72%</td>
</tr>
<tr>
<td>Social devt</td>
<td>77,981</td>
<td>318,655</td>
<td>1,426,631</td>
</tr>
<tr>
<td>% of GDP</td>
<td>0.67%</td>
<td>0.07%</td>
<td>0.07%</td>
</tr>
<tr>
<td>WASH</td>
<td>318,451</td>
<td>1,250,898</td>
<td>5,599,900</td>
</tr>
<tr>
<td>% of GDP</td>
<td>0.28%</td>
<td>0.28%</td>
<td>0.29%</td>
</tr>
<tr>
<td>Agriculture</td>
<td>507,622</td>
<td>2,002,554</td>
<td>8,964,546</td>
</tr>
<tr>
<td>% of GDP</td>
<td>0.45%</td>
<td>0.45%</td>
<td>0.46%</td>
</tr>
<tr>
<td>Other</td>
<td>12,722,706</td>
<td>52,331,666</td>
<td>234,287,217</td>
</tr>
<tr>
<td>% of GDP</td>
<td>11.24%</td>
<td>11.88%</td>
<td>12.02%</td>
</tr>
<tr>
<td>Total</td>
<td>16,529,344</td>
<td>67,028,849</td>
<td>300,081,139</td>
</tr>
<tr>
<td>% of GDP</td>
<td>14.60%</td>
<td>15.21%</td>
<td>15.40%</td>
</tr>
</tbody>
</table>

Source: Projections based on authors’ own calculations.

## 5.2 Intermediate outcomes

### 5.2.1 Female average years of schooling

The average for years of schooling is converted from levels of educational attainment using the official duration at each of the three levels (primary, secondary and tertiary) and measures the mean years of education by individuals aged 25 and older. While educational attainment has been increasing globally, Uganda has seen a very slow increase in the mean years of education. In 1991, an individual aged 25 years or more had attained approximately 3.5 years of schooling, and in 2012, roughly 5 years. This implies that the average Ugandan does not complete primary education, which requires seven years of education under Uganda’s schooling system.

According to the analysis, it was found that the average years of schooling outcome is significantly affected by spending in the health care, education, water and environment, and social development sectors. The modelling indicates that the exploitation of cross-sectoral synergies among the identified sectors leads to better achievements in years of schooling (Figure 7). Not taking advantage of these cross-sectoral synergies and not allowing for sectoral growth by the 2080 target growth rates would result in minimal change in the average years of education for women by 2065 (see Base Scenario). Comparing Policy Scenario 1 and 2, a significant difference emerges when considering the point in time at which the maximum mean years of schooling is achieved. While Policy Scenario 1 achieves this maximum in the year 2060, Policy Scenario 2 would maximize Uganda’s education achievements much faster. In fact, the average years of female education would gradually increase, reaching 14 years as early as 2041. This would result in the average Ugandan having attained at least secondary education levels.

---

38 The results (outcomes and impacts) of the modified DemDiv model could only be illustrated up to the year 2065 as the underlying programme under the third sub-model could only project 50 years into the future. As such, the specific expenditure growth rates per sector for the year 2065 equated to 39% in health, 38% in education, 21% in social development, 25% in WASH, and 34% in agriculture when compared with 2019 expenditure levels of the relevant sectors.

39 Model estimations for males demonstrate the same trends as the ones derived for females with synergy approaches out-performing unit-cost functions in educational achievement.

40 (UNESCO, 2019)
From an economic perspective, such an increase in education would greatly benefit Uganda’s economy. According to a recent study, educational investments in Uganda deliver a significant return in the wage employment, the agricultural and the household enterprise sectors of the economy as a result of higher wages as well as increased productivity and profits. In fact, it was found that, on average, an extra year of education would increase the wage return to education of males by 6.3% in urban areas and 5.9% in rural areas. For females, these numbers equated to 8.7% and 5.7%, respectively. Therefore, the earlier attainment of a maximum level of mean education will allow the economy of Uganda to reap the benefits of educational returns earlier. With a rise in the educated labour force, productivity as well as economic output will increase, thereby increasing economic growth. Due to an increase in average income as well as more consumption, the GoU will also be able to increase the amount of revenues collected from income and value-added taxation, among other things. The amount collected will be even greater if the GoU manages to increase the formalization of its labour market.

**FIGURE 7. THE MODELLING OF MEAN YEARS OF EDUCATION ACROSS THREE SCENARIOS FROM 2015 TO 2065**

Source: Projections based on authors’ own calculations.

Note: The trend anomaly seen for Scenarios 1 and 2 during the years 2019 to 2023 is a result of the methodology used to project sectoral expenditure as a percentage of GDP onto the pre-determined sectoral target growth. The importance of the methodology is to portray long-run projections and not necessarily short-term changes.

### 5.2.2 Female school life expectancy

School life expectancy is a measure of the average number of years of education that a child of school-entering age would receive during his/her lifetime if school enrolment rates remain constant over time. It is not a measure of actual or current educational attainment, but rather a measure indicating what can be achieved by the next cohort of students entering the educational system. To date, increases in the expected years of schooling have been achieved globally and in all respective regions, for both male and female students. Nevertheless, across most of Africa, South Asia and South-East Asia, students can be expected to be in school for 12 years or less. In 1990, school life expectancy in Uganda was approximately six years; in 2018 this had nearly doubled. Female students’ school life expectancy increased from five years in 1990 to more than ten years in 2004.

41 (Lekfuangfu, Machin, & Rasul, 2012)
42 (UNESCO, n.d.)
43 (UNESCO, 2019)
The analysis identified that government spending on health, education, water and environment, and agriculture has a significant on the average school life expectancy of Uganda. The modelling illustrates the benefits derived from increasing sectoral expenditure as a share of GDP by 2080 target growth rates. Both Policy Scenarios 1 and 2 attain higher levels of average female school life expectancy than the Base Scenario as of 2024 (Figure 8). By 2040, the latter will have attained an average female school life expectancy of 13.4 years, while the remaining two scenarios, which allow for the growth of sectoral spending, will have achieved the maximum of 17 years. In fact, of the two, Policy Scenario 1 maximizes the outcomes achievement the quickest as it reaches the needed years of education by 2034, while Policy Scenario 2 attains the level by 2036. This level will be maintained up until 2065 for both Policy Scenarios 1 and 2, while a decline in the expected years of schooling is witnessed for the Base Scenario – attaining a level of 10.8 expected years of schooling. Compared with 2015, this is a difference of 0.5 expected years of schooling.

**FIGURE 8. THE MODELLING OF EXPECTED YEARS OF SCHOOLING ACROSS THREE SCENARIOS FROM 2015 TO 2065**

![Graph showing expected years of schooling](image)

Source: Projections based on authors’ own calculations.

In conclusion, while policies focusing on the population aging are important for reaping the benefits of the demographic dividend, the latter could be expanded through policies that focus on improving educational attainment. Such an approach gives the GoU more options to overcome the potential negative impact of aging, while allowing for an increase in labour productivity effects. In developing countries such as Uganda, the implementation of policies that improve the quality and quantity of education in the first stage of the demographic transition seems to be the best way to take advantage of, or even extend, the demographic dividend.44

---

44 Renteria, Souto, Mejia-Guevara, & Patxot, 2016
5.2.3 Contraceptive Prevalence Rate

The contraceptive prevalence rate (CPR) is, among other things, an indicator of health, development and female empowerment. It measures the proportion of women of reproductive age who use modern and/or traditional methods of contraception and is of key importance when lowering total fertility of Uganda. The introduction of such methods enables families to plan their future and thereby reduces the number of children a household will have over the reproductive lifetime of a woman. The decline will help induce the demographic transition by lowering the total fertility rate of a woman and consequently reducing the share of children in the population. In 2015, it was estimated that globally approximately 64 per cent of married or in-union women of reproductive age were using some method of contraception. These rates were lower for developing countries (40 per cent), especially those in Africa (33 per cent). In Uganda, approximately 99% of the population has knowledge of at least one contraceptive method. In 2016, the CPR among married women of reproductive age amounted to 39 per cent; most of whom were using a modern method of contraception. This is an increase of approximately 70 per cent from 2001 levels.

The analysis identified that government spending on health, education and agriculture has a significant effect on the proportion of women of reproductive age who are using a method of contraception. The modelling illustrates that a better rate of contraceptive prevalence is achieved when GoU investment in sectoral expenditure as a percentage of GDP increases rather than remaining at baseline levels (Figure 9). Such investments would result in the achievement of a contraceptive prevalence rate of over 68 per cent for both Policy Scenarios 1 and 2 by 2040, compared with a rate of 43.1 per cent under the constant-growth Base Scenario. Furthermore, it can be concluded that the model taking advantage of cross-sectoral synergies results in better outcomes than the models that do not. Consequently, under Policy Scenario 2 – the cross-sectoral synergy model with increased sectoral spending as a percentage of GDP – the GoU will be well on its way to maximizing the contraceptive prevalence rate by 2041. While there is not a specific target on contraceptive use in the SDGs, the improvement in the rate of contraceptive prevalence does contribute to achieving Goal 3 – to ensure healthy lives and promote wellbeing for all at all ages – and Goal 5 – to achieve gender equality and empower all women and girls.

FIGURE 9. THE MODELLING OF THE CONTRACEPTIVE PREVALENCE RATE ACROSS THREE SCENARIOS FROM 2015 TO 2065

Source: Projections based on authors’ own calculations.

[45] UNDESA, 2017
[47] The analysis bound the CPR indicator to 80% as this was the maximum level exhibited among upper-middle income countries.
[48] The maximum is set at 80 per cent as this is the average rate achieved by middle-income countries.
5.2.4 Under-five mortality

Over the past two decades, global progress has been made in reducing the probability of a child dying before the age of five, with an annual rate of reduction of 4 per cent from 2000 to 2017. This annual rate was more than double that exhibited from 1990 to 2000 (1.9 per cent). Yet, despite this progress, 5.4 million children under the age of five died in 2017, more than half of them in sub-Saharan Africa.49 According to the 2016 UDHS, 1 in 16 Ugandan children do not survive to their fifth birthday. However, the under-five mortality was reduced by approximately 60% between 2001 and 2016. Disaggregating by gender, the under-five mortality rate is higher among male than among female children (72 and 56 deaths per 1,000 live births, respectively).50 To achieve the demographic dividend, this progress needs to be continued. In addition to reducing the number of total births in the country, the GoU must ensure a long-term decline in mortality in order to change the country’s age structure. This change, along with the reduction in fertility, will result in a lower dependency ratio – meaning Uganda will have fewer individuals to support and thus has a window of opportunity for economic growth.

According to the analysis, it was found that the under-five mortality rate is significantly affected by spending on the health, education and agriculture sectors. The modelling exercise illustrates that the synergies derived from investing in multiple sectors simultaneously lead to a greater reduction in the under-five mortality of Ugandan children than the scenarios that do not (Figure 10). Under the Base Scenario, Uganda’s under-five mortality rate would decline slightly, reaching a turning point in 2037, after which the deaths of children under the age of five per 1,000 live births increases again. Compared with 2015 rates, the conditions under the Base Scenario result in a higher under-five mortality rate in the long term, reaching a rate of 81 under-five deaths per 1,000 live births. A declining trend is seen under Policy Scenario 1, which attains a rate of 47 deaths per 1,000 live births by 2040 and 56 deaths by 2065. The largest declines in the intermediate outcome are seen for the scenario that increases its sectoral spending and invests in multiple sectors simultaneously, thereby taking advantage of the sectoral synergies created – i.e. Policy Scenario 2. Such investments would result in a decline in under-five mortality from a rate of approximately 51 deaths per 1,000 live births in 2019 to roughly 36 deaths per 1,000 live births in 2040 and 18 in 2065. This equates to an overall reduction of 65 per cent. In contrast to the Base Scenario and Policy Scenario 1, which exhibit a turning point after which under-five mortality rates increase again, Policy Scenario 2 is the only scenario that experiences a consistent decline in under-five mortality rates. This policy scenario is therefore also the only one that will attain SDG target 3.2 by 2055: to end preventable deaths of children under five years of age to at least as low as 25 per 1,000 live births.

**FIGURE 10. THE MODELLING OF UNDER-FIVE MORTALITY ACROSS THREE SCENARIOS FROM 2015 TO 2065**

Source: Projections based on authors’ own calculations.

Note: The trend anomaly seen for Scenario 2 during the years 2019 to 2023 is a result of the methodology used to project sectoral expenditure to the pre-determined sectoral target growth rate. The importance of the methodology is to portray long-run projections and not necessarily short-term changes.

49 (UNICEF, 2018a)
50 (UBoS, 2016)
Given the projected rates of under-five mortality and based on the projected births in the United Nations World Population Prospects 2019, the benefits of undertaking Policy Scenario 2 can be supported further. While both Policy Scenarios 1 and 2 allow for sectoral expenditure as a share of GDP to grow at 2080 target growth rates, a significant difference in the number of under-five deaths prevented can be attributed to the additional investment in cross-sectoral synergies. Policy Scenario 1 would prevent approximately 844,000 under-five deaths over the next 45 years while Policy Scenario 2 would prevent roughly 2.3 million, when compared to the Base Scenario (Table 4).

### TABLE 4. UNDER-FIVE DEATHS PREVENTED UNDER POLICY SCENARIOS 1 AND 2 COMPARED WITH THE BASE SCENARIO

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Births (thousands)</td>
<td>8,611</td>
<td>8,990</td>
<td>9,300</td>
<td>9,501</td>
<td>9,671</td>
<td>9,770</td>
<td>9,807</td>
<td>9,794</td>
<td>9,705</td>
<td>85,149</td>
</tr>
<tr>
<td>Under-5 deaths per 1,000 live births</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Base Scenario</td>
<td>55.6</td>
<td>54.4</td>
<td>53.9</td>
<td>54.1</td>
<td>55.2</td>
<td>57.4</td>
<td>61.1</td>
<td>66.5</td>
<td>75.5</td>
<td>19.9</td>
</tr>
<tr>
<td>(2) Scenario 1</td>
<td>54.4</td>
<td>51.8</td>
<td>48.4</td>
<td>47.6</td>
<td>46.5</td>
<td>46.3</td>
<td>47.2</td>
<td>49.3</td>
<td>53.6</td>
<td>-0.8</td>
</tr>
<tr>
<td>(3) Scenario 2</td>
<td>40.2</td>
<td>42.1</td>
<td>40.4</td>
<td>37.6</td>
<td>34.2</td>
<td>30.6</td>
<td>26.8</td>
<td>23.1</td>
<td>19.3</td>
<td>-21.0</td>
</tr>
<tr>
<td>Total under-5 deaths</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Base Scenario</td>
<td>478,783</td>
<td>488,647</td>
<td>500,835</td>
<td>513,927</td>
<td>534,059</td>
<td>561,252</td>
<td>598,781</td>
<td>651,330</td>
<td>732,462</td>
<td>5,060,075</td>
</tr>
<tr>
<td>(2) Scenario 1</td>
<td>468,867</td>
<td>465,781</td>
<td>459,860</td>
<td>452,478</td>
<td>450,037</td>
<td>452,632</td>
<td>462,621</td>
<td>482,967</td>
<td>520,519</td>
<td>4,215,762</td>
</tr>
<tr>
<td>Deaths prevented</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) - (2)</td>
<td>9,915</td>
<td>22,866</td>
<td>40,975</td>
<td>61,449</td>
<td>84,022</td>
<td>108,619</td>
<td>136,160</td>
<td>168,363</td>
<td>211,943</td>
<td>844,312</td>
</tr>
<tr>
<td>(1) - (3)</td>
<td>132,322</td>
<td>109,882</td>
<td>125,228</td>
<td>156,714</td>
<td>203,081</td>
<td>262,615</td>
<td>335,849</td>
<td>424,892</td>
<td>545,476</td>
<td>2,296,160</td>
</tr>
</tbody>
</table>

Source: Authors’ own calculations along with the United Nations World Population Prospects 2019.

### 5.2.5 Infant mortality

Reducing infant mortality (between birth and one year of age) is also critical for Uganda to benefit from the demographic dividend. Globally, the rate has declined from 65 deaths per 1,000 live births in 1990 to 29 deaths per 1,000 live births in 2017. Regionally, the highest infant mortality rates are witnessed in Africa and South Asia, although both have managed to reduce their rates by over 50% from 1990 to 2017.51 In Uganda, infant mortality declined from 88 to 43 deaths per 1,000 live births between 2000 and 2017. Nevertheless, this still implies that 1 in 23 Ugandan infants dies before reaching his or her first birthday.52

The analysis identified that government spending on health and agriculture has a significant effect on infant mortality. As with under-five mortality, maximum achievement in the reduction of infant mortality is attained by increasing the growth of sectoral expenditure as well as reaping the benefits of cross-sectoral synergies (Policy Scenario 2) (Figure 11). Under this scenario, the infant mortality rate would decline from approximately 33 deaths per 1,000 live births in 2019 to roughly 7 deaths per 1,000 live births in 2040 and 1 death in 2065. This scenario would allow Uganda to come substantially closer to achieving SDG Target 3.2 – to end preventable newborn deaths by 2030 and reduce neonatal mortality to at least as low as 12 per 1,000 live births. In fact, this SDG target would be achieved by 2035 under Policy Scenario 2, while Policy Scenario 1 would achieve it approximately a quarter of a century later.

---

51 (UNICEF, 2018a)
52 (UBoS, 2018)
FIGURE 11. THE MODELLING OF INFANT MORTALITY ACROSS THREE SCENARIOS FROM 2015 TO 2065

Source: Projections based on authors’ own calculations.
Note: The trend anomaly seen for Scenario 2 during the years 2017 to 2021 is a result of the methodology used to project sectoral expenditure as a share of GDP to the pre-determined sectoral target growth rate. The importance of the methodology is to portray long-run projections and not necessarily short-term changes.

Once again, when compared with the Base Scenario, Policy Scenario 2 prevents more than double the infant deaths than Policy Scenario 1 – all other things remaining constant – with the difference amounting to approximately 1.1 million infants (Table 5).

TABLE 5. INFANT DEATHS PREVENTED UNDER POLICY SCENARIOS 1 AND 2 COMPARED WITH THE BASE SCENARIO

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Births (thousands)</td>
<td>8,611</td>
<td>8,990</td>
<td>9,300</td>
<td>9,501</td>
<td>9,671</td>
<td>9,770</td>
<td>9,807</td>
<td>9,794</td>
<td>9,705</td>
<td>85,149</td>
</tr>
<tr>
<td>Infant deaths per 1,000 live births</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) Base Scenario</td>
<td>36.8</td>
<td>34.7</td>
<td>32.7</td>
<td>30.7</td>
<td>28.8</td>
<td>27.0</td>
<td>25.3</td>
<td>23.6</td>
<td>21.9</td>
<td>-14.9</td>
</tr>
<tr>
<td>(2) Scenario 1</td>
<td>35.3</td>
<td>31.5</td>
<td>27.6</td>
<td>23.9</td>
<td>20.6</td>
<td>17.6</td>
<td>14.9</td>
<td>12.7</td>
<td>10.5</td>
<td>-24.8</td>
</tr>
<tr>
<td>(3) Scenario 2</td>
<td>24.1</td>
<td>17.6</td>
<td>12.5</td>
<td>8.7</td>
<td>6.0</td>
<td>4.2</td>
<td>2.9</td>
<td>1.9</td>
<td>1.3</td>
<td>-22.9</td>
</tr>
<tr>
<td>Total infant deaths</td>
<td>316,534</td>
<td>311,817</td>
<td>303,912</td>
<td>291,940</td>
<td>278,817</td>
<td>263,872</td>
<td>247,719</td>
<td>231,148</td>
<td>212,352</td>
<td>2,458,111</td>
</tr>
<tr>
<td>(1) Base Scenario</td>
<td>316,534</td>
<td>311,817</td>
<td>303,912</td>
<td>291,940</td>
<td>278,817</td>
<td>263,872</td>
<td>247,719</td>
<td>231,148</td>
<td>212,352</td>
<td>2,458,111</td>
</tr>
<tr>
<td>(2) Scenario 1</td>
<td>304,025</td>
<td>283,275</td>
<td>256,854</td>
<td>227,422</td>
<td>198,959</td>
<td>171,738</td>
<td>146,550</td>
<td>123,964</td>
<td>101,994</td>
<td>1,814,780</td>
</tr>
<tr>
<td>(3) Scenario 2</td>
<td>207,872</td>
<td>158,303</td>
<td>116,055</td>
<td>92,851</td>
<td>58,404</td>
<td>40,634</td>
<td>27,952</td>
<td>19,063</td>
<td>12,403</td>
<td>723,537</td>
</tr>
<tr>
<td>Deaths prevented</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) - (2)</td>
<td>12,509</td>
<td>28,542</td>
<td>47,058</td>
<td>64,519</td>
<td>79,858</td>
<td>92,134</td>
<td>101,169</td>
<td>107,185</td>
<td>110,358</td>
<td>643,331</td>
</tr>
<tr>
<td>(1) - (3)</td>
<td>108,862</td>
<td>153,514</td>
<td>187,857</td>
<td>209,089</td>
<td>220,412</td>
<td>223,238</td>
<td>219,767</td>
<td>212,085</td>
<td>199,949</td>
<td>1,734,575</td>
</tr>
</tbody>
</table>

Source: Authors’ own calculations along with the United Nations World Population Prospects 2019.
5.3 Outcomes

The following section provides an overview of the outcomes of the modelling process. Based on the inputs and intermediate outcomes described in the previous sub-section, female life expectancy and the total fertility rate were calculated through the use of the DemProj model in Spectrum. The final outcomes were subsequently displayed in the modified USAID DemDiv model. Based on these outcomes, the impacts – provided in the next subsection – were produced.

5.3.1 Female life expectancy at birth

Life expectancy at birth is a measure of how long a person would live, on average, if current age-specific mortality rates remained constant throughout the person’s life. The life expectancy of a population provides key insights on its health and is affected by various factors, including: income, education, employment, quality and accessibility of health care, social health behaviours, genetic factors and environmental factors. In 1950, the life expectancy at birth of a Ugandan girl was 41.6 years, increasing to 47.7 years by 1990 and 62 years in 2019. This improvement is largely a result of increased investments in the provision and quality of basic health care. Nonetheless, Uganda still faces a variety of challenges that are affecting its health system, including: a lack of human resources; a lack of quality assurance with regards to its health care services; a lack of reliability in ensuring good-quality, timely and complete information; and a lack of medical supplies as a result of stock-out.

Without increased sectoral expenditure or cross-sectoral synergies, Uganda will see an increase in female life expectancy at birth over the next decade, after which it will start to decline, reaching a level of 63.1 years in 2040 and 64.4 in 2065 (see Base Scenario) (Figure 12). Regarding Policy Scenarios 1 and 2, a diverging trend in female life expectancy can be seen as of 2021. If the GoU decides to increase sectoral expenditure as a share of GDP to reach 2080 target rates, while simultaneously investing in cross-sectoral synergies, female life expectancy at birth will only start to increase steadily in 2023 (Policy Scenario 2). The overall years achieved under this scenario are below those witnessed under the Base Scenario up until 2039, at which point Policy Scenario 2 starts to exceed the Base Scenario level. Furthermore, by 2054, Policy Scenario 2 will have exceeded the levels of Policy Scenario 1. While the former continues to increase at a constant rate, reaching 66 years in 2065, the latter reaches a turning point in 2046 after which it starts to decline, reaching a level of 62.3 years in 2065. Therefore, the approach that would attain the best long-term outcome for the GoU is presented in Policy Scenario 2 – an increase in sectoral expenditures as a percentage of GDP along with investments in cross-sectoral synergies. Under this approach, Uganda’s female life expectancy will reach 63.2 years in 2040 and 66 years in 2065, getting the country closer to its vision of becoming an upper-middle income country.

53 Programme used for demographic modelling.
54 (DoH, 2012)
55 (WHO, 2018)
5.3.2 Total fertility rate

Uganda’s total fertility rate measures the number of children born to a woman in her lifetime if she is subject to the constant age-specific fertility of Uganda. The rate is affected by a variety of socioeconomic, demographic and cultural factors, including the prevalence of the use of modern and traditional contraceptive methods, the rate of postpartum insusceptibility, the rate of sterility of women, and the percentage of women who are married or in a union. At a rate of 2.1, a country would ensure the replacement of each generation. If the rate falls below the replacement level, then the country needs to balance its population through increased immigration as it will no longer be able to sustain itself in the long term. Until the present time, Uganda has been experiencing persistently high rates of fertility attributed mainly to low levels of contraceptive use among women of reproductive age.\(^{56}\)

In 1950, Uganda had a total fertility rate of 6.9, increasing to 7.1 children per woman in 1970 and declining to 5.4 children per woman in 2016. The recent declines are largely attributed to the changing characteristics of women of reproductive age, with the increased educational attainment of women being a major contributor, especially as it delays the age at first marriage. Changes in the reproductive behaviour of women, however, did not have a significant effect on fertility reduction.\(^{57}\)

Given the data, the approach utilized in this report illustrates a decline in total fertility rates for all three scenarios over the coming two decades (Figure 13). For the Base Scenario, the total fertility rate declines at a slower pace than under Policy Scenarios 1 and 2, achieving a level of 4.4 children per woman in 2040 and 2.1 children in 2065. The slow progression of the Base Scenario compared with the other two scenarios emphasizes the importance of the GoU increasing sectoral expenditures. According to literature, these investments should support education, family planning and wealth creation programmes. As well as an expansion in the number of family planning service points, this would also focus on extending coverage of fertility controlling programmes through increased support for family planning activities and the greater accessibility/availability of high-quality family planning methods.\(^{58}\)

If the expenditure targets are enforced, Uganda’s fertility rate will decline to replacement level over the coming two decades. While this is achieved in 2040 under Policy Scenario 1, an earlier realization of this rate is possible when allowing for cross-sectoral synergies (Policy Scenario 2). Under this scenario, the GoU will be able to achieve a fertility rate equal to two children per woman by 2038. Through the

\(^{56}\) (Ariho, Kabagenyi, & Nzabona, 2018)

\(^{57}\) (Ariho, Kabagenyi, & Nzabona, 2018)

\(^{58}\) (Ariho, Kabagenyi, & Nzabona, 2018)
reduction in the total fertility rate, the total population of Uganda will continue to grow, but at a declining rate (see the next sub-section).

FIGURE 13. THE MODELLING OF THE TOTAL FERTILITY RATE ACROSS THREE SCENARIOS FROM 2015 TO 2065

![Graph showing the modelling of the total fertility rate across three scenarios from 2015 to 2065.](image)

Source: Projections based on authors’ own calculations.

5.4 Impacts

5.4.1 Total Population and GDP per capita

The demographic outcomes and intermediate outcomes described previously fed into the DemProj model in Spectrum and projected three different scenarios of the total population of Uganda until 2065 (for more detail, see Appendix I available online at: [https://www.unicef.org/uganda/documents/harnessing-demographic-dividend-uganda-assessment-impact-multi-sectoral-approaches](https://www.unicef.org/uganda/documents/harnessing-demographic-dividend-uganda-assessment-impact-multi-sectoral-approaches)). Given the estimations of mean years of schooling, expected years of schooling, CPR, and infant and under-five mortality rates at each year during the projection, the model estimated the annual total population. If Uganda continues with its current policy and investment decisions, its population will more than double within the next two decades (Figure 14). This would result in a total population 1.2 times larger than the respective scenarios that allow for a targeted increase in sectoral spending in 2040 and 1.6 times larger than in 2065. The lower total population for Policy Scenarios 1 and 2 reflects the maximum reductions achieved in the demographic outcomes discussed previously in this section, specifically in terms of reduction in fertility and an increase in education.

While a slower population growth rate increases Uganda’s GDP per capita, achieving and benefiting from the demographic dividend does not depend on the country’s total population but on its age structure. The objective is to implement policies that decline fertility and death rates in order to achieve an increase in the population of working age, while simultaneously decreasing the dependent population (those individuals aged 0–14 years and 65 and over). This process is known as the demographic transition.

Thus, as indicated by the results of our analysis, the GoU can undergo this demographic transition by investing in increased sectoral spending and taking advantage of cross-sectoral synergies, which result in large improvements in the intermediate outcomes described above. Programme-based budgeting provides a framework for increased multisectoral synergies as it focuses on achieving an outcome that requires cross-sectoral interventions. By creating policies that reduce fertility and increase education, the GoU could slow population growth directly through the former, while increasing the empowerment of women through the latter. This combination of policy measures are likely to result in the increased
use of family planning techniques and an increase in women’s employment – all of which have a positive impact on the GDP and GDP per capita of Uganda (Figure 15). However, as evidenced in earlier sub-sections, these are not the sole policies that need to be implemented in order to see change. In addition, the GoU needs to ensure adequate labour market policies, improve education and vocational training, facilitate job access and increase sectoral formalization. With more individuals in the labour force and less children to support, Uganda has a window of opportunity for rapid economic growth.

**FIGURE 14. THE MODELLING OF TOTAL POPULATION ACROSS THREE SCENARIOS FROM 2015 TO 2065**

![Graph showing total population across three scenarios from 2015 to 2065]

Source: Projections based on authors’ own calculations.

**FIGURE 15. THE MODELLING OF GDP PER CAPITA ACROSS THREE SCENARIOS FROM 2015 TO 2065**

![Graph showing GDP per capita across three scenarios from 2015 to 2065]

Source: Projections based on authors’ own calculations.

### 5.4.2 Demographic Dividend

Since the GoU will achieve a reduction in fertility, while also investing in education and health, a window of opportunity to take advantage of the demographic dividend opens. As seen in the Figure 16 below, Uganda will enter its window of opportunity around 2030 under the assumption of declining fertility over the next decades. The dividend then rises quickly, reaching a peak in 2048. Throughout this window, the GoU will need to take the necessary actions in a number of sectors in order to realize its demographic dividend. The projection of the various intermediate indicators above has shown the importance of not
only investing in multiple sectors simultaneously, but also increasing sectoral government expenditures. Thus, as the analysis suggests, the GoU is encouraged to gradually increase its sectoral expenditure as a share of GDP by 2040, achieving its expenditure targets by 2080. As mentioned in Section 4, the optimal impact was found to comprise a 50% increase in health and education expenditure as a share of GDP, 20% in social development spending, 30% in water and environment spending, and 40% in agriculture spending.

**FIGURE 16. MAJOR AGE-COHORTS AS A PERCENTAGE OF THE TOTAL POPULATION**

As illustrated in *Figure 16*, the changes in the child (0–14) and working-age population (15–64) are complementary to one another, while the share of elderly people (65+) as a proportion of the total population is rising. As time passes, an increasing number of working-age individuals will retire. This coupled with low fertility rates will lead to an increase in the old-age dependency ratio in the far future.

Compared with its Base Scenario, Uganda could achieve a demographic dividend ranging between US$2,417 (Scenario 1) and US$ 2,567 (Scenario 2) per capita by 2040. On the other hand, if Uganda continued along its status-quo, it would achieve GDP per capita equal to US$1,694 in 2040 and US$4,358 in 2065. Considering a situation in which the GoU implements sectoral growth targets, GDP per capita would equate to US$1,953.9 in 2040 and US$6,775 in 2065 under the own-sector approach, yet increase respectively to US$2,011.6 and US$6,925 per capita when taking advantage of cross-sectoral synergies (*Table 6*). Comparing Uganda with other countries in the region it would gain lower-middle income status by 2040, with levels of GDP per capita similar to those of Kenya in 2019, and upper-middle income status by 2065, with levels slightly above those of South Africa in 2019. Both of these outcomes are far below the level envisaged by Uganda’s Vision 2040, in which it aspires to raise GDP per capita to US$9,500 over the same time period.

While these gains in GDP per capita are large – especially under Policy Scenarios 1 and 2 – the gains made in reducing infant and under-five mortality and increases in education are crucial to achieving them. Even though the gains in GDP per capita between Scenarios 1 and 2 are minimal, the latter allows for the prevention of more than 844,000 under-five deaths and over 1.1 million infant deaths when compared with Policy Scenario 1. Furthermore, investing in cross-sectoral synergies while simultaneously increasing sectoral expenditure as a share of GDP allows for a better-educated workforce much earlier if Uganda implements relevant labour market and educational policies.

---

59 These are achieved by subtracting the 2040 GDP per capita of the Base Scenario from the various policy scenarios.
### TABLE 6. MAIN RESULTS OF ANALYSIS, 2019, 2040 & 2065

<table>
<thead>
<tr>
<th>Inputs at district level</th>
<th>Baseline Scenario</th>
<th>Scenario 1</th>
<th>Scenario 2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2019</td>
<td>2040</td>
<td>2065</td>
</tr>
<tr>
<td>Per capita health expenditure (UGX)</td>
<td>9,349</td>
<td>20,179</td>
<td>53,506</td>
</tr>
<tr>
<td>Per capita education expenditure (UGX)</td>
<td>37,939</td>
<td>82,159</td>
<td>217,846</td>
</tr>
<tr>
<td>Per capita WASH expenditure (UGX)</td>
<td>1,970</td>
<td>4,264</td>
<td>11,307</td>
</tr>
<tr>
<td>Per capita agriculture expenditure (UGX)</td>
<td>1,591</td>
<td>3,639</td>
<td>9,648</td>
</tr>
<tr>
<td>Per capita social development expenditure (UGX)</td>
<td>214</td>
<td>463</td>
<td>1,227</td>
</tr>
<tr>
<td>Intermediate outcomes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female average years of schooling (Years)</td>
<td>3.8</td>
<td>4.0</td>
<td>5.1</td>
</tr>
<tr>
<td>Female expected years of schooling (Years)</td>
<td>10.8</td>
<td>13.4</td>
<td>10.8</td>
</tr>
<tr>
<td>Under-five mortality rate (Deaths per 1,000 live births)</td>
<td>58.0</td>
<td>55.0</td>
<td>81.0</td>
</tr>
<tr>
<td>Infant mortality rate (Deaths per 1,000 live births)</td>
<td>39.0</td>
<td>20.0</td>
<td>21.0</td>
</tr>
<tr>
<td>Modern contraceptive prevalence rate (%)</td>
<td>27.5</td>
<td>43.1</td>
<td>72.2</td>
</tr>
<tr>
<td>Outcomes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female life expectancy (Years)</td>
<td>62.0</td>
<td>63.1</td>
<td>56.4</td>
</tr>
<tr>
<td>Total fertility rate (Children per woman)</td>
<td>6.1</td>
<td>4.4</td>
<td>2.1</td>
</tr>
<tr>
<td>Impacts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total population (Millions)</td>
<td>44.5</td>
<td>86.7</td>
<td>149.0</td>
</tr>
<tr>
<td>GDP per capita (USD)</td>
<td>848.0</td>
<td>1,694.0</td>
<td>4,358.0</td>
</tr>
<tr>
<td>Comparisons</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upper-middle income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Africa’s GDP per capita (USD)</td>
<td>6,330</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kenya’s GDP per capita (USD)</td>
<td>2,010</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tanzania’s GDP per capita (USD)</td>
<td>1,170</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Ethiopia’s GDP per capita (USD)</td>
<td>951</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: Calculations based on authors’ own projections.

It should be noted, however, that the demographic dividend does not provide permanent benefits. There is a limited window of opportunity to advance economic growth. Thus, as favourable policies take time to design, implement and take effect, the GoU is encouraged to create policies and commence sectoral investments as soon as possible. A failure to act immediately could have negative consequences for the future prospects of Uganda.
Chapter 6
Conclusions
6.1. Policy recommendations

In order to reap the demographic dividend, the Government of Uganda must simultaneously invest in and improve existing policies in agriculture, health, education and social development as evidenced by the fact that the outcomes and impacts under Policy Scenario 2 were better than those exhibited under the Base Scenario and Policy Scenario 1. By increasing sectoral expenditure and allowing for cross-sectoral synergies, Uganda can maximize the level of education attained by each child, reduce infant and under-five mortality rates to SDG levels, and improve female life expectancy and contraceptive prevalence rates, thereby slowing population growth and increasing GDP per capita. Most importantly, as illustrated by the analysis above, compared with Policy Scenario 1 and the Base Scenario, Policy Scenario 2 will prevent the death of approximately 844,000/2.3 million children under the age of five and more than 1.1/1.7 million infants, respectively.

Secondly, Uganda needs to rethink its balance between expenditures on social and economic policy. Uganda’s public expenditure has not been sufficiently redistributive, nor has it encouraged inclusive growth. Instead, the country has prioritized spending on infrastructure and energy, while cutting funding to key sectors of high relevance to the poor (health, education, WASH, agriculture and social development – the five dividends). As evidenced in this paper, a decline in social expenditure will not allow Uganda to reap the benefits of the demographic dividend. Instead, it will result in a minimal increase in expected average years of schooling (11 and 5 years, respectively), a long-term increase in under-five child mortality to 81 deaths per 1,000 live births as well as an ever-lower level of female life expectancy (56.4 years in 2065). On top of this, infant mortality will reduce only to 21 deaths per 1,000 live births, while Uganda’s population will grow to three times its size (149 million individuals by 2065) (see the results of the Base Scenario in the previous section). Not only will this increase poverty, it will also inhibit sustainable and inclusive growth, an important component of Uganda’s National Development Plan II and its Vision 2040. In comparison with other East African countries, overall expenditure levels in these sectors are below the overall average. While investments in infrastructure are important, the GoU needs to ensure that adequate expenditure is being allocated to producing a healthy and educated workforce. Only through such a balance in expenditure can Uganda ensure the achievement of its medium-term targets under the National Development Plan II and reap the benefits of the demographic dividend. Recommendations on how Uganda could foster and pursue these links are identified below.

1. Agriculture, the backbone of Uganda’s economy, is identified as one of five key sectors with the greatest multiplier effects according to the National Development Plan II as it employs almost three-quarters of the total labour force of Uganda. Close to four-fifths of its total output is produced by subsistence farmers, the majority of whom are self-employed. It is estimated that roughly 80% of the Ugandan labour force is self-employed. Self-employment implies lower wages and it also exposes workers to a lack of health insurance, social protection and pension benefits. The analysis in this paper found that expenditure in the agriculture sector, along with expenditure in other sectors, had a significant impact on the expected years of schooling for males and females, the contraceptive prevalence rate, and under-five mortality rates. These indicators are important to analyse as they are the key drivers of lowering fertility and boosting Uganda’s health and social outcomes. The GoU needs to invest in the modernization of the agriculture sector in order to improve the standard of living of agricultural workers and provide increased employment opportunities for the high number of unemployed people. Such investments also include the promotion of commercialization, building resilience in order to manage agriculture-related risks, improving the regulatory environment in order to attract private investments into the sector, and providing advisory services to farmers. These actions will result in an increase in agricultural productivity and will raise the wages of those formally employed in the sector.

---

60 (Owori, 2017)
61 (UNICEF, 2018b)
62 (Owori, 2017)
63 (National Population Council, 2018)
64 (World Bank, 2018)
As informality is prevalent in Uganda, especially in the agriculture sector, it also requires policies that provide the necessary infrastructure for formalization. As well as providing Uganda with an opportunity to gain tax revenue, such actions will also contribute to the reduction of poverty as well as decent work opportunities. In order to reduce the level of informality, the GoU is encouraged to promote and implement business-friendly regulations, especially for small and medium-sized enterprises. This may include the elimination of corruption, the facilitation of compliance procedures and tax regulations, the reduction of business registration costs, etc.

2. Expenditure on health is crucial for the sustainable reduction of poverty and breaking the vicious cycle of poverty experienced by roughly 21 per cent of Ugandans. In fact, the analysis in this paper found that expenditure in the health sector, along with expenditure in other sectors, had a significant impact on all key intermediate inputs into the model: the average and expected years of schooling for both males and females; the contraceptive prevalence rate; and infant and under-five mortality rates. Furthermore, the National Development Plan II emphasized the importance of health in achieving its medium-term development targets. One of its targets was to increase per capita health expenditure to a minimum of US$73 by 2016, but currently, it averages US$37.6. An increase in spending on health can have significant benefits for Ugandan Society, including the reduction of under-five and infant deaths. As evidenced from the analysis above, the simultaneous increase in sectoral expenditure as well as the creation of cross-sectoral synergies can save 1.7 million infants and approximately 2.3 million children under the age of five. The GoU is therefore encouraged to reduce health-related resource gaps by (i) addressing the challenges in the supply of medication to health centres, (ii) ensuring quality and (iii) monitoring service delivery. In addition, the National Population Council identified a growing need to increase public spending on preventative health care, while also urging the GoU to establish a universal health insurance system in order to reduce the financial burden of the growing working-age population when caring for the elderly. All these initiatives would help to increase poor Ugandans’ access to high-quality health care.

The modelling shows the improvements related to a 50% increase in health expenditure as a share of GDP amounting to roughly 1.3% of GDP by 2080. This increase, in addition to the fostering of cross-sectoral synergies, will allow Uganda to attain SDG target 3.2 by 2055.

3. Education, on the other hand, lays the foundation for sustainable economic growth through its ability to decrease poverty and inequality. The gains achieved in education complement the progress made in other sectors as evidenced by the fact that investments in education, along with those in other sectors, has a significant impact on the average and expected years of schooling for both males and females, the contraceptive prevalence rate, and under-five mortality rates. Educational investment also provides individuals with skills needed in the Ugandan labour market. In fact, the higher the average level of educational attainment for an individual, the higher the returns on his/her wages. On average, an extra year of education would increase the wage return to education of males by 6.3% in urban areas and 5.9% in rural areas and of females by 8.7% and 5.7%, respectively. The implementation of policies that promote education, along with increased sectoral investment and cross-sectoral synergies during the first stage of the demographic transition, is the best way to take advantage of, or even extend, the demographic dividend. It is therefore important that the GoU addresses the quality and access gaps at all levels of education, especially for the poor. This can be achieved by monitoring the quality of educational delivery, improving the education infrastructure in Uganda’s poorest regions and streamlining pre-primary education into the formal education curriculum, while additionally advocating for the inclusion of adult literacy and skills development programmes in the educational system.

In 2007, Uganda introduced its Universal Secondary Education policy to enable the most vulnerable groups in the population to benefit from secondary education. Given the education budget, however, there have been insufficient resources to fund good-quality education for both primary

---

65 (Owori, 2017)
66 (Owori, 2017)
and secondary students. Based on the analysis in this report, in order to achieve the demographic dividend the GoU is encouraged to increase its spending on education. The report highlights gains from a 50% increase by 2080, thereby raising education expenditure as a proportion of GDP to 2.6%. Furthermore, a study undertaken by UNECA has shown that investments in tertiary and adult education, alongside those already being made in universal primary and secondary education, would increase the productivity and wages of Ugandan households and in turn improve their saving levels.

It is also highly recommended that the GoU increases its investment in Early Childhood Development (ECD), while assuring its proper implementation. While the launch of the 2016 Uganda Integrated Early Childhood Development Policy sought to benefit children from conception to the age of eight, coverage has been lacking. Only one-tenth of children aged three to five years are enrolled in formal pre-primary education, while many more do not have access to essential social services in their communities. Uganda also faces the lowest rates of immunization in East Africa. Thus, the implementation of ECD can be a policy tool that facilitates the achievement of cross-sectoral synergies. Investing in the health and education of Ugandan children is not only beneficial for their own wellbeing, it also is key to developing human capital – a skilled and educated workforce. Such investment would facilitate future gains in productivity, allowing the country to counter a rising dependency ratio in the future.

With the potential increase in the share of working-age individuals as a result of the demographic transition, the introduction of adolescent and youth development programmes are further policy actions that can increase the productivity of Uganda’s workforce, while simultaneously benefiting from cross-sectoral synergies. Currently, several factors – including poverty, early marriage, HIV/AIDS, gender-based violence and teenage pregnancy – make it difficult for Ugandan adolescents, especially adolescent girls, to reach their full potential in society. In fact, youth unemployment reached a level of 64 per cent in 2017. Uganda also has very high maternal mortality, child marriage and teenage pregnancy rates. These practices have devastating effects on girls’ mental and physical health, and are among the major causes of

87 (National Population Council, 2018)
88 (Savoya, 2018)
89 (UNICEF, n.d.).
school dropout for adolescent girls. One of the best ways to counteract these practices is access to secondary education, yet only 24 per cent of adolescents in Uganda are enrolled in secondary education. In light of this, it is recommended that the GoU implements policies and programmes that (i) enable children to complete primary schooling and move into secondary education, (ii) provide young people, especially adolescent girls, with protection against violence and harmful practices, (iii) provide adolescents with access to sexual and reproductive health services, and (iv) provide adolescents with life skills and information to stay safe and healthy.\(^{70}\)

In addition, the GoU is encouraged to invest in targeted skills programmes that enable adults to move into more productive jobs and to strengthen skills development at higher education institutions. The skills provided through these programmes should match the demands of Uganda’s national and regional labour markets. These policy actions, along with increased investments in cross-sectoral synergies and sectoral expenditure, allow for a better-educated workforce much earlier.

4. Currently, the **social development sector** is responsible for the provision of social safety nets in Uganda. While on average developing countries spend between 1% and 2% of GDP on social development, Uganda currently spends 0.7%. The Addis Ababa Action Agenda presents a new social compact that requires Uganda to commit to the delivery of social protection systems for all, including the provision of social protection floors and a package of essential services. This would include the setting of national spending targets for investments in the areas of health, education, WASH and energy. Not investing in social protection could derail the GoU from achieving the medium-term targets set out for this sector in its NDP II.\(^{71}\) It is therefore recommended that it invests in social protection schemes in order to promote growth, decrease poverty, and significantly increase the average years of education (as evidenced by the analysis in this paper). An increase in expenditure in this area would provide an opportunity to link Uganda’s social budget to its growth and structural transformation agenda.\(^{72}\) The analysis shows the gain from an increase in social development expenditure as a share of GDP by 30% in order to achieve the minimum level spent by other developing nations. This, in conjunction with (i) conducive socioeconomic policies, (ii) the increase of sectoral investments into the remaining four dividends and (iii) the creation of cross-sectoral synergies, will significantly foster the fulfilment of Uganda’s aspirations for socioeconomic transformation and transition as stipulated in its Vision 2040.

Through the implementation of policies that generate jobs and formalize the economy, the GoU can transition the children born in a period of high fertility into the labour market. However, in order for them to become productive members of society, it needs to ensure access to high-quality education and health care for all. The provision of these measures, in addition to the implementation of voluntary family planning mechanisms, will enable Ugandan women to have fewer children and increase the probability of them joining the labour force, giving them more financial autonomy. As a consequence, they will be under less pressure to provide for a large family. Earnings can be distributed among fewer household members, and there will be more household income available to be spent on food, education, health care and savings. Furthermore, once there are appropriate policies in place to generate employment, working-age adults will be able to earn a higher wage and thus save more money at a younger age than previous generations, thereby increasing their lifecycle surplus. Increased savings, along with a decreased financial burden as a result of government investment in health care and education, will allow individuals to undertake personal and business-related investments. Such investments, along with the increase in national savings, will in turn fuel economic growth and potentially increase the country’s GDP/GDP per capita.

---

\(^{70}\) (UNICEF, n.d.).  
\(^{71}\) (Bwari, 2017)  
\(^{72}\) (UNICEF, 2018b)
Bibliography


(2013). Initiating the demographic dividend by achieving a fertility decline. Abidjan: Gate Institute.


UNESCO. (2019). Education: School life expectancy by level of education and mean years of schooling. UIS Database.


UNICEF
Uganda Country Office
Plot 9 George Street
PO Box 7047
Kampala, Uganda

Telephone: +256 4 1717 1000
Email: kampala@unicef.ug
www.unicef.org/uganda

unicefuganda
@unicefuganda