Lesotho's Demographic Dividend

in the Context of Health and Other Development Challenges

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Foreword

The Government of Lesotho is committed to promoting inclusive and sustainable economic growth in fulfilment of the 2030 global Agenda for Sustainable Development, the African Union Agenda 2063 and other regional and national targets. To achieve its development aspirations spelled out in the Second National Strategic Development Plan (NSDP 2), the country recognizes the opportunities for transformational investments in its population to achieve the demographic dividend, which is an economic boost influenced by the existence of a higher proportion of the working age population relative to young dependents.

This report on *Lesotho's Demographic Dividend in the Context of Health and Other Development Challenges* unpacks the country's demographic dividend based on past and projected changes in the population age structure and other mega trends in the local, regional and global environment.

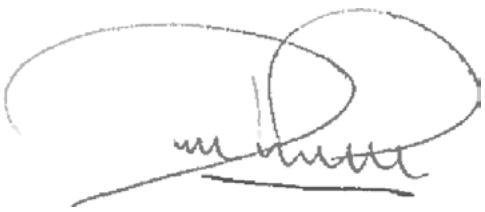
Lesotho is experiencing a rapid change in its population structure. The youthful population of 795,000 people aged 15 to 35 years, constituting more than a third (40 per cent) of the total population, presents a tremendous potential for building a generation that contributes to Lesotho's development through a skilled workforce, savings and investments. While the population is relatively young, a significant percentage of the population is entering the old age (65 years or more) category. An estimated 123,000 people (6 per cent of the total population) are aged 65 years and above. This will create an increased demand for social protection and care services. With these demographic changes in mind and their intersection with economic growth and sustainable development, this report provides a valuable resource that aids in the understanding of resource flows across generations and the factors that can boost or constrain the demographic dividend.

The government recognizes that the realization of the demographic dividend is not an automatic process, but one which requires appropriate investments in human and physical capital and policies that are supportive of inclusive and sustainable economic growth. This analysis was, therefore, commissioned to provide direction for investments and policies needed in social and economic sectors to harness the country's demographic dividend and spur economic growth. The analysis provides interesting insights for future policy making. Income patterns among youth cohorts illustrate the need for more favourable labour market conditions for the employment of young people. The large flows of remittances due to labour migration calls for a better understanding of the factors shaping labour migration and establishment of employment protection policies.

Finally, building strong institutions is instrumental to ensuring an appropriate economic, social and policy context for equitable economic growth.

The HIV and AIDS epidemic remains one of the greatest public health challenges in Lesotho. This report shows that HIV and AIDS is not an isolated development challenge and is deeply intertwined with the demographic dividend. With prevalence rates at around 25 per cent according to the latest available data, the epidemic has the potential to reduce per capita income and overall potential of the demographic dividend, if the current level of funding for prevention, treatment, care and support programmes is not sustained in the long-term.

The analysis shows that since 1990, Lesotho has experienced a positive demographic dividend, which will run up to the year 2089. However, as the dividend is moving to a declining phase, the country will need to urgently establish a policy framework that accelerates the realization of the demographic dividend. I hope that this report will provide direction across sectors for investments in human capital, specifically through quality education, health, employment creation and institutional strengthening to capitalize on the remaining window of opportunity to maximize the demographic dividend.



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Acronyms

AIDS	Acquired immunodeficiency syndrome
AIM	Aids Impact Module
ART	Antiretroviral therapy
ARV	Antiretroviral
CMS	Continuous Multipurpose Household Survey
GDP	Gross domestic product
GNI	Gross national income
HBS	Household Budget Survey
HIV	Human immunodeficiency virus
LFS	Labour Force Survey
NPISH	Non-profit institutions serving households
NTA	National Transfer Accounts
NVP	Nevirapine
PMTCT	Prevention of mother-to-child transmission
QALY	Quality-adjusted life year
UNAIDS	Joint United Nations Program on HIV and AIDS
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFPA	United Nations Population Fund
WHO	World Health Organization
ZDV	Daily zidovudine

Executive Summary

There is a long history of studying the relationship between population growth and the economy going back more than 200 years. Over the past three decades, however, the focus has shifted to the impact of the age structure of the population on the economy, following a half-century of rapid changes in national populations across the globe. These changes are the result of the demographic transition, which sees populations move from a steady state of high fertility and high mortality rates, to one of low fertility and low mortality rates. In the initial stages of this process, the population growth rate accelerates, raising the number of children within the population, often significantly. Over time, these populations, dominated by children, gradually evolve as larger numbers enter the working ages, and, eventually, as they enter old age.

The shift from an age structure that is dominated by children to one dominated by the working-age population may see the country reap a demographic dividend, sometimes referred to as a first demographic dividend. The demographic dividend refers to a period during which the changes in the age structure of the population are supportive of economic growth, higher consumption, improved living standards, and greater investment in human, physical, and financial capital. As the population ages further, the rising share of the elderly within the national population may put pressure on living standards. However, this further ageing may also give rise to a second demographic dividend, as the investments in financial, physical and human capital made during the first demographic dividend period are leveraged to raise productivity, and, therefore, incomes.

The demographic dividend operates over long-time scales and is dependent on policymakers creating an environment that is supportive of the attainment of the demographic dividend. Critically, the dividend is not automatic: without the appropriate policy environment—including policies in education, health, job creation, and the strengthening of institutions—the dividend may not materialize or may not be adequately harnessed. Given pressing developmental challenges, not fully capitalizing on the demographic dividend may impose significant costs on future generations.

This report analyses the potential demographic dividend in Lesotho through the lens of National Transfer Accounts (NTA). These accounts measure resource flows across generations and allow us to study how different generations draw on different types of resources—labour income, transfers, and assets—to fund their consumption. The methodology also enables us to estimate and analyse the demographic dividend, to identify the period during which the dividend may be harnessed, and to explore the types of changes in the socioeconomic context that might boost, or constrain, the demographic dividend.

While Lesotho's population is relatively young, it has already begun to age and will continue to do so for the rest of the century. In the process, Lesotho's economy, societal priorities, and patterns of government spending will be impacted. At the same time, Lesotho is faced with challenges related to slow economic growth rates, high unemployment, and poverty, and has been particularly hard hit by HIV and AIDS, which, together with the more recent effects of COVID-19, serves to erode the country's human capital base. These various challenges highlight the value of suitably harnessed demographic dividend in achieving improved socioeconomic outcomes in the country but may also act to constrain the attainment of the dividend.

This research, launched by the Lesotho Government on 7 October 2021, aims to answer several questions. These questions focus on the nature of the economic lifecycle in Lesotho, the projected demographic dividend, and the impact of reductions in funding for HIV prevention and treatment programmes and of the COVID-19 pandemic on Lesotho's demographic dividend. The results presented here are the culmination of a series of engagements with representatives from a range of government ministries in Lesotho aimed at exploring the NTA methodology, accessing relevant data, and validating the findings of the research.

A core component of the research is the construction of the Lesotho's first NTA profiles for labour income and consumption. While these profiles exhibit the same broad patterns as observed in other countries, there are some important differences. Per capita labour income as a proportion of peak labour income is relatively low in Lesotho amongst youth cohorts when compared to other countries. This pattern is observed in various countries in the region and is linked to the unfavourable labour market conditions for the employment of young people. Addressing this issue may take the form of various types of interventions targeting a number of aspects of young people's labour market participation. Thus, policies that aim to increase labour force participation rates, their likelihood of employment, their hours of work, their distribution across occupations, or their wage rates would all, if successful, be able to increase per capita labour income for these cohorts.

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Per capita consumption expressed as a proportion of peak labour income is high in Lesotho in global comparison. Indeed, per capita consumption for some cohorts is as much as twice as high as the global median. This high level of consumption is made even clearer when the two profiles—consumption and labour income—are compared: in Lesotho, there is no age where per capita labour income exceeds per capita consumption. In other words, all age cohorts produce lifecycle deficits. This makes Lesotho only one of two countries, along with El Salvador, where there is no lifecycle surplus on average for any age cohort.

The key explanation for this phenomenon—in Lesotho as in El Salvador—is labour migration and the resulting large flows of remittances to sending households in the form of private transfer inflows. Indeed, with remittances in Lesotho estimated at more than one-fifth of gross domestic profit (GDP) in 2019, it is unsurprising that such high levels of consumption can be achieved. These estimates clearly illustrate the risk to per capita consumption levels in Lesotho posed by potential disruptions to remittance flows through, for example, reduced labour migration. To put these figures in context, in 2015, total consumption in South Africa was equivalent to 63 per cent of GDP, compared to 108.1 per cent in Lesotho, while total labour income was 49 per cent and 43.1 per cent of GDP in the two countries. This places added emphasis on the need for jobs-focussed economic policy in Lesotho.

While the prospect of a demographic dividend brings with it the possibility of more rapid economic growth, falling poverty, rising living standards, and, more broadly, economic development, there are two features of the demographic dividend that are crucial in terms of harnessing the dividend. First, the demographic dividend is temporary. Second, the demographic dividend is not automatic.

While there are different approaches to understanding and quantifying the demographic dividend, the temporary nature of the dividend is broadly recognized. While the dividend period may last for several decades, depending on the pace and nature of the demographic transition, at some point the population age structure will begin to be unfavourable to growth and rising living standards. This temporary nature of the dividend therefore means that policymakers should do all in their power to harness it for their broader developmental objectives. From the NTA perspective, the first demographic dividend is transient. However, the second demographic dividend, which arises as the proportion of the population close to retirement age increases, can result in a permanent increase in living standards, but only in instances where individuals are saving for their retirement. Where societies primarily organize support for the elderly through pay-as-you-go pension schemes or through social assistance, the second demographic dividend will be limited.

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From a policy perspective, it is important to emphasize that the demographic dividend does not materialize mechanically simply because the age structure of the population evolves in a particular way. Instead, policymaking must be deliberate and methodical in creating an environment conducive to the realisation of the demographic dividend. In this sense, the demographic dividend represents only a *potential* benefit, which is why the phrasing "window of opportunity" is often employed. This warning is made repeatedly throughout the literature and there are various examples of countries that have been more (or less) successful in harnessing the dividend, depending on their policy environments.

In this regard, institutions—defined broadly—are key to the realisation of the demographic dividend, guiding governments through the complex policymaking and long-time horizons that characterize the dividend process and encompassing the rules by which economic decisions are made by members of society. The quality of institutions is important in several respects. First, strong institutions can ensure that the appropriate economic, social and policy context for the achievement of the demographic dividend. Second, they are important in helping to ensure that the costs and benefits of policies that are implemented are equitably distributed across generations, encouraging inter-generational buy-in to the process. Third, strong institutions curb corruption, which has the potential to derail efforts at achieving a demographic dividend. Fourth, strong institutions assist societies to navigate the important policy trade-offs that will need to be considered, and in ensuring policy coordination across a broad range of fronts.

For Lesotho, the estimates presented here suggest that the demographic dividend had turned positive by 1980. By 2089, changes in the population age structure will act to constrain economic growth and rising living standards. Importantly, most of the cumulative demographic dividend over the 1990 to 2100 period lies in the past, with the vast majority of the remaining dividend concentrated within the 2020 to 2060 period. Both these findings highlight the urgency of ensuring that a policy environment supportive of the realisation of the demographic dividend is firmly established within Lesotho. For the full 1990 to 2100 period, Lesotho's cumulative demographic dividend is estimated at 57.1 per cent, equivalent to an average annual growth rate of 0.41 per cent per annum. During the next four decades (2020 to 2060), the demographic dividend will be slightly below this rate (0.38 per cent per annum), while the final 40 years of the century will see the dividend decline to almost zero in average annual growth rate terms.

Based on the analysis, we provide five key recommendations for realising Lesotho's demographic dividend.

Recommendation I:

THE GOVERNMENT OF LESOTHO SHOULD CONTINUE TO WORK TOWARDS ENSURING THAT DEMAND FOR FAMILY PLANNING IS MET.

A number of broad areas of policy have been identified as being particularly relevant in underpinning the ability of countries to harness the demographic dividend. These include family planning, education, health, economic policy, and strong institutions. Access to family planning is a key factor influencing the pace of the demographic transition, which in turn impacts on the magnitude and duration of the demographic dividend period. According to the estimates presented here, lower fertility would enhance the demographic dividend in Lesotho. For the 2020 to 2100 period, the low fertility variant yields a first demographic dividend that is almost one-fifth larger than the baseline dividend in Lesotho. Even while Lesotho is relatively advanced in its demographic transition relative to the average sub-Saharan African country, the pace of the transition is not particularly rapid when compared with transitions in countries that saw strong demographic dividends, such as those in East and South-East Asia.

Recommendation II:

INVESTMENTS IN PROVIDING ACCESS TO HIGH QUALITY EDUCATION UNDERPIN THE ABILITY OF YOUNG PEOPLE TO ACCESS GOOD QUALITY JOBS WITHIN THE LABOUR MARKET, ENSURING THAT LESOTHO IS ABLE TO MAXIMIZE THE REMAINING DEMOGRAPHIC DIVIDEND.

Investments in quality education are critical to ensuring that young people are equipped with the kinds of skills that are valued by employers in the labour market. Better educated workers are typically more likely to be able to find employment, and, when employed, are more likely to have higher earnings. In both instances, this would serve to raise per capita labour incomes. In addition, improved access to education—particularly for girls—also serves to reinforce the demographic dividend by encouraging labour force participation and delaying marriage and childbearing.

Improvements in educational attainment over time may have a significant impact on the magnitude of the demographic dividend that is eventually realized. This effect may be further strengthened where higher levels of education provide improved access to formal employment, which typically is associated with higher wages. However, the relationship between education and the demographic dividend in Lesotho was not explored as part of this research, however. This is an important area for potential future work with direct implications for policy. From a policy perspective, however, continued emphasis on improving education—in terms of both quantity (i.e. attainment) and quality—is a crucial component of government efforts in support of the demographic dividend.

Recommendation III:

CONTINUED INVESTMENTS IN HEALTH AND, IN PARTICULAR, SUSTAINED FUNDING FOR THE PREVENTION AND TREATMENT OF HIV AND/ AIDS IS CRITICAL TO ENSURE THAT THE DEMOGRAPHIC DIVIDEND IS NOT SUBSTANTIALLY ERODED BY ILLNESS AND DEATH.

Alongside education, health is a key aspect of human capital, and, by extension, the demographic dividend. There are two main channels through which this effect operates, namely through its impact on the efficiency and productivity of education and employment activities, and through its impact on fertility.

HIV and AIDS is a key health challenge in Lesotho, as in many other countries in the region, and the pandemic's management requires a significant resource commitment from government on an ongoing basis. The pandemic may impact the demographic dividend through several channels, impacting infected individuals and their households, as well as the family members who may be required to care for them. The impact of a reduction of funding of HIV and AIDS prevention and treatment programmes on the demographic dividend is modelled on the basis of population projections that reflect these funding changes in the form of reduced access to these programmes. Based purely on these alternative population projections, the data suggests that large scale reductions in funding—and therefore programme access—will erode the demographic dividend. However, the effects are not particularly large.

The analysis goes one step further and simulates the demographic dividend with the same population projections, but this time assumes a slight decline in per capita labour incomes due to HIV and /AIDS. In this case, the impact is more substantial, reducing the cumulative dividend during the 2018 to 2100 period by almost six percentage points (from 17.2 per cent under the 50 per cent reduction scenario to 11.3 per cent). One area that this study was unable to probe in more detail relates to the care burden imposed on family and household members to care for those who are sick and dying due to HIV and AIDS. Care responsibilities impact on carers' own ability to engage fully in the labour market, with the implication that reduced access to treatment would significantly increase the disruption to carers' labour force participation.

Recommendation IV:

EFFORTS AIMED AT CLOSING ANY EDUCATION BACKLOGS ARE CRITICAL IN MODERATING THE LONG-TERM IMPACTS OF THE COVID-19 PANDEMIC AND ENSURING THAT THOSE GENERATIONS CURRENTLY IN THE EDUCATION SYSTEM DO NOT BEAR A DISPROPORTIONATE COST.

As with HIV and AIDS, the COVID-19 pandemic holds important implications for the realisation of the demographic dividend in Lesotho. These impacts operate through three key channels: first, the labour market impact which reduces current per capita labour incomes; second, the educational impact, which may reduce future per capita labour incomes; and third, the health impact, which may impact on the population age structure, and, indirectly, on education and labour market outcomes going forward. While these effects are not explicitly modelled in this paper, the loss of face-to-face teaching time in countries around the world is clearly problematic. In many contexts, this has created important educational backlogs, which may only be closed through concerted efforts over the medium-term.

The pandemic is also likely to have significantly impacted remittances, although it is not clear to what extent this happened or for how long this impact lasted. Indeed, questions remain as to the extent to which labour migration itself will return to pre-COVID levels given the disruptions due to COVID-19, as well as South Africa's own poor labour market conditions. Importantly, in the face of significant inequalities in Lesotho, it is important to remember that the impact is likely to fall hardest on those at the lower rungs of the socioeconomic ladder.

Recommendation V:

THE GOVERNMENT OF LESOTHO SHOULD IMPLEMENT POLICY THAT EFFECTIVELY ADDRESSES BOTH HIGH UNEMPLOYMENT RATES AMONGST YOUNG PEOPLE AND GENDER GAPS IN LABOUR INCOME.

Economic policy is an important focus area given that the demographic dividend is very much an economic outcome. While countries may invest extensively in developing the human capital of their populations, unless these people are able to deploy that human capital in the labour market, the dividend will be curtailed. Thus, policymakers should work to ensure macroeconomic stability, competitive markets, and economic dynamism. Labour market policy and regulation is key in creating a dynamic labour market that is able to absorb new jobseekers, while also ensuring balance between the interests of the employed and employers, while also considering the needs of the unemployed and those in precarious employment.

The issue of the labour market is clearly illustrated in the analysis. Per capita labour incomes are low (as a proportion of peak labour income) amongst young people in Lesotho when compared to their counterparts in other countries. This is linked to unemployment and employment within relatively low productivity activities, such as informal employment, amongst these cohorts. However, policies that aim to improve the labour market for young people are shown to have a marked impact on the magnitude of the demographic dividend: narrowing the gap between young people in Lesotho and those in the rest of the world between 2018 and 2040, for example, raises the cumulative demographic dividend for the 2020 to 2060 period from 16.2 per cent to 22.8 per cent. Similar effects can be seen in terms of addressing gender inequalities within the labour market. Thus, narrowing the gender gap in per capita labour incomes between males and females by 25 per cent between 2018 and 2040 is shown to generate a cumulative dividend of 23.2 per cent over the 2020 to 2060 period.

Within this context, while the NTA results provide direction as to the desired policy impact such as raising per capita labour income for young people, the methodology does not lead to specific guidance as to the exact policies that should be enacted. This provides policymakers with the freedom to choose policies that are most appropriate for their economies and societies from amongst those policies that would lead to the specific outcome described. In the context of raising per capita labour incomes amongst young people, potential policies may include: investments in post-school education and training interventions that would raise the likelihood of employment of unemployed youth; a youth wage subsidy that reduces the initial cost to employers of employing young people; small business support initiatives and entrepreneurship training targeted to young people; public works programmes targeted towards unemployed youth; or employment services and advice that help to overcome information gaps that keep young people from accessing available employment opportunities. From a gender perspective, some of these policies may be suitable for finer targeting towards young women or women in general. Other policies may include the extension of the early childhood development system, the provision of childcare facilities for working women and women seeking employment, efforts aimed at reducing gender-specialisation in unpaid care work, or specific policies requiring 'equal pay for equal work' if gender gaps are accentuated by discrimination. The exact set of policies, however, should be determined through policymaking and consultation processes with relevant stakeholders.

1

Introduction

It is well-established that changes in the age structure of the population impact national economies in various ways. These changes are the result of the demographic transition, which sees populations move from a steady state of high fertility and high mortality rates, to one of low fertility and low mortality rates. In the initial stages of this process, the population growth rate accelerates, raising the number of children within the population, often significantly. Over time, these populations, dominated by children, gradually evolve as larger numbers enter the working ages, and eventually as they enter old age.

The shift from an age structure that is dominated by children to one dominated by the working-age population may see the country reap a demographic dividend, sometimes referred to as a first demographic dividend. The demographic dividend refers to a period during which the changes in the age structure of the population are supportive of economic growth, higher consumption, improved living standards, and greater investment in human, physical and financial capital. As the population ages further, the rising share of the elderly within the national population may put pressure on living standards. However, this further ageing may also give rise to a second demographic dividend, as the investments in financial, physical and human capital made during the first demographic dividend are leveraged to raise productivity, and therefore incomes.

The demographic dividend operates over long-time scales and is dependent on policymakers creating an environment that is supportive of the attainment of the demographic dividend. Critically, the dividend is not automatic. Without the appropriate policy environment—including policies in education, health, job creation, and the strengthening of institutions—the dividend may not materialize or may not be adequately harnessed. Given the pressing developmental challenges facing countries across the continent, not fully capitalizing on the demographic dividend may impose significant costs on future generations.

This report analyses the potential demographic dividend in Lesotho through the lens of National Transfer Accounts. These accounts measure resource flows across generations and allow us to study how different generations draw on different types of resources—labour income, transfers and assets—to fund their consumption. The methodology also enables us to estimate and analyse the demographic dividend, to identify the period during which the dividend may be harnessed, and to explore the types of changes in the socioeconomic context that might boost or constrain the demographic dividend.

While Lesotho has a relatively young population, the population has already begun to age and will continue to do so for the rest of the century. These significant changes in the population age structure have the potential to impact strongly on the country's economy, as well as on patterns of government spending. At the same time, Lesotho is faced with challenges related to slow economic growth rates, high unemployment and poverty. In addition, the country has been particularly hard hit by HIV and AIDS which, together with the more recent effects of COVID-19, erodes Lesotho's human capital base. These various challenges highlight the value of a suitably harnessed demographic dividend in achieving improved socioeconomic outcomes in the country, but may also act to constrain the attainment of the dividend. The aim of this report is to analyse how demographic change in Lesotho may be impacting on its economy, and importantly, to ascertain the prospects for a demographic dividend.

This research, launched by the Lesotho Government on 7 October 2021, aimed to answer the following questions:

1. What do the profiles of labour income, consumption and the lifecycle deficit in Lesotho look like?
2. What is the potential for a demographic dividend in Lesotho?
3. What is the timing of the window of opportunity for harnessing the demographic dividend in Lesotho?
4. How is the demographic dividend impacted, in terms of timing, duration and magnitude, if assumptions related to fertility and the labour market are varied?
5. What is the potential impact of HIV infections under different scenarios of long-term funding of HIV prevention and treatment programmes, and of the COVID-19 pandemic on Lesotho's demographic dividend?
6. What are key policy options for harnessing the demographic dividend in Lesotho?

The results presented here are the culmination of a series of engagements with representatives from a range of government ministries in Lesotho aimed at exploring the National Transfer Accounts (NTA) methodology, accessing relevant data and validating the findings of the research.

The remainder of the paper is structured as follows. Section 2 provides a description of the demographic and socioeconomic context in Lesotho. This is followed by an overview of the NTA methodology and the data sources used in the construction of the accounts in section 3. In section 4, the various NTA profiles for Lesotho are presented, along with the estimates of the lifecycle deficit. Section 5 analyses Lesotho's demographic dividend and presents a number of simulations that illustrate the impact of policies related to fertility and the labour market on the magnitude of the dividend, and section 6 proceeds to assess the impact of key health challenges on the demographic dividend. Section 7 concludes.

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2

Demographic Profile and Socioeconomic Context

2.1 Demographic Trends in Lesotho

2.1.1 National Population Trends

National population estimates produced by Lesotho's Bureau of Statistics (2019c), using the 2016 national census data, puts the country's population at 2.007 million in 2016 (Table 1). According to the United Nation's (2019) medium fertility estimates, Lesotho's population is estimated at 2.176 million in 2022. According to the Bureau of Statistics, the child population (under the age of 15 years) numbered 638 000 (31.8 per cent of the total population), while youth aged 15 to 35 years number 795 000 (39.6 per cent). Thus, more than 70 per cent of Lesotho's population was aged 35 years or younger. Adults aged 36 to 64 years are estimated to number 453 000 (22.6 per cent of the national population), while the elderly (aged 65 years or older) are estimated at 123 000 individuals (6.1 per cent). These estimates for 2016 are smaller than the United Nations estimates for each age group except the elderly.

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TABLE 1 Lesotho Population Projections, 2016-2100

	CHILDREN (0-14 YEARS)		YOUTH (15-35 YEARS)		ADULT (36-64 YEARS)		ELDERLY (65+ YEARS)		TOTAL		
	'000s	%	'000s	%	'000s	%	'000s	%	'000s	%	Ave. Ann. Growth (%)
LESOTHO BUREAU OF STATISTICS ESTIMATES AND MEDIUM FERTILITY PROJECTIONS											
2016	638	31.8	795	39.6	452	22.5	123	6.1	2007	100.0	
2026	631	29.5	843	39.4	528	24.7	139	6.5	2141	100.0	0.6
2036	617	27.2	889	39.1	609	26.8	156	6.8	2271	100.0	0.6
UNITED NATIONS ESTIMATES AND MEDIUM FERTILITY PROJECTIONS											
2016	689	33.2	812	39.1	473	22.8	100	4.8	2075	100.0	
2026	703	31.3	810	36.1	613	27.3	120	5.3	2246	100.0	0.8
2036	702	28.8	855	35.1	736	30.2	143	5.9	2436	100.0	0.8
UNITED NATIONS ESTIMATES AND LONG-RANGE MEDIUM FERTILITY PROJECTIONS											
2020	691	32.2	819	38.3	526	24.6	106	4.9	2142	100.0	
2040	696	27.7	869	34.7	786	31.4	156	6.2	2507	100.0	0.8
2060	652	23.5	894	32.2	953	34.4	276	10.0	2775	100.0	0.5
2080	564	19.9	833	29.4	1066	37.7	367	13.0	2831	100.0	0.1
2100	466	17.3	713	26.5	1048	38.9	469	17.4	2695	100.0	-0.2

SOURCE: Own calculations, Lesotho Bureau of Statistics (2019c); United Nations (2019)

The Bureau of Statistics projections see Lesotho's population grow by 0.65 per cent per annum between 2016 and 2026, slowing slightly to 0.59 per cent per annum in the following decade, with the population reaching 2.271 million by 2036. Over the 2016 to 2036 period, the population is expected to age: the adult share of the population is projected to increase from 22.5 per cent to 26.8 per cent and that of the elderly population from 6.1 per cent to 6.8 per cent. In contrast, children under the age of 15 years are projected to decline from 31.8 per cent to 27.2 per cent of the population, while the youth population is expected to see its share fall by marginally to 39.1 per cent.

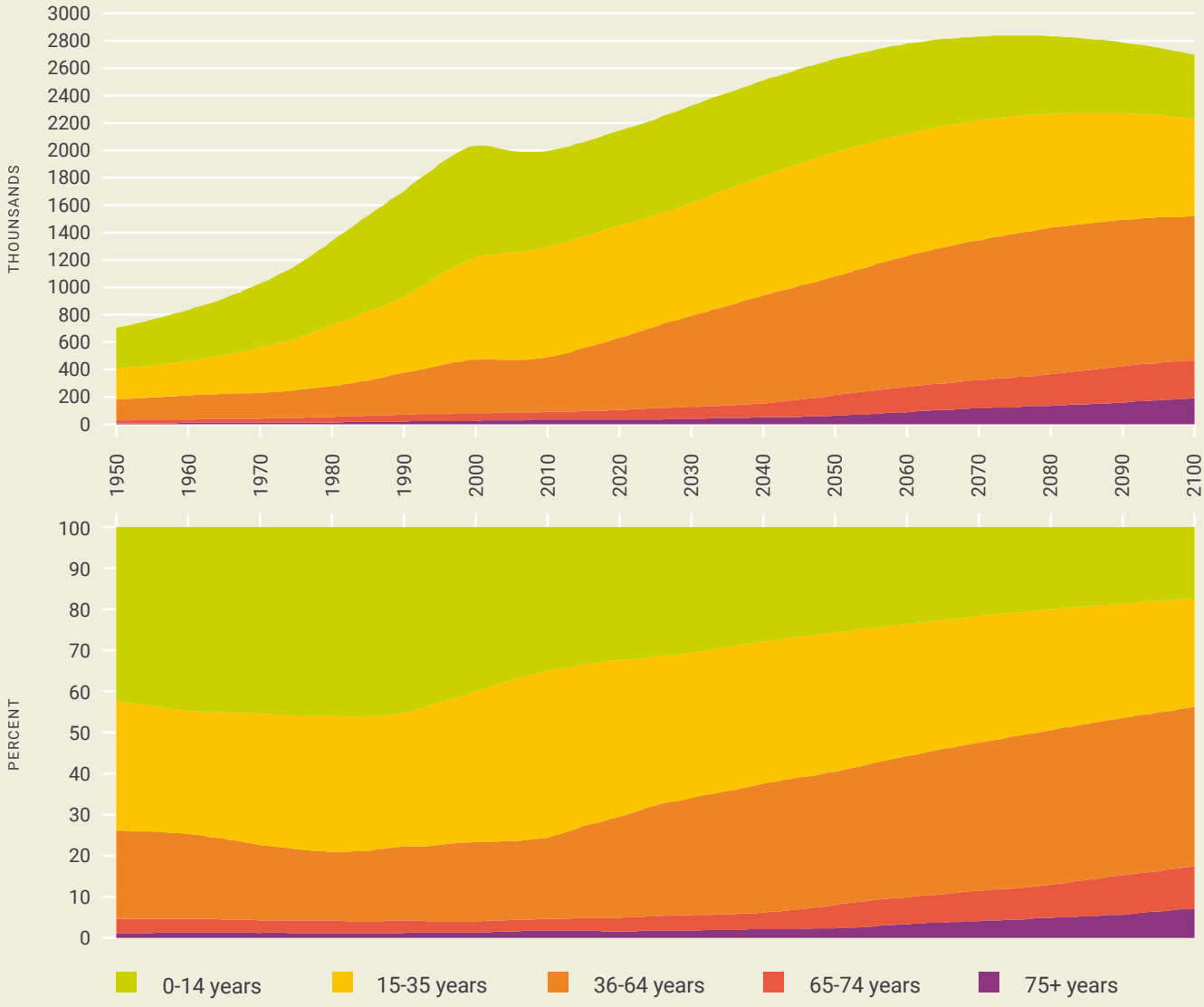
The United Nation's (2019) medium fertility projection predicts somewhat higher population growth over the 20-year period and more rapid population ageing: both the child and youth cohorts are projected to contract relative to the national population, while adults aged 36 to 64 years are expected to increase their share by 7.4 percentage points to 30.2 per cent by 2036. Although the number of elderly people within the national population is projected to decline in each year, the share of the elderly population is also projected to increase over time.

While the two sets of projections differ in terms of the ultimate size of the population by 2036, both point to population ageing over the period, with the United Nations projections indicating more rapid population ageing but from a slightly younger base. However, given that the Bureau of Statistics projections cover just 20 years, of which almost one-third lie in the past, we rely on the United Nations (2019) estimates and medium fertility projections to describe the expected longer-term population dynamics in Lesotho.

The United Nations' (2019) long-range projections point to a decline in population growth rates after a period of relatively rapid growth during the 2020 to 2040 period, with the country's population expected to begin contracting in 2075. The next eight decades will see significant changes in the age structure of the population. Children will see their share of the population fall from 32.2 per cent in 2020 to just 17.3 per cent by 2100, while the absolute number of children will be in decline by mid-century. Similarly, the share of youth in the population is projected to decline from 38.3 per cent in 2020 to just 26.5 per cent by the end of the century. In contrast, the population aged 36 to 64 years is projected to grow rapidly, doubling in absolute terms between 2020 and 2100, and increasing its share from 24.6 per cent to 38.9 per cent of the population. However, the most rapid growth is expected for the elderly population, particularly from 2040 onwards. While this cohort will see its share of the population increase from 4.9 per cent in 2020 to 6.2 per cent in 2040, it will almost triple its share between 2040 and 2100, reaching 17.4 per cent of the population. In absolute terms, Lesotho's elderly population is projected to quadruple over the period, from 106 000 to 469 000.

Figure 1 clearly illustrates these significant shifts. By the mid-2030s the older adult population (aged 36 to 64 years) is expected to surpass the child population (ages 0 to 14 years) in size and will overtake the youth population (ages 15 to 35 years) by the mid-2050s. The projections indicate that the elderly population, currently estimated to be less than one-sixth the size of the child population, will equal it by 2100 at just under 470 000. The child and youth populations remain relatively constant in absolute terms over much of this century, but the older adult and elderly populations grow. This results in these older age groups growing relative to the national population.

FIGURE 1 Composition of Lesotho's Population by Age Group, 1950-2100



SOURCE: Own calculations, United Nations (2019)
NOTE: Medium fertility variant projections are used.

Table 2 confirms these trends by considering population change over the 80-year period from 2020 to 2100. For younger age cohorts, population growth trends weaken: positive growth turns negative, after which contractions are expected to occur and become larger over time. Lesotho's child population, for example, is expected to contract by 5.6 per cent between 2020 and 2060, and a further 28.5 per cent between 2060 and 2100. The youth population's 9.1 per cent growth during the 2020 to 2060 period, weakens to a 20.2 per cent contraction between 2060 and 2100. The adult population aged 36 to 64 years is projected to grow in both sub-periods, although growth will slow significantly from 81.2 per cent during 2020 to 2060 to just 9.9 per cent during 2060 to 2100.

TABLE 2 Lesotho Population Trends for Specific Age Groups, 2020-2100

	2020	2060	2100	CHANGE 2020 — 2060		CHANGE 2060 — 2100	
	'000s	'000s	'000s	'000s	%	'000s	%
CHILD (0 TO 14 YEARS)	691	652	466	-39	-5.6	-186	-28.5
WORKING AGE (15 TO 64 YEARS)	1 346	1847	1 761	502	37.3	-86	-4.7
... YOUTH (15 TO 35 YEARS)	819	894	713	74	9.1	-181	-20.2
... ADULT (36 TO 64 YEARS)	526	953	1048	427	81.2	94	9.9
ELDERLY (65+ YEARS)	106	276	469	170	160.6	192	69.6
... 65 TO 74 YEARS	71	184	278	113	159.2	94	51.1
... 75+ YEARS	35	92	191	57	164.8	99	107.9

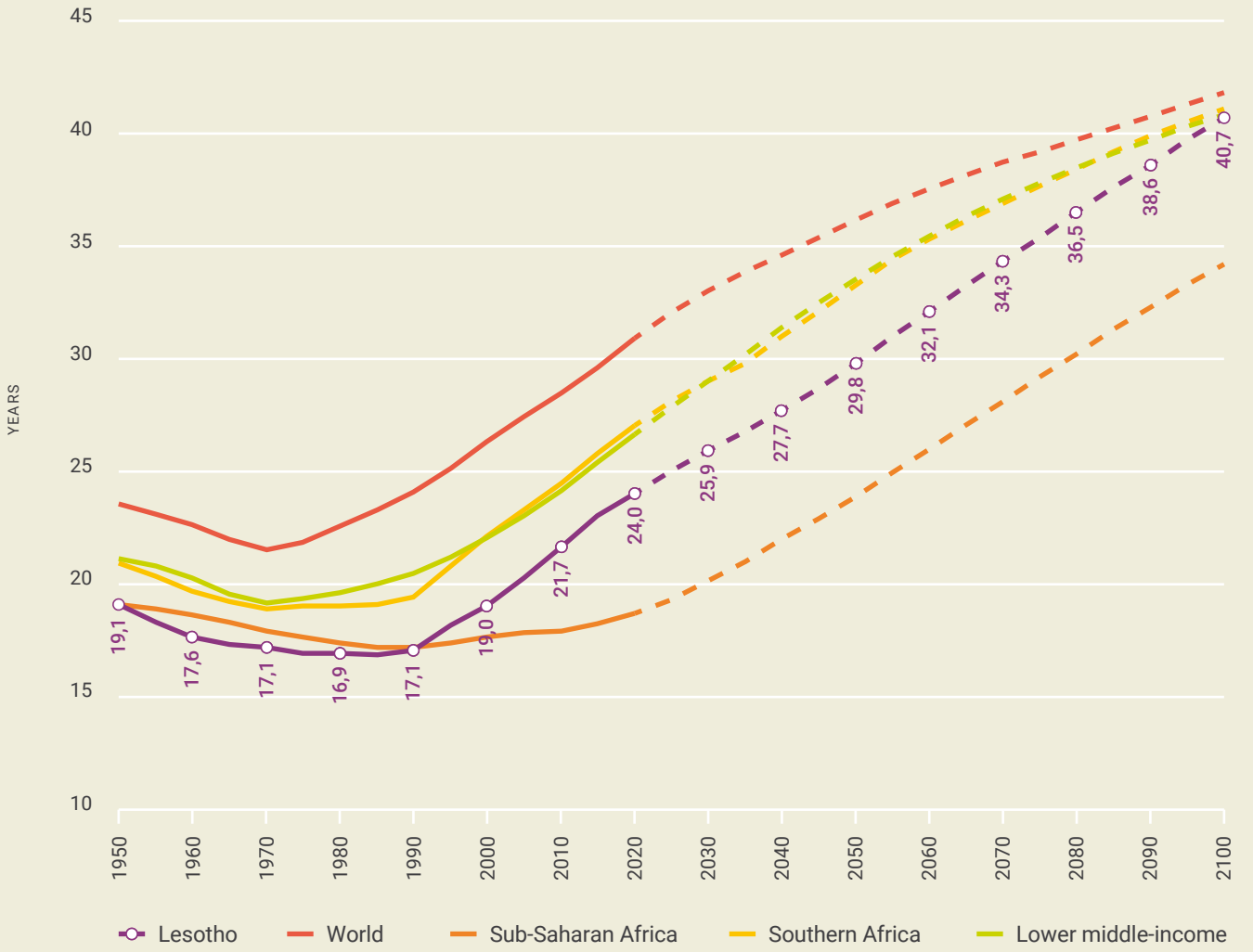
SOURCE: Own calculations, United Nations (2019)

For the adult and elderly cohorts, growth rates weaken between 2020 and 2060, but are still substantial for the elderly cohorts, especially the oldest cohort. The elderly population is expected to grow rapidly, expanding by 160.6 per cent in 2020-2060, and by a further 69.6 per cent during 2060-2100. Growth rates are similar for the population aged 65 to 74 years (the 'younger elderly') between 2020 and 2060: this cohort is projected to grow by 159.2 per cent but slows to 51.1 per cent in 2060-2100. The 'older elderly' population is projected to grow by 107.9 per cent in 2060-2100, on top of the 164.8 per cent expansion during 2020-2040, for a total increase of more than 445 per cent over the full period.

Overall, Lesotho's child and youth population shares are expected to decline. This will also result in a decline of the share of the population that is of working age, since the growth of the adult population is not projected to be able to offset the decline in the youth population. The adult population is projected to grow over the entire 2020 to 2100 period, but at a substantially slower pace after 2060. These shifts in the age structure of the population can be readily observed in the way in which the median age of Lesotho's population is projected to evolve over time (Figure 2). The median age divides the population age distribution into two halves, with one half of the population younger than the median age, and one half older. Lesotho's estimated median age was 24.0 years in 2020, having been increasing since 1990. This trend is expected to continue with the country's median age reaching 29.8 years by 2050 and 40.7 years by 2100.

The rising median age of Lesotho's population is mirrored in the trends observed globally, within Southern Africa, and amongst lower middle-income countries. Globally, for example, the median age is predicted to increase from 30.9 years to 41.9 years between 2020 and 2100. Within the African context, Lesotho's population was, by this measure, slightly younger than the populations of both sub-Saharan and Southern Africa during the 1950 to 1980 period. However, the country's median age surpassed that of sub-Saharan Africa in 1990, and has risen relatively rapidly over the past three decades. This sharp increase is like the trend seen in Southern Africa and amongst lower-middle income countries; however, Lesotho's population is projected to remain relatively young compared to these two country groupings for much of the 21st century.

FIGURE 2 Median Age in Lesotho in a Global Context, 1950-2100

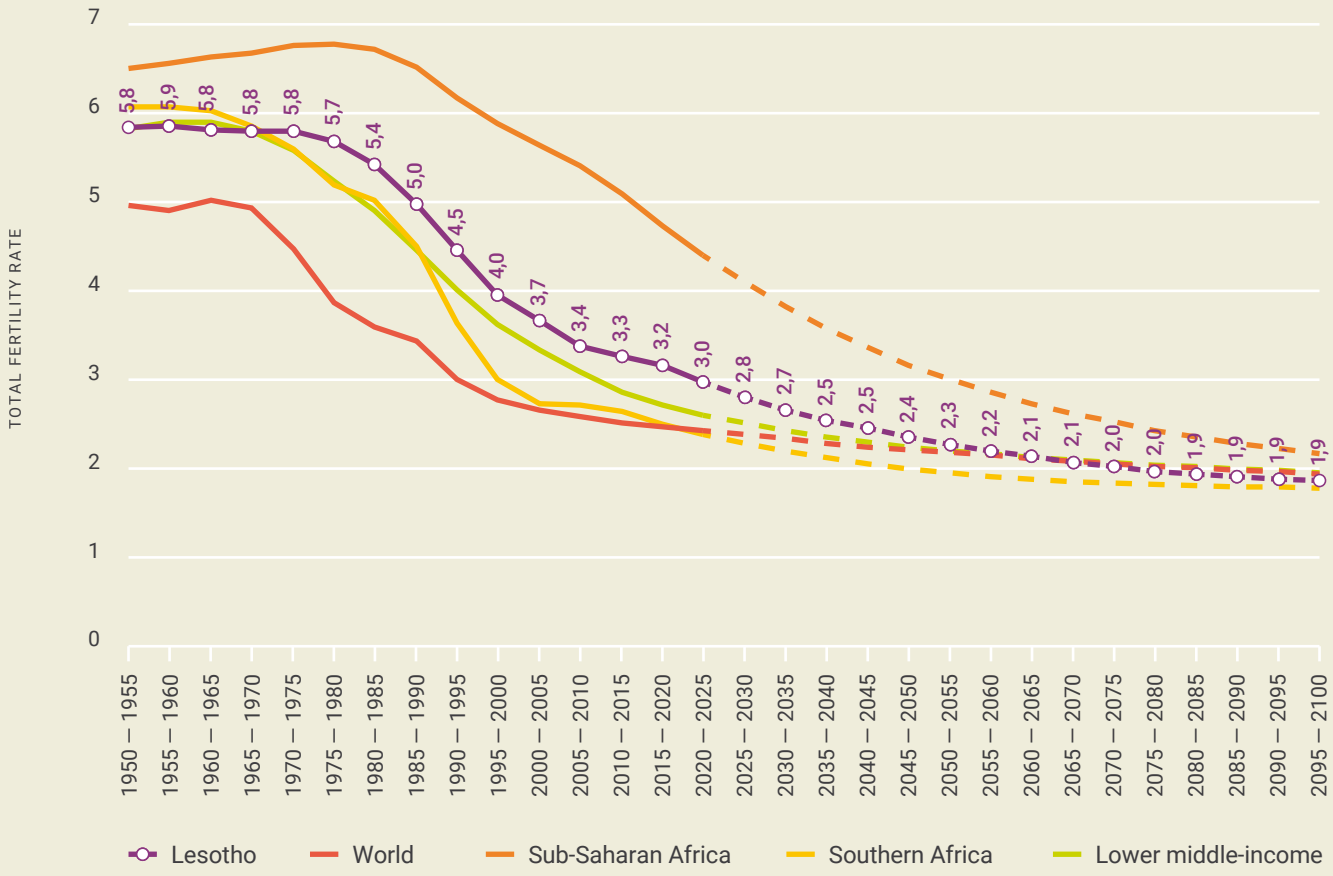


SOURCE: Own calculations, United Nations (2019)
NOTE: Medium fertility variant projections are used. Regional groupings defined according to the United Nations classification. Lesotho is classified as a lower middle-income country by the World Bank.

Lesotho's median age is expected to increase by 0.9 to 1.0 years every five years from 2020 until 2045, after which the pace quickens to between 1.0 and 1.2 years. By 2060, Lesotho's median age is expected to be 32.1 years, closer to the world median age (37.6 years in 2060) than that of sub-Saharan Africa (26.0 years). Between 2060 and 2100, the difference in median ages between Lesotho and sub-Saharan Africa remains above six years; however, the gap between Lesotho, Southern Africa and lower-middle income countries is expected to narrow in the years following 2060 and to converge by 2100.

The trends in the age structure of the population are largely driven by the dynamics of Lesotho's fertility and mortality rates over time. Figure 3 presents estimates of the total fertility rate since 1950. During the 1950s, 1960s and 1970s, the total fertility rate in Lesotho was almost six live births per woman, but has subsequently fallen by almost half, from 5.7 in 1975-1980 to 3.2 in 2015-2020. As such, the demographic transition is underway in Lesotho (Guengant, 2017). Although fertility in Lesotho has consistently been lower than the average for sub-Saharan Africa, it has generally been slightly higher than the average for lower-middle income countries. Thus, in 2015-2020, the total fertility rate in Lesotho was 1.6 live births lower than the average for sub-Saharan Africa (4.7 births), but 0.5 births per woman higher than the average for lower-middle income countries (2.7 births). The medium fertility projections see Lesotho's total fertility rate continue to decline over the coming decades, and it is expected to converge to the global average by 2070.

FIGURE 3 Total Fertility Rate in Lesotho in a Global Context, 1950-2100



SOURCE: Own calculations, United Nations (2019)
NOTE: Medium fertility variant projections are used. Regional groupings defined according to the United Nations classification. Lesotho is classified as a lower middle-income country by the World Bank.

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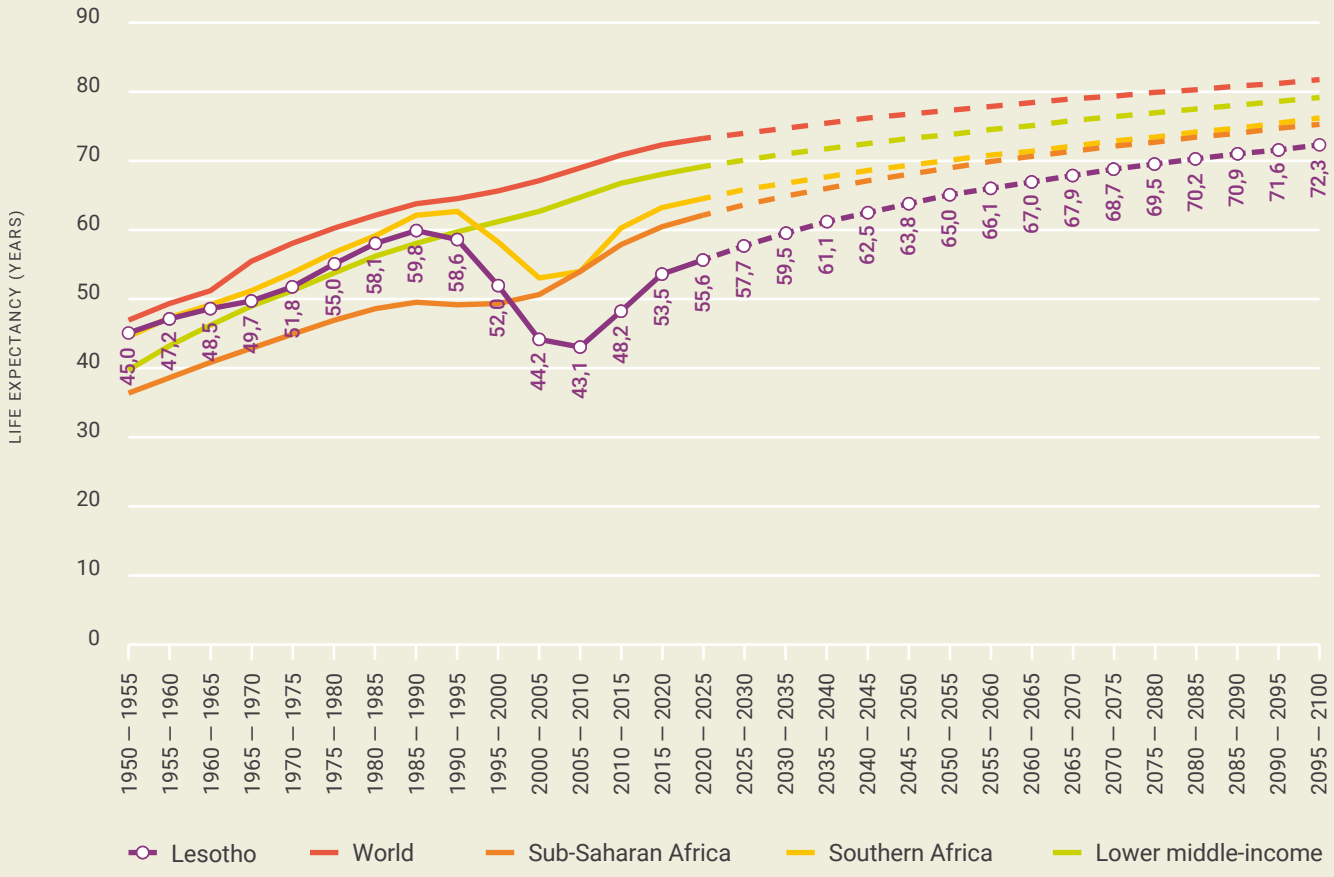
There are several reasons why Lesotho's fertility rate is declining. One reason is improved access to modern contraception. According to World Bank (2022) estimates, the use of contraceptives among females between the ages of 15 and 49 years has increased from 23.3 per cent in 1992 to 64.9 per cent in 2018. Furthermore, the share of women with an unmet need has decreased, from 20.2 per cent in 2012 to 15.7 per cent in 2020 (Family Planning 2030, 2021). This has had a substantial impact on the number of unwanted and unintended pregnancies that have been avoided.

Another driver of falling fertility levels is the rise in urbanisation. Between 1996 and 2011, the proportion of the population residing in urban areas grew from 16.9 per cent to 23.7 per cent, while fertility rates in 2011 were lower in urban areas than in rural areas (2.5 live births per woman compared to 3.7) (Lesotho Bureau of Statistics, 2013). The urbanisation rate has since continued its upward trajectory and stood at 29.0 per cent in 2020 (World Bank, 2022).

Life expectancy in Lesotho shows steady improvement for several decades until the 1990s, rising from 45.0 years in 1950-1955 to 59.8 years in 1985-1990 (Figure 4). However, these gains were eroded entirely by the HIV and AIDS pandemic, and by 2005-2010, average life expectancy had fallen to just 43.1 years. As the pandemic was brought under control, life expectancy has rebounded: at 53.5 years in 2015-2020, it is up more than ten years from its low point in 2005-2010 of 43.1 years, but it remains 6.3 years below its pre-HIV and AIDS peak. Life expectancy is projected to continue increasing throughout the remainder of the century, surpassing 60 years by the latter part of the 2030s, and 70 years in the first half of the 2080s. Despite this recovery, though, average life expectancy in Lesotho is expected to lag the average globally, within sub-Saharan Africa and Southern Africa, and amongst lower middle-income countries.

FIGURE 4 Life Expectancy at Birth in Lesotho in a Global Context, 1950-2100



SOURCE: Own calculations, United Nations (2019)
NOTE: Medium fertility variant projections are used. Regional groupings defined according to the United Nations classification. Lesotho is classified as a lower middle-income country by the World Bank.

2.1.2 Population Change and Dependency

One way in which the relationship between the population age structure and the economy can be understood is through the notion of dependency, which views individuals as either economically productive or not economically productive (and therefore dependent) depending on their age. By comparing the sizes of the economically productive and dependent age groups, the overall level of dependency within a society can be gauged. One measure of dependency at the population level is the total dependency ratio, which is defined as the ratio of the population that is not economically active, such as children under the age of 15 years and elders aged 65 years or above, to the economically productive (working age) population. This measure uses a standard definition of the working age population—those aged 15 to 64 years, although the exact age bounds may be varied to suit alternative definitions of the working age—to designate the economically productive population, with individuals falling outside of this age range assumed to be economically dependent.

More formally, the dependency ratio is defined as:

$$DR = \frac{\text{Non-working age population}}{\text{Working age population}} = \frac{\text{Child population} + \text{Old age population}}{\text{Working age population}}$$

$$DR_t = \frac{\sum_{a=0}^{14} p_t(a) + \sum_{a=65}^{\infty} p_t(a)}{\sum_{a=15}^{64} p_t(a)} \quad (1)$$

where $p_t(a)$ denotes the share of the population that is a years old in year t. The dependency ratio can also be expressed as the sum of two components, namely the child dependency ratio and the old age dependency ratio:

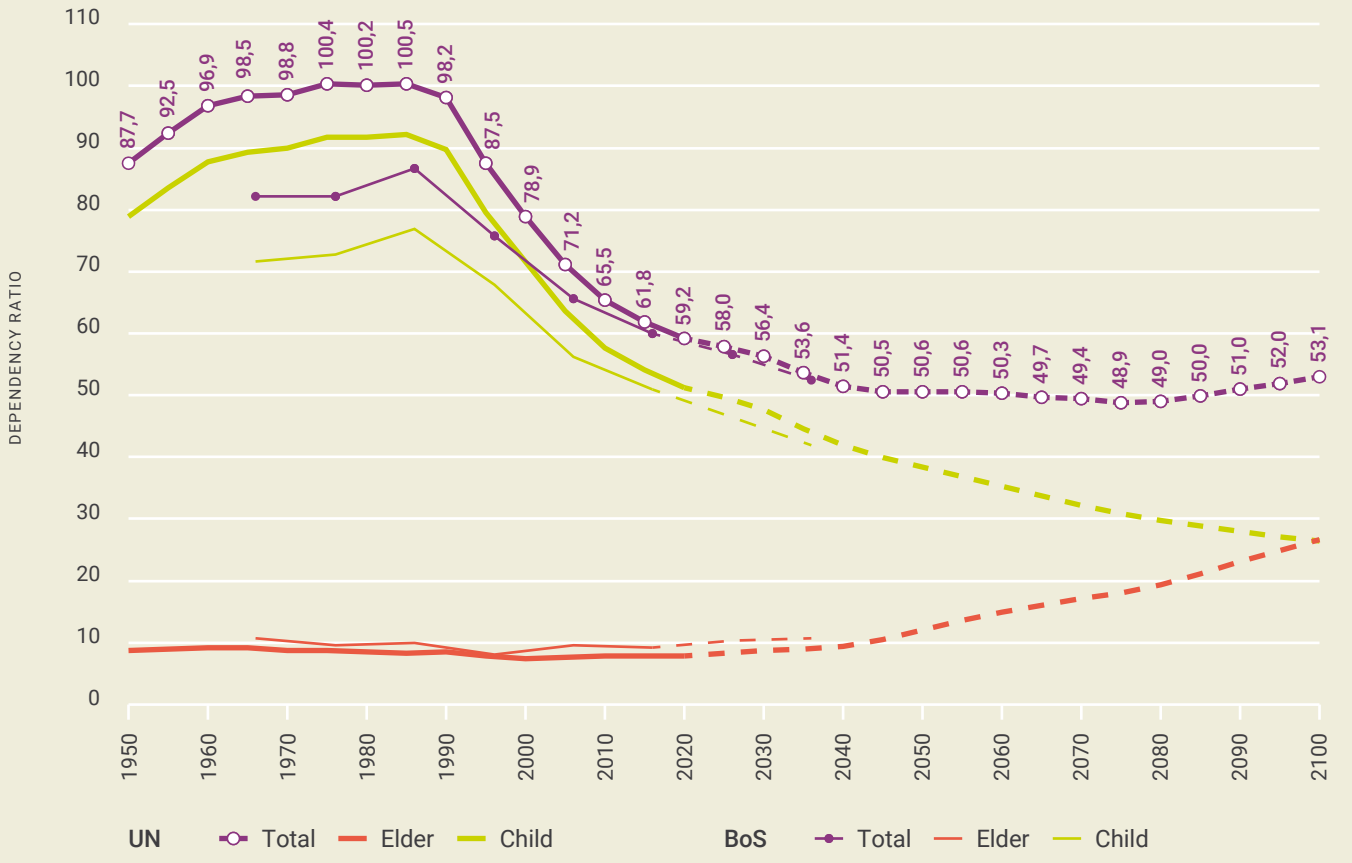
$$DR_t = \frac{\sum_{a=0}^{14} p_t(a)}{\sum_{a=15}^{64} p_t(a)} + \frac{\sum_{a=65}^{\infty} p_t(a)}{\sum_{a=15}^{64} p_t(a)} \quad (2)$$

$$= \text{Child population ratio} + \text{Old age dependency ratio} \quad (3)$$

Dependency ratios have an underlying link with the concept of the demographic dividend, in that lower dependency ratios—produced when relatively large age cohorts are concentrated within the working ages—are viewed as favourable since they imply less pressure on the economically productive population to provide for the rest of the population. Dependency ratios form the basis for the "demographic window", which the United Nations (2004, p.2) defines as the period during which "the proportion of children and youth under 15 years falls below 30 per cent and the proportion of people 65 years and older is still below 15 per cent".

Figure 5 presents these three dependency ratios for Lesotho between 1950 and 2100. Based on the United Nations (2019) data, the total dependency ratio increases from 87.7 in 1950 to peak at 100.5 in 1985. This is followed by a sharp decline in total dependency from 1990 so that by 2020 it is 59.2. The medium fertility variant projections show a continued decline to 51.4 in 2040, after which there is a stabilisation at a value of around 50 and an uptick in the final 20 years of the century. Data from the Lesotho Bureau of Statistics, starting in 1966, follow a similar path. Although the official data yield lower estimates of the total dependency ratio during the latter part of the 20th century, this gap narrows with time such that the estimates from 2016 onwards are very similar.

FIGURE 5 Dependency Ratios in Lesotho, 1950-2100



SOURCE: Own calculations, United Nations (2019); Lesotho Bureau of Statistics (2019a)
NOTE: Medium fertility variant projections are used. Dotted lines are used for years after 2020. Data for Lesotho cover the period 1966 to 2036 in ten-year increments.

A large proportion of the total dependency measure is accounted for by children over the 150-year period. As a result, changes in total dependency between 1950 and 2020 are driven largely by parallel changes in the child dependency ratio. Thus, the child dependency ratio rises from 79.0 children per 100 working-age individuals in 1950 to a peak of 92.2 in 1985, before falling to 51.3 children per working-age individuals by 2020. From 2030 onwards, the relationship between total and child dependency begins to change, with child dependency becoming a smaller portion of total dependency as the population continues to age. The projected old age dependency ratio begins to rise while the child dependency continues downward; the increase is expected to be gradual initially but accelerates noticeably after 2040. Eventually, by the final two decades of the century, the rise in the old age dependency ratio will outpace the decline in the child dependency ratio, forcing the total dependency ratio higher. According to the United Nation's definition of the "demographic window", and based on United Nations (2019) population projections, Lesotho's window of opportunity is projected to open in just over a decade's time in 2033 (child dependency ratio of 29.7 per cent and old age dependency ratio of 5.7 per cent), and to close in 2089 (child dependency ratio of 18.7 per cent and old age dependency ratio of 15.1 per cent).

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2.1.3 HIV and Other Health-Related Considerations

Lesotho is one of the countries that was hardest hit by the HIV epidemic and records high HIV prevalence among adults aged 15 years and older at 22.7 per cent in 2020. The HIV prevalence among adults is higher among women (27.4 per cent) than men (17.8 per cent). The Lesotho Population-Based HIV Impact Assessment (Lesotho Ministry of Health, 2022) reported that the annual incidence of HIV infection among adults was 0.45 per cent in 2020. This translates to approximately 5 000 new cases of HIV infection among adults. The annual incidence was higher among women aged 15 years and older (0.64 per cent) than men (0.28 per cent). This gender disparity is an important factor in the country's HIV epidemic. High infection rates among the younger population will have important consequences for the demographic dividend. A key concern is the low frequency of preventative measures taken, especially with high-risk sexual partners, such as paid sexual partners and non-marital partners (Lesotho Ministry of Health et al., 2019). This makes efforts to control the epidemic essential. To do this, the Joint United Nations Program on HIV and AIDS (UNAIDS) Fast-track Strategy has set a target of 90 per cent of all HIV-positive individuals knowing their status, 90 per cent of all individuals with diagnosed HIV infection receiving sustained anti-retroviral treatment, and 90 per cent of people receiving antiretroviral treatment having viral suppression (90-90-90) by 2020. In Lesotho, it is estimated that only 81 per cent of HIV-positive adults know their HIV status. Furthermore, 91.8 per cent of individuals who know their HIV status are on antiretroviral treatment. Of those receiving antiretroviral treatment, 87.7 per cent had viral suppression.

To reach the 90-90-90 target, Lesotho must implement evidence-based strategies. This includes improved HIV testing and counselling, promotion of condom-use and coverage of antiretroviral treatments. Achieving this is a substantial economic burden, which requires significant investments.

The onset of the COVID-19 pandemic has led to the disruption of funding to the HIV programmes. As of April 2022, Lesotho had confirmed 33 000 cumulative COVID-19 cases and 697 deaths, resulting in a case fatality rate of 2.1 per cent (Ritchie et al., 2020). Since March 2021, less than half (43.3 per cent) of the population have received at least one dose of a COVID-19 vaccine. While this is relatively high for the African continent, the Lesotho population remains vulnerable to the virus. The measures required to respond to the pandemic have resulted in a reduction in total health expenditure. As a result of this reduction, the expenditure related to HIV has also been reduced. Lesotho's projected pre-COVID and post-COVID health and HIV expenditure indicate a significant reduction in spending targeted towards health and HIV as a result of the COVID-19 pandemic (Figure 6). This disruption of funding could be detrimental to the country's progress towards controlling the HIV epidemic. Due to the high infection rates among the younger population, this will have further impacts on Lesotho's demographic dividend, through changes in the demographic profile and increased financial burdens on the economy.

FIGURE 6 Projected Total Health and Total HIV Expenditure, Lesotho, 2020-2025

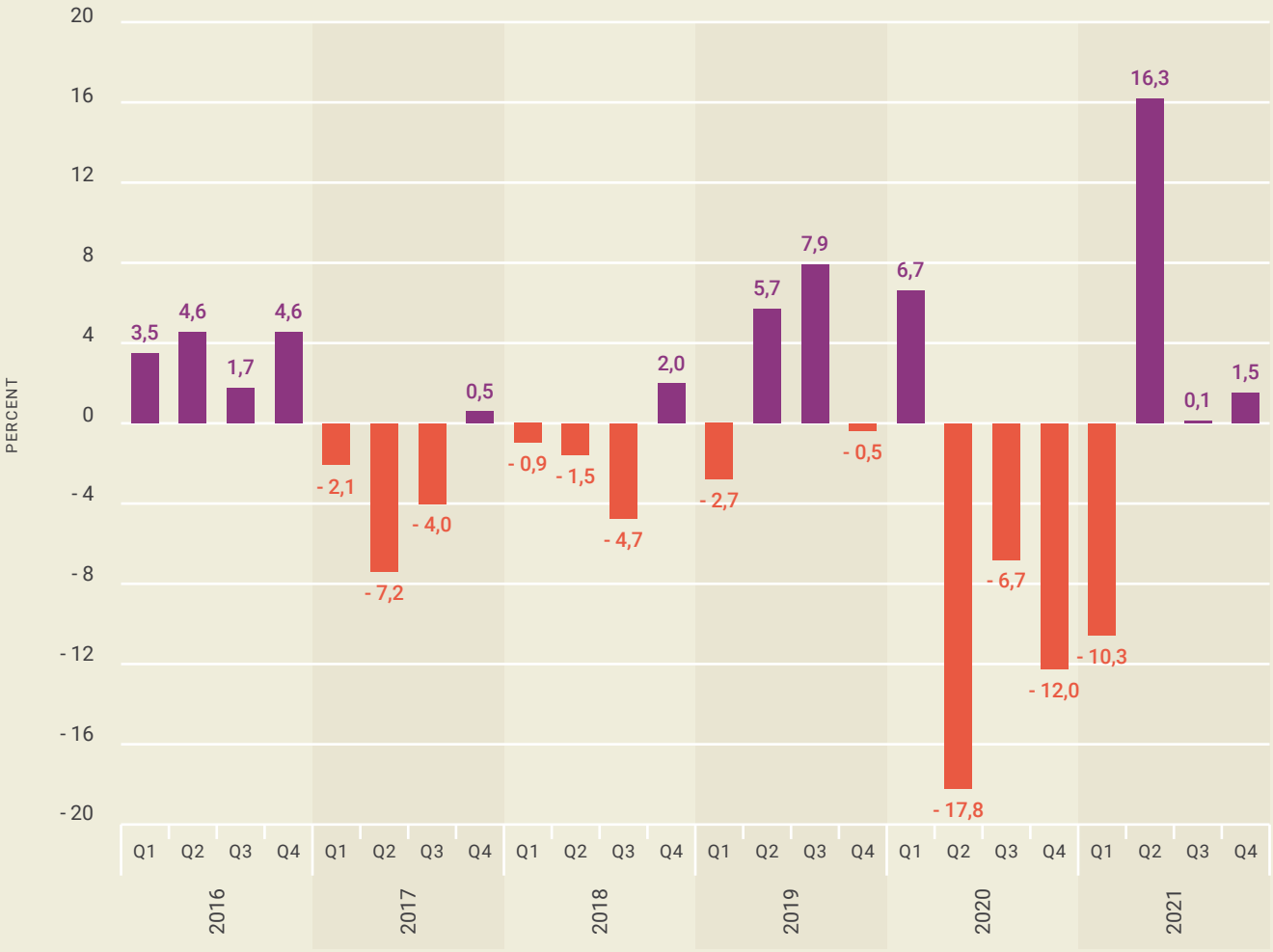
SOURCE: Figures approximated from UNAIDS (2021)

2.2 Socioeconomic Context

2.2.1 Recent Economic Performance

The economic growth performance of Lesotho has been weak since 2017, although there were signs of improvement in real GDP growth rates during 2019 (Figure 7). Strong growth during the first quarter of 2020 was disrupted by the severe impact of the COVID-19 pandemic, which saw the economy record four consecutive quarters of severe economic contraction. The economy shrank by almost one-fifth (17.8 per cent) in the second quarter of 2020, with two of the three following quarters also recording double-digit contractions in output. Despite strong growth in the second quarter of 2021 of 16.3 per cent—the result of a base effect—real output in Lesotho at the end of 2021 was still more than 10 per cent below its peak in the final quarter of 2019.

FIGURE 7 Real GDP Growth (Year-on-Year, per cent), 2016-2021



SOURCE: Lesotho Bureau of Statistics (2022)

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Over the 2017 to 2021 period, Lesotho's tertiary sector has typically contributed the majority share of GDP, averaging 51.7 per cent of GDP driven by the large contribution of public administration (Table 3). The tertiary sector is roughly twice the size of the secondary sector, estimated at 23.6 per cent of GDP on average over the period; in turn, the secondary sector is roughly twice the size of the primary sector (13.1 per cent of GDP on average). Post-COVID, the primary sector has accounted for a larger share of GDP: having contributed between 8.8 per cent and 10.4 per cent of GDP in the 2017 to 2019 period, the sector roughly doubled to 19.0 per cent of GDP in 2020 and 18.0 per cent in 2021, driven primarily by a substantial increase in the contribution of mining and quarrying. As a result, both the secondary and tertiary sectors account for relatively smaller proportions of GDP in the post-COVID period, with the secondary sector accounting for 22.0 per cent of GDP and the tertiary sector 48.9 per cent in 2021.

Four industries accounted for at least 10 per cent of Lesotho's GDP in 2021. Public administration was the largest industry (18.9 per cent of GDP), followed by manufacturing (15.3 per cent), mining and quarrying (13.0 per cent), and finance and insurance (11.6 per cent). Together, these four industries accounted for almost three-fifths (58.8 per cent) of Lesotho's GDP. Ranked fifth in 2021 and contributing 6.8 per cent of GDP, the wholesale and retail trade has typically been significantly larger than mining and quarrying in terms of output but has been hard hit by the COVID-19 pandemic.

TABLE 3 Sectoral Contributions to GDP at Current Prices (per cent), 2017-2021

	2017	2018	2019	2020	2021	AVERAGE
Agriculture, forestry, fishing	5.0	4.4	4.4	4.8	4.9	4.7
Mining and quarrying	3.8	6.0	4.9	14.3	13.0	8.4
PRIMARY	**8.8**	**10.4**	**9.2**	**19.0**	**18.0**	**13.1**
Manufacturing	15.3	16.9	16.7	14.5	15.3	15.7
Electricity and water	5.3	4.9	4.9	4.6	4.9	4.9
Construction	4.3	3.9	3.1	1.8	1.8	3.0
SECONDARY	**24.8**	**25.7**	**24.6**	**20.9**	**22.0**	**23.6**
Wholesale and retail trade	11.6	10.0	9.1	6.5	6.8	8.8
Transport and storage	2.1	2.0	1.9	1.4	1.4	1.7
Hotels and restaurants	1.1	1.0	0.7	0.4	0.4	0.7
Information and communication	3.1	3.0	2.9	2.3	2.2	2.7
Finance and insurance	8.4	8.0	11.6	12.0	11.6	10.3
Real estate	4.2	3.9	3.6	3.3	3.2	3.6
Business services	3.0	2.7	2.5	2.2	2.1	2.5
Public administration	18.2	18.4	19.4	19.0	18.9	18.8
Education and health	1.9	1.9	1.9	1.9	1.8	1.9
Other services	0.9	0.8	0.8	0.7	0.7	0.8
TERTIARY	**54.4**	**51.7**	**54.1**	**49.5**	**48.9**	**51.7**
TAXES ON PRODUCTS	**11.9**	**12.3**	**12.1**	**10.6**	**11.2**	**11.6**
TOTAL	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

SOURCE: Own calculations, Lesotho Bureau of Statistics (2022)
NOTE: The average is calculated as the simple average of the proportions in the 2017 to 2021 period.

2.2.2 Labour Market Trends

The working age population (aged 15 years and older) in 2019 is estimated at 1.347 million (Table 4). Of these, 673 000 formed part of the narrow labour force: 521 000 were employed, while 151 000 were unemployed according to the narrow (strict) definition of unemployment. When using the expanded definition, the unemployed in 2019 numbered 324 000, more than twice the number of narrow unemployed. As a result, with the addition of 173 000 non-searching unemployed, the expanded labour force numbered 846 000. Between 2016 and 2019, employment declined by 44 000, equivalent to a growth rate of -2.7 per cent per annum. At the same time, the narrow unemployed grew by roughly one-fifth (20.6 per cent) per annum from 86 000 in 2016. As a result, the narrow labour force grew by 1.0 per cent per annum[1].

These trends, combined with a marginal decline in the size of the working age population (-0.6 per cent per annum between 2016 and 2019, have resulted in shifts in some of the key ratios by which labour market performance is often gauged. For example, in 2019, the narrow unemployment rate was up substantially from three years earlier at 22.5 per cent, while the expanded unemployment rate was 38.3 per cent. Labour force participation rates are relatively low in Lesotho: just under half of the working age population formed part of the narrow labour force in 2019, while just over three-fifths (62.8 per cent) were part of the expanded labour force. However, the data presented here suggests a gradual increase in the narrow labour force participation rate over time. The combination of a relatively high unemployment rate and a relatively low labour force participation rate means that the employed constitute a relatively small proportion of the working age population. This is confirmed by the employment-to-population ratio, which is estimated at 38.7 per cent in 2019, down from just over 41 per cent in 2011 and 2016.

1 It should be noted that the data sources underlying these estimates—a census and a dedicated labour force survey—are quite different and may therefore not capture economic activity consistently, making comparisons over time subject to error.

TABLE 4 Labour Market Trends, 2017-2019

	2008	2011	2016	2019	CHANGE 2016 — 2019	
					Absolute	AAGR
AGGREGATES (THOUSANDS)						
Working age population (15+ years) *[W]*	1 242	1 264	1 370	1 347	-23	-0.6
Employment *[A]*	609	530	566	521	-44	-2.7
Narrow unemployment *[B]*	179	49	86	151	65	20.6
Narrow labour force *[D = A + B]*	789	579	652	673	20	1.0
Expanded unemployment *[E = B + C]*				324		
Expanded labour force *[F = A + B + C]*				846		
Non-searching unemployed *[C]*				173		
RATES (PER CENT)						
Employment-to-population ratio *[A ÷ W]*	49.0	41.9	41.3	38.7	-2.6	-0.9 P.P.
Narrow unemployment *[B ÷ D]*	22.7	8.5	13.2	22.5	9.3	3.1 P.P.
Expanded unemployment *[E ÷ F]*				38.3		
Narrow LFPR *[D ÷ W]*	63.5	45.8	47.6	49.9	2.3	0.8 P.P.
Expanded LFPR *[F ÷ W]*				62.8		

SOURCE: Lesotho Bureau of Statistics (2019b, 2021b) and own calculations

NOTES: Narrow unemployment refers to individuals within the working age population who were not employed in the reference period, but who were willing and able to work and who took active steps to seek employment. Expanded unemployment relaxes the latter criteria and therefore includes unemployed individuals who did not take active steps to seek employment.

The 2019 Labour Force Survey reported a narrow labour force participation rate of 49.9 per cent (Table 4). This is an improvement when compared to the labour force participation rate of 41.4 per cent in the 2016 Census Analytical Report. The results by gender (Table 5) suggest that the highest labour force participation rates are among those between the ages of 25 and 55 years of age. A participation rate of over 60 per cent is observed for both men and women in this age group. Interestingly, it indicated that there is a portion of the 65+ years age group that is still participating in the labour force. This is important, since the youth population is decreasing in size while the elder population is increasing in size. Thus, the participation rates of the older age groups might continue to increase as the age structure of the population changes. This higher participation of the elderly population may aid in slightly reducing the elder dependency ratio.

TABLE 5 Participation and Unemployment Rates by Age (per cent), 2019

	LABOUR FORCE PARTICIPATION RATE			UNEMPLOYMENT RATE	
	Male	Female	Total	Male	Female
15-19 YEARS	18.6	10.1	14.4	22.0	42.6
20-24 YEARS	50.6	39.6	45.0	35.2	41.4
25-29 YEARS	71.3	62.4	66.7	29.5	31.6
30-34 YEARS	74.9	67.5	71.3	22.9	24.4
35-39 YEARS	75.4	70.1	72.9	20.6	15.5
40-44 YEARS	74.7	66.6	70.7	18.0	15.9
45-49 YEARS	70.9	63.7	67.2	11.5	13.5
50-54 YEARS	67.6	58.3	62.7	17.9	12.7
55-59 YEARS	56.1	49.1	52.0	16.3	7.9
60-64 YEARS	36.9	33.8	35.0	14.2	7.2
65+ YEARS	17.5	11.9	14.0	18.2	15.8

SOURCE: Lesotho Bureau of Statistics (2021b)

These aggregate figures obscure important differences for groups within the broader population. Two important sets of subgroups are those defined by age and gender. Table 5 presents estimates of labour force participation rates and unemployment rates using the narrow definition of unemployment across age and gender groups. Labour force participation rates rise with age, from just 14.4 per cent amongst 15 to19 year olds to a peak of 72.9 per cent for those aged 35 to 39 years. Participation rates decline as age increases further, falling to 52.0 per cent for those aged 55 to 59 years and to just 14.0 per cent for individuals aged 65 years and older. Across the life course, female labour force participation rates are lower than those of males, with the gap largest during the twenties. For 20 to 24 year olds, the male participation rate is 50.6 per cent, 11.0 percentage points higher than for females; for those aged 25 to 29 years, the gap is almost nine percentage points (71.3 per cent for males compared to 62.4 per cent for females).

As with labour force participation, there are differences in the unemployment rates of males and females. However, unlike with labour force participation, the gender difference is not consistently in a single direction across the life course. For younger cohorts, women are more likely than men to be unemployed. The gap ranges from 20.6 percentage points for those aged 15 to 19 years, to 1.5 percentage points for those aged 30 to 34 years. For all older cohorts, except the cohort aged 45 to 49 years, the male unemployment rate is higher than the female unemployment rate. For those aged 35 to 39 years, the gap is 5.1 percentage points (20.6 per cent for males, compared to 15.5 per cent for females), and it remains broadly in this range until the cohorts aged 55 to 59 years and 60 to 64 years, where it is somewhat wider.

According to Lesotho Bureau of Statistics (2019a), Lesotho has been losing more people through migration than they have received. This is in line with the net migration estimates reported by the United Nations (2019). Virtually all (99.5 per cent) of emigrants from Lesotho are resident in South Africa (Lesotho Bureau of Statistics, 2019a). The next most common destinations are Botswana and North America (United States of America and Canada), each with 0.1 per cent of Lesotho's emigrants.

Just under three-quarters (71.9 per cent) of emigrants are reported to be aged between 20 and 44 years of age (Lesotho Bureau of Statistics, 2019a). This means that a large majority of emigrants fall within the working age population. Of these, more than 50 per cent are economically active and regular wage or salary earners, and this is the case for both men and women. Additionally, a larger proportion of women than men are students abroad (9.7 per cent compared to 5.6 per cent), while a larger proportion of male emigrants are casual workers or job seekers, whether first-time job seekers or not.

Four-fifths (79.9 per cent) of emigrants are employed in craft and related trade occupations, are plant and machine operators, or are employed in elementary occupations. A large proportion of emigrants have relatively low levels of education: 6.2 per cent of emigrants never attended school, while 52.1 per cent attended primary school. Just over one-third (36.5 per cent) have completed secondary school. Most emigrants also usually return to Lesotho after a period of one year.

As with emigrants, more than half of immigrants are male. Countries receiving emigrants from Lesotho are also typically important sending countries to Lesotho, with the majority (51.6 per cent) of immigrants being South African. In contrast to emigrants, immigrants are relatively evenly distributed across three age cohorts, namely 0 to 14 years, 15 to 34 years, and 35 to 64 years, which accounted for 31.5 per cent, 30.4 per cent and 33.6 per cent of all immigrants respectively. Of the working age immigrant population, 56.5 per cent are economically active, and 27.7 per cent of these individuals are regular wage or salary earners.

2.2.3 Education

To aid in educational development, Lesotho has made a focussed effort to improve pre-primary and primary school outcomes for children. Pre-primary education is a key factor in improving the readiness of children for primary school learning. Therefore, the government has implemented several early childhood education programmes, as well as various policies and guidelines for early childhood care to improve attendance (Lesotho Bureau of Statistics, 2019d).

According to the Lesotho Bureau of Statistics (2020a), the gross enrolment rate for primary school education fell from 115.1 to 106.7 per cent between 2010 and 2018. An improvement was observed for the net enrolment rate, increasing from 81.8 to 85.2 per cent. Thus, the total enrolment of students in primary school education has declined, but the enrolment ratio of those students within the specific age group eligible for primary school education has increased. However, both measures have been declining in recent years. In 2019, the total number of enrolled students was approximately 511 000. Although the percentage of enrolments has declined, there has been a steady increase in the absolute number of enrolled students over time.

Improvements in terms of education are reflected in the education-related indicators used in the calculation of the Human Development Index (HDI) by the United Nations Development Programme (2020). The HDI is constructed from four indicators, namely life expectancy at birth, expected years of schooling, mean years of schooling, and gross national income (GNI) per capita. The two education-related indicators measure 'knowledge', which is broken into mean years of schooling (average number of years of schooling received by individuals 25 years and older) and access to learning and knowledge (number of years of schooling that a child at school entry age can expect to receive if prevailing patterns of age-specific enrolment rates persist). As Table 6 illustrates, these two measures have been increasing steadily over the almost 30-year period.

TABLE 6 Lesotho's HDI Trends Based on Consistent Time Series Data and New Goalposts, 1990-2019

YEAR	LIFE EXPECTANCY AT BIRTH	EXPECTED YEARS OF SCHOOLING	MEAN YEARS OF SCHOOLING	GNI PER CAPITA (2017 PPP$, '000S)	HDI VALUE
1990	59.8	9.6	4.4	2.484	0.498
1995	55.8	9.9	4.6	2.313	0.483
2000	47.7	10.3	4.9	2.782	0.459
2005	42.7	10.7	5.3	2.773	0.436
2010	45.1	11.0	5.6	2.981	0.460
2015	51.0	11.2	6.1	3.077	0.503
2016	52.1	11.2	6.3	3.207	0.512
2017	52.9	11.3	6.3	3.150	0.517
2018	53.7	11.3	6.4	3.119	0.522
2019	54.3	11.3	6.5	3.151	0.527

SOURCE: United Nations Development Programme (2020)

In contrast, though, the Lesotho Bureau of Statistics (2020a) reports a rising dropout rate at the primary school level. This measure increased from 0.2 per cent to 4.1 per cent between 2015 and 2017. However, an improvement in the repetition rate from 8.5 per cent to 6.1 per cent was also observed. Repetition of grades and dropping out of school is also more prominent among boys than girls. This gender difference continues into secondary education, emphasising a problem among boys. In 2018, the number of new female entrants into lower-secondary school was also higher than eligible male entrants of the same age. Females' participation rates are also higher than those of males in both lower and upper secondary school. This is reflected in gender differences within the HDI. In 2019, expected years of schooling was 11.7 years for females, compared to 10.9 years for males, while mean years of schooling was 1.4 years higher for females (7.2 years compared to 5.8 years for males) (United Nations Development Programme, 2020).

As a result of the COVID-19 pandemic, Lesotho announced a national emergency in March of 2020, and all schools were closed (Lesotho Ministry of Education and Training, 2021). This has had a significant impact on education outcomes. The time lost to the pandemic created a large burden for the learners and their families as these learners catch up on the work missed during the school closure. It is also important to note that most students are still in rural areas. Furthermore, enrolment rates are lowest for boys in rural areas, where families rely on herding and farming to generate income (Lesotho Ministry of Education and Training, 2021). The economic shock caused by the COVID-19 pandemic will be especially difficult for these rural families to combat. The need for extra farm labour, as the families try to recover from the pandemic, will further increase the opportunity cost of going to school for these boys.

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2.2.4 Poverty and Inequality

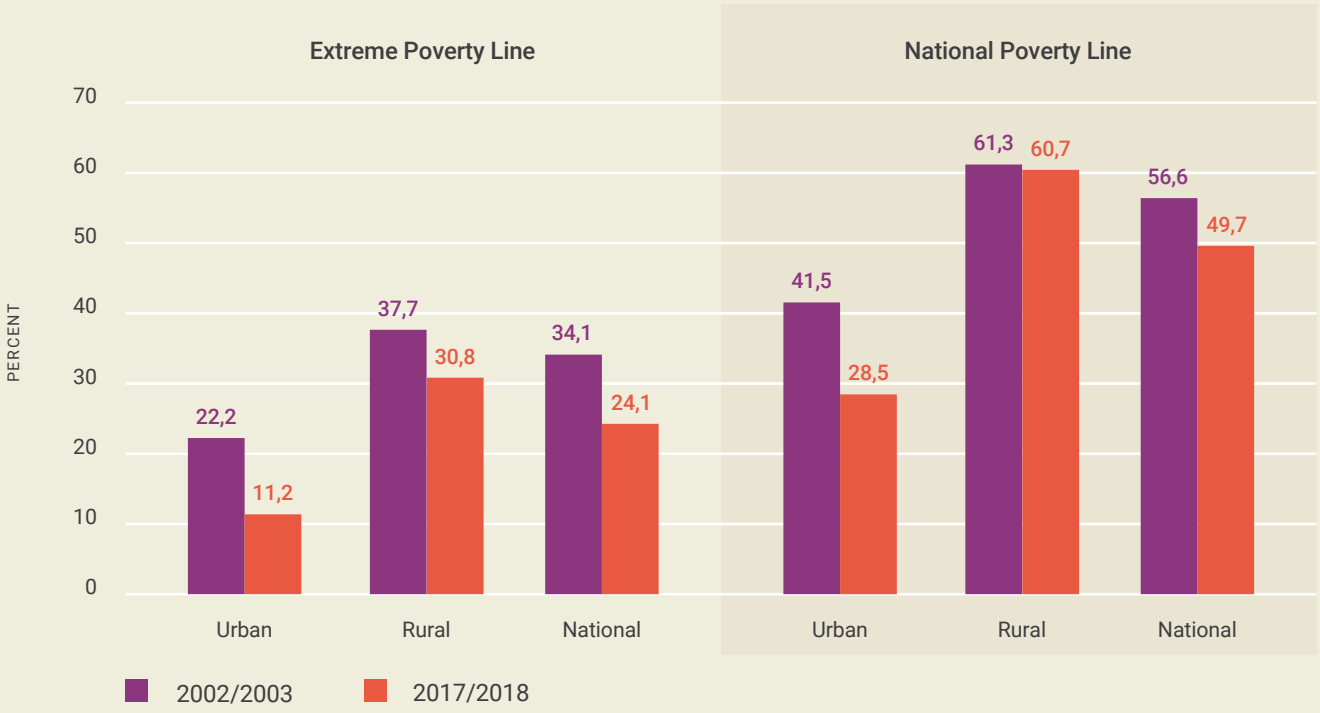
Lesotho's overall poverty rates have improved between 2002/2003 and 2017/2018 (Figure 8). Using the national poverty line (the upper-bound consumption-based threshold of 648.88 Lesotho Loti per adult equivalent per month), the poverty rate fell from 56.6 per cent nationally to 49.7 per cent over the period, a decline of 6.9 percentage points. The decline was even sharper for extreme poverty, which fell ten percentage points from 34.1 per cent to 24.1 per cent between 2002/2003 and 2017/2018. Declining poverty rates were observed for both urban and rural areas across both poverty line, although the decline in poverty in rural areas in terms of the national poverty line was tiny (a 0.6 percentage point decline to 60.7 per cent). In terms of the national poverty line, the decline in the urban poverty rate was approximately 13 percentage points from 41.5 per cent to 28.5 per cent. Extreme poverty rates—the proportion of people living below the food poverty line of 352.39 Lesotho Loti per adult equivalent per month—declined strongly in both urban (-11.0 percentage points to 11.2 per cent in 2017/2018) and rural areas (-6.9 percentage points to 30.8 per cent in 2017/2018).

The Lesotho Bureau of Statistics (2019e) also reported improvements in the poverty gap (depth of poverty, or distance separating the poor from poverty) and the squared poverty gap (a poverty measure that attaches greater weight to those furthest below the poverty line) nationally, and in both urban and rural areas, in terms of both poverty lines. Using the national poverty line, the poverty gap decreased by 8.3 percentage points in urban areas (from 19.2 per cent to 10.8 per cent), and by 4.3 percentage points in rural areas (32.0 per cent to 27.7 per cent) between 2002/2003 and 2017/2018. Nationally, the reduction was 7.1 percentage points (29.0 per cent to 21.9 per cent). Roughly four out of five poor people in Lesotho reside in rural areas, with the proportion rising to 84.1 per cent when considering extreme poverty (Lesotho Bureau of Statistics, 2019e).

Inequality, as measured by the Gini coefficient, has also declined over the period. The Gini coefficient is a commonly used measure of inequality, which ranges between zero and 100, indicating perfect equality and perfect inequality respectively. At the national level, the Gini coefficient fell from 51.9 to 44.6 between 2002/2003 and 2017/2018. Even stronger declines were observed within urban areas (-10.2 points to 41.5) and within rural areas (-8.8 points to 41.7) (Lesotho Bureau of Statistics, 2019e).

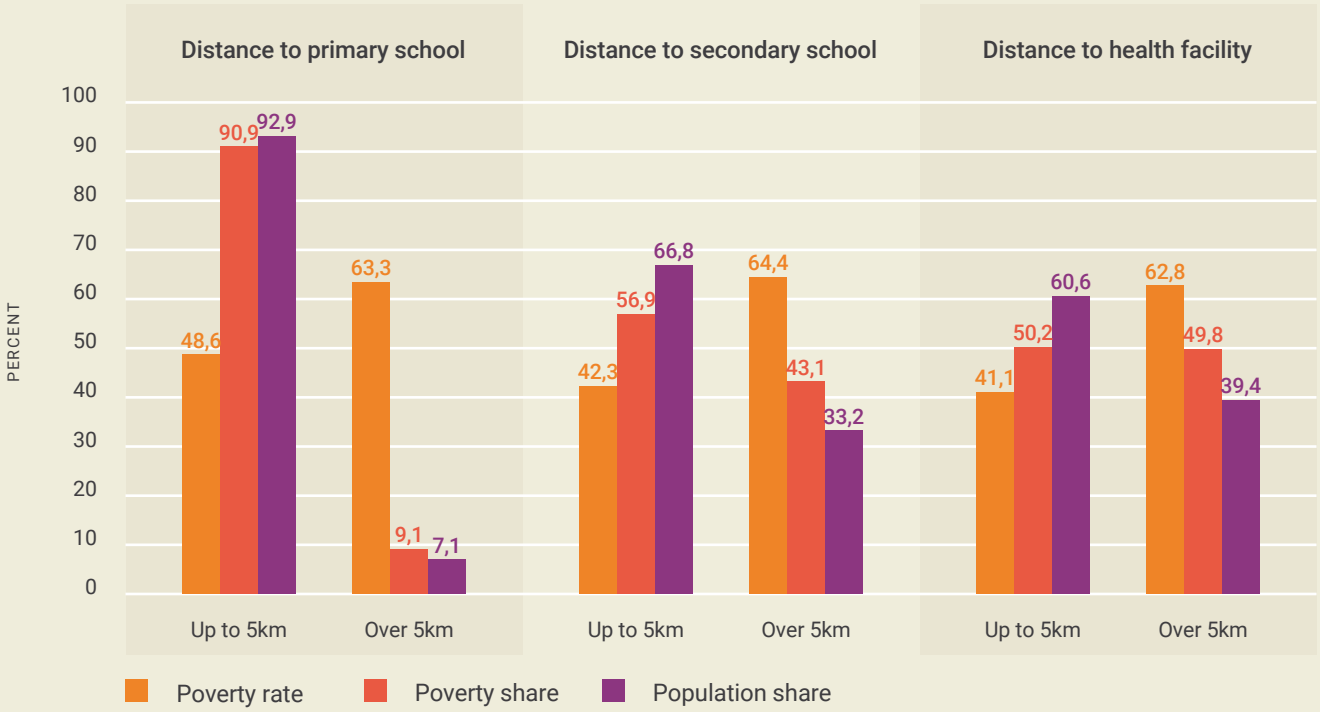
Access to basic services, education and health facilities is an essential part of human capital formation and should be prioritized to continue improving the poverty measures of Lesotho. Poverty is found to be associated with distance to educational and health facilities, with poverty rates substantially higher in areas that are distant from primary schools, secondary schools, and health facilities (Figure 9). Thus, the poverty rate is higher for individuals living more than five kilometres from a given type of facility.

FIGURE 8 Poverty Headcount Rates, 2002/2003 and 2017/2018



SOURCE: Lesotho Bureau of Statistics (2019e)

FIGURE 9 Poverty Rate by Distance to Education and Health Facilities (per cent), 2017/2018



SOURCE: Lesotho Bureau of Statistics (2019e)

The data indicates that, of all individuals residing more than five kilometres from a primary school, nearly two-thirds (63.3 per cent) were poor. However, this group constitutes a very small proportion of the population (7.1 per cent) and therefore of the poor (9.1 per cent). Poverty rates are also more than 20 percentage points higher amongst the populations that live more than five kilometres from a secondary school or from a health facility. As a result, while only one-third of Lesotho's population lives more than five kilometres from a secondary school, they constitute 43.1 per cent of the poor because of their 64.4 per cent poverty rate (compared to 42.3 per cent for those living within five kilometres from a secondary school).

General well-being is important for human development, which is why access to basic services such as water and electricity are of importance. Lesotho's poor population has inadequate access to these basic services due to a substantial overlap between money-metric poverty and other aspects of deprivation. According to the Lesotho Bureau of Statistics (2019e), only 23.7 per cent of the poor have access to electricity, and 69.4 per cent use wood as their main energy source for cooking and heating. Furthermore, the large majority of the poor still use paraffin (61.8 per cent) or candles (23.1 per cent) for lighting. More than two-thirds (68.8 per cent) of those with no access to safe water were poor in 2017/2018, as were 70.3 per cent who reported no access to a toilet.

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3

Methodology and Data

3.1 The NTA Methodology

The generational economy is defined as: "(1) the social institutions and economic mechanisms used by each generation or age group to produce, consume, share, and save resources; (2) the economic flows across generations or age groups that characterize the generational economy; (3) explicit and implicit contracts that govern intergenerational flows; (4) the intergenerational distribution of income or consumption that results from the foregoing" (Mason and Lee, 2011b, p.7).

The development of the NTA framework began with the seminal work of Lee (1994a, b), and the formal methodology has been published by the United Nations (2013). This section provides an overview of some of its key elements.

NTAs are comprised of profiles (or 'age profiles') of economic flows by single-year age cohorts, from age 0 to the very oldest (usually a combined 90+ age cohort). These flows are important in that they "reflect a fundamental feature of all societies: the economic lifecycle" (Mason and Lee, 2011a, p.55). For any individual, inflows must equal outflows and the following identity holds:

$$Y_l + Y_a + \tau^+ = C + \tau^- + S \tag{4}$$

In other words, individuals can receive resource inflows in the form of labour income (Y_l), asset income (Y_A) and transfer inflows (τ^+); consumption (C), transfers to others (i.e., transfer outflows, τ^-) and savings (S) represent the three ways in which these resources can be used. This identity can be rewritten as:

$$\underbrace{C(x) - Y_l(x)}_{\text{Lifecycle Deficit}} = \underbrace{\tau^+(x) - \tau^-(x)}_{\text{Net Transfers}} + \underbrace{Y_A(x) - S(x)}_{\text{Asset-Based Reallocations}} \underbrace{}_{\text{Age Reallocations}} \tag{5}$$

where x represents a given cohort's age. NTA distinguishes three sectors or types of institutions acting as intermediaries between individuals: the private sector (corporations and households, including household enterprises and non-profit institutions serving households); the public sector (general government); and the rest of the world (United Nations, 2013). Consumption, transfers and asset-based reallocation are all further disaggregated into public and private flows.

According to the NTA identity, the lifecycle deficit refers to the difference between consumption and labour income at each age. For the young and the elderly, consumption exceeds labour income resulting in a deficit; prime working-age adults, though, generate lifecycle surpluses, since labour income exceeds consumption.

Thus, cohorts move from a lifecycle deficit at young ages (and into young adulthood) to a lifecycle surplus during the prime working ages, and eventually back to a lifecycle deficit in old age. In terms of the NTA identity, the lifecycle deficit is financed through two potential channels, namely net transfers and asset-based reallocations. Conversely, a lifecycle surplus may be allocated to making net transfers to others (including the state) or to asset-based reallocations.

Since the focus of this paper is on the lefthand side of equation 5 (as will be explained in section 3.2), it is worth highlighting the key flows that comprise labour income and consumption. The labour income is constructed as the sum of employment earnings (which includes fringe benefits) (YLE) and self-employment earnings (YLS). Within consumption, there are typically six main profiles that may, in turn, be calculated as the sum of additional sub-profiles. There are two types of consumption that are particularly interesting from the perspective of NTA, because they are known to vary significantly and systematically with age, namely consumption of education and consumption of health. These profiles are also important in that they reflect some of the extensive investments societies make in their human capital, which is essential to harness the demographic dividend. Separate profiles are therefore constructed for the consumption of education and the consumption of health, distinguishing between private and public flows; in addition, a profile for consumption other than education and health is constructed. This yields six profiles—private consumption of education (CFE), private consumption of health (CFH), private consumption other than education and health (CFX), public consumption of education (CGE), public consumption of health (CGH), and public consumption other than education and health (CGX). Further disaggregation is possible for components of these flows, depending on data availability. This means that the lefthand side of equation 5 can be rewritten as:

$$
\begin{aligned}
\underbrace{C(x) - Y_1(x)}_{\text{Lifecycle Deficit}} &= \underbrace{CFE(x) - CFH(x) + CFX(x)}_{\text{Private Consumption}} \\
&+ \underbrace{CGE(x) - CGH(x) + CGX(x)}_{\text{Public Consumption}} \Big\}_{\text{Consumption}} \\
&- \underbrace{[YLE(x) - YLE(x)]}_{\text{Labour Income}}
\end{aligned}
\tag{6}
$$

Private transfers are disaggregated into inter-household and intra-household flows. Transfers are flows characterized by a lack of an "explicit quid pro quo", while asset-based reallocations "realize inter-age flows through inter-temporal exchange" (United Nations, 2013). Both inter-household and intra-household transfers consist of inflows and outflows. Public transfer outflows typically refer to transfers to government in the form of taxes; public transfer inflows comprise of the inflows from state-funded programmes such as education, health and social grants.

Asset-based reallocations are disaggregated both by mediating sector (private, public), and into inflows (asset income earned, dissaving) and outflows (asset income paid, saving). "[Returns] to capital, dividends, interest, rent, and the imputed return from owner-occupied housing" constitute private asset income; public asset income, on the other hand, includes "income earned from publicly owned assets and interest paid on public debt (a negative value)" (United Nations, 2013, p.58). The age profiles of public asset-based reallocations are assigned based on each age cohort's general tax payments. The argument underlying this decision is that the state's asset income and borrowing reduces the need to raise taxes, while interest payments and saving by the state must be financed by taxpayers.

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NTAs are compiled using a variety of per capita age profiles that are constructed to reflect particular resource flows at each age over the life course, for example employment earnings, private consumption of primary education, or public transfer inflows in the form of state pensions. In practice, constructing a set of accounts entails the following broad process. First, for a particular flow, a profile is constructed across age using survey or administrative data. The profile is calculated as a mean across the entire population within each single-year age cohort, and its shape is a function of behavioural and institutional factors. Where individual-level data exists, flows for each age cohort are averaged to derive the age profiles.

For example, in household surveys wage and salary data are typically available for each individual in the household; these values are averaged across all members of each age cohort, yielding a 'raw' age profile of employment earnings; if an individual earns no salary or wage income, they are included as a zero within the calculation. Where only household information is available, household-level totals are allocated either econometrically or by convention to individual household members. This intra-household allocation typically incorporates additional data on usage, enrolment or participation rates; alternatively, the allocation is made using adult equivalence scales (for example, private consumption of goods and services excluding education and health) or on a per capita basis (for example, public consumption of goods and services excluding education and health).

Second, since the raw age profiles thus constructed are often subject to noise, age profiles are smoothed using a cross-validation smoother, incorporating the unweighted number of observations as weights. Friedman's super smoother (Friedman, 1984), implemented in the supsmooth command in *Stata*, is used for this. Education age profiles are not smoothed, due to the real discontinuities in educational participation, while care is taken not to smooth over potential discontinuities in other age profiles. A smoothed profile is sometimes referred to as an 'age shape' as by this stage the shape of the profile is set.

Third, the level of the profile is adjusted multiplicatively using aggregates (referred to as aggregate controls) derived from national accounts, official government financial reports, and other official sources. The reason for this is that, once a profile is multiplied by the population in each age cohort and summed, this total will equal the relevant aggregate originally derived. In essence, this is an adjustment of the level of the profile.

Finally, these detailed aggregate-controlled age profiles are combined as per the NTA flow identity (equation 5) to derive the higher-level age profiles.

While NTA profiles are constructed with the individual as the unit of analysis (i.e. all flows are assigned to individuals rather than households) much of the data used to construct profiles is available at the level of the household. In several instances, depending on the exact structure of the available data, flows are recorded at the household-level and therefore need to be allocated to individual household members. A good example of this is the various flows related to private consumption. For education and health, where consumption is not observed at the individual level, allocations to household members are done using regression methods. For education, for example, household-level spending is regressed on the number of enrolled and non-enrolled household members of each age to derive scales of relative consumption by age; these scales are used to assign household-level spending to individual members, with the resulting individual-level allocations used to derive the profile of mean per capita consumption at each age for the population. Other private consumption (i.e. private consumption other than education or health) is allocated using a standard equivalence scale: children under 5 have a weight of 0.4, with weights increasing linearly with age to age 20, from which point it is equal to one (Mason and Lee, 2011a).

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3.2 National Transfer Accounts and the Demographic Dividend

Using the NTA framework, it is possible to derive the first and second demographic dividends expressed in terms of NTA profiles (see, for example, Mason, 2007; Mason and Lee, 2012; Mason et al., 2017).

Within an economy, the relationship between aggregate consumption C and aggregate income Y can be expressed as:

$$C(t) = Y(t) \times [1 - s(t)]$$

where S represents the savings rate and t the time period. Economic well-being is often proxied through measures such as per capita income, expenditure or consumption. In line with this practice, alternative denominators—the number of effective producers, and the number of effective consumers—are defined here to reflect the fact that consumption and labour income vary with age[2]. The number of effective consumers N is defined as:

$$N(t) = \sum_{x=0}^{\omega} \phi(x)P(x,t)$$

and the number of effective producers L is defined as:

$$L(t) = \sum_{x=0}^{\omega} \gamma(x)P(x,t)$$

Here, ϕ and Y represent "age-specific, time-invariant vectors of coefficients measuring age variation in consumption and productivity" (Mason and Lee, 2007, p.4), and $P(x,t)$ is the population of age x in time t. In essence, N and L represent aggregate consumption and aggregate labour income in a given period, calculated as the population-weighted consumption and labour income profiles.

2 This is similar to the use of an adult equivalence scale in calculating, for example, consumption per adult equivalent.

Dividing equation 7 through by the number of effective consumers yields the following:

$$\frac{C(t)}{N(t)} = \frac{L(t)}{N(t)} \times \frac{Y(t)}{L(t)} \times [1 - s(t)]$$

Thus, consumption per effective producer C/N is a function of the ratio of effective producers to effective consumers L/N (referred to as the economic support ratio), income per effective producer Y/L, and the savings rate s. Expressing equation 10 in growth terms, where $gr[z]$ denotes the growth rate of variable , yields:

$$gr\left[\frac{C(t)}{N(t)}\right] = gr\left[\frac{L(t)}{N(t)}\right] + gr\left[\frac{Y(t)}{L(t)}\right] + gr[1 - s(t)]$$

If the savings rate and the ratio of labour income to total income remain constant over time, the growth rate of consumption per effective consumer equals the growth rate of the economic support ratio, which is the first demographic dividend. Where the economic support ratio is rising, this means that the number of effective producers is rising relative to the number of effective consumers and, therefore, that consumption per effective consumer is rising. In such an environment, households and societies have greater scope to raise living standards and invest in human capital. Conversely, where the economic support ratio falls, the ability of households and societies to raise living standards and invest in human capital is constrained.

3.3 Data

The accounts constructed for this research draw on several national and international data sources, which are outlined below.

The core data source that is used to derive the shapes of the NTA profiles is the 2017/2018 Household Budget Survey (HBS), which was run as a module within the Continuous Multipurpose Household Survey (CMS) by the Lesotho Bureau of Statistics (2021e). This survey—referred to as the 2017/2018 CMS/HBS—collected data from households on a wide range of topics, including income and expenditure, health and health-related behaviours, education, well-being, household enterprises, indebtedness, and shocks to household welfare. The survey is designed to be representative at the national and subnational levels, and sampled households in both urban and rural areas. A total of 4 295 households participated in the survey (a response rate of 99.4 per cent), with 17 289 individuals covered within these households (Lesotho Bureau of Statistics, 2021d).

In addition, for the construction of the labour income profiles we use the 2018 Labour Force Survey (LFS) (Lesotho Bureau of Statistics, 2021a). The survey had a sample of 800 enumeration areas that included "12 000 households over 10 districts, four ecological zones as well as settlement type (rural, peri-urban and urban areas)" (Lesotho Bureau of Statistics, 2021b). While the primary objectives of this survey are the measurement of employment and unemployment in Lesotho, it also collected data related to underemployment, informality, child labour, migration, and social protection.

National accounts data are used to compile the aggregate control totals, which ensure that the NTA estimates are consistent with official national accounts data. National accounts data was sourced from estimates published online by the Lesotho Bureau of Statistics (2021c); the Bureau also provided certain additional unpublished estimates. In addition, reference was made to the national accounts data published by United Nations (2021), which itself draws from estimates produced by the Bureau of Statistics. Estimates of the components of public consumption—education, health, and all other—were also based on estimates published within national accounts. For the subcomponents of public consumption of education, the United Nations Educational, Scientific and Cultural Organization (UNESCO) data for Lesotho published by the World Bank (2022) on total government expenditure on education by level of education and on current expenditure as a proportion of total government expenditure on education by level of education were used to disaggregate the national accounts total.

The final major data source is the estimates and projections of the Lesotho population by single-year age cohorts, published in the United Nations' 2019 Revision of the World Population Prospects (United Nations, 2019). Baseline projections of the demographic dividend make use of the medium fertility variant. Lesotho does have official population projections for the 2016 to 2036 period (Lesotho Bureau of Statistics, 2019c). Unfortunately, they cover only two decades, roughly one-quarter of which lies in the past, and we therefore rely on the United Nations projections instead.

3.4 Aggregate Controls

As noted in section 3, aggregate control totals are used to adjust the levels of the smoothed profiles so that they are consistent with national accounts data. Once the aggregate controls are applied to these profiles, if one were to multiply the per capita profile values by the number of individuals at each age, the result would be identical to the aggregate control total. The aggregate control totals used for the NTA estimates are presented in Table 7.

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TABLE 7 Aggregate Control Values relative to GDP, 2018

FLOW	CODE	LSL (MIL)	% OF GDP
LABOUR INCOME	**YL**	**14 353**	**43.1**
Employment earnings	**YLE**	**12 419**	**37.3**
Self-employment earnings	**YLS**	**1 934**	**5.8**
CONSUMPTION	**C**	**35 979**	**108.1**
Private consumption	**CF**	**23 093**	**69.4**
Education	CFE	524	1.6
Pre-primary		1	0.0
Primary		292	0.9
Secondary		157	0.5
Tertiary		40	0.1
Health	CFH	491	1.5
Other	CFX	22 078	66.4
Public consumption	**CG**	**12 885**	**38.7**
Education	CGE	2 307	6.9
Pre-primary		3	0.0
Primary		1 287	3.9
Secondary		690	2.1
University		176	0.5
Vocational		37	0.1
All other		114	0.3
Health	CGH	1 278	3.8
Other	CGX	9 300	28.0
LIFECYCLE DEFICIT	**LCD**	**21 625**	**65.0**
GDP (2018)		**33 272**	**100.0**

SOURCE: Own calculations, Lesotho Bureau of Statistics (2021c); United Nations (2021); World Bank (2022)

Total labour income in Lesotho is estimated at LSL 14.35 billion in 2018, which is equivalent to 43.1 per cent of GDP. This amount is comprised of employment earnings of LSL 12.42 billion and self-employment earnings of LSL 1.93 billion, which are estimated from the primary allocation of income account within Lesotho's national accounts. Employment earnings is estimated by adjusting compensation of employees (LSL 13.45 billion) downwards by the pro rata share of the statistical discrepancy (the difference in the estimates of GDP by expenditure and GDP by activity), or LSL 1.03 billion. Self-employment earnings (LSL 1.93 billion) is calculated as two-thirds of gross mixed income. Gross mixed income is not distinguished from gross operating surplus within national accounts and, as a result, an allocation rule of 80:20 was applied to the combined total to estimate gross operating surplus and gross mixed income respectively.

The control total for private consumption is estimated at LSL 23.09 billion and is calculated as the combined total published in national accounts for consumption expenditure for households and non-profit institutions serving households (NPISH) (LSL 27.21 billion) less indirect taxes less subsidies (LSL 4.12 billion). The aggregate control for private consumption of health (LSL 578 million) is the sum of household consumption of health (calculated as the proportion of health within total goods and services within final consumption expenditure of households multiplied by total household consumption) and health consumption by NPISHs published by the United Nations (2021), less the pro rata share of indirect taxes less subsidies. Private consumption of education, estimated at LSL 617 million in 2018, is estimated in the same way. The control total for other private consumption is estimated as a residual. Total private consumption in 2018 is estimated at 69.4 per cent of GDP, with education and health accounting for a mere 1.6 per cent and 1.5 per cent of GDP respectively.

Total public consumption is estimated at LSL 12.89 billion in 2018, equivalent to 38.7 per cent of GDP. Within this, public consumption of education is valued at LSL 2.31 billion (6.9 per cent of GDP), while that of health is LSL 1.28 billion (3.8 per cent of GDP). The remaining LSL 9.30 billion or 28.0 per cent of GDP is public consumption other than education and health. These values are all taken from published national accounts estimates. With public consumption of education, primary education is dominant (3.9 per cent of GDP), followed by secondary education (2.1 per cent) and university education (0.5 per cent). Public consumption accounts for just over one-third (35.8 per cent) of total consumption.

Total consumption is therefore estimated at 108.1 per cent of GDP in 2018. This is 2.5 times the value of labour income in Lesotho in that year. The lifecycle deficit is calculated as consumption less labour income and is valued at LSL 21.63 billion in 2018 or 65.0 per cent of GDP.

4

National Transfer Accounts for Lesotho

4.1 Labour Income

4.1.1 Employment Earnings, Self-Employment Earnings and Labour Income

Labour income consists of employment earnings and self-employment earnings. Figure 10 presents estimates of per capita labour income and its components for Lesotho for 2018. The age profile of labour income follows the bell-curved shape that is characteristic of labour income profiles from around the world. For children, per capita labour income is zero. At age 10, it begins to increase very gradually but is still only one per cent of peak labour income—the average labour income of cohorts aged 30 to 49 years—at age 15 years. At this point, the increase in labour income begins to accelerate before increasing relatively rapidly from age 19 years onwards. By age 27 years, per capita labour income is more than 50 per cent of peak labour income and it surpasses 90 per cent at age 34 years. The labour income profile peaks at age 48 years with labour income estimated to be 12 per cent above the average for 30 to 49 year olds.

After the peak, labour income begins to decline, relatively slowly at first, but by the mid-fifties it declines almost linearly. Per capita labour income falls below 90 per cent by age 57 years, and breaches 50 per cent by age 63 years. Labour income falls by almost three-quarters from the age of 60 years (66 per cent of peak labour income) to age 69 years (18 per cent), as individuals in these cohorts rapidly exit the labour market. By age 80 years, the average person's labour income is only three per cent of peak labour income.

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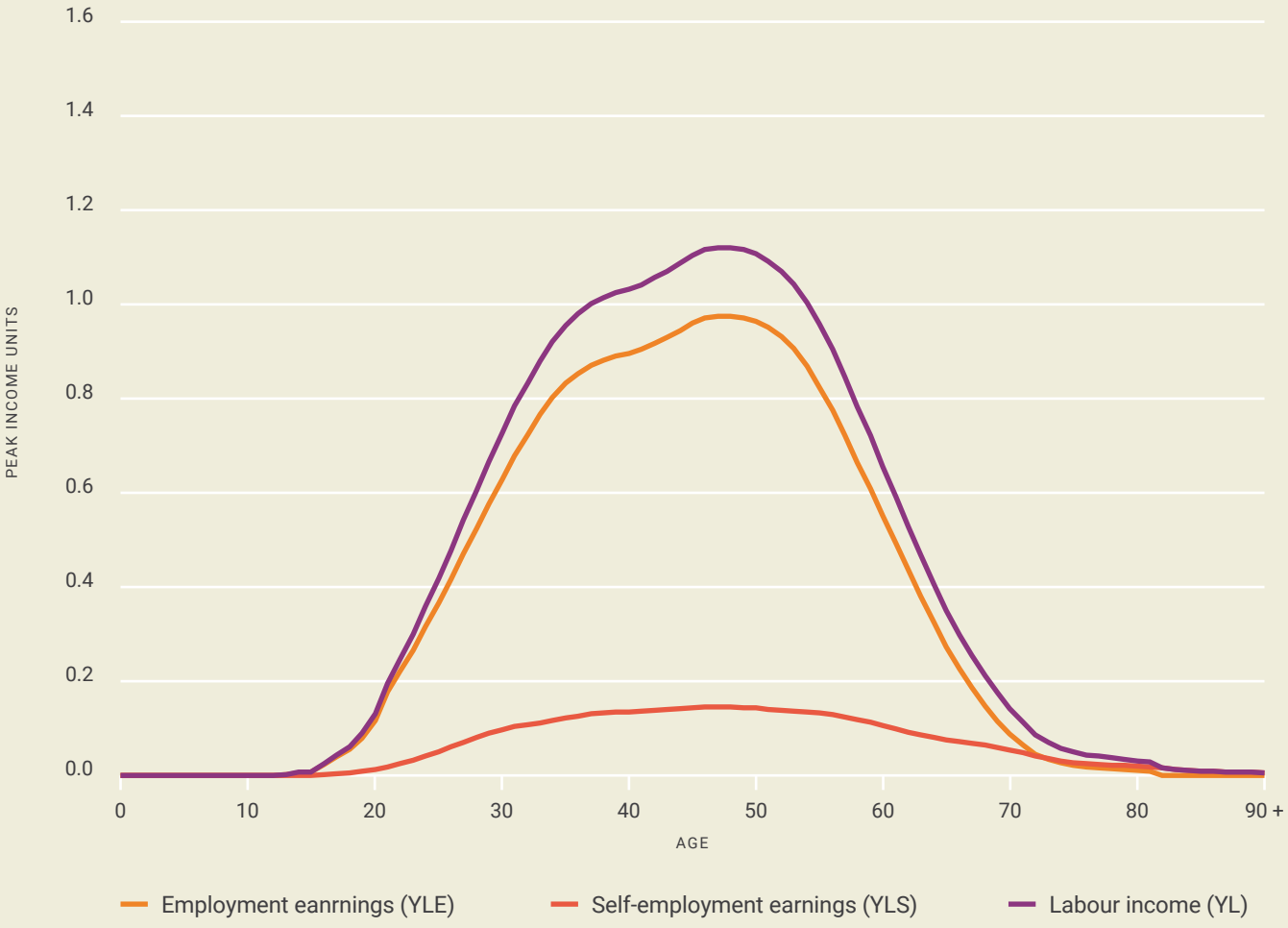
Within labour income, employment earnings is overwhelmingly dominant as noted in section 3.4 and, consequently, the employment earnings profile is very similar in shape to the labour income profile. Indeed, employment earnings account for more than 85 per cent of per capita labour income for every cohort aged 13 to 57 years. Employment earnings peaks at age 48 years at 98 per cent of peak labour income. In contrast, self-employment earnings are a relatively marginal contributor to per capita labour income for all except the oldest cohorts. It peaks at age 47 years, but at 14.6 per cent of peak labour income. For cohorts aged 34 to 58 years, self-employment earnings range between this peak of 14.6 per cent and 12 per cent of peak labour income.

FIGURE 10 Labour Income in Lesotho, 2018



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c); United Nations (2019, 2021); World Bank (2022)

NOTE: Profiles are per capita profiles.

4.1.2 Gender Differences in Labour Income

As expected, there are significant differences in the labour income profiles for males and females in Lesotho. Figure 11 presents the male and female labour income profiles relative to the overall profile and plots the difference between the two gender-specific profiles (female *minus* male). While both gender-specific labour income profiles exhibit the same general shape, there are some important differences between them.

Clearly, per capita labour income is higher for males than females across virtually all the life course, a reflection of the advantage males have in per capita employment earnings (see Figure 32). The only cohorts where this is not the case are the very oldest aged in their eighties (and one in the early teens), where per capita labour incomes are close to zero. The disadvantage in terms of per capita labour income experienced by females in Lesotho is greater than 10 per cent of peak labour income for 45 age cohorts (aged 25 to 69 years), and is at least 30 per cent of peak labour income between the ages of 33 and 62 years. At its peak in the late forties and early fifties, this difference exceeds two-thirds of peak labour income, or more than four-fifths of females' per capita labour income at that age.

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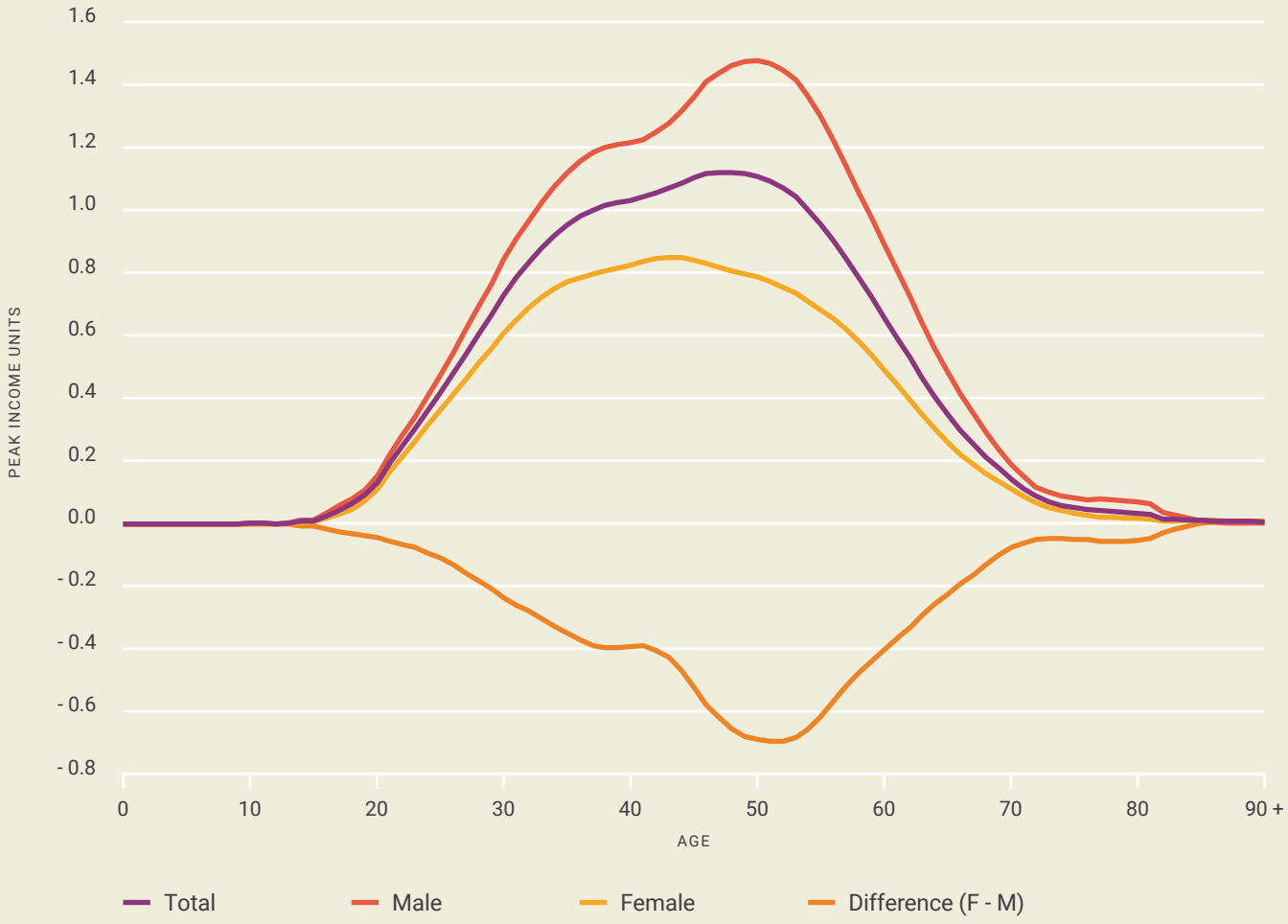
The gender difference in labour income profiles is the result of more rapid increases in per capita labour income for males for younger cohorts and a surge in male per capita labour income in the late forties as female labour income begins to fall, resulting in a significantly later decline for males relative to females. This has resulted in the fact that, while the female labour income profile is relatively symmetrical (if slightly leaning towards younger ages), that of males is tilted noticeably towards older cohorts. Thus, while per capita labour income peaks at 48 per cent above peak labour income at age 50 years for males, it peaks at age 43 years for females (at just over 85 per cent of peak labour income). Importantly, however, the female labour income profile is relatively flat around this peak, indicating a plateauing of per capita labour incomes for females over a range of ten age cohorts or more.

FIGURE 11 Labour Income in Lesotho by Gender, 2018



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c); United Nations (2019, 2021); World Bank (2022)

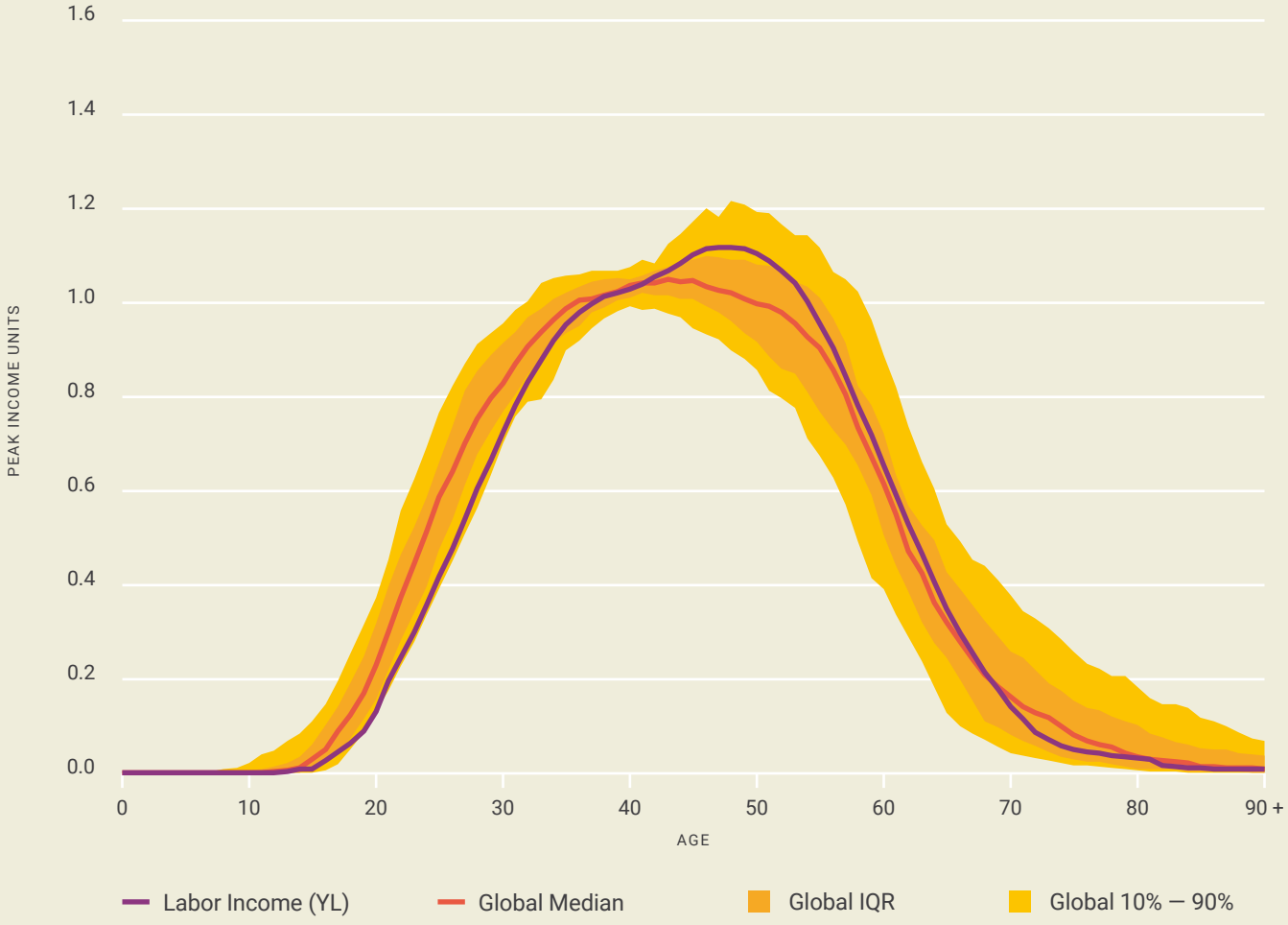
NOTE: The difference between the male and female profiles is calculated as the female profile minus the male profile. The gender-specific employment and self-employment earnings profiles are presented in the Appendix (section 9.3).

It is important to note that these differences in labour incomes between males and females are the result of a range of possible factors. This is because these profiles are constructed as averages across individuals within each age cohort and therefore reflect, amongst other factors, differing levels of labour market engagement. For example, differences between males and females in labour force participation and employment rates, educational attainment, the occupational distribution of employment, or hours worked would all contribute towards widening or narrowing the gender gap in per capita labour incomes. Further, women's temporary or permanent exit from the labour force during the prime childbearing and childrearing ages also serves to drive a wedge between the per capita labour incomes of men and women. Similarly, any discrimination against women within the labour market would also contribute towards creating a gap between the male and female labour income profiles.

4.1.3 Labour Income in a Global Context

Figure 12 presents Lesotho's labour income profile relative to those of 66 countries for which there are currently data in the NTA database. The cross-country estimates, using only each country's most recent estimates, are summarized in two ways. First, the global median represents the profile that results by taking the median per capita labour income across countries at each age. Second, the shaded areas represent different ranges of values taken by per capita labour income in countries, with the interquartile range representing the 'middle' 50 per cent of values, between the 25th and 75th percentiles. The lightly shaded area represents the range between the 10th and 90th percentiles; the per capita labour income estimates of 80 per cent of countries in the NTA database fall within this range. To enable this cross-country comparison, all countries' profiles are expressed relative to the average country-specific labour income for cohorts aged 30 to 49 years.

FIGURE 12 Labour Income for Lesotho in Comparison to Global Estimates



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c); United Nations (2019, 2021); World Bank (2022); National Transfer Accounts Project (2022)

NOTE: All country estimates are standardized by dividing by the country-specific average labour income for cohorts aged 30 to 49 years. Countries and year of latest estimate included are: Argentina (2016); Australia (2010); Austria (2010); Benin (2007); Burkina Faso (2014); Brazil (2008); Botswana (2010); Cambodia (2009); Cameroon (2014); Canada (2011); Central African Republic (2008); Chad (2011); Chile (2018); China (2014); Côte d'Ivoire (2014); Colombia (2014); Costa Rica (2013); El Salvador (2010); Eswatini (2011); Ethiopia (2005); Finland (2006); France (2011); Gabon (2005); Gambia (2015); Germany (2008); Ghana (2005); Guinea (2012); Guinea-Bissau (2010); Hungary (2005); Indonesia (2005); India (2004); Italy (2008); Jamaica (2002); Japan (2004); Kenya (2005); Laos (2012); Maldives (2010); Mali (2015); Mauritania (2014); Mexico (2014); Moldova (2014); Mongolia (2014); Mozambique (2008); Namibia (2012); Niger (2014); Nigeria (2016); Peru (2007); Philippines (2015); Poland (2012); the Russian Federation (2016); Saõ Tomé and Príncipe (2012); Senegal (2011); Sierra Leone (2011); Singapore (2013); Slovenia (2010); South Africa (2005); South Korea (2016); Spain (2008); Sweden (2006); Taiwan (1998); Thailand (2017); Timor-Leste (2011); Turkey (2006); United States (2011); Uruguay (2013); and Vietnam (2008).

Several features of the shape of the Lesotho labour income profile become evident in this comparison. First, labour income is low for young people in Lesotho when compared to their counterparts in most other countries. This is the result of a significantly slower increase in labour income amongst cohorts in the latter half of the teens. While per capita labour income in Lesotho was almost identical to that of the median country at age 14 years, by age 20 it was 9.8 per cent of peak labour income (of 0.098 peak labour income units) lower. At its peak in the mid-twenties, per capita labour income in Lesotho was 16.9 per cent of peak labour income lower than that in the median country. This puts Lesotho below the 25th percentile of countries for all cohorts in their twenties. This finding is characteristic of countries in Southern Africa that experience high levels of youth unemployment, including South Africa (Oosthuizen, 2015), Botswana (African Institute for Development Policy, 2018) and Namibia (Republic of Namibia, 2018). Low per capita labour incomes amongst youth cohorts may also indicate marginalisation of young people into lower productivity activities, such as found in the informal sector.

Second, labour income peaks later in Lesotho than in the median country. As noted, labour income in Lesotho peaks at age 48 years; in the median country, it occurs three years earlier at age 43 years. Unlike the median labour income profile, which has a relatively flat peak— between the ages of 36 and 51 years (16 cohorts), per capita labour income remains within a range of 0.05 peak income units (from 1.00 to 1.05)— the Lesotho profile has a sharper peak, with only eight cohorts within 0.05 income units from the profile's maximum. In contrast to youth cohorts, Lesotho's labour income profile for cohorts around this peak is in the top quartile of countries for which estimates are available.

Finally, labour income amongst elderly cohorts in Lesotho is low in comparison to many other countries. As is the case for youth, all cohorts aged 69 years and older have lower per capita labour income than the median country. The gap is particularly pronounced in the early seventies, ranging between 0.040 and 0.048 income units between the ages of 72 and 74 years. This, on its own, is not necessarily a concern, although it does mean that elderly cohorts would be more dependent on other sources—transfer inflows from the state, from their own or other households, or asset income or dissaving—to finance their consumption. The generosity of transfers and the extent of accumulated assets in old age are, then, an important determinant of consumption for elderly cohorts. In addition, the exact source of financing for consumption would have important implications for the realisation of a second demographic dividend.

4.2 Consumption

Section 3 outlined some of the flows that are included within NTA, with the components of consumption detailed in equation 6. The shapes of the six main sub-profiles within consumption in Lesotho—private consumption of education, private consumption of health, private consumption other than education and health, public consumption of education, public consumption of health, and public consumption other than education and health—are described below.

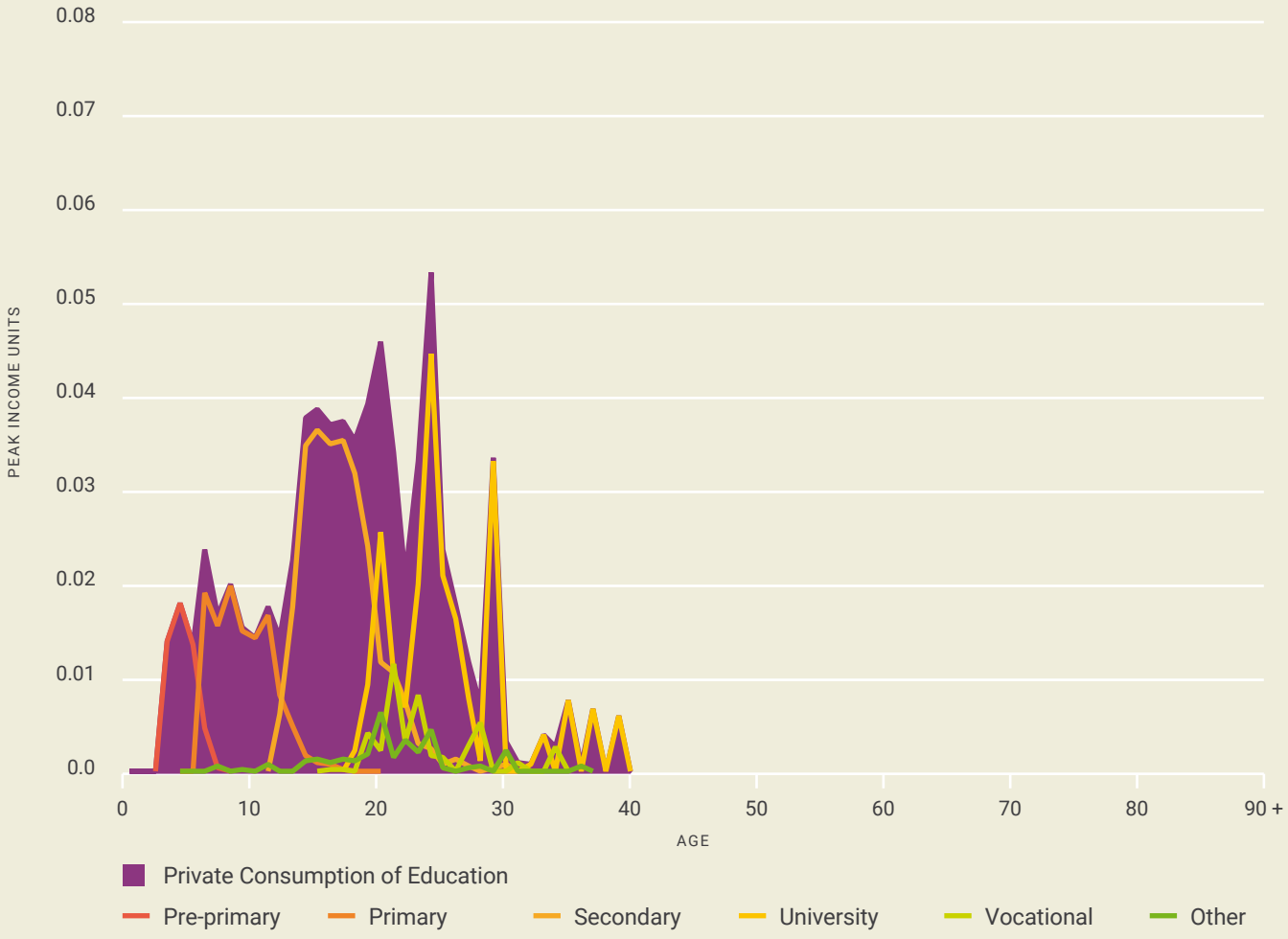
4.2.1 Consumption of Education

Within NTA, private consumption of education includes all consumption of education by households, and includes spending on "tuition, books and fees, school supplies for all school levels including pre-school, and tutoring expenses [as well as] spending on reference materials and self-improvement classes (art classes, music classes, etc.)" (United Nations, 2013, p.98).

The private consumption of education profile for Lesotho is presented in Figure 13 and is constructed from six sub-profiles reflecting different levels of education. The sub-profiles are for pre-primary, primary, secondary, university and vocational education, as well as a final 'other' category that includes education that does not fit in any of these categories. It is important to remember that these profiles are the outcome of the level of spending per pupil or student in combination with the enrolment rate for a particular level of education. In other words, a given level of per capita consumption of education may be the result of different combinations of spending per student and enrolment rates. Private consumption of education refers to consumption of education that is mediated by the private sector; it therefore includes spending related to both public and private educational institutions.

The figure clearly illustrates how different educational levels rise and fall in importance over the life course, displacing each other in sequence. Thus, private consumption of education is driven initially by pre-primary education (peaking at age four years in per capita consumption terms), then by primary education (peaking between the ages of six and eight years), and then by secondary education (peaking at ages 14 to 18 years). In per capita consumption terms, pre-primary and primary education peak at similar levels (just under two per cent of peak labour income), likely the result of relatively high spending and lower enrolment for the former and relatively high enrolment and lower spending for the latter. Private consumption of secondary education peaks at just under four per cent of peak labour income; this is driven by significantly increased spending per pupil relative to primary education, which outweighs lower enrolment. Private consumption of university education peaks slightly higher, but the peak is short-lived, while the peak for vocational education is just 1.2 per cent of peak labour income at age 21 years.

FIGURE 13 Private Consumption of Education in Lesotho, 2018



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021c, e); United Nations (2019, 2021); World Bank (2022)

Overall, then, private consumption of education rises from zero before age three years to an average of 1.7 per cent of peak labour income from the age of three to age 12 years. From age 13 to age 24 years, per capita consumption of education averages 3.6 per cent of peak labour income, largely due to secondary and university education. Apart from a few spikes caused by university education, the average per capita consumption then falls to less than one per cent of peak labour income for cohorts aged 25 to 39 years, beyond which it is zero.

The public consumption of education profile is similarly constructed from the six underlying sub-profiles and is presented in Figure 14. Of the six sub-profiles, those for primary and secondary education are dominant. Per capita public consumption of primary education peaks at between 19 per cent and 21 per cent of peak labour income from ages nine through 12 years, while it is above 10 per cent of peak labour income from ages six through 14 years. Per capital public consumption of secondary education is slightly lower, peaking at age 16 years at 15.5 per cent of peak labour income. For cohorts aged 14 through 17 years, public consumption of secondary education is above 12 per cent of peak labour income. In terms of consumption of university education, per capita levels are much lower and average 2.8 per cent of peak labour income across the cohorts aged 20 to 26 years. Here, high expenditures per student are combined with relatively low enrolment rates, such that per capita consumption is relatively low. For pre-primary, vocational and other education, per capita public consumption levels are much lower, and never exceed one per cent of peak labour income.

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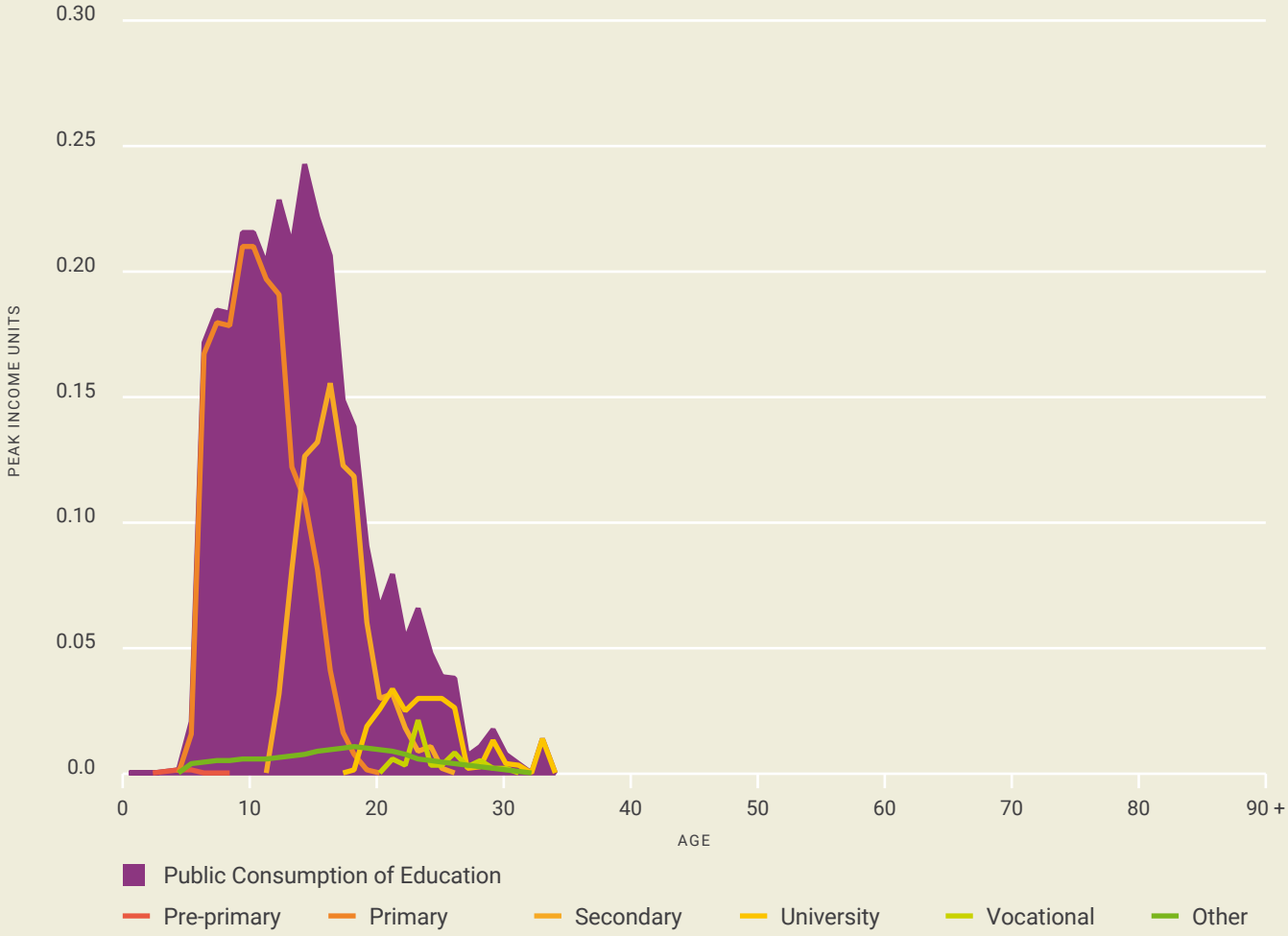
FIGURE 14 Public Consumption of Education in Lesotho, 2018



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021c, e); United Nations (2019, 2021); World Bank (2022)

Overall, public consumption of education rises from very low levels for children under four years, to 18.5 per cent of peak labour income by age seven years. For cohorts aged nine to 16 years, per capita public consumption of education ranges between 20.2 per cent and 24.3 per cent of peak labour income, after which consumption declines sharply to 9.0 per cent by 19 years of age. The decline in public consumption of education for cohorts in their twenties is slower but drops below one per cent of peak labour income at age 27 years.

4.2.2 Consumption of Health

The consumption of health consists of private consumption of health and public consumption of health. Private consumption of health includes all directly health care-related consumption spending by individuals and their households and is estimated using individual-level health-care spending as reported in the 2017/2018 CMS/HBS[3]. The private consumption of health profile is presented in Figure 15.

Typically, health consumption profiles follow a J-curve shape: relatively high per capita consumption for infants and the very young, lower consumption for children and teenagers, and beyond that rising consumption into old age. This pattern is observed for Lesotho too in both the private and public consumption of health profiles. Per capita private consumption of health is estimated at 0.9 per cent of peak labour income at age one and 1.2 per cent at age two but falls to less than 0.5 per cent of peak labour income by age eight and remains there until age 16 years. From age 13 years onwards, per capita consumption is rising: it reaches 1.0 per cent of peak labour income at age 20 years, 2.0 per cent by age 40 years, and 3.0 per cent by age 60 years. By age 70 years, it is estimated at 3.6 per cent of peak labour income. The pattern of rising per capita private consumption of health with age up to this point suggests the possibility of even higher levels of consumption for older cohorts; however, since the underlying survey data codes all individuals aged 70 years and older as aged 70, the profile is flat—implying constant consumption levels—for cohorts over the age of 70 years.

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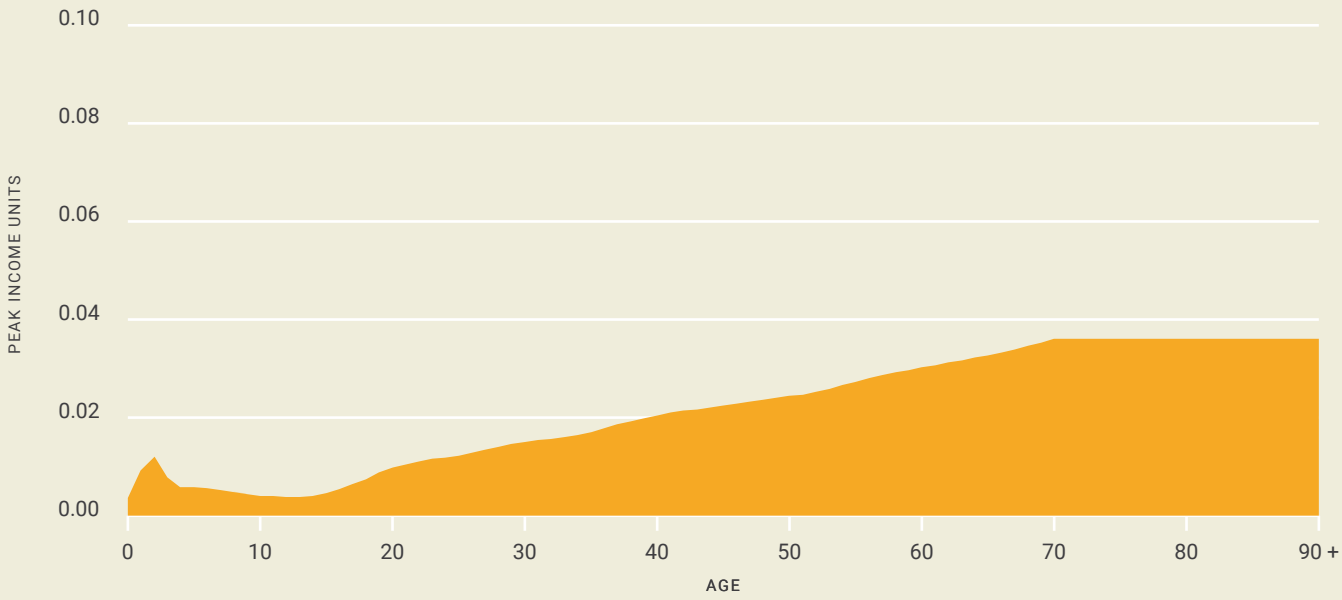
3 The estimation process is described in more detail in section 9.1.4 in the Appendix.

FIGURE 15 Private Consumption of Health in Lesotho, 2018



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021c, e); United Nations (2019, 2021); World Bank (2022)

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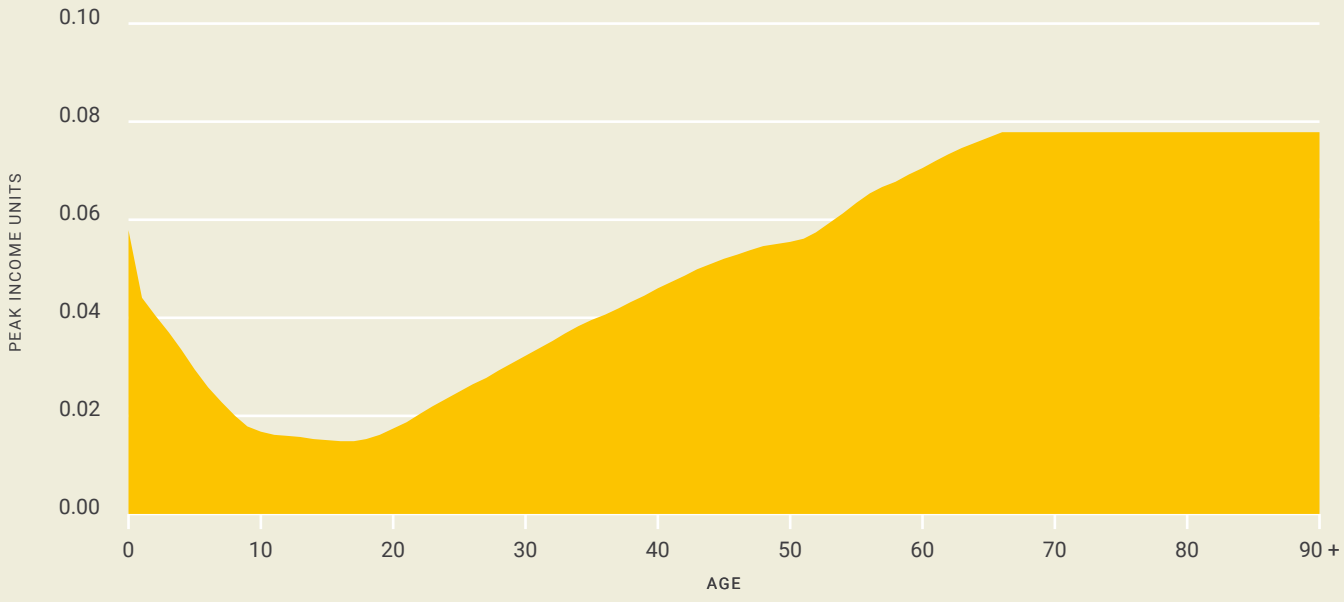
A similar pattern is observed for the public consumption of health in Figure 16, which is constructed using utilisation rates of public health-care services (see section 9.1.5). Per capita public consumption of health is slightly higher than per capita private consumption of health at all ages. For infants under the age of one-year, public consumption of health averages 5.8 per cent of peak labour income per capita but falls sharply through early childhood. From the age of nine years to 20 years, consumption generally ranges between 1.5 per cent and 1.8 per cent of peak labour income, falling to just under 1.5 per cent at ages 15 through 17 years. Thereafter, per capita public consumption of health increases consistently with age, reaching 5.0 per cent of peak labour income at age 44 years, 6.0 per cent at age 54 years, and 7.0 per cent at age 60 years. For cohorts over the age of 65 years, public consumption of health is estimated at 7.8 per cent of peak labour income per capita.

FIGURE 16 Public Consumption of Health in Lesotho, 2018



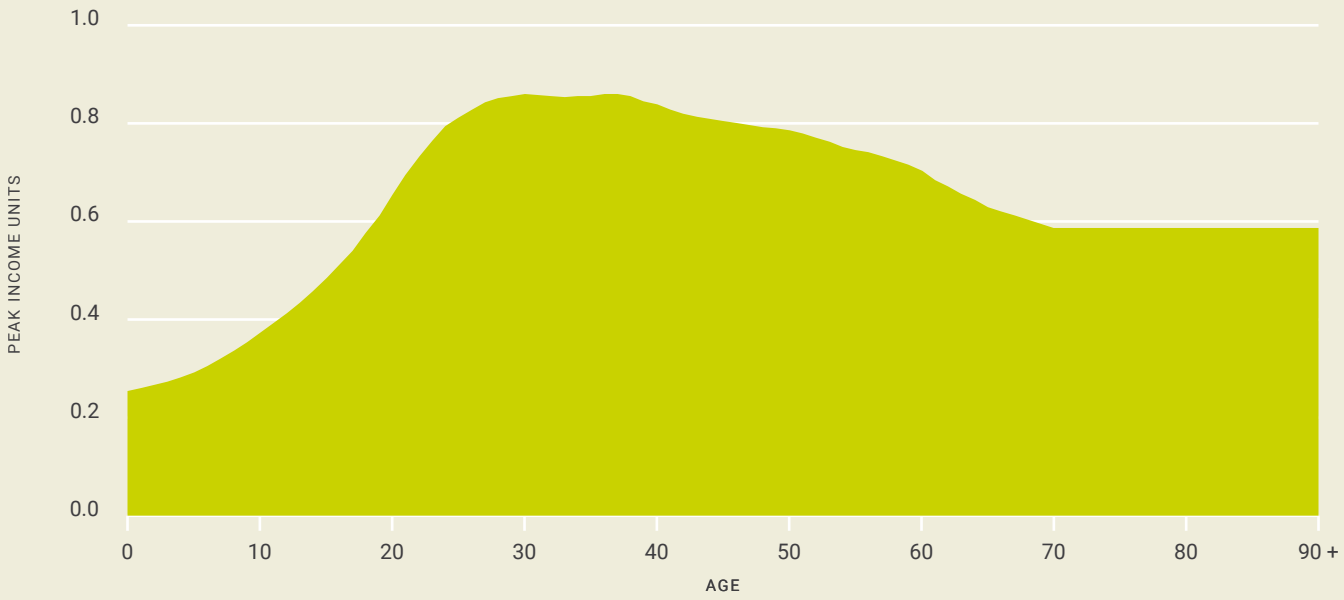
SOURCE: Own calculations, Lesotho Bureau of Statistics (2021c, e); United Nations (2019, 2021); World Bank (2022)

4.2.3 Consumption other than Education and Health

The pattern of consumption for the remaining components of consumption, having excluded education and health, is typically estimated as a single profile for each of the private and public sectors. The details of the estimation process for private consumption other than education and health are provided in section 9.1.6 in the Appendix. On the private side, consumption other than education and health is all consumption that does not fall into these two categories and includes categories such as food, clothing, recreation, utilities, and transportation, for example. On the public side, all other government consumption spending falls within this category (i.e. consumption spending within ministries such as finance, development planning, justice, and trade and industry, for example).

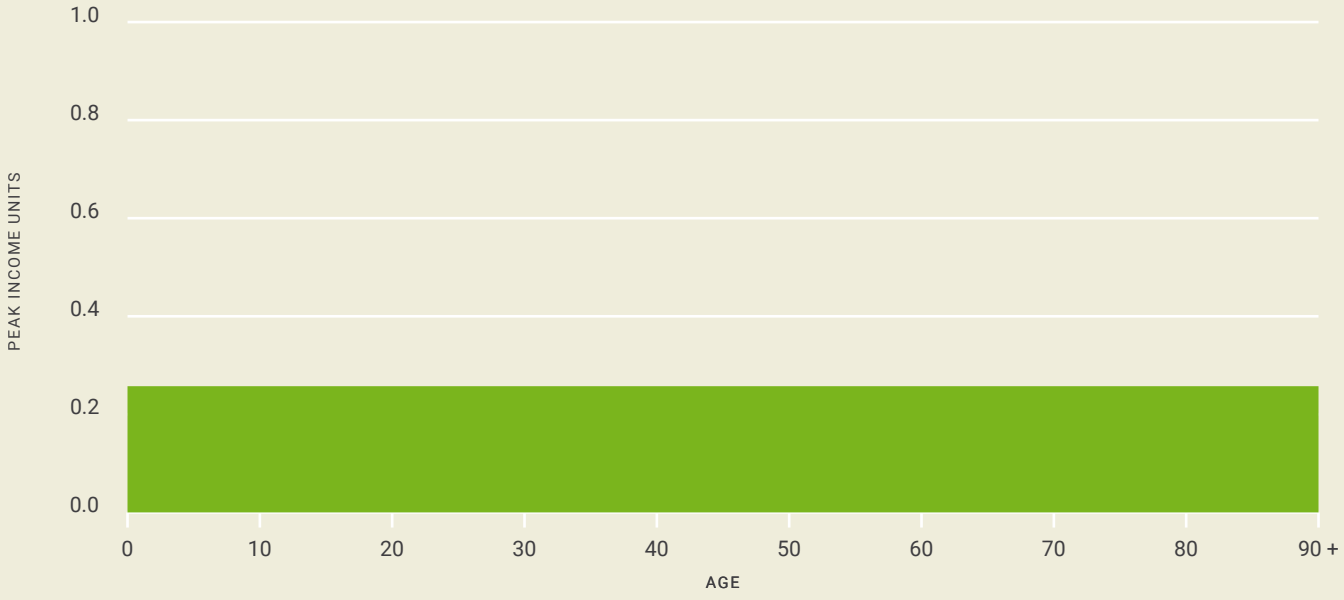
The profile for private consumption other than education and health is presented in Figure 17. It should be noted that the scale of the y-axis for this figure is very different to those of earlier figures illustrating consumption profiles. For this profile, per capita consumption is lowest for the youngest cohorts, but rises steeply to peak during the late twenties and thirties, before gradually falling again. Per capita consumption other than education and health starts at 25.5 per cent of peak labour income at age zero, but rises rapidly with age. It reaches 37.4 per cent of peak labour income by age 10 years, 65.5 per cent by age 20 years, and breaches the 84 per cent level by 27 years of age. From the age of 27 until age 39 years, consumption ranges between 84 per cent and just over 86 per cent of peak labour income, with a peak of 86.1 per cent at age 37 years. As age increases beyond this point, per capita consumption levels decline gradually. Thus, by the age of 61 years private consumption other than education and health has fallen to less than 70 per cent of peak labour income. For cohorts aged 70 years and older, per capita consumption other than education and health is estimated at 58.8 per cent of peak labour income.

FIGURE 17 Private Other Consumption in Lesotho, 2018



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021c, e); United Nations (2019, 2021); World Bank (2022)

FIGURE 18 Public Other Consumption in Lesotho, 2018



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021c); United Nations (2019, 2021); World Bank (2022)

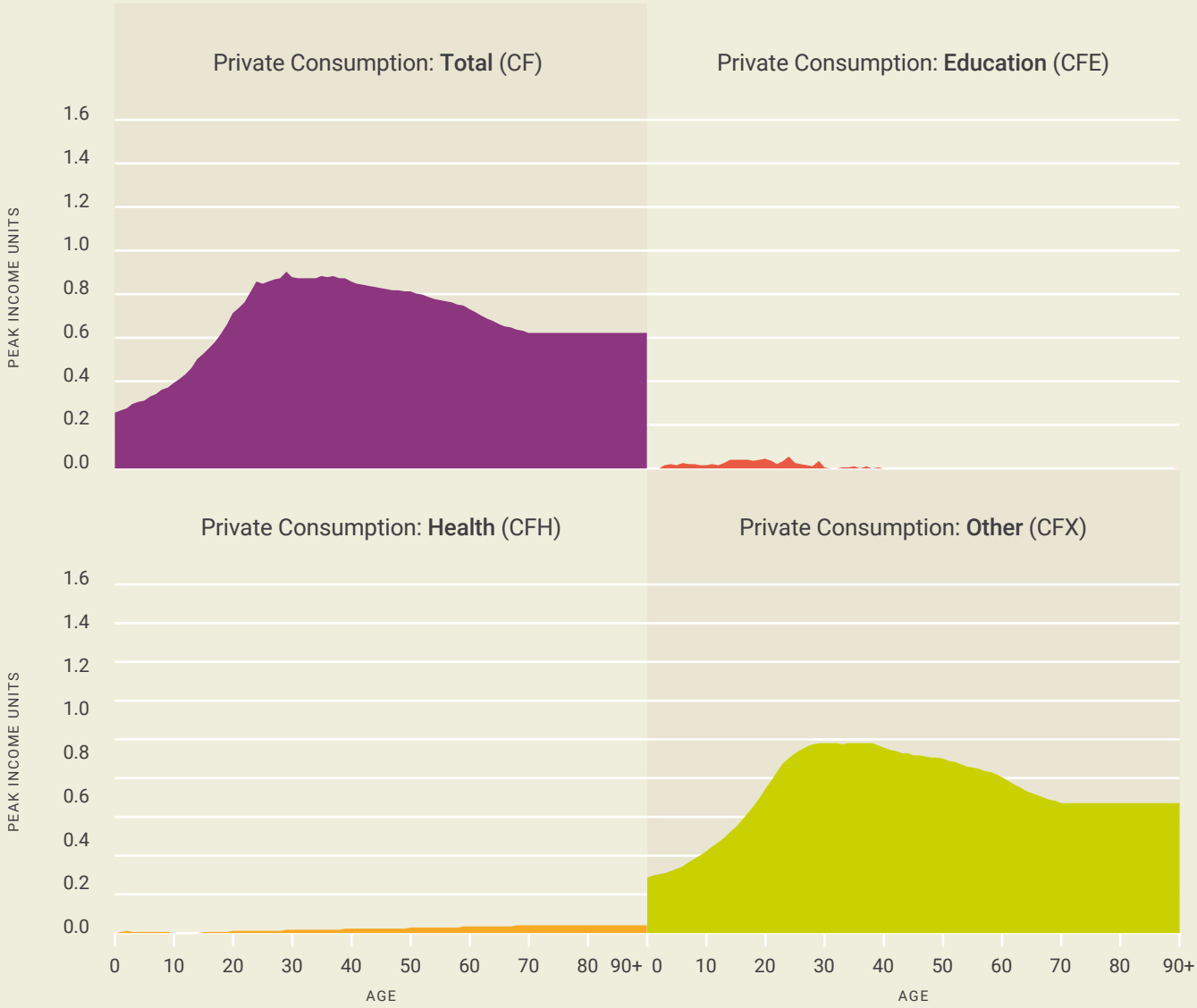
For public consumption other than education and health, the profile is very simple because such consumption is allocated on a per capita basis to all individuals within the population. The resulting profile, presented in Figure 18, is therefore a horizontal line. In the case of Lesotho, per capita public consumption other than education and health is estimated at 25.7 per cent of peak labour income across all ages.

4.2.4 Private and Public Consumption

The six profiles of the components of consumption can be aggregated at either the functional level (i.e. education, health, other) or at the sectoral level (i.e. private, public). In this section, the aggregated profiles are presented at the sectoral level, while also using the same scale to make comparisons across profiles easier.

Figure 19 presents private consumption for Lesotho in 2018, as well as the three components of private consumption. It is immediately evident from the figure that the pattern of private consumption other than education and health dominates over the patterns of consumption for education and health. As a result, total private consumption follows a similar path as private consumption other than education and health over the life course. Starting at 25.8 per cent of peak labour income at age zero, private consumption increases rapidly, to surpass three-quarters of peak labour income by age 22 years. Private consumption peaks at the age of 29 years at 90.5 per cent of peak labour income, before falling gradually as age increases. By age 63 years, per capita private consumption falls below 70 per cent of peak labour income and is estimated at more than three-fifths (62.4 per cent) of peak labour income for cohorts aged 70 years and above.

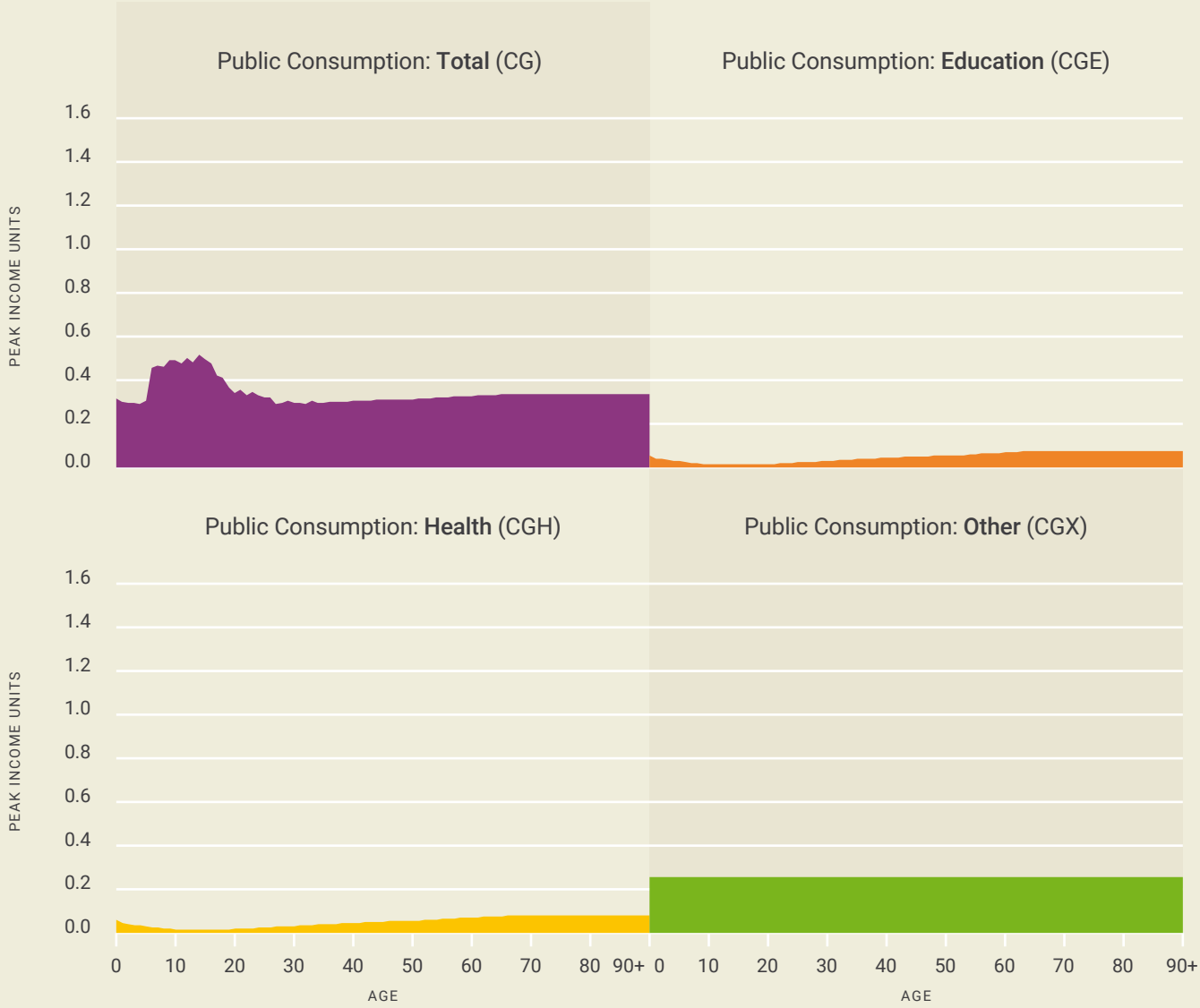
FIGURE 19 Private Consumption in Lesotho, 2018



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021c, e); United Nations (2019, 2021); World Bank (2022)

The picture is somewhat different in terms of public consumption (Figure 20). Here, consumption of education peaks at a level that is comparable with the level of public consumption other than education and health. Even though per capita public consumption of health peaks at a lower level than the other two public consumption profiles, it is still almost one-third as large as public consumption other than education and health. As a result, the total public consumption profile bears features of all three of the underlying profiles: falling consumption for the youngest cohorts linked to health consumption; a steep rise and fall during the school-going ages in particular, linked to consumption of education; a gradual increase with age for older cohorts linked again to consumption of health; and, underlying this, the base of other public consumption.

FIGURE 20 Public Consumption in Lesotho, 2018



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021c, e); United Nations (2019, 2021); World Bank (2022)

Public consumption is, however, substantially lower in per capita terms than private consumption over most of the life course, the only exceptions being cohorts under the age of three years and those aged six to 14 years. Per capita public consumption starts at just over one-third of peak labour income (31.5 per cent) and falls to 29.2 per cent at age four years. Thereafter, it increases rapidly as children enter the school-going ages, averaging almost half of peak labour income for the cohorts aged six through 16 years. Public consumption then falls to a low of 29.2 per cent of peak labour income (age 27 years) before resuming a gradual upward trend due to rising public consumption of health. For cohorts aged 70 years and older, public consumption per capita averages 33.5 per cent of peak labour income, just over half the level of private consumption.

4.2.5 Total Consumption

Figure 21 presents the total consumption profile along with the profiles for private and public consumption. The combined effects of the two sets of profiles mean that per capita total consumption is at its lowest for infants at 57.3 per cent of peak labour income. Initially due to the steep increase in public consumption of education and then due to rapidly rising other private consumption, the total consumption profile rises rapidly from age five years onwards (see also Figure 22). Per capita total consumption surpasses 85 per cent of peak labour income by age nine years and 100 per cent by age 14 years. For all cohorts aged 14 to 64 years, total consumption exceeds 100 per cent of peak labour income; for those aged 23 to 53 years, it exceeds 110 per cent. Per capita consumption in Lesotho in 2018 peaks at age 29 years at 121.0 per cent of peak labour income, but declines gradually and, from the late thirties onwards, consistently as age increases. While per capita consumption falls below 100 per cent of peak labour income at age 65 years, it is estimated at 95.9 per cent for cohorts aged 70 years and above. In other words, for all but the first 12 age cohorts, per capita consumption is at least 90 per cent of peak labour income in Lesotho; for 51 of the 91 age cohorts, per capita consumption is greater than peak labour income.

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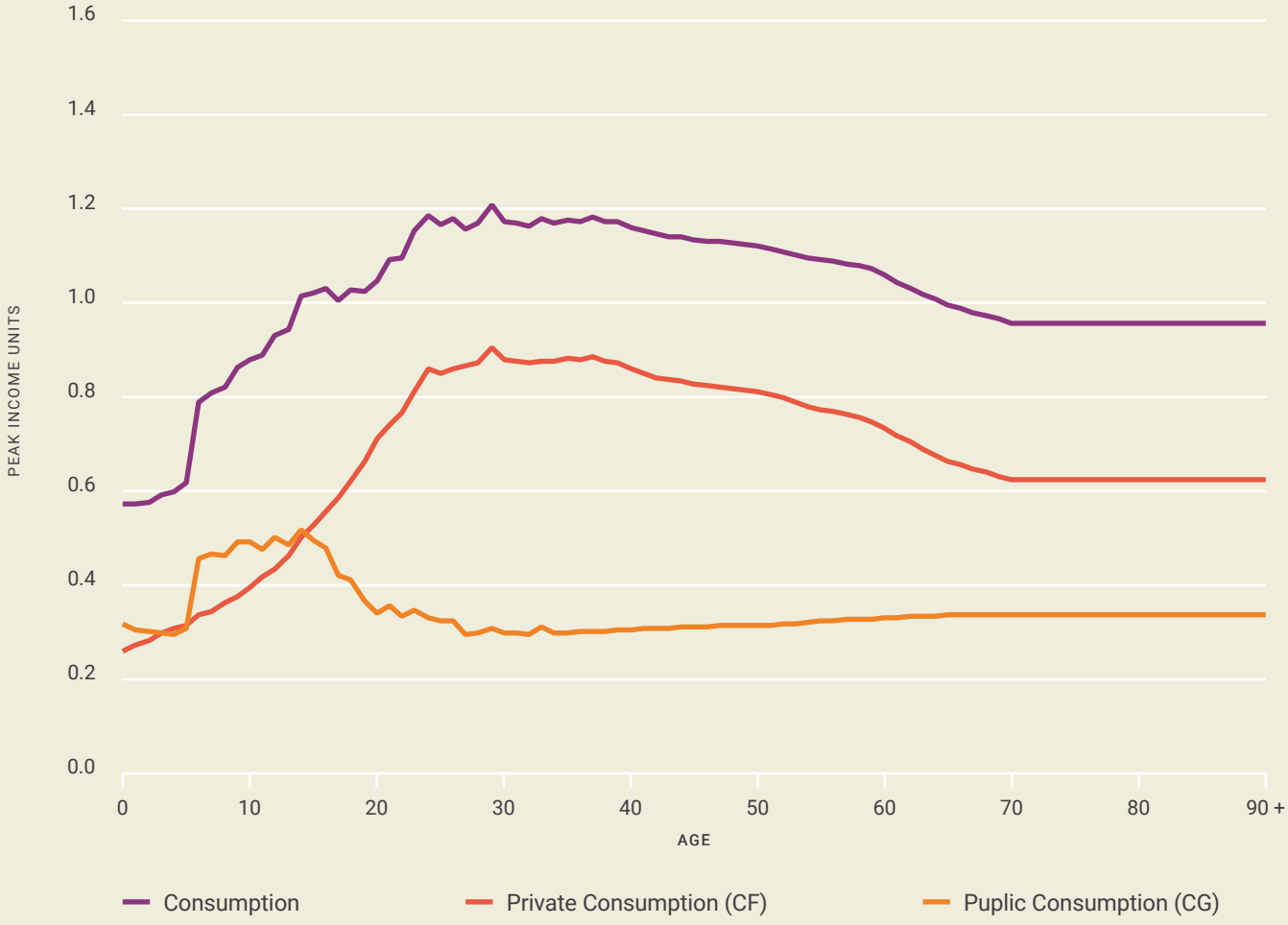
FIGURE 21 Consumption in Lesotho, 2018

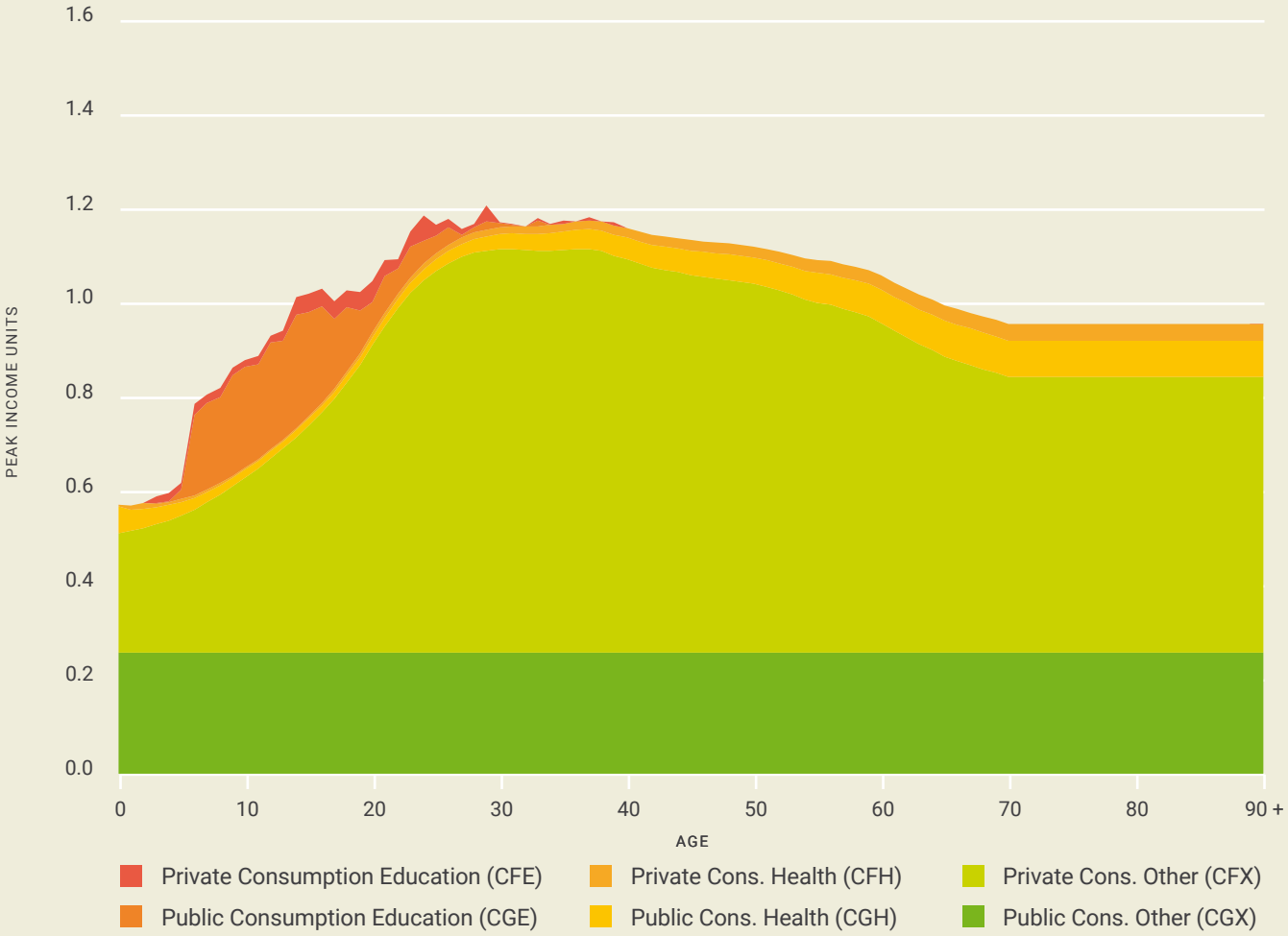


SOURCE: Own calculations, Lesotho Bureau of Statistics (2021c, e); United Nations (2019, 2021); World Bank (2022)

The figure also highlights the extent to which the relative importance of private and public consumption changes over the life course. For children, private consumption and public consumption are very similar in per capita terms. Thus, under the age of 16 years, private consumption accounts for between 42.4 per cent and 51.7 per cent of total consumption. During the late teens and twenties, however, private consumption becomes dominant: by age 27 years, private consumption accounts for just under three-quarters (74.8 per cent) of total consumption, a level that it maintains until age 39 years. For older cohorts, private consumption gradually declines in importance, although it never falls far below two-thirds. For the oldest cohorts, private consumption accounts for 65.1 per cent of total consumption, lower than for all cohorts aged 20 years and older.

The contributions of specific components to total consumption are illustrated in Figure 22, which stacks the six underlying consumption profiles so that the upper bound of the area graphs represents per capita total consumption. These profiles have been described already and are therefore not discussed in detail here. Nevertheless, the figure clearly illustrates the importance of private consumption other than education and health within total consumption, and the importance of public consumption relative to private consumption in the areas of education and health.

FIGURE 22 Components of Consumption in Lesotho, 2018



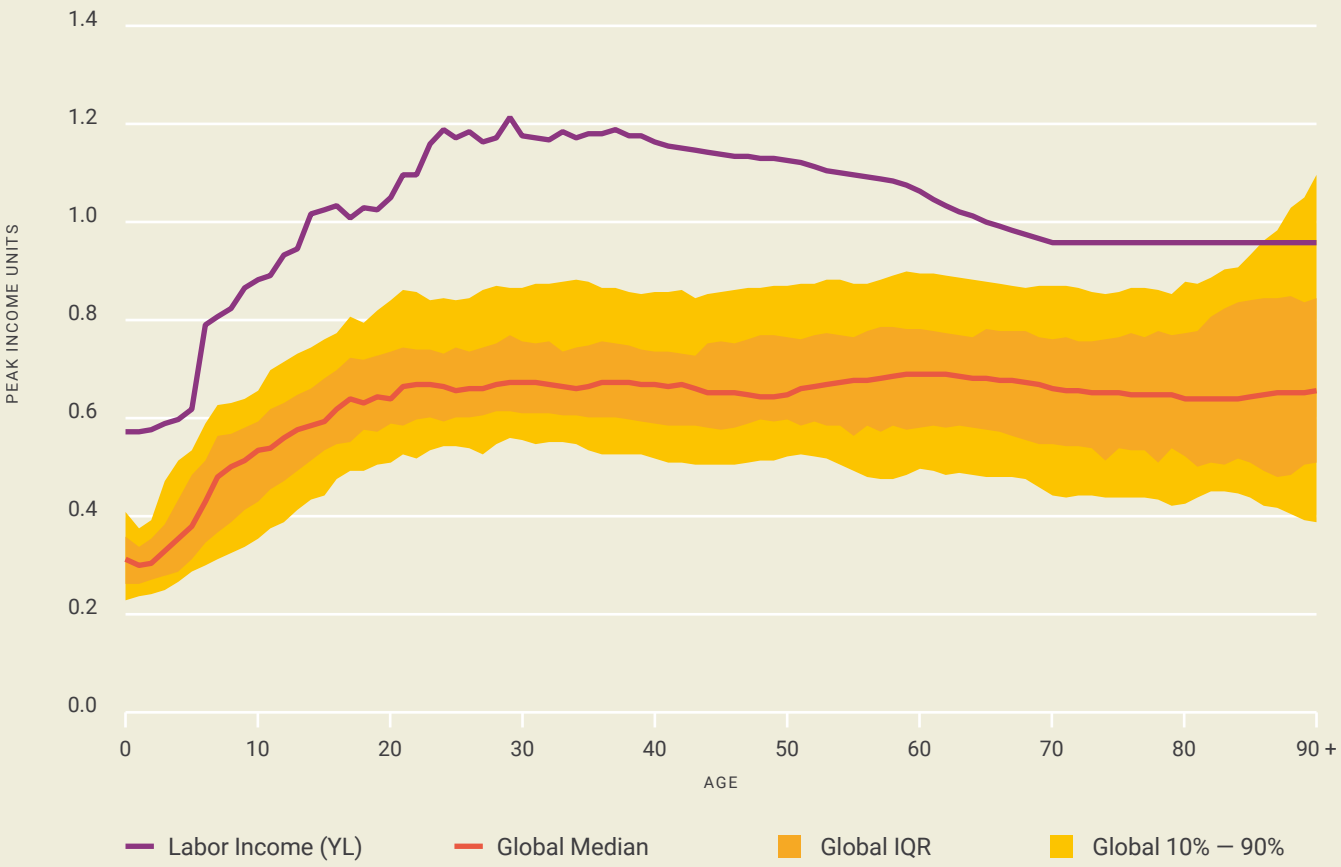
SOURCE: Own calculations, Lesotho Bureau of Statistics (2021c, e); United Nations (2019, 2021); World Bank (2022)

4.3 Consumption in a Global Context

Having constructed Lesotho's total consumption profile for 2018, Figure 23 plots it relative to the most recent consumption profiles for all countries for which NTA estimates exist. While Lesotho's labour income profile was seen to be in line with the profiles for other countries (Figure 12), Lesotho's consumption profile is a clear outlier. When expressed in terms of peak income units, per capita consumption in Lesotho is, at almost every age, substantially higher than at least 90 per cent of countries for which there are NTA estimates. Indeed, for much of the life course, Lesotho's per capita consumption in peak income units is close to twice that of the median NTA country. The gap between Lesotho and the median NTA country only really narrows for older cohorts as per capita consumption in Lesotho declines in contrast to the relatively stable consumption levels observed for the median country. Similarly, when compared to the 90th percentile of NTA countries, per capita consumption in Lesotho is between 15 per cent and 52 per cent higher for all cohorts up to the age of 63 years.

Lesotho's total consumption profile is an outlier in terms of its level, but not in terms of its shape. Even though the median consumption profile, as well as the profiles for the 10th, 25th, 75th and 90th percentiles are relatively stable for cohorts in their twenties and older, there are numerous individual countries that have consumption profiles that peak somewhere in the prime working ages and then decline for older cohorts. Indeed, this pattern has been observed in several countries in the region, including Eswatini (Kingdom of Swaziland, 2017, estimates for 2010), Namibia (Republic of Namibia, 2018, estimates for 2010), South Africa (Oosthuizen, 2015, estimates for 2005) and, to some extent, Botswana (African Institute for Development Policy, 2018, estimates for 2010).

FIGURE 23 Consumption for Lesotho in Comparison to Global Estimates



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021c, e); United Nations (2019, 2021); World Bank (2022); National Transfer Accounts Project (2022)

NOTE: All country estimates are standardized by dividing by the country-specific average labour income for cohorts aged 30-49 years. Countries and year of latest estimate included are: Argentina (2016); Australia (2010); Austria (2010); Benin (2007); Burkina Faso (2014); Brazil (2008); Botswana (2010); Cambodia (2009); Cameroon (2014); Canada (2011); Central African Republic (2008); Chad (2011); Chile (2018); China (2014); Côte d'Ivoire (2014); Colombia (2014); Costa Rica (2013); El Salvador (2010); Eswatini (2011); Ethiopia (2005); Finland (2006); France (2011); Gabon (2005); Gambia (2015); Germany (2008); Ghana (2005); Guinea (2012); Guinea-Bissau (2010); Hungary (2005); Indonesia (2005); India (2004); Italy (2008); Jamaica (2002); Japan (2004); Kenya (2005); Laos (2012); Maldives (2010); Mali (2015); Mauritania (2014); Mexico (2014); Moldova (2014); Mongolia (2014); Mozambique (2008); Namibia (2012); Niger (2014); Nigeria (2016); Peru (2007); Philippines (2015); Poland (2012); the Russian Federation (2016); Saõ Tomé and Príncipe (2012); Senegal (2011); Sierra Leone (2011); Singapore (2013); Slovenia (2010); South Africa (2005); South Korea (2016); Spain (2008); Sweden (2006); Taiwan (1998); Thailand (2017); Timor-Leste (2011); Turkey (2006); United States (2011); Uruguay (2013); and Vietnam (2008).

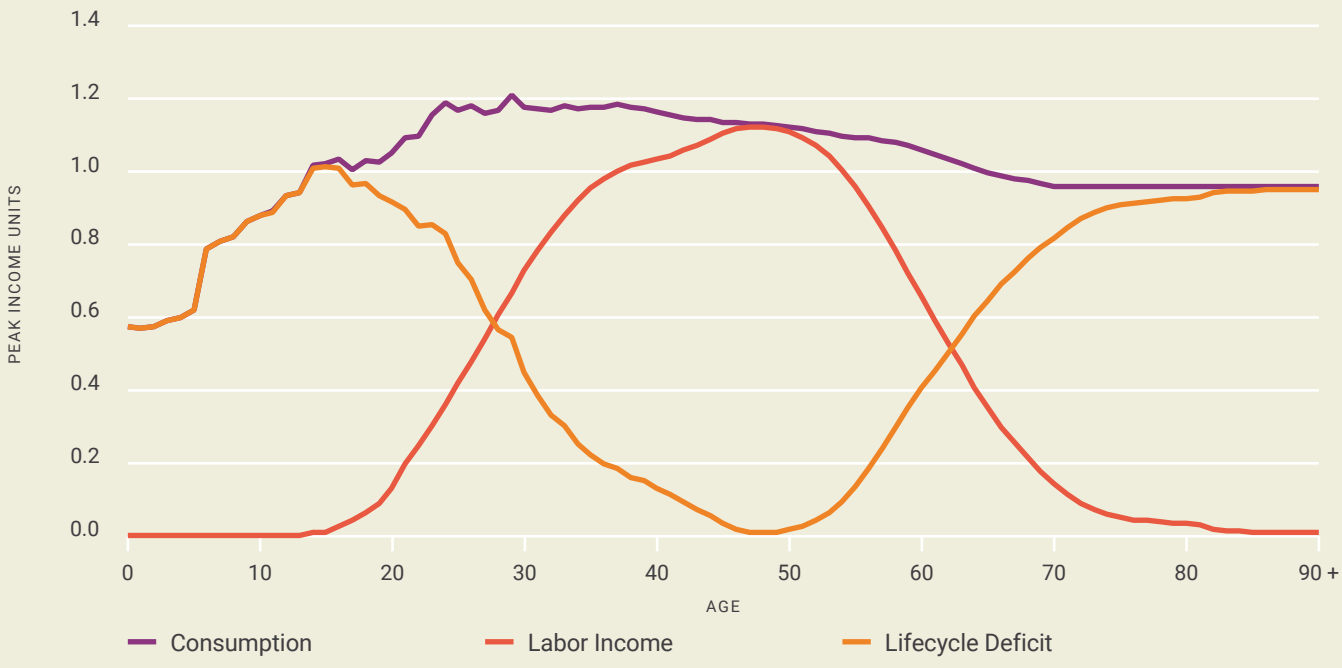
Since it is the level of Lesotho's consumption profile that makes it stand out, rather than the shape, and since each country's consumption profile is expressed in peak income units based on its labour income profile, this means that it is this ratio between aggregate consumption and aggregate labour income in Lesotho that is unusual. This will be discussed in more detail in section 4.4, but this points to the role of international labour migration and remittances that, in combination, result in unusually high levels of consumption relative to labour income in a country like Lesotho.

4.4 The Lifecycle Deficit

As described in equation 5 in section 3, the lifecycle deficit is the difference between consumption and labour income. Where consumption exceeds labour income, this is referred to as a lifecycle deficit; where consumption is less than labour income, this is a lifecycle surplus (a negative lifecycle deficit). The conventional pattern is for there to be lifecycle deficits for children and young people on the one hand and the elderly on the other, interspersed with a lifecycle surplus for cohorts in the prime working ages (see, for example Lee and Mason, 2011).

The lifecycle deficit for Lesotho is presented in Figure 24. In Lesotho's case, however, there is no age cohort where per capita labour income exceeds per capita consumption and therefore there is no cohort that produces a lifecycle surplus. The lifecycle deficit follows the level of per capita consumption from age zero until age 10 when labour income is first non-zero. The deficit rises from 57.3 per cent of peak labour income at age zero to a peak of 101.4 per cent of peak labour income at age 15 years. From there, the deficit falls rapidly as cohorts increasingly enter the labour market and earn higher wages. The deficit falls below 90 per cent of peak labour income by age 21 years and below 50 per cent by age 30 years. By the late forties, the lifecycle deficit reaches its minimum just below one per cent of peak labour income, and thereafter increases rapidly again to stabilize at around 95 per cent of peak labour income for cohorts aged 80 years and older.

FIGURE 24 The Lifecycle Deficit in Lesotho, 2018



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c, e); United Nations (2019, 2021); World Bank (2022)

This lack of a lifecycle surplus at any age makes Lesotho only the second country amongst those with NTA estimates where this is the case. El Salvador is the only other country with no lifecycle surplus at any age, while Mexico only has two cohorts that generate a lifecycle surplus (see Figure 34 in the Appendix).

The most obvious explanation for this high ratio of consumption relative to labour income is international labour migration. International labour migration, particularly to South Africa, has long been a feature of Lesotho's labour market. With migrant workers maintaining strong links to households in Lesotho, remittance flows to Lesotho are substantial. Indeed, Lesotho ranks second in sub-Saharan Africa behind South Sudan in terms of the magnitude of remittance flows relative to GDP. It is estimated that remittance flows to Lesotho were equivalent to 21.3 per cent of GDP in 2019, compared to 34.4 per cent in South Sudan, followed by the Gambia (15.5 per cent) and Zimbabwe (13.5 per cent) (World Bank, 2020, p.27)[4]. The Lesotho Bureau of Statistics (2021d) finds that 24.4 per cent of households in Lesotho received transfers from abroad over the preceding 12-month period, averaging M 9 074 (roughly US $613, based on the average exchange rate for 2021 (World Bank, 2022)). Amongst households receiving any transfer, whether from abroad or from within Lesotho, nine out of ten (89.5 per cent) indicated that these were mainly used for expenditure on food and clothing, while 7.2 per cent of these households reported using the transfers mainly for education (Lesotho Bureau of Statistics, 2021d).

International labour migration and remittance flows have several impacts on our estimates of NTA that should be kept in mind in contexts where these phenomena are substantial. The immediate effect of international labour migration is that national accounts estimates of compensation of employees within the country's borders are lower than they might have been had migrant workers been employed domestically. In other words, due to international labour migration, there is an invisible component of what would ordinarily be labour income, but which is only visible within national accounts as private transfer inflows from abroad. To the extent that labour migration may be due to a lack of employment opportunities domestically or that migrant workers are able to earn higher wages than they might have been able to earn domestically, this effect on the national accounts estimates is weakened. This means that the aggregate control values used to adjust the levels of the labour income profile's constituent profiles (employment earnings and self-employment earnings) are smaller than they might have been, resulting in lower estimates of per capita labour income at each age.

4 In El Salvador, the only other country for which NTA estimates indicate no lifecycle surplus at any age, remittances are estimated at 21.0 per cent of GDP in 2019 (World Bank, 2020, p.21).

Remittances sent from international labour migrants to sending households in Lesotho will most obviously show up as private transfer inflows in Lesotho. Since private transfer inflows, along with all other transfers, do not form part of the lifecycle deficit—net transfers are found on the righthand side of the NTA identity (equation 5)—this impact is not observed in the current set of estimates. However, the impact of remittances may be observed indirectly through its impact on consumption, which may be higher than it might have been without the additional resources provided by remittances.

In effect, large scale international labour migration and remittances distort the relationship between labour income and consumption by acting on both flows to raise consumption relative to labour income. This serves to reduce the margin by which and narrow the range of cohorts for whom per capita labour income exceeds per capita consumption, thus reducing the magnitude and duration of the lifecycle surplus.

4.5 Distribution of Aggregate Controls Across Age Groups

Based on the profiles presented above, it is possible to disaggregate the aggregate control values presented earlier in Table 7 according to broad age groups. This disaggregation for Lesotho for 2019 is presented in Table 8, for six age groups. The values of each of the flows in currency terms are provided in the upper part of the table, while the lower part of the table presents the shares of each age group within each of the flows. Population shares are also provided to provide some additional context.

TABLE 8 Distribution of Aggregate Control Values across Age Groups, 2018

	0-14 YEARS	15-24 YEARS	25-44 YEARS	45-64 YEARS	65-74 YEARS	75+ YEARS	TOTAL
LESOTHO MALOTI (BILLION)							
LABOUR INCOME (YL)	0.0	1.0	8.7	4.4	0.2	0.0	14.4
Employment earnings (YLE)	0.0	0.9	7.5	3.8	0.2	0.0	12.4
Self-employment earnings (YLS)	0.0	0.1	1.1	0.6	0.1	0.0	1.9
CONSUMPTION (C)	8.9	7.7	12.4	5.2	1.1	0.6	36.0
Private consumption (CF)	4.2	4.9	9.2	3.7	0.7	0.4	23.1
Education (CFE)	0.2	0.3	0.1	0.0	0.0	0.0	0.5
Pre-primary	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Primary	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Secondary	0.0	0.1	0.0	0.0	0.0	0.0	0.2
Vocational	0.0	0.0	0.0	0.0	0.0	0.0	0.0
University	0.0	0.1	0.1	0.0	0.0	0.0	0.1
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Health (CFH)	0.1	0.1	0.2	0.1	0.0	0.0	0.5
Other (CFX)	3.9	4.6	9.0	3.6	0.7	0.4	22.1
Public consumption (CG)	4.8	2.8	3.2	1.5	0.4	0.2	12.9
Education (CGE)	1.4	0.8	0.1	0.0	0.0	0.0	2.3
Pre-primary	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Primary	1.2	0.1	0.0	0.0	0.0	0.0	1.3
Secondary	0.2	0.5	0.0	0.0	0.0	0.0	0.7
Vocational	0.0	0.0	0.0	0.0	0.0	0.0	0.0
University	0.0	0.1	0.1	0.0	0.0	0.0	0.2
Other	0.0	0.1	0.0	0.0	0.0	0.0	0.1
Health (CGH)	0.3	0.1	0.4	0.3	0.1	0.0	1.3
Other (CGX)	3.0	1.9	2.7	1.2	0.3	0.2	9.3
LIFECYCLE DEFICIT (LCD)	8.9	6.7	3.8	0.8	0.9	0.6	21.6
POPULATION ('000)	689.8	420.6	618.7	276.0	68.0	35.3	2 108.3

	0-14 YEARS	15-24 YEARS	25-44 YEARS	45-64 YEARS	65-74 YEARS	75+ YEARS	TOTAL
SHARE OF FLOW (%)							
LABOUR INCOME (YL)	**0.1**	**7.2**	**60.5**	**30.6**	**1.6**	**0.1**	**100.0**
Employment earnings (YLE)	0.1	7.4	60.7	30.5	1.3	0.1	100.0
Self-employment earnings (YLS)	0.0	5.7	58.7	31.5	3.5	0.6	100.0
CONSUMPTION (C)	**24.8**	**21.4**	**34.6**	**14.4**	**3.2**	**1.6**	**100.0**
Private consumption (CF)	18.0	21.2	40.0	16.0	3.2	1.6	100.0
Education (CFE)	33.2	51.7	15.1	0.0	0.0	0.0	100.0
Pre-primary	100.0	0.0	0.0	0.0	0.0	0.0	100.0
Primary	98.1	1.9	0.0	0.0	0.0	0.0	100.0
Secondary	22.9	75.8	1.4	0.0	0.0	0.0	100.0
Vocational	0.0	72.6	27.4	0.0	0.0	0.0	100.0
University	0.0	56.1	43.9	0.0	0.0	0.0	100.0
Other	10.4	77.4	12.2	0.0	0.0	0.0	100.0
Health (CFH)	13.5	12.6	35.7	25.5	8.2	4.4	100.0
Other (CFX)	17.7	20.7	40.6	16.1	3.2	1.6	100.0
Public consumption (CG)	37.1	21.7	24.9	11.7	3.0	1.6	100.0
Education (CGE)	60.7	35.5	3.8	0.0	0.0	0.0	100.0
Pre-primary	100.0	0.0	0.0	0.0	0.0	0.0	100.0
Primary	91.4	8.6	0.0	0.0	0.0	0.0	100.0
Secondary	26.1	73.7	0.2	0.0	0.0	0.0	100.0
Vocational	0.0	61.5	38.5	0.0	0.0	0.0	100.0
University	0.0	65.4	34.6	0.0	0.0	0.0	100.0
Other	36.0	53.5	10.4	0.0	0.0	0.0	100.0
Health (CGH)	26.0	9.9	30.5	22.8	7.1	3.7	100.0
Other (CGX)	32.7	19.9	29.3	13.1	3.2	1.7	100.0
LIFECYCLE DEFICIT (LCD)	**41.2**	**30.9**	**17.4**	**3.7**	**4.2**	**2.6**	**100.0**
POPULATION ('000)	**32.7**	**19.9**	**29.3**	**13.1**	**3.2**	**1.7**	**100.0**

SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c, e); United Nations (2019, 2021); World Bank (2022)

More than three-fifths (60.5 per cent) of total labour income in Lesotho in 2019 is accounted for by the population aged 25 to 44 years. A further three-tenths (30.6 per cent) is contributed by 45 to 64 year olds. These shares are far in excess of these groups' shares within the total population, estimated at 29.3 per cent for 25 to 44 year olds and 13.1 per cent for 45 to 64 year olds. Together, these two cohorts account for 91.1 per cent of total labour income, but just 42.4 per cent of the population. The remaining labour income is primarily contributed by 15 to 24 year olds (7.2 per cent of the total) and 65 to 74 year olds (1.6 per cent). For the two components of labour income, there is a slight difference in the distribution across age: in general, younger age cohorts tend to account for larger shares of employment earnings than they do of self-employment earnings. This is in line with the slight rightward lean of self-employment earnings relative to employment earnings observed in Figure 10. This means that, while the population under the age of 45 years accounts for 68.2 per cent of employment earnings, this group accounts for only 64.4 per cent of self-employment earnings.

Figure 24 showed that consumption is far more evenly distributed across age than labour income, and this is borne out by the figures in Table 8. More than one-third (34.6 per cent) of total consumption is accounted for by 25 to 44 year olds. They are followed by children under the age of 15 years (24.8 per cent) and youth aged 15 to 24 years (21.4 per cent). Together, these three cohorts under the age of 45 years account for 80.8 per cent of total consumption, only slightly lower than their share of the population of 82.0 per cent. Older cohorts account for decreasing shares of consumption, falling from 14.4 per cent for 45 to 64 year olds to 1.6 per cent for cohorts aged 75 years and above. Importantly, however, the three age groups within the working ages (15 to 64 years) all account for larger shares of consumption than they do of the population, consistent with the relatively high per capita consumption levels observed for these groups; this is particularly true for 25 to 44 year olds.

Private and public consumption are quite different in terms of which age groups account for the largest shares of consumption. Two-fifths (40.0 per cent) of private consumption accrues to 25 to 44 year olds, more than ten percentage points higher than the group's share of the population. Cohorts under the age of 25 years account for a similar proportion of private consumption (39.2 per cent), while the remaining one-fifth (20.8 per cent) accrues to the population aged 45 years and older. In contrast, 25 to 44 year olds only account for 24.9 per cent of public consumption, with the population under the age of 25 years accounting for almost three-fifths (58.8 per cent). As a result, just 16.3 per cent of public consumption is accounted for by cohorts aged 45 years and older. Thus, public consumption is considerably more strongly oriented towards younger age cohorts than is private consumption.

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Even at the functional level (education, health, other), public consumption is more strongly oriented towards younger cohorts than private consumption. For example, while 84.9 per cent of private consumption of education and 26.0 per cent of private consumption of health is accounted for by the population under the age of 25 years, the corresponding proportions for public consumption are 96.2 per cent and 36.0 per cent. For consumption other than education and health, the proportions of private and public consumption accounted for by this segment of the population are 38.4 per cent and 52.7 per cent respectively.

The total lifecycle deficit of LSL 21.6 billion in 2019 is, not surprisingly, concentrated amongst the country's youngest cohorts. Two-fifths (41.2 per cent) of the lifecycle deficit is accounted for by children under the age of 15 years, while a further three-tenths (30.9 per cent) accrued to 15 to 24 year olds. Thus, while these two age groups account for just over half of the population (52.6 per cent), they contribute almost three-quarters (72.1 per cent) of the lifecycle deficit. Similarly, the population aged 65 years and older accounts for a disproportionately large share of the lifecycle deficit (6.8 per cent compared to their share of the population of 4.9 per cent). In contrast, the share of the lifecycle deficit accounted for by 25 to 64 year olds (21.1 per cent) is slightly less than half their share of the population.

Table 9 disaggregates the main component flows of the lifecycle deficit—labour income, employment earnings and self-employment earnings; consumption, private consumption and public consumption; and the lifecycle deficit itself—by age and gender. It is important to note, however, that significant challenges are typically experienced when trying to disaggregate particularly the consumption profiles by gender. This is because it is not possible to directly observe the intra-household distribution of consumption through most household surveys. Consequently, the allocation rules employed in the construction of the consumption profiles may not accurately reflect the true gender distribution of consumption. In the case of Lesotho, however, this problem is partially mitigated in that the education and health profiles rely on actual individual-level estimates of spending in these areas, although these are admittedly small proportions of total consumption.

The data presented in Table 9 shows that, of the LSL 14.4 billion in labour income, males account for 60.5 per cent while females account for the remaining 39.5 per cent. Males aged 25 to 44 years alone account for more than one-third (36.8 per cent) of labour income, while females within this age group account for almost one-quarter (23.7 per cent). These proportions largely reflect the distribution of employment earnings, given the dominance of employment earnings within total labour income. However, self-employment earnings are more unequally distributed across gender. Overall, more than two-thirds (65.9 per cent) of self-employment earnings accrues to males, with two-fifths (41.7 per cent) accounted for by males aged 25 to 44 years. They are followed by males aged 45 to 64 years (19.4 per cent of total self-employment earnings) and then by females aged 25 to 44 years (17.0 per cent).

In terms of consumption, the gender distributions are more closely aligned to population shares. Females account for 50.7 per cent of the population in 2019, and 50.9 per cent of total consumption, 50.2 per cent of private consumption and 52.1 per cent of public consumption. While males and females aged 25 to 44 years accounted for the largest shares of consumption— 18.1 per cent and 16.5 per cent respectively—they are followed by their counterparts under the age of 15 years: females under the age of 15 account for 12.6 per cent of total consumption, while males in that age group account for 12.3 per cent. The only age group where males account for a larger share of consumption than females is the 25 to 44 year age group.

For private and public consumption, however, the patterns are somewhat different. Within public consumption, the groups that account for the largest shares are females under the age of 15 years (18.7 per cent of public consumption), and their male counterparts (18.3 per cent). They are followed by males and females aged 25 to 44 years (12.5 per cent and 12.4 per cent of public consumption). In contrast, the largest proportions of private consumption are accounted for by males and females aged 25 to 44 years (21.2 per cent and 18.8 per cent), and females and males aged 15 to 24 years (10.9 per cent and 10.3 per cent). For the former two groups, this is substantially higher than their population share, while for the latter these shares are very similar to their population shares.

Finally, females account for 58.5 per cent of the lifecycle deficit, almost eight percentage points greater than their share of the population. Children under the age of 15 years account for the largest share of the lifecycle deficit (31.2 per cent), with females in this age group accounting for 20.9 per cent of the total deficit and males 20.4 per cent. These shares are roughly four percentage points higher than their shares of the population.

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TABLE 9 Distribution of Labour Income and Consumption Aggregate Control Values by Age and Gender, 2018

	0-14 YEARS	15-24 YEARS	25-44 YEARS	45-64 YEARS	65-74 YEARS	75+ YEARS	TOTAL
LESOTHO MALOTI (BILLION)							
LABOUR INCOME (YL)	**0.0**	**1.0**	**8.7**	**4.4**	**0.2**	**0.0**	**14.4**
Male	0.0	0.6	5.3	2.7	0.1	0.0	8.7
Female	0.0	0.4	3.4	1.7	0.1	0.0	5.7
Employment earnings (YLE)	0.0	0.9	7.5	3.8	0.2	0.0	12.4
Male	0.0	0.5	4.5	2.3	0.1	0.0	7.4
Female	0.0	0.4	3.1	1.5	0.1	0.0	5.0
Self-employment earnings (YLS)	0.0	0.1	1.1	0.6	0.1	0.0	1.9
Male	0.0	0.1	0.8	0.4	0.0	0.0	1.3
Female	0.0	0.1	0.3	0.2	0.0	0.0	0.7
CONSUMPTION (C)	**8.9**	**7.7**	**12.4**	**5.2**	**1.1**	**0.6**	**36.0**
Male	4.4	3.7	6.5	2.4	0.5	0.2	17.7
Female	4.5	4.0	5.9	2.8	0.7	0.4	18.3
Private consumption (CF)	4.2	4.9	9.2	3.7	0.7	0.4	23.1
Male	2.1	2.4	4.9	1.7	0.3	0.1	11.5
Female	2.1	2.5	4.3	2.0	0.4	0.3	11.6
Public consumption (CG)	4.8	2.8	3.2	1.5	0.4	0.2	12.9
Male	2.4	1.3	1.6	0.7	0.1	0.1	6.2
Female	2.4	1.5	1.6	0.9	0.2	0.1	6.7
LIFECYCLE DEFICIT (LCD)	**8.9**	**6.7**	**3.8**	**0.8**	**0.9**	**0.6**	**21.6**
Male	4.4	3.1	1.2	-0.3	0.4	0.2	9.0
Female	4.5	3.6	2.5	1.1	0.6	0.4	12.6
POPULATION ('000)	**689.8**	**420.6**	**618.7**	**276.0**	**68.0**	**35.3**	**2 108.3**
Male	345.2	211.5	320.5	124.7	27.1	10.0	1 039.0
Female	344.6	209.1	298.1	151.3	40.9	25.3	1 069.3

	0-14 YEARS	15-24 YEARS	25-44 YEARS	45-64 YEARS	65-74 YEARS	75+ YEARS	TOTAL
SHARE OF FLOW (%)							
LABOUR INCOME (YL)	**0.1**	**7.2**	**60.5**	**30.6**	**1.6**	**0.1**	**100.0**
Male	0.0	4.2	36.8	18.6	0.9	0.1	60.5
Female	0.0	3.0	23.7	12.0	0.7	0.1	39.5
Employment earnings (YLE)	0.1	7.4	60.7	30.5	1.3	0.1	100.0
Male	0.0	4.3	36.0	18.4	0.8	0.0	59.6
Female	0.0	3.0	24.7	12.0	0.5	0.0	40.4
Self-employment earnings (YLS)	0.0	5.7	58.7	31.5	3.5	0.6	100.0
Male	0.0	3.0	41.7	19.4	1.5	0.3	65.9
Female	0.0	2.6	17.0	12.2	2.1	0.3	34.1
CONSUMPTION (C)	**24.8**	**21.4**	**34.6**	**14.4**	**3.2**	**1.6**	**100.0**
Male	12.3	10.4	18.1	6.6	1.3	0.5	49.1
Female	12.6	11.1	16.5	7.8	1.8	1.1	50.9
Private consumption (CF)	18.0	21.2	40.0	16.0	3.2	1.6	100.0
Male	8.9	10.3	21.2	7.4	1.4	0.5	49.8
Female	9.1	10.9	18.8	8.5	1.8	1.1	50.2
Public consumption (CG)	37.1	21.7	24.9	11.7	3.0	1.6	100.0
Male	18.3	10.4	12.5	5.1	1.2	0.4	47.9
Female	18.7	11.3	12.4	6.6	1.9	1.2	52.1
LIFECYCLE DEFICIT (LCD)	**41.2**	**30.9**	**17.4**	**3.7**	**4.2**	**2.6**	**100.0**
Male	20.4	14.5	5.7	-1.4	1.6	0.8	41.5
Female	20.9	16.4	11.7	5.1	2.6	1.8	58.5
POPULATION ('000)	**32.7**	**19.9**	**29.3**	**13.1**	**3.2**	**1.7**	**100.0**
Male	16.4	10.0	15.2	5.9	1.3	0.5	49.3
Female	16.3	9.9	14.1	7.2	1.9	1.2	50.7

SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c, e); United Nations (2019, 2021); World Bank (2022)

5

Estimating the Demographic Dividend in Lesotho

5.1 Lesotho's Demographic Dividend

Section 3.2 described how the first demographic dividend can be estimated, within the NTA framework, as the rate of change of the economic support ratio. To calculate the economic support ratio over time, the per capita labour income and consumption profiles are held constant over time and are weighted by the population age structure in each year. In other words, per capita labour income at every age is multiplied by the population at every age, and the same is done for consumption. The population-weighted profiles are then summed over age for every year; these totals are, then, total labour income and total consumption[5]. The economic support ratio is the ratio between these two totals—labour income to consumption— and the rate at which the economic support ratio is the first demographic dividend.

Figure 25 presents the estimated first demographic dividend for the period 1990 to 2100. As described above, these estimates take the 2018 NTA estimates as given, and multiply these by the population age structure in each year to calculate the economic support ratio. The economic support ratio is estimated at 0.399 in 2018, indicating that there were 399 effective producers in Lesotho in 2018 for every 1 000 effective consumers. The economic support ratio has risen substantially since 1990, when it is estimated to have been 0.310, and it is projected to keep rising for the coming six decades. The ratio is projected to peak at 0.491 in 2090, which is almost one-quarter higher than its level in 2018 and more than 58 per cent higher than its level in 1990. By the end of the century, the economic support ratio is projected to have declined only slightly from its peak to 0.490.

Since the first demographic dividend is equivalent to the rate of change of the economic support ratio, the dividend will be positive when the ratio is rising and negative when the ratio is falling. As is evident from Figure 25, this means that Lesotho's demographic dividend is positive for much of the period from 1990 to 2100, and only turns negative in the mid-2080s when the economic support ratio peaks.

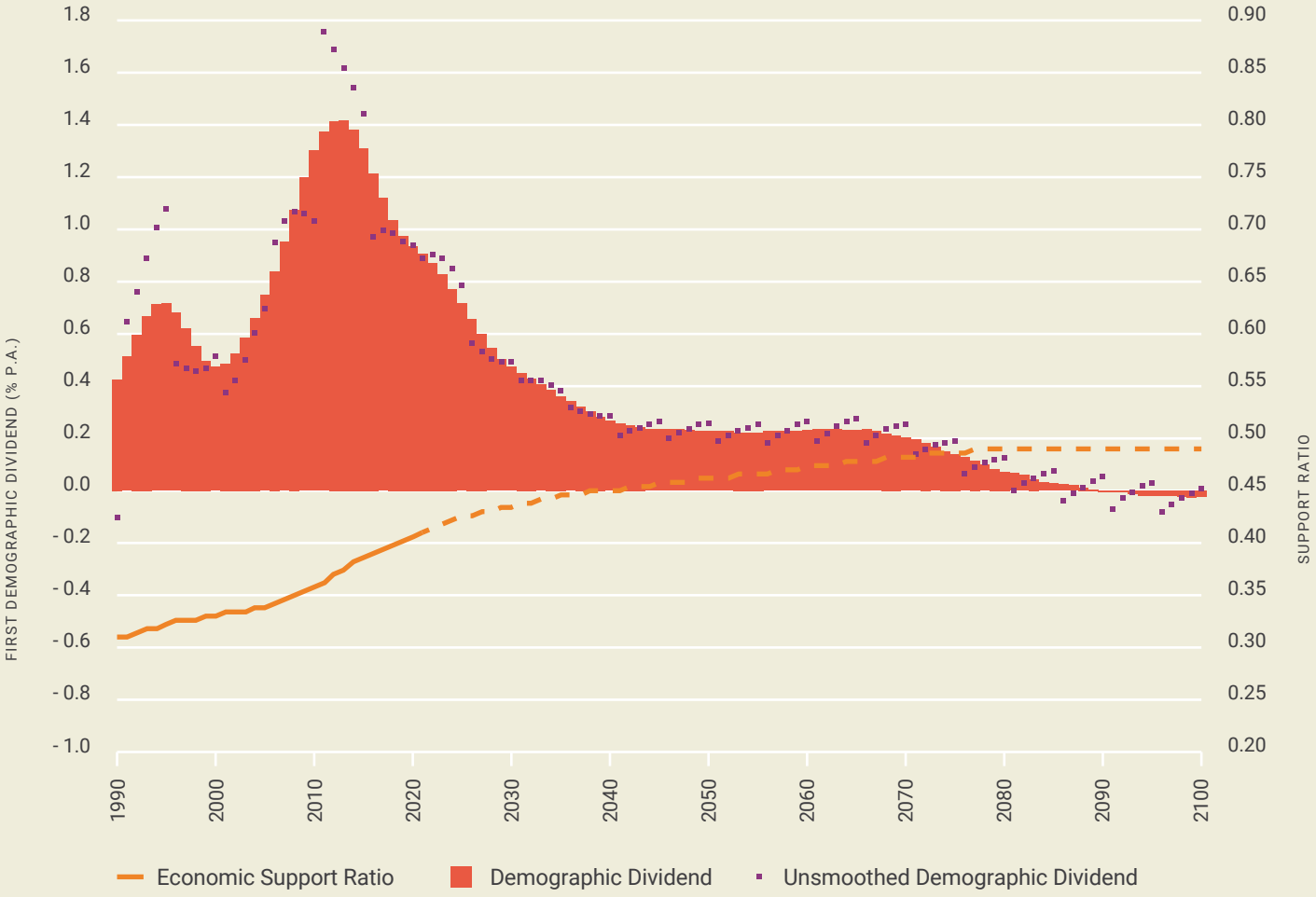
The first demographic dividend is, however, not constant over the period. From 1990—and, indeed, from the 1960s—the first demographic dividend has been increasing in magnitude: it increased from 0.424 per cent per annum in 1990 to a peak of 0.717 per cent in 1995. This rise was, however, interrupted by the negative effect of HIV and AIDS on the prime working-age population and the dividend dropped to 0.472 per cent per annum in 2000, before rising rapidly to just over 1.4 per cent per annum in 2012 and 2013. Thereafter, the dividend fell rapidly, reaching 0.908 per cent by 2021. This decline is expected to continue as the population age structure changes so that, by 2040, the

5 In the base year, the summed population-weighted profiles will equal the aggregate control values for labour income and consumption.

dividend will be only 0.268 per cent per annum. By the early 2040s, the dividend will stabilize at around 0.23 per cent per annum, where it will remain until the mid-2060s before gradually declining to below zero by 2087.

It is important to note that, although the dividend weakens over time, particularly between the early 2010s and the early 2040s, it remains positive until 2089. This means that the changing population age structure over the almost 100-year period from 1990 serves to raise economic growth and increases consumption per effective consumer. It is only from 2090 onwards that demographic change is projected to act as a drag on the economy and average consumption levels.

FIGURE 25 The Demographic Dividend in Lesotho, 1990-2100



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c, e); United Nations (2019, 2021); World Bank (2022)

NOTE: Medium fertility variant projections are used. Estimates for the full 1960 to 2100 period are presented in Figure 35 in the Appendix. Estimates of the demographic dividend based on the official Lesotho population projections produced by the Lesotho Bureau of Statistics (2019c) are presented in Figure 36 in the Appendix.

5.2 Alternative Paths for the Demographic Dividend

The projected demographic dividend presented in section 5.1 is based on a particular set of assumptions. These assumptions include the assumptions made during the preparation of the United Nations (2019) population projections, as well as the assumption that the underlying NTA profiles for labour income and consumption remain constant over time. Thus, the projected demographic dividend is sensitive to the population projections used, as well as to changes in the underlying labour income and consumption profiles. It is possible, however, to vary some of these assumptions to better understand their impact on the path of Lesotho's first demographic dividend.

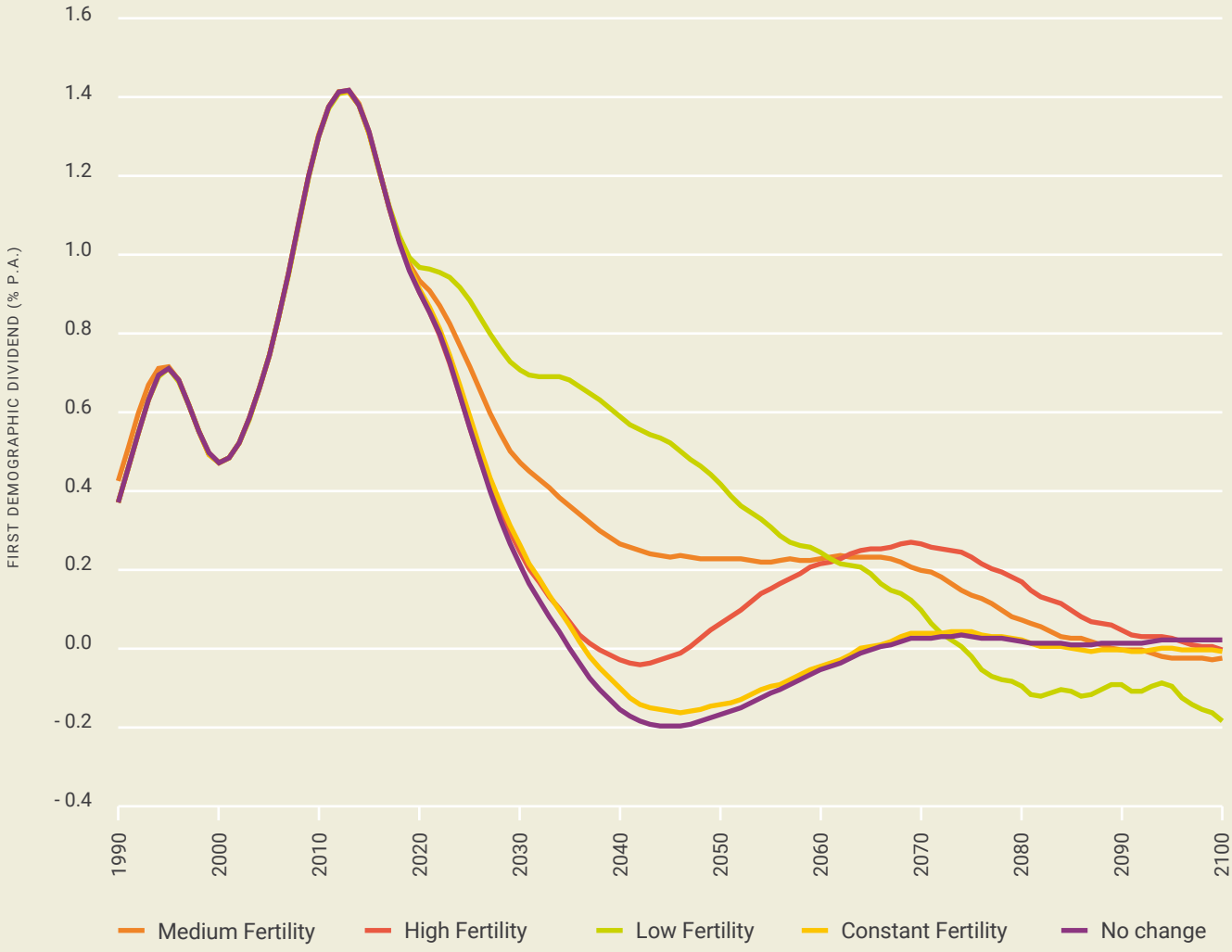
5.2.1 Fertility and the Demographic Dividend

To begin with, we focus on the impact of the population projections. This is useful from a policy perspective in helping to understand the effects of deviations from the medium fertility variant projections. In other words, how is the dividend impacted by fertility that is higher or lower than that modelled within the medium fertility projections? The medium fertility variant is one of several variants for which projections are published, each variant having different sets of assumptions with respect to fertility, mortality and migration (United Nations, Department of Economic and Social Affairs, Population Division, 2019). We consider four variants in addition to the medium fertility variant, namely the low fertility, high fertility, constant fertility, and no change variants. The low fertility and high fertility variants are identical to the medium fertility variant in all but one key respect: the low fertility variant assumes 0.5 fewer births per woman on average than the medium fertility variant, while the high fertility variant assumes 0.5 more births per woman on average. Each of these variants assumes normal mortality and migration. The constant fertility variant also assumes normal mortality and migration but assumes that fertility remains constant in the future at the levels observed in the 2010 to 2015 period. Finally, the no change variant differs from the constant fertility variant in that, in addition to fertility, it holds mortality constant at 2010 to 2015 levels[6].

6 In summary, all five projections assume normal migration. Four of the five differ only in terms of the fertility assumptions made, while the fifth (the no change variant) makes different assumptions in respect of both fertility and mortality.

Figure 26 presents estimates of the first demographic dividend for Lesotho based on these five variants, with the medium fertility variant being the baseline projection presented in Figure 25. It is immediately clear that each of these five variants results in important differences in the path of the demographic dividend. The impact of lower fertility—just 0.5 fewer births per woman—increases the magnitude of the dividend relative to the baseline in every year from 2018 (the base year of the projections) until the early 2060s, after which the dividend is lower than the baseline dividend. Indeed, the dividend under the low fertility variant turns negative in 2075, 15 years sooner than is the case for the baseline estimate.

FIGURE 26 The Impact of Fertility on the Demographic Dividend in Lesotho, 1990-2100



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c, e); United Nations (2019, 2021); World Bank (2022)

In contrast, the high fertility, constant fertility and no change variants all see an immediate reduction in each year in the magnitude of the first demographic dividend. The dividend under the assumption of high fertility drops sharply throughout the 2020s and 2030s and falls below zero by 2038. However, from 2042 it rebounds and surpasses the baseline dividend by 2063. For the remainder of the century, the dividend under the assumption of high fertility remains above the baseline dividend, although the gap is rarely more than 0.1 percentage points. The constant fertility and no change projects see the magnitude of the dividend fall in line with that of the high fertility variant, but the decline continues longer (until the mid-2040s) with the result that the low points for the two are both lower and later than that of the high fertility projection. The rebound is also considerably weaker, with the dividend returning to positive territory by the mid-2060s but remaining very small in absolute terms. Under the no change variant, the first demographic dividend remains between 0.004 per cent and 0.033 per cent per annum from 2066 onwards, while the range for the constant fertility variant is slightly wider at 0.008 per cent and 0.045 per cent per annum.

Table 10 quantifies the differences in the projected dividends and presents the cumulative first demographic dividend and the average annual growth rate of the dividend for the 1990 to 2100 period, as well as three 30-40 year sub-periods. Based on the medium fertility projections, the cumulative first demographic dividend is estimated at 57.1 per cent over the 1990 to 2100 period. This is equivalent to an average annual rate of growth of 0.41 per cent per annum over the 110-year period. Clearly, though, most of the dividend accrues during the first 30 years of the period: between 1990 and 2020, the cumulative dividend is 30.3 per cent or 0.89 per cent per annum. The 2020 to 2060 period sees the dividend slow, averaging 0.38 per cent per annum, while the average growth rate for the final four decades of the century is barely above zero (0.09 per cent).

TABLE 10 Estimates of the First Demographic Dividend under Alternative Population Projections, 1990-2100

	CUMULATIVE FIRST DIVIDEND (%)				AVERAGE ANNUAL GROWTH RATE (%)			
	1990-2020	2020-2060	2060-2100	**1990-2100**	1990-2020	2020-2060	2060-2100	**1990-2100**
Medium fertility	30.3	16.2	3.7	**57.1**	0.89	0.38	0.09	**0.41**
High fertility	30.0	7.8	6.0	**48.6**	0.88	0.19	0.15	**0.36**
Low fertility	30.1	26.0	-0.9	**62.6**	0.88	0.58	-0.02	**0.44**
Constant fertility	30.0	3.7	0.4	**35.4**	0.88	0.09	0.01	**0.28**
No change	30.0	2.3	0.6	**33.8**	0.88	0.06	0.01	**0.26**

SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c, e); United Nations (2019, 2021); World Bank (2022)

NOTE: Figures are calculated from an index of the support ratio, which equals one in 1990. The cumulative first dividend is the percentage change in this index from the start of the period until the end of the period. This is then converted to an average annual growth rate in the second set of columns.

The low fertility variant is the only one of the four variants to yield a larger demographic dividend over the full 1990 to 2100 period (62.6 per cent compared to 57.1 per cent for the medium fertility variant). This is in line with global evidence on the relationship between fertility and the demographic dividend. While this difference is relatively small, the key difference is in the 2020 to 2060 sub-period: the average annual growth rate of the dividend for the low fertility variant is 0.58 per cent per annum, compared to 0.38 per cent for the medium fertility variant. Indeed, over the 2020 to 2100 period, the low fertility variant yields a first demographic dividend that is around one-fifth larger than the baseline dividend. It is also the only variant that is negative for the 2060 to 2100 period as a whole, the result of an early and significant shift into negative territory.

Higher fertility is expected to erode the magnitude of the first demographic dividend relative to the baseline. The high fertility variant yields a dividend averaging 0.36 per cent per annum over the 110-year period, while the constant fertility and no change variants are even lower at 0.28 per cent and 0.26 per cent per annum respectively. These are equivalent to cumulative dividends over the period of 48.6 per cent, 35.4 per cent and 33.8 per cent respectively.

5.2.2 The Labour Market, Gender Inequality and the Demographic Dividend

We turn next to the labour market to explore the extent to which it may be possible to boost the magnitude of the demographic dividend through labour market policy. In Figure 27, three possibilities are explored. First, as was observed in Figure 12, per capita labour incomes amongst young people in Lesotho are relatively low when compared with their counterparts globally. The first simulation considers the impact on the demographic dividend of gradually narrowing this gap for cohorts under the age of 35 years between 2018 and 2040 so that, by 2040, per capita labour incomes in Lesotho (relative to peak labour income) are identical to the global median. This is referred to as the 'youth only' scenario. The second simulation, the 'all ages' scenario, is identical to the first except that there is no age restriction. In other words, the gap between Lesotho's labour income profile and the global median profile is narrowed for all age cohorts, with the result that the two profiles converge by 2040 for each age cohort. Finally, instead of targeting the global median labour income profile, the third simulation ('youth boost') simply gradually raises per capita labour incomes for youth cohorts so that, by 2040, their labour incomes are 10 per cent higher than they were in 2018.

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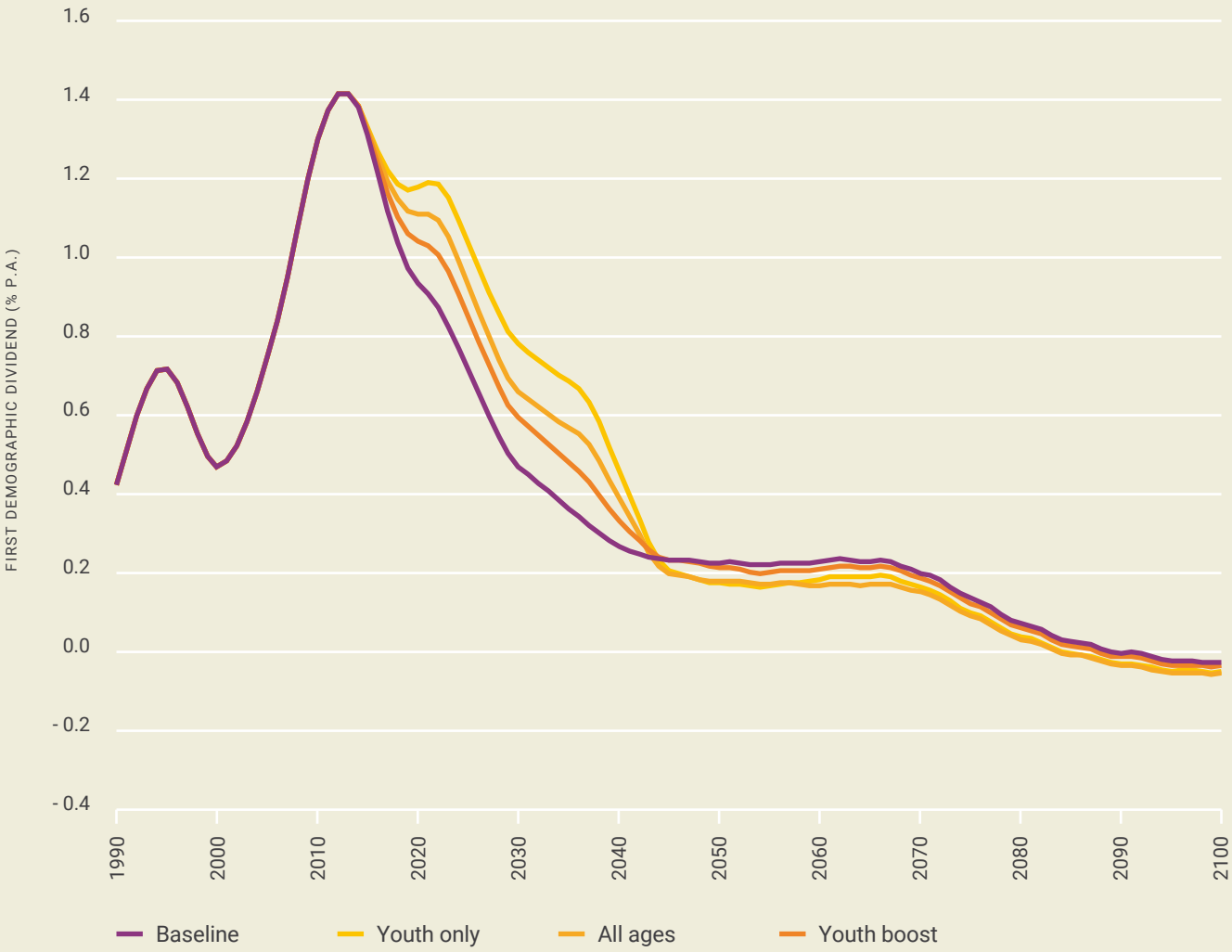
FIGURE 27 Labour Market Change and the Demographic Dividend in Lesotho, 1990-2100

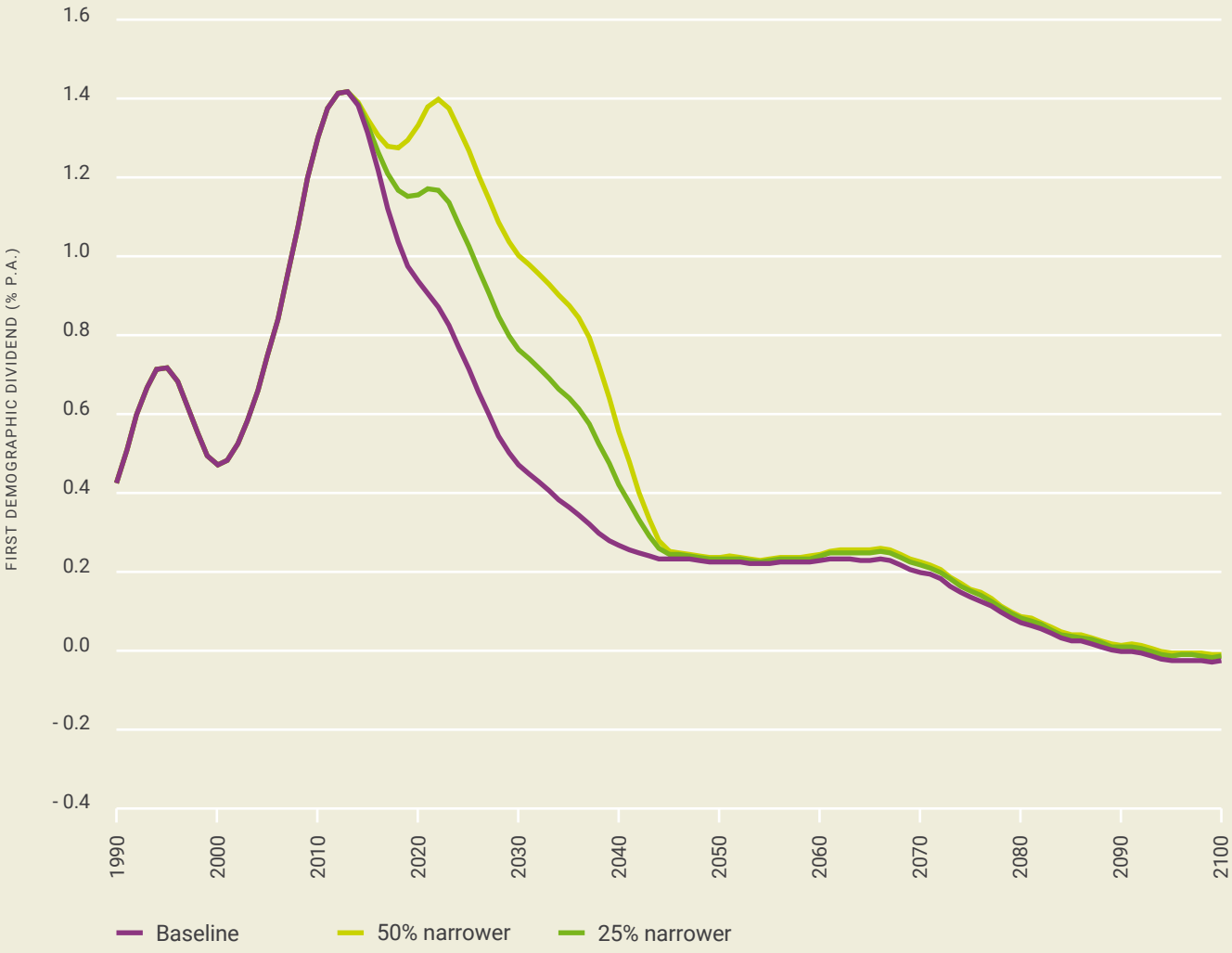


SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c, e); National Transfer Accounts Project (2022); United Nations (2019, 2021); World Bank (2022)

Improvements in any of a range of key labour market outcomes as embodied in each of these scenarios boost the demographic dividend in Lesotho, particularly during the 2020 to 2040 period when the labour income profiles are gradually changing. This is true whether these improvements are focused only on youth cohorts or affect the labour market more generally. The scenarios that see convergence in the Lesotho and global median labour income profiles for youth only and for all cohorts both result in a higher demographic dividend in each year of the convergence process, although the dividend under the youth boost scenario is not as strong as under the youth only convergence scenario. In the latter, there is a slight initial uptick in the dividend in the early 2020s, followed by a decline that is similar to that of the baseline estimate. The youth boost scenario, which sees per capita labour incomes increase by 10 per cent by 2040, also results in a larger demographic dividend, although it is located roughly midway between the baseline dividend and the dividend under the youth only convergence scenario. The all-ages convergence scenario yields a dividend that is generally not as strong as the youth only convergence scenario, but which is stronger than the youth boost scenario. From the 2040s onwards, the four scenarios follow a broadly similar trajectory: stabilisation from the 2040s through to the 2060s, followed by gradual decline to below zero by the mid- to late-2080s.

A further two scenarios are considered, focussed on narrowing the gender gap in per capita labour income. As observed in Figure 11, labour income for females is consistently lower than that of males across the life course, with the gap particularly wide during the forties and fifties. One potential set of labour market interventions could focus on narrowing this gap by raising per capita labour income for females. Two scenarios are presented in Figure 28: the first gradually raises per capita labour incomes for female cohorts, starting from 2018, so that the gender gap is narrowed by 50 per cent at each age by 2040; the second does the same, but only narrows the gap by 25 per cent over the period.

FIGURE 28 Improving Gender Equality in the Labour Market and the Demographic Dividend in Lesotho, 1990-2100



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c, e); United Nations (2019, 2021); World Bank (2022)

Narrowing gender gaps within Lesotho's labour market and raising women's per capita labour income is found to boost the first demographic dividend. Narrowing the gap by 50 per cent has an impact that is like that observed for narrowing the gap between Lesotho's labour income profile and that of the global median: the demographic dividend experiences an immediate uptick in the early 2020s, followed by rapid decline until 2040. This raises the demographic dividend by 0.5 percentage points or more at some points in time within the adjustment period between 2020 and 2040. The impact is more muted when the gap is narrowed by 25 per cent, although it still has a marked impact on the magnitude of the dividend during the adjustment period.

Table 11 illustrates the differences between these six scenarios—the baseline scenario, the three scenarios that adjust the overall labour income profile, and the two that adjust only the female labour income profile—over the 1990 to 2100 period.

It is clear from the table that each of the scenarios that adjust the overall labour income profile—the youth only scenario that narrows the gap between the Lesotho labour income profile and that of the global median for cohorts under the age of 35 years between 2018 and 2040; the all ages scenario that does the same, but for all cohorts; and the youth plus scenario that raises per capita labour incomes for youth cohorts by 10 per cent—yields a large demographic dividend than the baseline scenario in the 2020 to 2060 sub-period, as well as for the 1990 to 2100 period as a whole. In the final four decades of the century, the cumulative dividends are very similar to each other, ranging from 2.0 per cent for all ages convergence scenario up to 3.7 per cent for the baseline scenario. During the 2020 to 2060 period, the youth only and all ages scenarios both yield cumulative dividends of 22.8 per cent and 20.0 per cent (equivalent to average rates of 0.51 per cent and 0.46 per cent per annum respectively) compared to the baseline scenario's 16.2 per cent (0.38 per cent per annum on average). The dividend from the youth plus scenario is slightly weaker in this period, though still larger than that of the baseline scenario, at 18.8 per cent or 0.43 per cent per annum.

TABLE 11 Estimates of the First Demographic Dividend under Alternative Labour Income Profiles, 1990-2100

	CUMULATIVE FIRST DIVIDEND (%)				AVERAGE ANNUAL GROWTH RATE (%)			
	1990-2020	2020-2060	2060-2100	1990-2100	1990-2020	2020-2060	2060-2100	1990-2100
Baseline	30.3	16.2	3.7	**57.1**	0.89	0.38	0.09	**0.41**
CHANGES TO THE OVERALL LABOUR INCOME PROFILE								
Youth only	31.3	22.8	2.4	**65.1**	0.91	0.51	0.06	**0.46**
All ages	31.0	20.0	2.0	**60.5**	0.90	0.46	0.05	**0.43**
Youth plus	30.7	18.8	3.2	**60.4**	0.90	0.43	0.08	**0.43**
CHANGES TO THE FEMALE LABOUR INCOME PROFILE								
Gender gap 50%	31.9	29.2	4.6	**78.3**	0.93	0.64	0.11	**0.53**
Gender gap 25%	31.2	23.2	4.3	**68.7**	0.91	0.52	0.11	**0.48**

SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c, e); National Transfer Accounts Project (2022); United Nations (2019, 2021); World Bank (2022)

NOTE: Figures are calculated from an index of the support ratio, which equals one in 1990. The cumulative first dividend is the percentage change in this index from the start of the period until the end of the period. This is then converted to an average annual growth rate in the second set of columns.

The effects of narrowing the gender gap in per capita labour income are even stronger. Narrowing the gap by 50 per cent yields a cumulative dividend of 78.3 per cent over the full 1990 to 2100 period, almost two-fifths higher than the baseline dividend. This is equivalent to an average annual growth rate of 0.53 per cent per annum over the 110 years. Narrowing the gap by 25 per cent raises the cumulative demographic dividend by 11.6 percentage points from the baseline estimate to 68.7 per cent, or 0.48 per cent per annum on average. This is an even strong effect than achieving convergence with the global median labour income profile for youth cohorts.

These simulations are useful in terms of their ability to illustrate the potential impacts on the demographic dividend associated with particular policies and provide a guide as to the kinds of outcomes that may be achieved. Importantly, however, it is important to note that these simulations are not equivalent in terms of describing equally challenging impacts to achieve. Thus, lowering fertility to be consistent with the low fertility variant is not equivalent to achieving convergence in labour income for youth cohorts relative to the global median, or to narrowing the gender gap in per capita labour income by 25 per cent in terms of the challenges associated with achieving these outcomes. That said, the impact of improving per capita labour incomes appears to be larger when focussed on youth cohorts. Nevertheless, raising per capita labour incomes has a beneficial impact on the demographic dividend irrespective of the age group or gender that is targeted.

A final point to emphasize here is that, while the NTA-based estimates of the demographic dividend can illustrate the impacts of changes in either population projections or the shapes of the underlying NTA age profiles on the magnitude of the dividend, they do not dictate specific policy interventions. Instead, policymakers are free to choose any set of policies that achieves a particular outcome from the wide range of potential interventions. This suggests scope for a future policy dialogue process that can identify feasible policy options that have broad backing from stakeholders. Thus, while narrowing the gender gap in per capita labour income is clearly advantageous in terms of the magnitude of the first demographic dividend, this may be achieved through a broad range of interventions. Raising per capita labour incomes for a given cohort may be achieved through raising employment for that cohort, or through raising rates of pay for workers, or by encouraging a shift in the occupational distribution of female employment towards more skilled occupations, or by raising the mean hours of work, for example. It is important that policy choices are sensitive to local conditions and engage fully with the constraints and challenges faced by labour force participants.

6

Implications of HIV and other health challenges for the demographic dividend

The realisation of a demographic dividend is not an automatic process but requires that societies make the appropriate investments in human and physical capital and implement policies that are supportive of economic growth and development. The demographic dividend is, however, particularly reliant on the quality of human capital available within society. As it is workers who will be generating the labour income, human capital investments— relating specifically to education and health—are crucial in ensuring that work seekers have the necessary skills to find employment and that they are able to be productive within their jobs.

Like other countries in the region, Lesotho grapples with important challenges with respect to human capital investment. This includes, for example, ensuring that children area able to access high quality educational opportunities that will prepare them for their entry into employment, irrespective of their gender, social status, or location. The provision of quality education that is relevant to the national labour market context is crucial in improving the likelihood of young people finding good quality employment upon their exit from the educational system.

A second area of focus is health. In addition to providing quality education and creating an environment conducive to job creation, governments must actively invest in improving the general health of their populations. Deficiencies within the health system will contribute to workers being unable to work productively due to their own ill health and may result in care burdens being placed on working age adults to ensure the well-being of others, including children and parents, that may impact on their ability to be fully engaged in the labour market.

This section focuses on two specific health-related challenges that may impact on the extent to which Lesotho may be able to achieve the demographic dividend. The first is the HIV pandemic, which has had profound impacts on communities around the world over the past three decades or more, and which has directly impacted working age adults in terms of morbidity and mortality. The second is the COVID-19 pandemic, which reached Southern Africa by early 2020, and which has severely disrupted not only employment, but also educational activities, particularly during 2020 and significant parts of 2021.

6.1 The Impact of Reduced Financing for HIV Programmes

Robust prevention and treatment programmes are key interventions within health policy as a result of the extent of HIV infections in Lesotho. These programmes represent a significant financial commitment over time on the part of both the Lesotho Government and the various donors active in this field. Given competing demands on government's fiscal resources and given that future resources from donors are not guaranteed, the risk therefore exists that sufficient funding in the area of HIV and AIDS prevention and treatment may not exist in future years. This risk has important implications for the demographic dividend through its impact on the human capital of Lesotho's citizens.

An inadequate response to the health crisis that is the HIV and AIDS pandemic is likely to have significant ramifications in terms of the magnitude of the demographic dividend that arises and the ability of societies to harness that dividend. As a result, HIV and AIDS places the demographic dividend "under threat in parts of Africa", since it has tended to impact younger adults in the working ages (Whiteside and Zebryck, 2017, p.299). Without robust interventions, HIV and AIDS undermines the efficiency of learning and the productivity of workers, with negative consequences for per capita labour incomes.

To model the potential impact of declining financing for HIV and AIDS prevention and treatment programmes on the demographic dividend, three long-term scenarios were modelled using the AIDS Impact Module (AIM) within the UNAIDS Spectrum tool. Together, these scenarios assess the potential effect of HIV infections on Lesotho's population age structure under different assumptions with respect to the long-term funding of HIV prevention and treatment programmes, with the projections running until 2100.

The three scenarios modelled are identical except for assumptions around access to prevention and treatment interventions[7]. The baseline HIV scenario assumes no change in that the current percentage or number of those accessing the prevention of mother-to-child transmission (PMTCT), and child and adult antiretroviral therapy (ART) programmes remain the same. The second scenario assumes a 50 per cent reduction in the percentage or number of those who are able to access the PMTCT and child and adult ART programmes as of 2022. Finally, the third scenario assumes a total collapse of the PMTCT and child and adult ART programmes as of 2022, so that there is no access whatsoever. Further details regarding the modelling are provided in section 9.2 in the Appendix. While these comparisons are done relative to the baseline HIV and AIDS scenario, it must be noted that they do not capture the full effect of HIV and AIDS on the demographic dividend since the baseline scenario does not reflect an HIV and AIDS-free scenario.

7 The modelling of these scenarios was undertaken by Prof. Clifford Odimegwu and Dr Sasha Frade, of the Demography and Population Studies Programme at the University of the Witwatersrand.

Table 12 presents the distribution of the population in each of these three scenarios across four broad age-groups for the years 2018, 2060 and 2100. Population pyramids for these three years are presented in Figure 37 in the Appendix. Relative to the baseline HIV scenario, which assumes no change in access to HIV and AIDS prevention and treatment programmes, scenario 2 sees marginally smaller child cohorts in 2060 as a proportion of the total population, while scenario 3 has slightly larger child cohorts. These differences persist in 2100, with the child population in scenario 3 estimated at almost 24 per cent of the population compared to roughly 22.5 per cent for the other two scenarios. For youth aged 15 to 34 years, a similar pattern emerges: scenario 3 has the largest youth cohort as a share of the population (30.8 per cent in 2100), more than two percentage points higher than in scenarios 1 and 2. Scenario 2 sees a slightly higher proportion of the population aged 35 to 64 years in both 2060 and 2100 when compared to scenario 1. Scenario 3, however, is characterized by a lower proportion in these ages in both these years, particularly for females. While the male population aged 35 to 64 years as a proportion of the total population is 0.36 percentage points lower in 2060 in scenario 3 than in scenario 1, the difference for females is close to two percentage points. This gap remains in 2100. Scenario 3 predicts a smaller elderly population in the future than either of the other two scenarios. Once again, the difference is small for males at 0.28 percentage points (4.96 per cent in scenario 3 compared to 5.22 per cent in scenario 1); for females, the difference is 1.3 percentage points (7.90 per cent compared to 6.60 per cent). This impact on the female population is evident in the population pyramids in Figure 37 in the Appendix. For scenario 2, the elderly population is slightly larger relative to the total population than in scenario 1.

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TABLE 12 Population Age Structure under Different HIV Scenarios, 2018, 2060 and 2100

SCENARIO 1: BASELINE HIV

	2018		2060		2100	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-14 YEARS	16.28	16.29	12.23	12.09	11.36	11.23
15-34 YEARS	18.90	18.41	15.66	15.36	14.50	14.19
35-64 YEARS	12.38	12.88	17.41	17.67	17.75	17.84
65+ YEARS	1.82	3.05	3.93	5.66	5.22	7.90

SCENARIO 2: 50% REDUCTION

	2018		2060		2100	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-14 YEARS	16.28	16.29	12.11	11.97	11.21	11.09
15-34 YEARS	18.90	18.41	15.60	15.30	14.41	14.10
35-64 YEARS	12.38	12.88	17.63	17.87	17.88	17.96
65+ YEARS	1.82	3.05	3.92	5.60	5.31	8.06

SCENARIO 3: 100% REDUCTION

	2018		2060		2100	
	MALE	FEMALE	MALE	FEMALE	MALE	FEMALE
0-14 YEARS	16.28	16.29	12.73	12.59	11.95	11.83
15-34 YEARS	18.90	18.41	16.65	16.19	15.65	15.16
35-64 YEARS	12.38	12.88	17.05	15.82	17.78	16.07
65+ YEARS	1.82	3.05	3.71	5.26	4.96	6.60

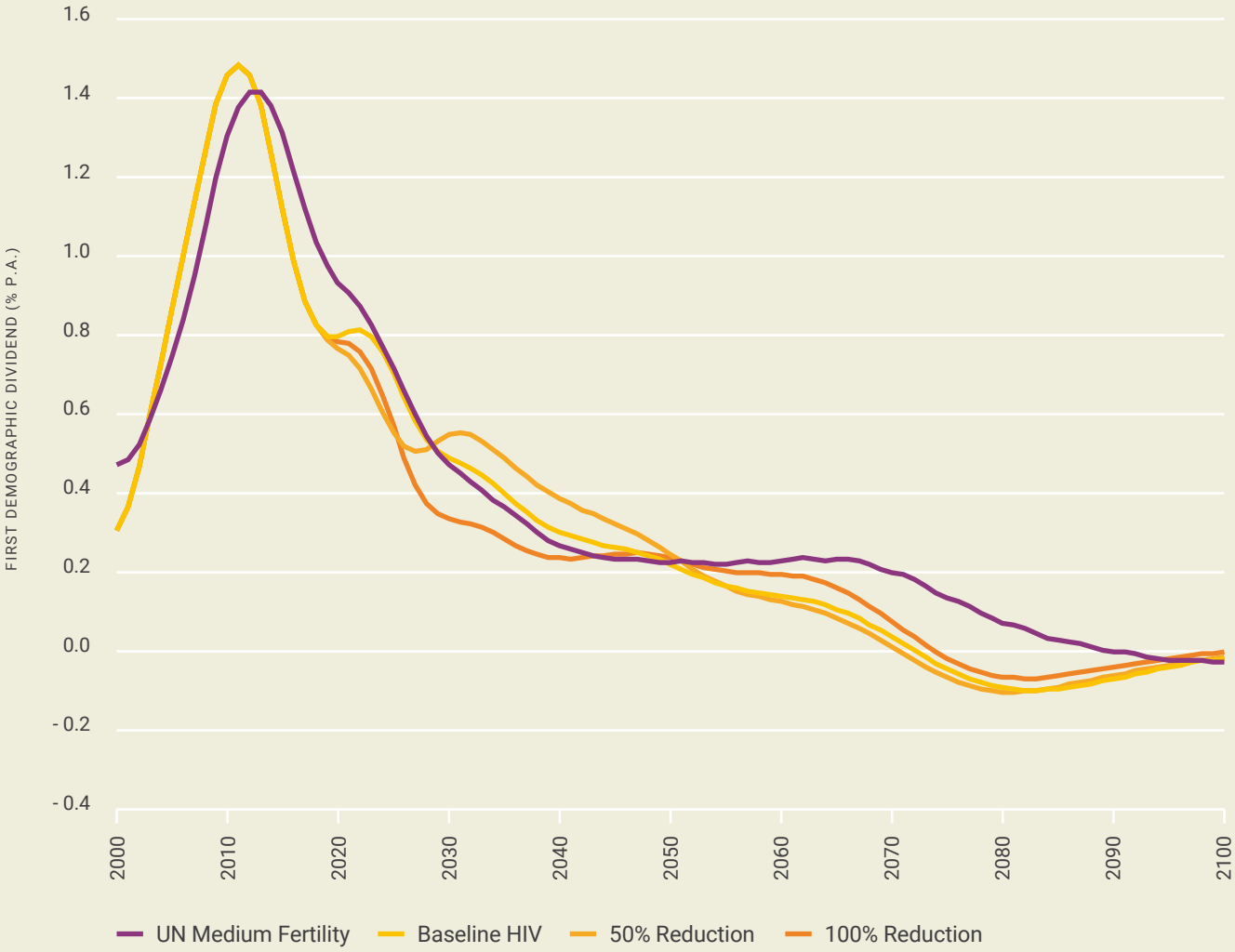
SOURCE: Own calculations, AIM Projections

To what extent is the demographic dividend impacted under these scenarios? Applying the population projections produced by these three scenarios to the 2018 labour income and consumption profiles for Lesotho, it is possible to estimate the economic support ratio and the first demographic dividend. These demographic dividends are presented for the 2000 to 2100 period in Figure 29, alongside the original estimate of the dividend that was first presented in Figure 25. The latter is included in the figure to provide a sense of the extent to which the three scenarios differ from the original medium fertility projection. Compared to the original estimate, the baseline HIV scenario sees a peak in the demographic dividend that is slightly higher and slightly earlier, a decline that occurs slightly sooner and which is interrupted briefly in the early 2020s in a way that the original estimate is not. Nevertheless, while the dividend in the baseline HIV scenario stabilizes slightly sooner than the original estimate, they both stabilize at very similar levels. As a result, the two estimates appear to be broadly consistent with each other.

In terms of the baseline HIV scenario, the first demographic dividend rises rapidly to peak at 1.48 per cent per annum in 2011. It then falls steeply to 0.80 per cent in 2019, where it remains briefly before resuming its downward trend. By the early 2040s, the demographic dividend falls below 0.3 per cent per annum and gradually drifts downward to 0.14 per cent by 2060. After 2070, the dividend is negative, dipping to -0.10 per cent in the early 2080s and ending the century just below zero (-0.02 per cent).

Interestingly, the other two scenarios, which see access to prevention and treatment programmes fall by 50 per cent and 100 per cent respectively, end up having somewhat different impacts on the demographic dividend. At the extreme, the third scenario—which sees access completely eliminated—immediately diverges from the baseline HIV scenario in the early 2020s. By 2034, the dividend falls below 0.3 per cent per annum and remains between 0.20 per cent and 0.30 per cent per annum until 2056. In this scenario, the dividend turns negative by the mid-2070s and, like the baseline HIV scenario, is just below zero by the end of the century.

FIGURE 29 The Demographic Dividend under Alternative HIV Scenarios, 2000-2100



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c, e); United Nations (2019, 2021); World Bank (2022)

NOTE: The demographic dividend presented here is constructed based on constant gender-specific labour income profiles combined with gender-disaggregated population projections. This is slightly different to the baseline projections using the medium fertility variant, which uses labour income profiles and population projections for the population as a whole.

The second scenario, where access to prevention and treatment programmes falls by 50 per cent, follows a similar path initially, with the dividend declining rapidly during the early 2020s. However, by 2027, the decline is arrested and the dividend rebounds briefly to just above 0.55 per cent per annum in 2031. It then gradually declines throughout the remainder of the period, but at a more rapid pace than observed for either of the other two scenarios. Thus, by the mid-2050s, the dividend is the lowest of all the scenarios and falls below zero in 2071.

Table 13 takes these annual trends in the demographic dividend and considers the dividend's full impact over the period between 2018 and 2100. As is to be expected, the bulk of the cumulative demographic dividend accumulates during the initial 42 years of the period, estimated at 18.4 per cent or 0.40 per cent per annum in the baseline projection (or 17.8 per cent and 0.39 per cent per annum in the baseline HIV scenario). For the full period, the baseline HIV dividend is estimated to total 16.8 per cent, which is equivalent to an average annual growth rate of 0.19 per cent over the 82-year period.

TABLE 13 Estimates of the First Demographic Dividend under Alternative HIV Scenarios, 2018-2100

	CUMULATIVE FIRST DIVIDEND (%)			AVERAGE ANNUAL GROWTH RATE (%)		
	2018-2060	2060-2100	2018-2100	2018-2060	2060-2100	2018-2100
PROJECTIONS BASED ON UNITED NATIONS MEDIUM FERTILITY VARIANT						
Baseline	18.4	3.7	22.9	0.40	0.09	0.25
PROJECTIONS FROM AIDS IMPACT MODULE, UNAIDS SPECTRUM TOOL						
Baseline HIV	17.8	-0.8	16.8	0.39	-0.02	0.19
50% reduction	18.5	-1.1	17.2	0.40	-0.03	0.19
100% reduction	15.3	0.6	16.0	0.34	0.01	0.18

SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c, e); National Transfer Accounts Project (2022); United Nations (2019, 2021); World Bank (2022)

NOTE: Figures are calculated from an index of the support ratio, which equals one in 2018. The cumulative first dividend is the percentage change in this index from the start of the period until the end of the period. This is then converted to an average annual growth rate in the second set of columns.

The third scenario (100 per cent reduction) yields the smallest dividend of the three scenarios at a cumulative 16.0 per cent between 2018 and 2100, while the dividend in the second scenario is estimated at 17.2 per cent, which is 0.4 percentage points larger than the dividend in the baseline HIV scenario. The differences between the scenarios are obscured by the inclusion of the 2060 to 2100 period, during which the projected dividend is generally negative. If one were to consider only the 2018 to 2060 period, the baseline HIV scenario would yield a cumulative demographic dividend of 17.8 per cent, compared to 18.5 per cent for scenario 2, and 15.3 per cent for scenario 3. This strong performance in the latter period for scenario 2 appears to be linked by the fact that it is characterized by a relatively large proportion of the population in the older adult cohort and a relatively small proportion under the age of 15 years when compared with the other two scenarios.

It is important to note that, while the baseline HIV scenario is outperformed by the scenario that sees access to HIV and AIDS prevention and treatment programmes decline by 50 per cent, these simulations only cover one aspect of the broader changes that can be expected to occur, namely the effects of the different patterns of demographic change that arise due to these changes in access. From an NTA perspective, these projections are unable to capture the potential distortions to the patterns of private consumption of health as individuals choose to redirect consumption of other goods and services towards treatment for HIV and AIDS. However, given how low per capita private consumption of health is relative to total private consumption, it is improbable that a feasible shift in consumption would significantly alter the per capita levels of total consumption and thereby impact on the demographic dividend.

Furthermore, these scenarios do not reflect the impact of increased morbidity rates on productivity and the ability to hold onto a job. Indeed, in both the second and third scenarios, the quality adjusted life years (QALYs) (equivalent to a year in perfect health) are significantly lower than under the baseline HIV scenario. Under the baseline HIV scenario, QALYs are estimated to rise from 2.055 million in 2020 to 2.227 million by 2030, and 2.607 million by 2060. In contrast, the 100 per cent reduction scenario sees QALYs at 2.168 million in 2030 and 2.313 million in 2060, respectively 2.7 per cent and 11.3 per cent lower than the baseline HIV scenario. For the 50 per cent reduction scenario, QALYs are 1.3 per cent and 1.6 per cent lower than in the baseline HIV scenario.

Reduced access to HIV and AIDS prevention and treatment programmes therefore has a clear negative impact on health outcomes for infected individuals, which reduces the productivity of those who are employed and may make it difficult for them to keep their jobs. The implication here is a reduction in per capita labour income across the life course but concentrated amongst those ages where prevalence rates and rates of illness combine to create a particularly severe impact. Importantly, working-age individuals may not only be impacted by their own illness, but may also be required to care for sick family members. This care burden may manifest in additional financial demands made of working-age adults, as well as making demands on their time to provide direct and indirect care for the sick. As a result, working-age adults may find themselves needing to provide care for children, other working-age adults, and the elderly, thereby reducing their available time for leisure and self-care activities, and indeed, for employment. The heightened care responsibilities that will arise with reduced access to prevention and treatment programmes may force individuals to choose between employment and being able to provide care, resulting in reduced labour force participation—and therefore lowered per capita labour income—or insufficient care for the ill. To get at some of these issues, however, requires time-use data.

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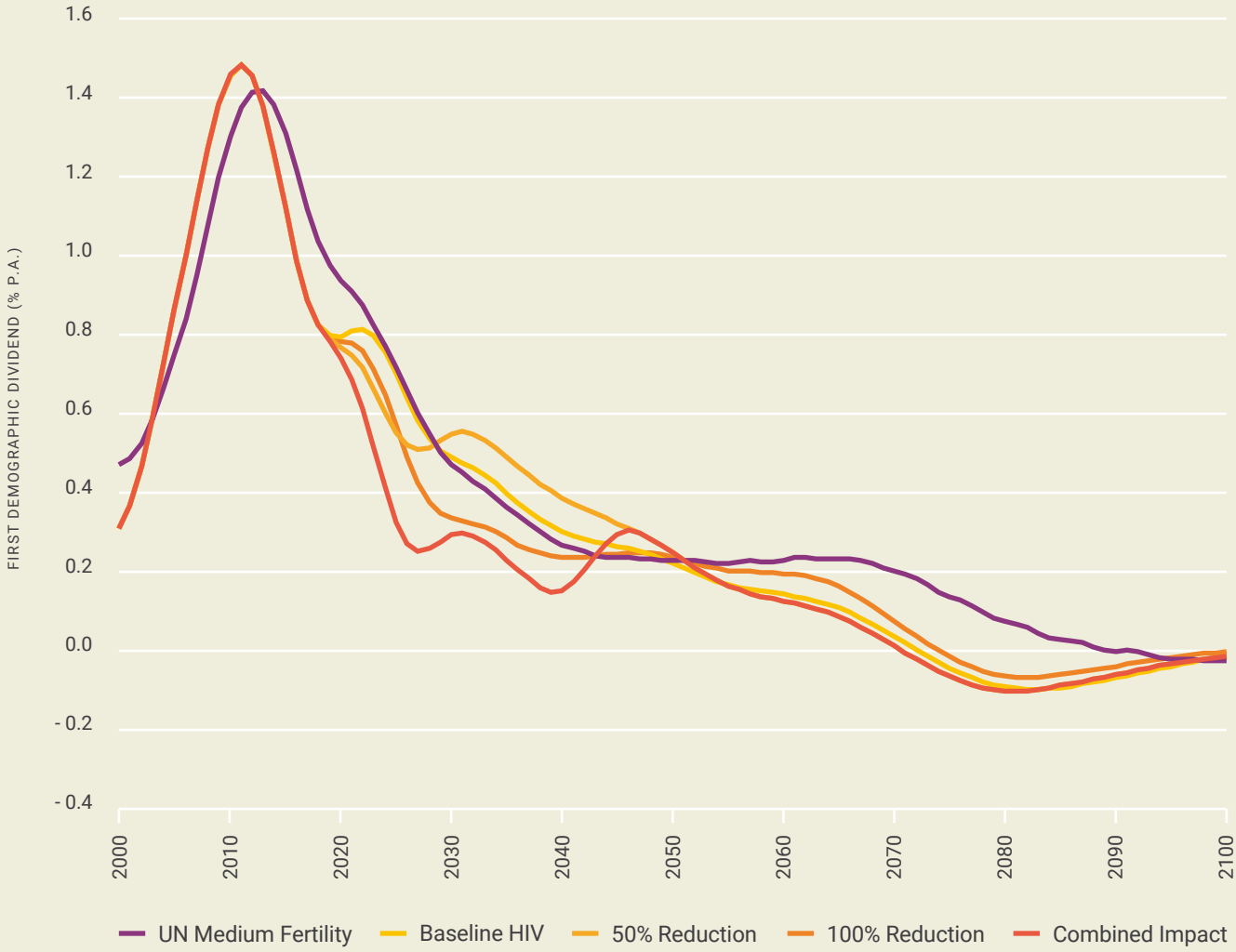
Where children are infected, illness may compromise their school attendance and capacity for learning. This weakening of their human capital may erode their earnings capacity within the labour market, and to the extent that educational attainment is materially impacted, may lower their probability of finding employment when they enter the labour market. Similar effects may arise where children are required to provide care for sick adults within their households.

Evidence on the impact of HIV and AIDS on wages is relatively scarce: a search of the Research Papers in Economics repository using the search terms "HIV" and "wages" yields only 26 results, and the vast majority of these papers do not explore the impact of HIV status on an individual's own wages or general wage levels. One study, however, focussed on South Africa, analyses the relationship between cumulative AIDS mortality on wages at the population level, and finds that HIV and AIDS reduced wages for the African population group by between three and six per cent (Chicoine, 2012).

Based on this finding, we simulate the combined impact of a reduction in funding for HIV and AIDS prevention and treatment programmes and a generalized wage reduction. Specifically, we use the 50 per cent reduction scenario, and instead of using a constant labour income profile throughout the period, per capita labour incomes at each age are reduced gradually between 2022 and 2042 by five per cent (or 0.25 per cent per annum). Figure 30 presents the results for this simulation, in addition to the results presented earlier in Figure 29.

The combined impact simulation yields a demographic dividend that is considerably smaller than in any of the other scenarios. The initial drop in the early 2020s is even sharper than under the 50 per cent reduction scenario, and it drops lower than under the 100 per cent reduction scenario during the late 2020s, the 2030s and the early 2040s. By the mid-2040s, though, it returns to the same levels as seen under the 50 per cent reduction scenario. As a result, the cumulative dividend, presented in Table 14, is considerably lower than observed for any of the other scenarios. For the full 2018 to 2100 period, the cumulative dividend is estimated at 11.3 per cent, more than one-third lower than under the 50 per cent reduction scenario. All this difference accrues during the initial 42 years of the period: for the 2060 to 2100 period, the cumulative dividend is -1.1 per cent under both scenarios.

FIGURE 30 The Demographic Dividend under Alternative HIV Scenarios and with a Wage Effect, 2000-2100



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c, e); United Nations (2019, 2021); World Bank (2022)

NOTE: The demographic dividend presented here is constructed on the basis of constant gender-specific labour income profiles combined with gender-disaggregated population projections. This is slightly different to the baseline projections using the medium fertility variant, which uses labour income profiles and population projections for the population as a whole.

TABLE 14 Estimates of the First Demographic Dividend under Alternative HIV Scenarios and with a Wage Effect, 2018-2100

	CUMULATIVE FIRST DIVIDEND (%)			AVERAGE ANNUAL GROWTH RATE (%)		
	2018-2060	2060-2100	2018-2100	2018-2060	2060-2100	2018-2100
50% reduction	18.5	-1.1	17.2	0.40	-0.03	0.19
Combined impact	12.6	-1.1	11.3	0.28	-0.03	0.13

SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c, e); National Transfer Accounts Project (2022); United Nations (2019, 2021); World Bank (2022)

NOTE: Figures are calculated from an index of the support ratio, which equals one in 2018. The cumulative first dividend is the percentage change in this index from the start of the period until the end of the period. This is then converted to an average annual growth rate in the second set of columns.

In summary, the estimates presented above provide initial estimates of the impact of reduced funding for HIV and AIDS prevention and treatment programmes on the demographic dividend in Lesotho. Relative to the baseline HIV and AIDS scenario, a 50 per cent reduction in funding actually has a marginal positive impact on the magnitude of the dividend, raising the estimated cumulative dividend over the 2018 to 2100 period by 0.4 percentage points (or 2.3 per cent) from 16.8 per cent to 17.2 per cent. However, ending funding would reduce the dividend to a cumulative 16.0 per cent over the period, a reduction of almost five per cent. This difference in impact is linked to the different trajectories of demographic change that such policy changes would entail. While these impacts may appear marginal, it is important to acknowledge that these simulations only consider the impact of these policy changes on demographic variables, while ignoring the impact of the disease on individuals and households to engage productively within the economy. Where the demographic impact is modelled alongside a change in the labour income profile that reflects the kind of effects on engagement within the labour market, the impact is substantially negative: a five per cent reduction in per capita labour income—which reflects weakened labour market engagement—combined with the demographic impact of a 50 per cent reduction in spending on HIV and AIDS prevention and treatment programmes, reduces the cumulative dividend by roughly one-third relative to the baseline HIV and AIDS scenario.

6.2 COVID-19 and the Demographic Dividend in Lesotho

The world is still reeling from the effects of the COVID-19 pandemic. In most parts of the world, the pandemic was met with significant restrictions on the movement of people that lasted for extended periods of time. Economic activity was severely affected, triggering a global recession and causing extensive disruptions to global supply chains that persist today. At the same time, livelihoods were impacted as firms shed workers and as those in the informal sector were unable to earn a living, plunging millions of households around the world into poverty and forcing governments to respond with a variety of interventions aimed at supporting firms and workers through the worst of the pandemic.

Southern Africa in general, and Lesotho in particular, were not unaffected by the pandemic. As noted in section 2.1.3, confirmed cases as of April 2022 numbered 33 000 since the start of the pandemic, with almost 700 deaths. As in South Africa, schools in Lesotho were closed for an extended period, disrupting learning and leading to backlogs that will require substantial effort to close. The effect of the pandemic was felt in the labour market in various ways. Undertaken in June 2020, the COVID-19 Socio-Economic Impact on Households Survey (Lesotho Bureau of Statistics, 2020b) found that, in 60 per cent of households, respondents reported having stopped working due to COVID-19 restrictions forcing their places of employment to remain closed, while two-thirds of households who had access to wage income reported experiencing either a partial or total reduction in income from wages due to COVID-19. Only one-fifth of households who had children attending school before the COVID-19 school closures reported that their children had engaged in some learning activity in the week prior to the survey, and only one in 20 households reported that their children had face-to-face contact with teachers (Lesotho Bureau of Statistics, 2020b).

There are three clear routes through which the demographic dividend may be impacted by the COVID-19 pandemic. The first is through the impact on the labour market in terms of job losses and reduced earnings. This has the effect of immediately reducing per capita labour income, although this reduction will dissipate as the labour market recovers over time. Second, there is the impact on the education of children and young people, which may in the longer-term impact on their eventual educational attainment and likelihood of employment. This too may reduce per capita labour incomes, although the impact would only be felt in the future as these cohorts enter the labour market. Unlike the immediate labour market impact, however, the impact through the education channel may be permanent for affected cohorts. Third, there is the health impact. This impact is more challenging to predict, particularly given how little is understood about the future path of the pandemic and the long-term consequences of infection (e.g. symptoms associated with long COVID). What is

clear, however, is that deaths tend to have been concentrated amongst older cohorts, which would impact (very slightly, given the number of deaths) on the population age structure rather than on the NTA profiles themselves. Where there are long-term effects associated with COVID-19 infection, to the extent that they impacted on individuals' capacity to work and learn, these effects would have negative impacts on per capita labour income now and in the future. In addition, any reprioritisation of consumption spending—whether public or private—towards dealing with COVID-19 would potentially impact on the demographic dividend indirectly through the effects of reduced spending in other areas, particularly where such spending is in areas that are supportive of the demographic dividend.

The impact of COVID-19 on Lesotho's demographic dividend is not simulated here due to data constraints and the complex nature of the interactions of the various effects with age and over time. Instead, we draw on work by Sánchez-Romero (2022), who simulates the intergenerational effects of the pandemic using NTAs from 12 predominantly high-income countries within an overlapping generations model. Put simply, the author models the COVID-19 impact through "two unexpected and temporary negative shocks: an economic shock that reduces labour income, and a demographic shock that increases the mortality hazard rates of those infected" (Sánchez-Romero, 2022, p.1). At the same time, two different approaches to government support are modelled, one in which government compensates workers for all income losses experienced due to the pandemic, and on in which there is no compensation for workers.

Several results emerge from the analysis that are relevant to Lesotho.

- **FIRST**, the economic impact of the COVID-19 pandemic is found to fall most heavily on individuals aged 25 to 64 years and their children, rather than on elderly cohorts. Measured through, for example, lifetime consumption, it is estimated that a one per cent decline in labour income is associated with a fall in lifetime consumption, on average, of 0.73 per cent for those under the age of 25 years, 0.94 per cent for those aged 25 to 64 years, and 0.32 per cent for those aged 65 years and above (Sánchez-Romero, 2022).
- **SECOND**, policies that aim to compensate workers for the losses suffered due to the pandemic have the effect of more evenly distributing the economic costs of the pandemic across generations. This is partly achieved by shifting some of the costs from working-age cohorts to elderly cohorts. Thus, these policies enhance intergenerational equity by ensuring that costs and benefits of shocks are shared across generations.

- **THIRD**, labour income losses are found to have negative implications for the stock of public debt. Thus, for example, Sánchez-Romero (2022) finds that a reduction in labour income of one per cent is associated with an increase in the ratio of public debt to labour income, irrespective of whether workers are compensated for economic losses: a one per cent reduction in labour income sees the ratio increase by between 1.2 per cent and 1.6 per cent, depending on whether workers were not or were compensated. This has important implications, for example, for public finances in Lesotho and the fiscal space available to the government to make the necessary investments in achieving the demographic dividend.
- **FOURTH**, even beyond the differences by age, the impact of COVID-19 is not evenly distributed across groups. Thus, those "in lower socioeconomic groups have a higher probability of losing their jobs and being infected with COVID-19" (Sánchez-Romero, 2022, p.21). This is particularly important within the context of the high degree of inequality in Lesotho and points for support programmes targeted towards the most vulnerable within Lesotho.
- **FIFTH**, remittances may be even more strongly impacted than labour income, depending on the extent of disruption in key destination countries. Given Lesotho's deep reliance on remittances this is an important consideration. Indeed, the Lesotho Bureau of Statistics (2020c) finds that the proportion of households receiving remittances from outside of Lesotho declined from 7.6 per cent in June 2020 to 3.6 per cent in July.

This final point on remittances is an important one for Lesotho, particularly in terms of understanding their future trajectory. As restrictions on cross-border movement are relaxed, it remains unclear as to whether the number of migrant workers going to South Africa will return to pre-pandemic levels. It is, for example, possible that these workers may have lost their jobs in South Africa or that they have found alternative employment within Lesotho. Over the longer term, South Africa's own challenges of massive unemployment and xenophobia may limit the accessibility of the South African labour market to migrant workers. These various concerns—together or individually—may negatively impact on the volume of remittances flowing back into Lesotho, undermining average consumption levels in Lesotho and thereby dampening economic growth and potentially raising pressure on the government to support consumption levels.

7

Discussion, Recommendations and Conclusion

A core component of the research presented in this paper is the construction of the Lesotho's first NTA profiles. Certain features of these profiles are worth noting. As mentioned above, per capita labour income as a proportion of peak labour income is relatively low in Lesotho amongst youth cohorts when compared to other countries. This pattern is observed in various countries in the region and is linked to the unfavourable labour market conditions for the employment of young people. Addressing this issue may take the form of various types of interventions targeting a number of aspects of young people's labour market participation. Thus, policies that aim to increase labour force participation rates, the likelihood of employment, hours of work, the occupational distribution of employment, or the wage rate for young people would all, if successful, be able to increase per capita labour income for these cohorts.

Per capita consumption expressed as a proportion of peak labour income is high in Lesotho in global comparison. Indeed, per capita consumption for some cohorts is as much as twice as high as the global median. This high level of consumption is made even clearer when the two profiles—consumption and labour income—are compared: in Lesotho, there is no age where per capita labour income exceeds per capita consumption. In other words, all age cohorts produce lifecycle deficits. This makes Lesotho only one of two countries, along with El Salvador, where there is no lifecycle surplus on average for any age cohort.

The key explanation for this phenomenon—in Lesotho as in El Salvador—is labour migration and the resulting large flows of remittances to sending households in the form of private transfer inflows. Indeed, with remittances in Lesotho estimated at more than one-fifth of GDP in 2019, it is unsurprising that such high levels of consumption can be achieved. These estimates clearly illustrate the risk to per capita consumption levels in Lesotho posed by potential disruptions to remittance flows through, for example, reduced labour migration. To put these figures in context, in 2015, total consumption in South Africa was equivalent to 63 per cent of GDP, compared to 108.1 per cent in Lesotho, while total labour income was 49 per cent and 43.1 per cent of GDP in the two countries (own calculations, Oosthuizen, 2019a). This places added emphasis on the need for jobs-focussed economic policy in Lesotho.

It is well-established that the shifting distribution of the population across age has important consequences for the economy. For countries with younger populations, the prospect of a demographic dividend brings with it the possibility of more rapid economic growth, falling poverty, rising living standards and, more broadly, economic development. There are, however, two features of the demographic dividend that are crucial in terms of harnessing the dividend. First, the demographic dividend is temporary. Second, the demographic dividend is not automatic.

While there are different approaches to understanding and quantifying the demographic dividend, the temporary nature of the dividend is broadly recognized (for example, Bloom and Williamson, 1998; United Nations, 2004; Pool, 2007; Eastwood and Lipton, 2012; Ahmed et al., 2014; United Nations Population Fund and African Institute for Development Policy, 2015). While the dividend period may last for several decades, depending on the pace and nature of the demographic transition, at some point the population age structure will begin to be unfavourable to growth and rising living standards. This temporary nature of the dividend therefore means that policymakers should do all in their power to harness it for their broader developmental objectives. From the NTA perspective, the first demographic dividend—the demographic dividend presented and discussed in this paper—is transient. However, the second demographic dividend, which arises as the proportion of the population close to retirement age increases, can result in a permanent increase in living standards, but only in instances where individuals are saving for their retirement. Where societies primarily organize support for the elderly through pay-as-you-go pension schemes or through social assistance, the second demographic dividend will be limited.

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It is important, from a policy perspective, to reiterate that the demographic dividend does not materialize mechanically simply because the age structure of the population evolves in a particular way. Instead, policymaking must be deliberate and methodical in creating an environment conducive to the realisation of the demographic dividend. In this sense, the demographic dividend represents only a *potential* benefit, which is why the phrasing "window of opportunity" is often employed. This warning is made repeatedly throughout the literature (for example, Bloom et al., 2003; United Nations, 2004; World Bank, 2015; Groth and May, 2017). Indeed, there are various examples of countries that have been more (or less) successful in harnessing the dividend, and these countries have often been characterized by different kinds of policy environments.

In this regard, institutions—encompassing factors such as political freedoms, corruption, infrastructure quality, and labour market regulation (Bloom et al., 2007)—are key to the realisation of the demographic dividend as they are instrumental in guiding countries through the complex policymaking and long-time horizons that characterize the dividend process. Strong institutions are frequently cited as key to ensuring that the dividend is properly harnessed (for example, Bloom et al., 2003; Lee et al., 2006; United Nations Population Fund and African Institute for Development Policy, 2015; Zuber et al., 2017). The quality of institutions is important in several respects. First, strong institutions can ensure that the appropriate economic, social and policy context for the achievement of the demographic dividend. Second, they are important in helping to ensure that the costs and benefits of policies that are implemented are equitably distributed across generations, encouraging inter-generational buy-in to the process. Strong institutions are also important in curbing corruption, which has the potential to derail efforts at achieving a demographic dividend (Bloom et al., 2017). Fourth, strong institutions are important for societies to be able to navigate the important policy trade-offs that will need to be considered, and in ensuring policy coordination across a broad range of fronts.

For Lesotho, the estimates presented here suggest that the demographic dividend was already positive prior to 1990 and is expected to turn negative by 2089. After 2089, changes in the population age structure will act to constrain economic growth and rising living standards. Importantly, most of the cumulative demographic dividend over the 1990 to 2100 period lies in the past, with the vast majority of the remaining dividend concentrated within the 2020 to 2060 period. Both these findings highlight the urgency of ensuring that a policy environment supportive of the realisation of the demographic dividend is firmly established within Lesotho. For the full 1990 to 2100 period, Lesotho's cumulative demographic dividend is estimated at 57.1 per cent, equivalent to an average annual growth rate of 0.41 per cent per annum. During the next four decades (2020 to 2060), the demographic dividend will be slightly below this rate, at 0.38 per cent per annum, while the final 40 years of the century will see the dividend decline to almost zero in average annual growth rate terms.

Recommendation I:

THE GOVERNMENT OF LESOTHO SHOULD CONTINUE TO WORK TOWARDS ENSURING THAT DEMAND FOR FAMILY PLANNING IS MET.

A number of broad areas of policy have been identified as being particularly relevant in underpinning the ability of countries to harness the demographic dividend. These include family planning, education, health, economic policy, and strong institutions. Access to family planning is a key factor influencing the pace of the demographic transition, which in turn impacts on the magnitude and duration of the (positive) demographic dividend period. The analysis presented above clearly illustrates how lower fertility would enhance the demographic dividend in Lesotho. Thus, for the 2020 to 2100 period, the low fertility variant yields a first demographic dividend that is almost one-fifth larger than the baseline dividend in Lesotho. Even while Lesotho is relatively advanced in its demographic transition relative to the average sub-Saharan African country, the pace of the transition is not particularly rapid when compared with transitions in countries that saw strong demographic dividends, such as those in East and South-East Asia.

Recommendation II:

INVESTMENTS IN PROVIDING ACCESS TO HIGH QUALITY EDUCATION UNDERPIN THE ABILITY OF YOUNG PEOPLE TO ACCESS GOOD QUALITY JOBS WITHIN THE LABOUR MARKET, ENSURING THAT LESOTHO IS ABLE TO MAXIMIZE THE REMAINING DEMOGRAPHIC DIVIDEND.

Investments in quality education are critical to ensuring that young people are equipped with the kinds of skills that are valued by employers in the labour market. Better educated workers are typically more likely to be able to find employment and, when employed, are more likely to have higher earnings. In both instances, this would serve to raise per capita labour incomes. In addition, improved access to education—particularly for girls—also serves to reinforce the demographic dividend by encouraging labour force participation and delaying marriage and childbearing.

Improvements in educational attainment over time may have a significant impact on the magnitude of the demographic dividend that is eventually realized. This effect may be further strengthened where higher levels of education provide improved access to formal employment, which typically is associated with higher wages. However, the relationship between education and the demographic dividend in Lesotho was not explored as part of this research. This is an important area for potential future work with direct implications for policy. From a policy perspective, however, continued emphasis on improving education—in terms of both quantity (i.e. attainment) and quality—is a crucial component of government efforts in support of the demographic dividend.

Recommendation III:

CONTINUED INVESTMENTS IN HEALTH AND, IN PARTICULAR, SUSTAINED FUNDING FOR THE PREVENTION AND TREATMENT OF HIV AND AIDS IS CRITICAL TO ENSURE THAT THE DEMOGRAPHIC DIVIDEND IS NOT SUBSTANTIALLY ERODED BY ILLNESS AND DEATH.

Alongside education, health is a key aspect of human capital and, by extension, the demographic dividend. There are two main channels through which this effect operates, namely through its impact on the efficiency and productivity of education and employment activities, and through its impact on fertility. In terms of the impact of health on fertility, for example, Bloom et al. (2003, p.69) argue that health policy is fundamental to the achievement of the demographic dividend given its ability to trigger and support the demographic transition: "Improved sanitation, immunization programs, antibiotics, and contraceptives initiate the declines in mortality that lead to declines in fertility, which together cause changes in the age distribution and size of a population".

HIV and AIDS is a key health challenge in Lesotho, as in many other countries in the region, and the pandemic's management requires a significant resource commitment from government on an ongoing basis. The pandemic may impact the demographic dividend through several channels, impacting infected individuals and their households, as well as the family members who may be required to care for them. The impact of a reduction of funding of HIV and AIDS prevention and treatment programmes on the demographic dividend is modelled on the basis of population projections that reflect these funding changes in the form of reduced access to these programmes. Based purely on these alternative population projections, the data suggests that large scale reductions in funding—and therefore programme access—will erode the demographic dividend. However, the effects are not particularly large. The analysis goes one step further and simulates the demographic dividend with the same population projections, but this time assumes a slight decline in per capita labour incomes due to HIV and AIDS. In this case, the impact is more substantial, reducing the cumulative dividend during the 2018 to 2100 period by almost six percentage points (from 17.2 per cent under the 50 per cent reduction scenario to 11.3 per cent). One area that this study was unable to probe in more detail relates to the care burden imposed on family and household members to care for those who are sick and dying due to HIV and AIDS. Care responsibilities impact on carers' own ability to engage fully in the labour market, with the implication that reduced access to treatment would significantly increase the disruption to carers' labour force participation.

Recommendation IV:

EFFORTS AIMED AT CLOSING ANY EDUCATION BACKLOGS ARE CRITICAL IN MODERATING THE LONG-TERM IMPACTS OF THE COVID-19 PANDEMIC AND ENSURING THAT THOSE GENERATIONS CURRENTLY IN THE EDUCATION SYSTEM DO NOT BEAR A DISPROPORTIONATE COST.

As with HIV and AIDS, the COVID-19 pandemic holds important implications for the realisation of the demographic dividend in Lesotho. These impacts operate through three key channels: first, the labour market impact which reduces current per capita labour incomes; second, the educational impact, which may reduce future per capita labour incomes; and the health impact, which may impact on the population age structure and, indirectly, on education and labour market outcomes going forward. While these effects are not explicitly modelled in this paper, the loss of face-to-face teaching time in countries around the world is clearly problematic. In many contexts, this has created important educational backlogs, which may only be closed through concerted efforts over the medium-term. Shepherd and Mohohlwane (2021), for example, document the tripling of the proportion of South African school-aged children to approximately six to seven per cent by mid-2021, and estimate that pupils—particularly those in grades one through nine—had lost between 70 per cent and 100 per cent of a year of learning.

The pandemic is also likely to have significantly impacted remittances, although it is not clear to what extent this happened or for how long this impact lasted. Indeed, questions remain as to the extent to which labour migration itself will return to pre-COVID levels given the disruptions due to COVID-19, as well as South Africa's own poor labour market conditions. Importantly, in the face of significant inequalities in Lesotho, it is important to remember that the impact is likely to fall hardest on those at the lower rungs of the socioeconomic ladder.

Recommendation V:

THE GOVERNMENT OF LESOTHO SHOULD IMPLEMENT POLICY THAT EFFECTIVELY ADDRESSES BOTH HIGH UNEMPLOYMENT RATES AMONGST YOUNG PEOPLE AND GENDER GAPS IN LABOUR INCOME.

Economic policy is an important focus area given that the demographic dividend is very much an economic outcome. While countries may invest extensively in developing the human capital of their populations, unless these people are able to deploy that human capital in the labour market, the dividend will be curtailed. Thus, policymakers should work to ensure macroeconomic stability, competitive markets, and economic dynamism. Labour market policy and regulation is key in creating a dynamic labour market that is able to absorb new jobseekers, while also ensuring balance between the interests of the employed and employers, while also considering the needs of the unemployed and those in precarious employment.

The issue of the labour market is clearly illustrated in the analysis of Lesotho's NTA profiles and its demographic dividend. Per capita labour incomes are low (as a proportion of peak labour income) amongst young people in Lesotho when compared to their counterparts in other countries. This is linked to unemployment and employment within relatively low productivity activities, such as informal employment, amongst these cohorts. However, policies that aim to improve the labour market for young people are shown to have a marked impact on the magnitude of the demographic dividend: narrowing the gap between young people in Lesotho and those in the rest of the world between 2018 and 2040, for example, raises the cumulative demographic dividend for the 2020 to 2060 period from 16.2 per cent to 22.8 per cent. Similar effects can be seen in terms of addressing gender inequalities within the labour market. Thus, narrowing the gender gap in per capita labour incomes between males and females by 25 per cent between 2018 and 2040 is shown to generate a cumulative dividend of 23.2 per cent over the 2020 to 2060 period.

Within this context, while the NTA results provide direction as to the desired policy impact such as raising per capita labour income for young people, the methodology does not lead to specific guidance as to the exact policies that should be enacted. This provides policymakers with the freedom to choose policies that are most appropriate for their economies and societies from amongst those policies that would lead to the specific outcome described. In the context of raising per capita labour incomes amongst young people, potential policies may include: investments in post-school education and training interventions that would raise the likelihood of employment of unemployed youth; a youth wage subsidy that reduces the initial cost to employers of employing young people; small business support initiatives and entrepreneurship training targeted to young people; public works programmes targeted towards unemployed youth; or employment services and advice that help to overcome information gaps that keep young people from accessing available employment opportunities. From a gender perspective, some of these policies may be suitable for finer targeting towards young women or women in general. Other policies may include the extension of the early childhood development system, the provision of childcare facilities for working women and women seeking employment, efforts aimed at reducing gender-specialisation in unpaid care work, or specific policies requiring 'equal pay for equal work' if gender gaps are accentuated by discrimination. The exact set of policies, however, should be determined through policymaking and consultation processes with relevant stakeholders.

8

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9

Appendices

9.1. Estimation of NTA Profiles

9.1.1. Labour Income

While the 2017/2018 CMS/HBS collects data on earnings, it does not include sufficient detail to allow the construction of separate employment earnings and self-employment earnings profiles. Instead, we make use of the 2019 Labour Force Survey undertaken by the Lesotho Bureau of Statistics (2021a) to construct these two profiles.

This survey allows one to calculate the earnings received by paid employees, as well as the earning of employers and own account workers. In each case—for paid employees, and for employers and own account workers—respondents may either provide a point estimate of their earnings or indicate a range within which their earnings fall. Respondents are also asked to indicate the period to which their earnings estimates relate (e.g. a year, a month, a day, or per hour). For individuals providing responses within a range, the midpoint of the range is taken as their earnings. Where individuals select the open-ended top income bracket (M50 000 or more), their earnings are set to M50 000, which is clearly an underestimate of the average earnings in this category. However, this choice is arguably not objectively better or worse than any other choice, since we have no information about the true distribution of earnings for this group.

Point estimates are combined with the mid-point earnings of identified ranges to create separate earnings variables for paid employees, and for employers and own account workers. Non-employed individuals, including the unemployed and those who are not economically active, are allocated zeros in both variables. The employment earnings profile is then constructed as the average earnings at each age for paid employees, while the self-employment earnings profile is constructed as the average earnings at each age for employers and own account workers.

These raw profiles are then smoothed, and the aggregate control values are applied to adjust the level of the profiles to ensure consistency with national accounts. The two aggregate controlled profiles are then combined to form the overall employment earnings profile.

9.1.2. Private Consumption of Education

Section 2 of the 2017/2018 CMS/HBS asks respondents about spending during the current school year across several different items, namely tuition/school fees; boarding lodging fees; textbooks; uniforms, including school shoes; other school materials such as notebooks and pens; examination fees; transportation to and from school; contributions to the PTA; contributions to construction/maintenance of the school; and other educational expenses. In addition, respondents are asked to record expenditures related to private lessons and tutors. All these expenditures are recorded at the individual level, which negates the need to make allocations from the household level to the individual, as is the case in many other countries.

These items of spending—excluding boarding fees, uniforms, and transportation—are totalled at the individual level. In combination with data on enrolment at different levels within the education system, this data is used to calculate mean per capita spending on education-related items at the individual level. This yields six raw age profiles corresponding to each level of education considered (pre-primary, primary, secondary, university, vocational, and other). As per NTA convention, these profiles are not smoothed.

As is common across countries, the aggregate control value for private consumption of education is not disaggregated by level of education due to a lack of available data. As a result, each of the sub-profiles is adjusted multiplicatively using the identical adjustment factor. The individual sub-profiles are then combined to arrive at the overall private consumption of education profile.

9.1.3. Public Consumption of Education

The profile for the public consumption of education is compiled using educational enrolment data taken from the 2017/2018 CMS/HBS. The survey asks respondents whether they are currently enrolled at an educational institution and, if they are, what grade they are currently attending, and whether the institution is a public, private or mission school. If the respondent is on a break, they are asked these questions with respect to the most recent session or school year.

Based on this data, enrolment rates are calculated separately for pre-primary, primary, secondary, university, vocational, and other education. Profiles of enrolment rates are not smoothed, apart from a few minor tweaks where small sample size creates large fluctuations that are not explained by changes in behaviour at those ages. This is particularly relevant for the other education profile, although enrolment rates here are very low, as is the aggregate control value. These profiles of enrolment rates across age are then used as the raw age profile, which is then aggregate controlled. Aggregate control values are applied separately for each level of education, with these level-specific consumption profiles aggregated to calculate the overall profile for the public consumption of education.

The application of level-specific aggregate controls recognizes that costs per student vary across different levels of education. Thus, for example, the per student cost of university education is far higher than that of primary education. However, this approach does not allow for variation in the cost of primary education across different individuals. In other words, if some schools receive higher subsidies than others, this variation is not reflected in the public consumption of education age profiles presented here. Unless this variation in the cost of primary education per student varies systematically with age (e.g. spending for a child enrolled in Standard 7 is higher than spending per child in Standard 1), this assumption should not cause any significant distortions in the age profiles.

9.1.4. Private Consumption of Health

The private consumption of health profile is estimated directly from individual-level health expenditures reported within the 2017/2018 CMS/HBS. Respondents were asked whether they consulted a health-care provider in the four weeks preceding the survey and, if they did, how much they or their household spent in cash or in kind to cover the costs of their visit, and the associated medicines and laboratory tests. Importantly, no distinction is made on the type of facility—public or private—since all costs borne by individuals and households are considered private consumption.

The three categories of health spending are totalled for each individual and, based on this, the average per capita values are calculated for each age cohort. This raw profile is then smoothed, and the aggregate control is applied to adjust the level of the profile.

9.1.5. Public Consumption of Health

The public consumption of health profile is constructed on the basis of utilisation data from the 2017/2018 CMS/HBS data. Section 3 of the questionnaire focuses on health status and expenditures on health services in the preceding year. Specifically relevant to the public consumption of health, all respondents are asked whether they consulted a health-care provider in the four weeks prior to the survey, and what type of health-care provider they visited. From these two variables it is possible to determine whether an individual made use of a public health-care facility (government hospital, government centre, government clinic).

Because aggregate control value for public consumption of health is not disaggregated by type of public health-care facility, a single utilisation measure is calculated across all three types of facilities. By averaging the dummy variable indicating whether an individual made use of any public health-care facility across individuals in each age cohort, the age-specific utilisation rate of public health care is estimated. This yields the raw shape of the public consumption of health profile. The raw profile is then smoothed, and the aggregate control is applied to derive the final profile.

As in the case of public consumption of education, this approach and the uniform application of the aggregate control value implies an assumption that the per user cost of health-care services does not vary systematically with age, and that spending per person using public health care is equal. It further also assumes that the cost per patient in the three different health-care facilities—government hospital, government centre, and government clinic—is equal. These are all important assumptions that are likely to impact on the shape of the profile, although it is unlikely that they would make a substantial difference to the overall results. In the case of Lesotho, per capita public consumption of health would need to be orders of magnitude greater at particular points of the life course to have a discernible impact on the overall consumption profile.

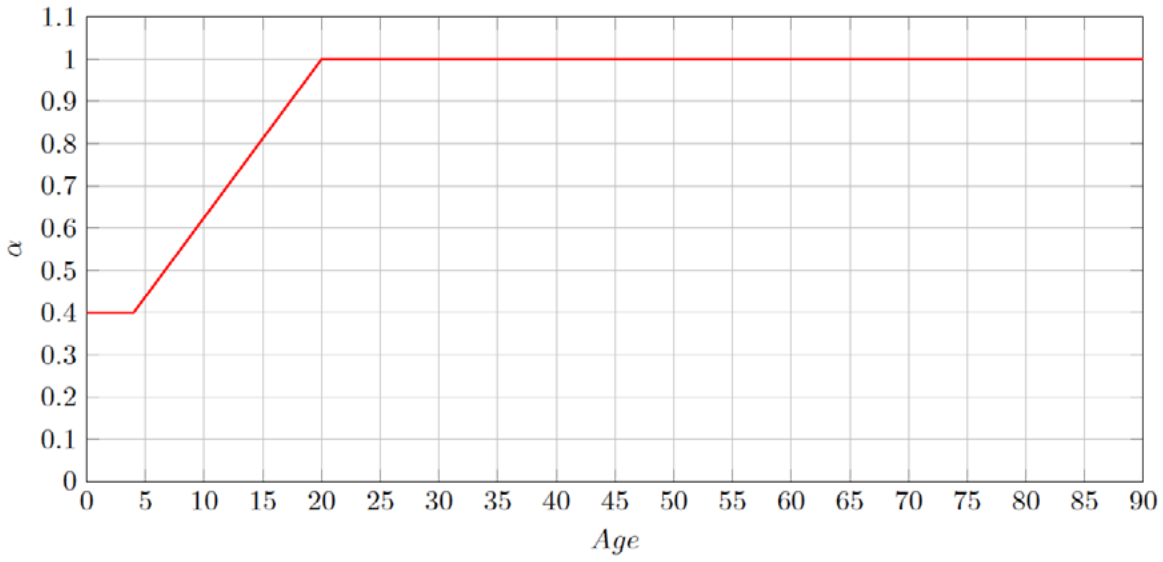
9.1.6. Private Consumption other than Education and Health

Private consumption other than education and health includes all consumption expenditure that is unrelated to education and health, such as expenditure on food, clothing, and household services. This is a household-level variable calculated from the 2017/2018 CMS/HBS. Total consumption at the household level is calculated by adding together all household expenditures (food and non-food), except for donations and insurance. From this, household-level expenditure on education and health is subtracted in order to arrive at private consumption other than education and health. While there are a variety of ways in which household-level consumption can be allocated to individual household members, the standard approach within the NTA methodology is to make the allocation using an adult equivalence scale.

Adult equivalence scales are useful in that they can account for the fact that individuals consume different amounts based on their age and gender. Thus, for example, an adult male might be expected to have higher consumption than a child or an adult female. The standard adult equivalence scale utilized to allocate private consumption other than education and health is expressed as:

$$\alpha(a) = 1 - 0.6 * D(4 < a < 20) * \frac{20-\alpha}{16} - 0.6 * D(a \leq 4)$$

where $\alpha(a)$ is the consumption weight for individuals age a, and $D(x)$ is a variable that takes the value of one if the condition x is met, and zero otherwise (United Nations, 2013). In effect, this means that individuals aged under the age of five years are allocated a weight of 0.4, while those aged 20 years and older have a weight of 1.0. From age five to age 20 years, the consumption weight increases linearly. Thus, an individual aged 16 years would have a consumption weight of 0.85. The relationship between age and consumption weight is illustrated in the figure below.



Once individuals have been assigned their consumption weights from the adult equivalence scale, these weights are summed across members of each household. Each individual is then assigned a share of household consumption proportional to their share of the household's total consumption weight. For example, assume a household has consumption of 800 and with two members, one aged 35 years and one aged two years. These two household members are allocated weights of 1.0 and 0.4 respectively, with the total weight for the household equal to 1.4. The 35-year-old is then allocated a *1.0/(1.0+0.4)=1.0/1.4*. share of the consumption of 800 (or 571). The two-year-old is allocated consumption of 229 *(=0.4/(1.0+0.4)*800=0.4/1.4*800*

It is these consumption allocations that are then used to construct the profile: they are averaged at each age across the entire population to derive a profile, which is then smoothed and aggregate controlled as per usual.

9.2. AIM Projections

Three scenarios are modelled and are identical except for assumptions around access to prevention and treatment interventions. The scenarios are as follows:

- **SCENARIO 1:** The baseline HIV scenario assumes no change in that the current percentage or number of those accessing the PMTCT and child and adult ART programmes remain the same.
- **SCENARIO 2:** The second scenario assumes a 50 per cent reduction in the percentage or number of those who are able to access the PMTCT and child and adult ART programmes as of 2022.
- **SCENARIO 3:** Finally, the third scenario assumes a total collapse of the PMTCT and child and adult ART programmes as of 2022, so that there is no access whatsoever.

Assumptions and notes with respect to the AIM projections are as follows:

1 Lesotho is characterized with a generalized epidemic.

2 Given that the scenarios presented provide only changes to funding and, therefore, access to the ART and PMTCT programmes in Lesotho, the number of people in the population that are HIV positive would increase in Scenario 1, and decrease or stabilize in Scenarios 2 and 3, given that the higher the number of people on ART, the higher their longevity.

3 Given that the scenarios presented provide only changes to the funding and, therefore, access to the ART and PMTCT programmes in Lesotho, the number of HIV infections, specifically amongst those in the youth and adult population, could still increase or stabilize as ART is only provided to those after infection.

4 The projections begin in 1985, the year before the first case of HIV was detected in Lesotho.

5 The projections show that:

5.1 PMTCT

5.1.1 Single dose Nevirapine [single dose of nevirapine (NVP) given to the mother at the time of delivery and the child shortly after birth] began in 2004;

5.1.2 Dual ARV [Daily zidovudine (ZDV) for the pregnant woman from the 28th week of gestation, plus single-dose NVP during labour and seven days of ZDV plus lamivudine (3TC) postpartum] began in 2007;

5.1.3 Option A – Maternal antiretroviral (ARV) [Twice daily ZDV starting from the 14th week of gestation, single-dose nevirapine at the onset of labour, twice daily ZDV+3TC for seven days post-partum plus daily NVP for the infant until one week after the cessation of breastfeeding] Programme began in 2010;

5.1.4 ART starting in pregnancy more than four weeks before delivery began in 2009; and

5.1.5 ART starting in pregnancy less than four weeks before delivery began in 2009.

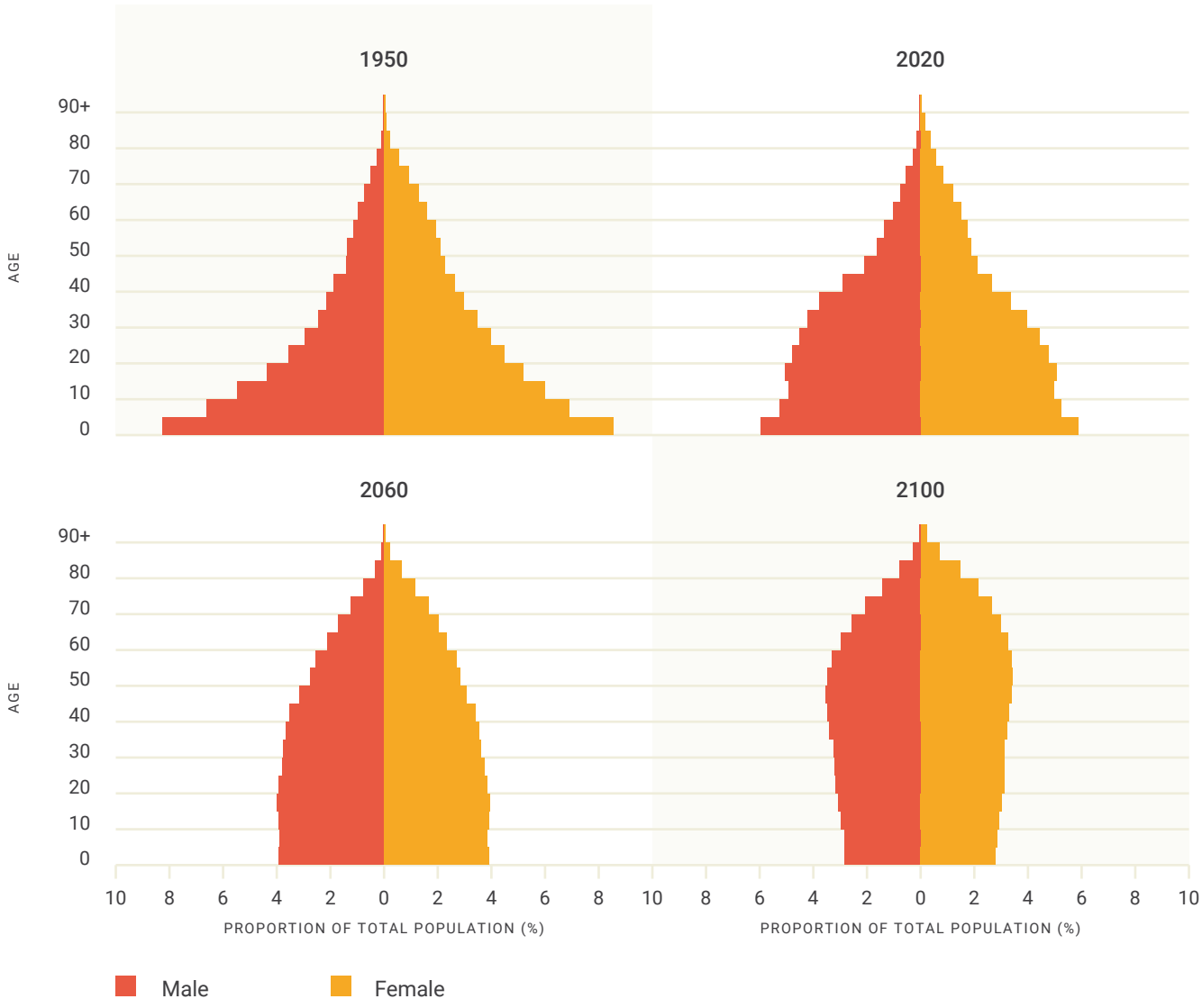
5.2 Adults and children receiving ART begin in 2005.

5.3 Eligibility for ART and PMTCT, as well as child treatment, changed to all those that are HIV positive irrespective of CD4 count in 2016.

Where possible, country data received from the Lesotho Ministry of Health was used for the AIM projections. However, there were a number of indicators that are either not collected by the Ministry, that are not disaggregated by age and/or sex in the format required for the AIM projection, where collection ceased at some point in time. Most data provided covered the period starting in either 2014 or 2016 and ending in either 2020 or 2021. Where country data was not available, UNAIDS AIDS Info database and data reported to UNAIDS/World Health Organization (WHO), were used instead.

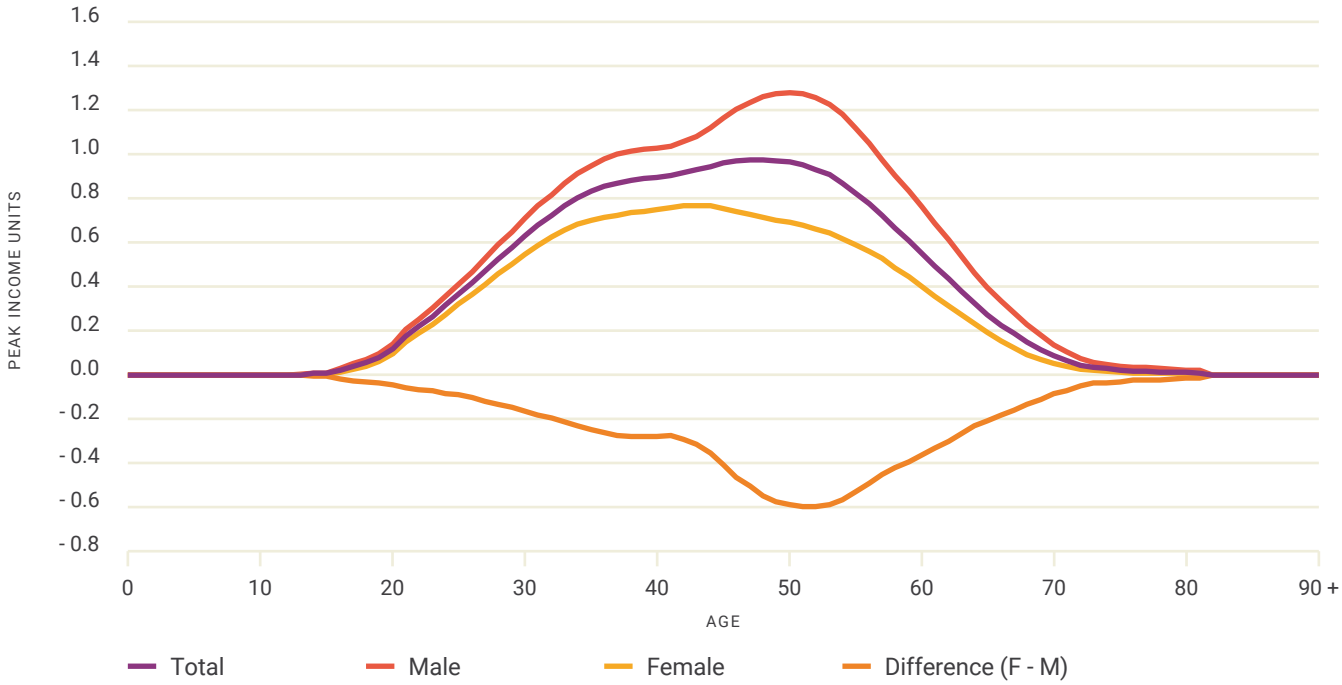
9.3. Additional Tables and Figures

FIGURE 31 Population Pyramids for Lesotho, 2018-2100



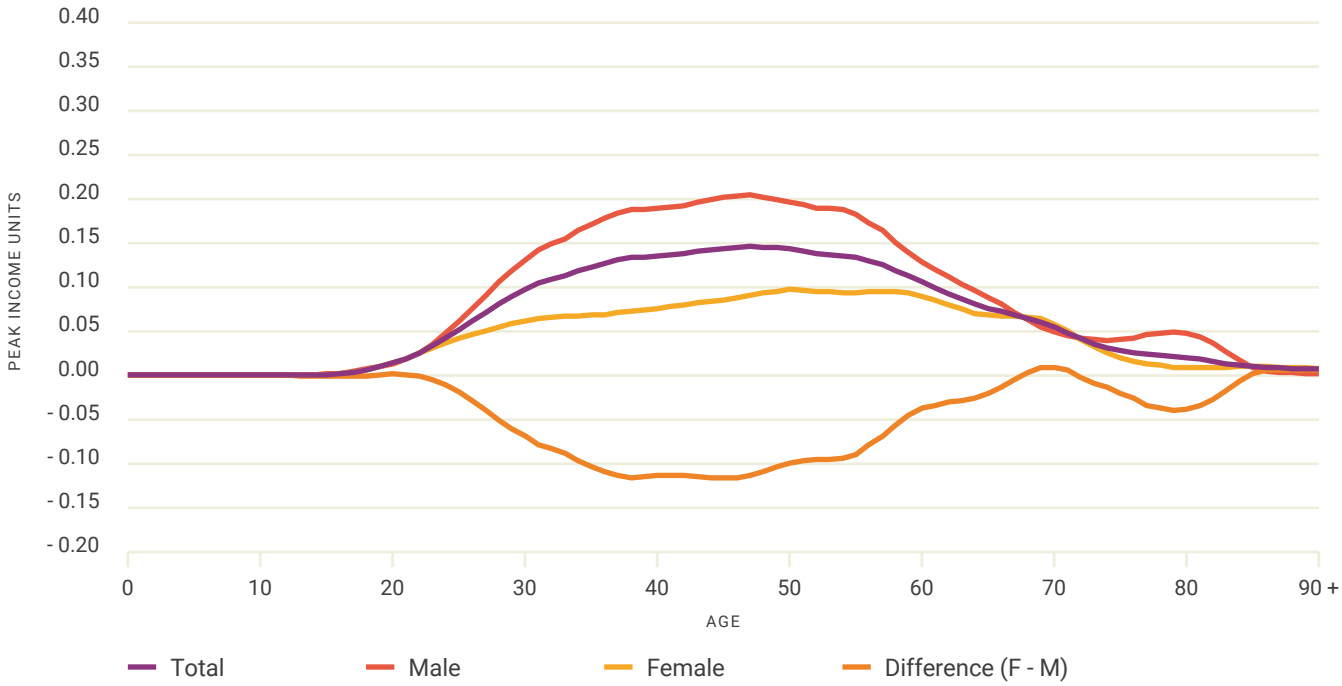
SOURCE: Own calculations, United Nations (2019)

FIGURE 32 Employment Earnings in Lesotho by Gender, 2018



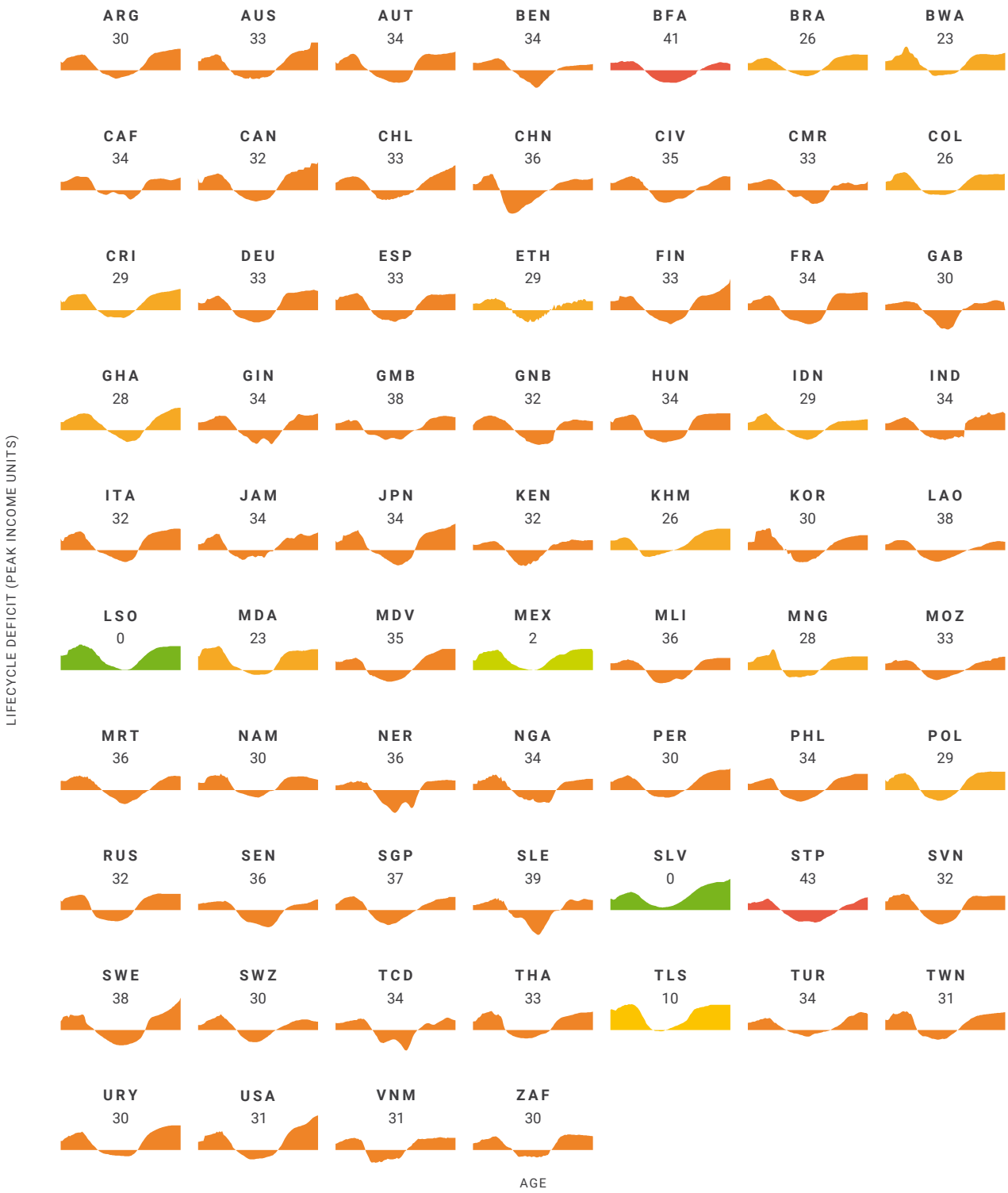
SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c); United Nations (2019, 2021); World Bank (2022)

FIGURE 33 Self-Employment Earnings in Lesotho by Gender, 2018



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c); United Nations (2019, 2021); World Bank (2022)

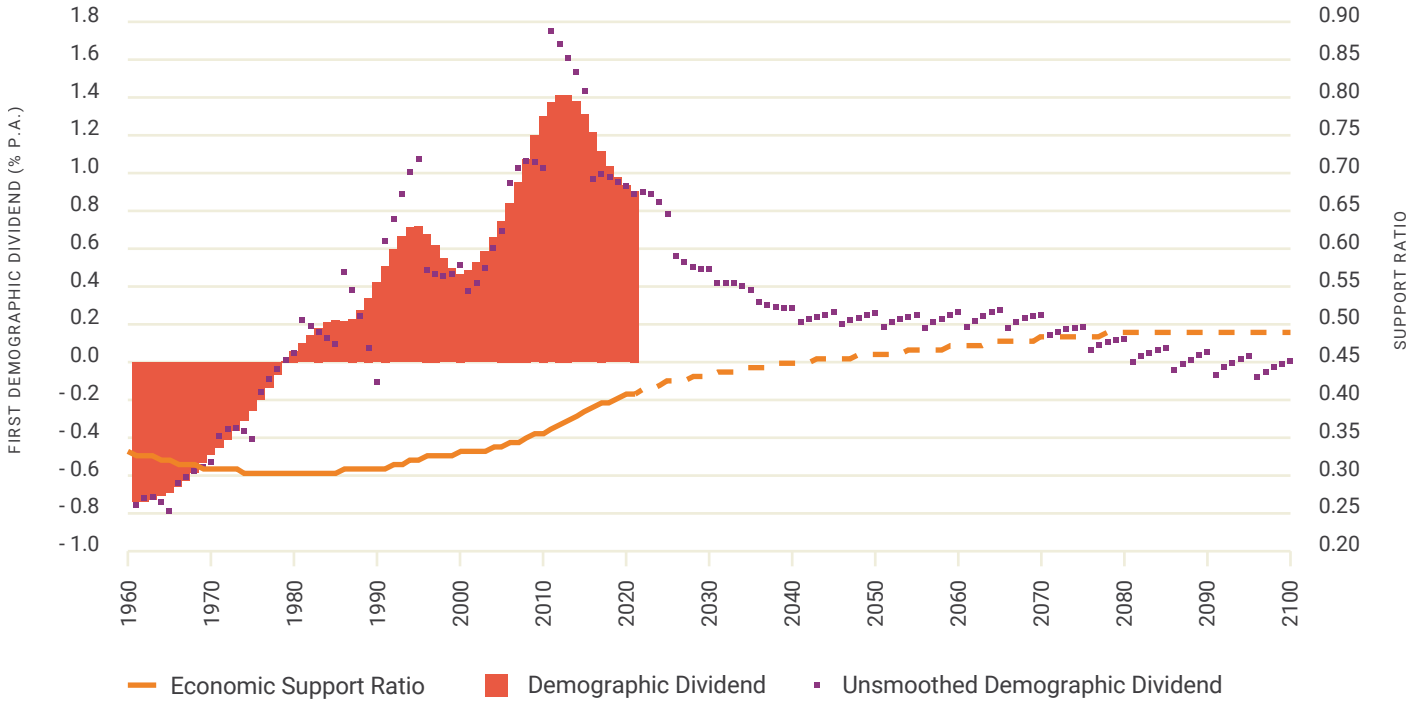
FIGURE 34 Lifecycle Deficits around the World



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c, e); National Transfer Accounts Project (2022); United Nations (2019, 2021); World Bank (2022)

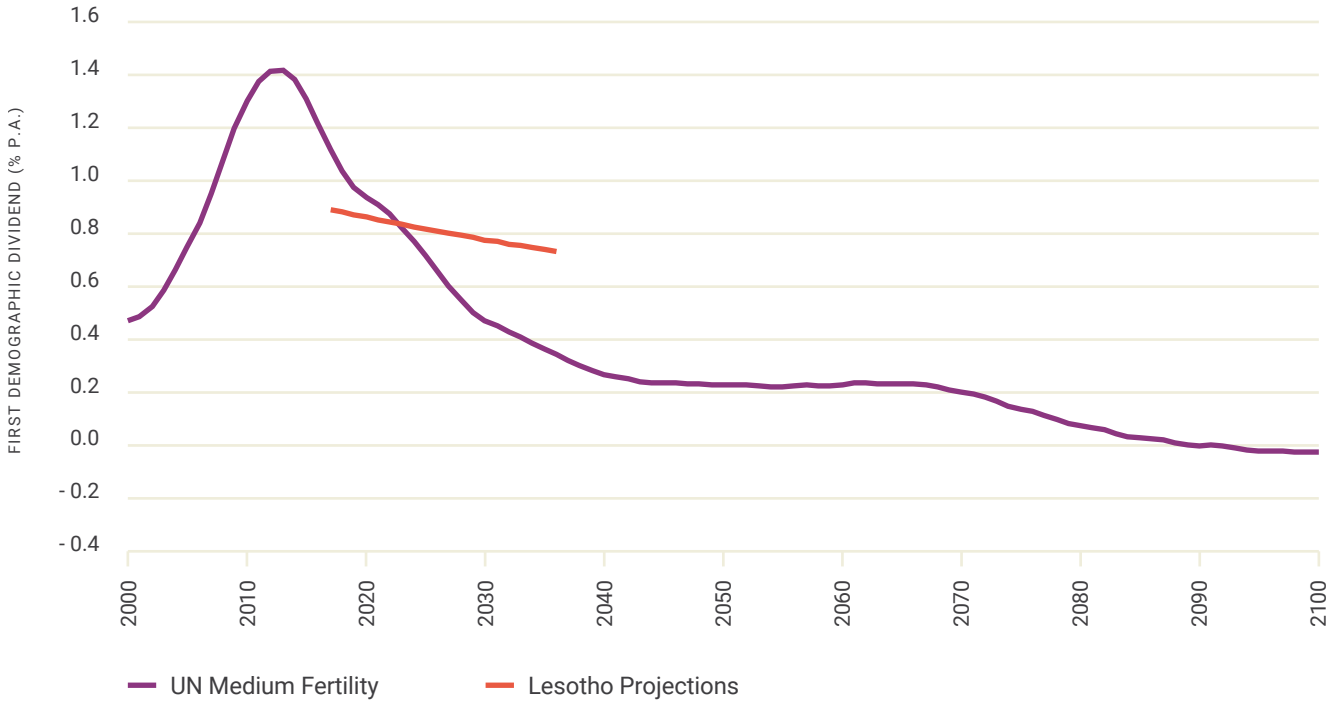
NOTE: Numbers on the graph refer to the number of cohorts that have a lifecycle surplus in that country.

FIGURE 35 Lesotho's Demographic Dividend, 1960-2100



SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c, e); United Nations (2019, 2021); World Bank (2022)

FIGURE 36 Lesotho's Demographic Dividend based on National Population Projections



SOURCE: Own calculations, Lesotho Bureau of Statistics (2019c, 2021a, c, e); National Transfer Accounts Project (2022); United Nations (2019, 2021); World Bank (2022)

TABLE 15 Estimates of the First Demographic Dividend under Alternative Population Projections, 1990-2100

YEAR	MEDIUM FERTILITY	HIGH FERTILITY	LOW FERTILITY	CONSTANT FERTILITY	INSTANT REPLACE-MENT	ZERO MIGRATION	CONSTANT MORTALITY	NO CHANGE	MOMENTUM
1990	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1995	103.37	103.20	103.19	103.20	103.20	103.20	103.20	103.20	103.20
2000	106.36	106.18	106.18	106.19	106.18	106.18	106.18	106.19	106.19
2005	109.67	109.48	109.46	109.48	109.47	109.48	109.48	109.48	109.48
2010	115.71	115.50	115.48	115.51	115.49	115.50	115.50	115.52	115.51
2015	123.86	123.63	123.59	123.63	123.60	123.62	123.62	123.65	123.64
2020	130.44	130.14	130.24	130.17	130.38	129.72	130.18	130.15	129.88
2025	135.65	134.65	136.21	134.82	137.40	133.38	135.30	134.69	135.00
2030	139.15	136.76	141.21	137.08	143.28	136.20	138.56	136.71	139.48
2035	141.68	137.37	145.81	137.71	148.02	138.55	140.74	137.01	143.05
2040	143.58	137.14	150.17	137.16	152.00	140.52	142.36	136.15	145.93
2045	145.14	136.79	154.05	136.03	154.40	142.40	143.75	134.80	147.53

YEAR	MEDIUM FERTILITY	HIGH FERTILITY	LOW FERTILITY	CONSTANT FERTILITY	INSTANT REPLACE-MENT	ZERO MIGRATION	CONSTANT MORTALITY	NO CHANGE	MOMENTUM
2050	146.65	136.91	157.33	134.93	155.31	144.31	145.22	133.56	147.90
2055	148.16	137.72	159.78	134.14	155.04	146.12	146.78	132.70	147.25
2060	149.71	139.04	161.57	133.71	154.49	147.81	148.46	132.25	146.46
2065	151.28	140.66	162.87	133.63	153.91	149.49	150.23	132.15	145.91
2070	152.72	142.41	163.57	133.80	152.99	151.11	151.94	132.29	145.38
2075	153.78	144.04	163.43	134.05	151.74	152.40	153.35	132.50	144.81
2080	154.35	145.29	162.54	134.21	150.72	153.16	154.40	132.67	144.43
2085	154.52	146.06	161.36	134.24	150.25	153.49	155.20	132.78	144.40
2090	154.42	146.42	160.24	134.20	150.15	153.54	155.86	132.87	144.57
2095	154.16	146.54	159.16	134.17	150.01	153.44	156.45	133.00	144.72
2100	153.80	146.47	157.62	134.11	149.40	153.09	156.81	133.15	144.69

SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c, e); United Nations (2019, 2021); World Bank (2022)

TABLE 16 Estimates of the First Demographic Dividend Based on Different Underlying Labour Income Profiles, 1990-2100

YEAR	MEDIUM FERTILITY	HIGH FERTILITY	LOW FERTILITY	CONSTANT FERTILITY	INSTANT REPLACE-MENT	ZERO MIGRATION	CONSTANT MORTALITY	NO CHANGE	MOMENTUM
1990	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1995	103.37	103.37	103.37	103.37	103.37	103.37	103.37	103.37	103.37
2000	106.36	106.36	106.36	106.36	106.36	106.36	106.36	106.36	106.36
2005	109.67	109.67	109.67	109.67	109.67	109.67	109.67	109.67	109.67
2010	115.71	115.71	115.71	115.71	115.71	115.71	115.71	115.71	115.71
2015	123.86	123.86	123.86	123.86	123.86	123.86	123.86	123.86	123.86
2020	130.44	131.06	131.03	130.76	130.44	131.29	130.44	131.06	131.03
2025	135.65	138.13	137.98	136.91	135.65	139.17	135.65	138.13	137.98
2030	139.15	143.73	143.42	141.43	139.15	145.80	139.15	143.73	143.42
2035	141.68	148.46	148.06	144.96	141.68	151.57	141.68	148.46	148.06
2040	143.58	152.30	151.93	147.67	143.58	156.17	143.58	152.30	151.93
2045	145.14	154.29	154.01	149.46	145.14	158.56	145.14	154.29	154.01

YEAR	MEDIUM FERTILITY	HIGH FERTILITY	LOW FERTILITY	CONSTANT FERTILITY	INSTANT REPLACE-MENT	ZERO MIGRATION	CONSTANT MORTALITY	NO CHANGE	MOMENTUM
2050	146.65	155.59	155.45	150.96	146.65	160.29	146.65	155.59	155.45
2055	148.16	156.83	156.83	152.38	148.16	162.02	148.16	156.83	156.83
2060	149.71	158.14	158.19	153.81	149.71	163.81	149.71	158.14	158.19
2065	151.28	159.52	159.56	155.29	151.28	165.68	151.28	159.52	159.56
2070	152.72	160.78	160.88	156.66	152.72	167.45	152.72	160.78	160.88
2075	153.78	161.65	161.86	157.66	153.78	168.80	153.78	161.65	161.86
2080	154.35	162.01	162.32	158.14	154.35	169.57	154.35	162.01	162.32
2085	154.52	161.97	162.40	158.22	154.52	169.87	154.52	161.97	162.40
2090	154.42	161.67	162.23	158.03	154.42	169.90	154.42	161.67	162.23
2095	154.16	161.21	161.89	157.68	154.16	169.74	154.16	161.21	161.89
2100	153.80	160.66	161.46	157.23	153.80	169.49	153.80	160.66	161.46

SOURCE: Own calculations, Lesotho Bureau of Statistics (2021a, c, e); National Transfer Accounts Project (2022); United Nations (2019, 2021); World Bank (2022)

FIGURE 37 Population Pyramids under Alternative HIV Scenarios, 2018-2063

SOURCE: Own calculations using output from AIM Projections

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