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Mid-year population estimates

2020

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Acronyms and abbreviations

AIDS	acquired immune deficiency syndrome
AIM	AIDS Impact model
ANC	antenatal care
ART	antiretroviral therapy
CBR	crude birth rate
CDR	crude death rate
DemProj	Demographic projections
HIV	human immunodeficiency syndrome
IMF	International Monetary Fund
IMR	infant mortality rate
IOM	International Organisation for Migration
NSO	National Statistical Organisation
OECD	The Organisation for Economic Co-operation and Development
PMTCT	prevention of mother-to-child transmission
PLWHIV	People living with HIV
RAPID	Rapid Mortality Surveillance
RNI	rate of natural increase
SDDS	Special Data Dissemination Standards
Stats SA	Statistics South Africa
TFR	total fertility rate
U5MR	under-five mortality rate

COVID-19 coronavirus disease 2019

Definition of concepts

Age-specific fertility rate (ASFR) – The age-specific fertility rate measures the annual number of births to women of a specified age or age group per 1 000 women in that age group.

Annual growth rate (GR) – The rate at which the population is increasing or decreasing in a given year due to natural increase and net migration, expressed as a percentage of the base population.

Cohort component projection – A projection made by subjecting all cohorts, on an annual or five-year basis, to mortality and migration assumptions, and applying fertility assumptions to women of reproductive age.

Crude birth rate (CBR) – The number of live births per 1 000 population in a given year.

Crude death rate (CDR) – The number of deaths per 1 000 population in a given year

Life expectancy (e(0)) – The average number of years a new-born can expect to live based on the mortality conditions at the time.

Life table – A table of values based on a series of related functions having to do with survivorship over intervals of time.

Population projection – Computations depicting the future course of a population's size, its structure, and its interaction with dynamics such as fertility, mortality, and migration. The projection is constructed based on assumptions about the future course of those population dynamics.

Rate of natural increase (RNI) – The rate at which the population is increasing or decreasing in a given year due to the surplus or deficit of births over deaths, expressed as a percentage of the base population.

Sex ratio – The number of males per 100 females in a population.

Total fertility rate (TFR) – The average number of children that would be born alive to a woman (or a group of women) during her lifetime if she were to pass through all her childbearing years conforming to the age-specific fertility rates of a given year.

Under five-mortality rate (U5MR) – The number of deaths to children under the age of five per 1 000 live births.

COVID-19 implications for MYPE 2020 series

On 5 March 2020, South Africa recorded it first case of Covid-19. By the 11th of March, the WHO declared Covid-19 a global pandemic. South Africa's first Covid-19 related death occurred on 27 March. Subsequently, President Ramaphosa announced an international travel ban, amongst other measures, and by early April, the age mortality profile of the disease was shared with health practitioners, academics, statisticians and planners (Stokes et al., 2020). Countries which have populations that are on average older, (which tend to be the more developed countries), experienced significantly higher numbers of Covid-related deaths among their elderly. However, developed countries also have better functioning health systems. Although the health burden may be greater in developed countries due to their age profile, they have greater ability to meet it. South Africa, recognising its vulnerabilities, immediately responded with a lockdown to curb the spread and flatten the curve to provide healthcare systems the opportunity to prepare.

Deaths due to Covid-19 are yet to be published in the vital registration of deaths system in South Africa. However, the South African Medical Research Council (SAMRC) has published weekly Covid-19 related deaths limited to those with a legal/ valid South African ID document and those aged more than one year. By 30 June, the reference date of the mid-year population estimates, approximately 152 000 confirmed Covid-19 infection cases and 2 700 confirmed Covid-related deaths were reported in South Africa. To date the current number of deaths directly related to Covid-19 are marginal in comparison to the overall count of deaths in a given year (MCOD, 2020). As the spread of the disease occurs over time, we are bound to see a rise in the number of deaths in the population due to Covid-19. However, we are also likely to see innovation in treatment protocols and prevention measures. To include speculative annual Covid-related deaths without sufficient trend data will create a far greater uncertain set of population estimates for current planning and decision-making. Population estimates are necessary to ensure that government and various other sectors, including health, education and business, plan effectively for South Africa. The mid-year estimates provide an indication of the distribution of the population by sex, age, population group, and province.

The net migration rate can be volatile, impacted significantly by economic and policy changes, as encountered in the recent outbreak of Covid-19 in March 2020. Due to the international travel ban, travel was brought to an abrupt halt in the country, even between provinces (except for certain special cases such as burials for which permission had to be sought from the relevant authority. International migration assumptions by sex assume a decline post March 2020. International migration for the period April 2020–June 2021 at national level is assumed to have declined, reflective of current lockdown regulations. Provincial estimates are produced for the 5-year period 2016–2021. International travel is likely to continue to remain at very low levels until such time a vaccine is developed and administered, which conservative estimates place to be between 12–18 months.

The impact of Covid-19 on conception and subsequently the expected births in 2021 is anticipated to decline given the escalation in economic uncertainty. However, empirical data to this effect will only be reflected in the reported births of 2021. For this reason, current assumptions of national and provincial fertility are based on trends seen in published births data currently available.

The mid-year population estimates produces not only national indicators and estimates but also provincial estimates. In developing provincial estimates, the distribution of annual birth and death data by province available in the published vital registration system (MCOD, 2019), are used. The impact of Covid-19 infection and death varies significantly across the 9 provinces. Western Cape has been declared the epicentre of Covid-19 in terms of number of infections and deaths for the months of May and June. The South African Covid-19 Modelling Consortium anticipate that epidemics in KwaZulu-Natal, Gauteng and Western Cape are expected to peak earlier, whilst other provinces will trail behind. The consortium acknowledges that models do not account for population-wide behaviour changes in response to high levels of mortality and understanding of the virus's epidemiology is continually evolving, both locally and globally (SACMC, 2020). For the purpose of the publication of this Mid-year estimates, we have cautiously adopted to base our estimates on current empirical data sources used to guide the estimates.

The reduction in international migration to receiving provinces is indicative of the post Covid-19 travel restrictions. Provincial estimates are developed based on a 5-year cohort component method; as such, interprovincial movement assumptions are required for a 5-year period (2016–2021). Inter-provincial migration assumptions by sex have not incorporated any impact of Covid-19 for the period March 2020–June 2021 (covering 16 months in total). Movement made during lockdown constitutes a temporary move in the majority of cases whilst inter-provincial migration in the mid-year estimation constitutes a more permanent move as per the formal definitions of the different types of migration.

The MYPE is revised annually and will again be published in 2021, whereby the impact is expected to be greater. With more up-to-date empirical data regarding births, deaths and migration the MYPE published in 2021 will be tasked with incorporating the full impact of Covid-19 anticipated over the next year.

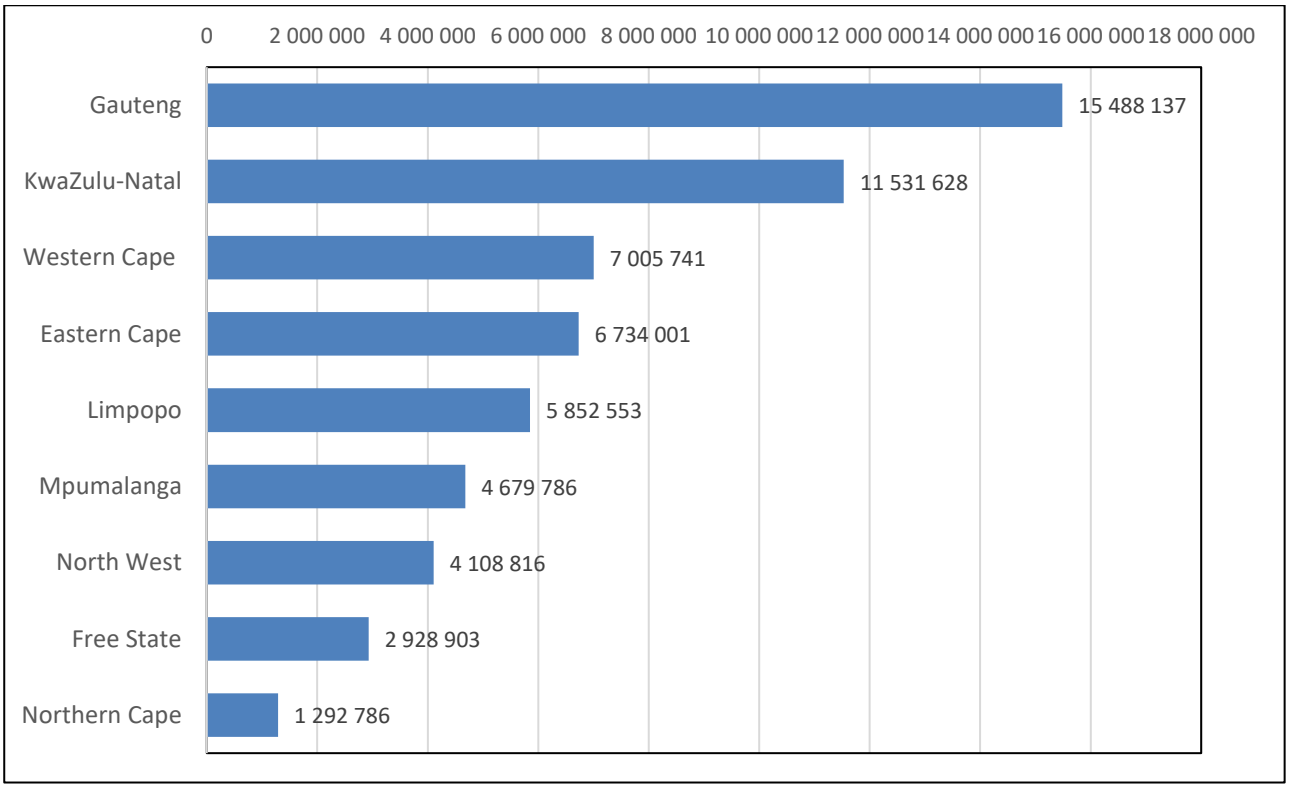
Summary

- The cohort-component methodology is used to estimate the 2020 mid-year population of South Africa.
- The estimates cover all the residents of South Africa at the 2020 mid-year point, and are based on the latest available information. Estimates may change as new data become available. The new estimates are accompanied by an entire series of revised estimates for the period 2002–2020. On this basis, comparisons between this model and previous ones should not be made.
- For 2020, Statistics South Africa (Stats SA) estimates the mid-year population at 59,62 million.
- Approximately 51,1% (approximately 30,5 million) of the population is female.
- Gauteng still comprises the largest share of the South African population, with approximately 15,5 million people (26,0%) living in this province. KwaZulu-Natal is the province with the second largest population, with an estimated 11,5 million people (19,3%) living in this province. With a population of approximately 1,29 million people (2,2%), Northern Cape remains the province with the smallest share of the South African population.
- About 28,6% of the population is aged younger than 15 years and approximately 9,1% (5,4 million) is 60 years or older. Of those younger than 15 years of age, the majority reside in KwaZulu-Natal (21,8%) and Gauteng (21,4%). Of the elderly (those aged 60 years and older), the highest percentage 24,1% (1,31 million) reside in Gauteng. The proportion of elderly persons aged 60 and older is increasing over time.
- Migration is an important demographic process, as it shapes the age structure and distribution of the provincial population. For the period 2016–2021, Gauteng and Western Cape are estimated to experience the largest inflow of migrants of approximately, 1 553 162 and 468 568 respectively.
- Life expectancy at birth for 2020 is estimated at 62,5 years for males and 68,5 years for females.
- The infant mortality rate for 2020 is estimated at 23,6 per 1 000 live births.
- The estimated overall HIV prevalence rate is approximately 13,0% among the South African population. The total number of people living with HIV (PLWHIV) is estimated at approximately 7,8 million in 2020. For adults aged 15–49 years, an estimated 18,7% of the population is HIV positive.

Table 1: Mid-year population estimates for South Africa by population group and sex, 2020

Population group	Male		Female		Total	
	Number	% distribution of males	Number	% distribution of females	Number	% distribution of total
Black African	23 519 474	80,7	24 634 253	80,8	**48 153 727**	**80,8**
Coloured	2 555 204	8,8	2 692 536	8,8	**5 247 740**	**8,8**
Indian/Asian	787 662	2,7	753 451	2,5	**1 541 113**	**2,6**
White	2 266 535	7,8	2 413 235	7,9	**4 679 770**	**7,8**
Total	**29 128 875**	**100,0**	**30 493 475**	**100,0**	**59 622 350**	**100,0**

Figure 1: Mid-year population estimates for South Africa by province, 2020



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1. Introduction

In a projection, the size and composition of the future population of an entity such as South Africa is estimated. The mid-year population estimates produced by Statistics South Africa (Stats SA) uses the cohort-component method for population estimation. In the cohort-component method, a base population is estimated that is consistent with known demographic characteristics of the country. The cohort base population is projected into the future according to the projected components of change. Selected levels of fertility, mortality and migration are used as input to the cohort-component method. For the 2020 mid-year estimates, the cohort-component method is utilised within the Spectrum Policy Modelling system. Spectrum is a Windows-based system of integrated policy models (version 5.88 beta 27). The DemProj module within Spectrum is used to develop the demographic projection, whilst the AIDS Impact Model (AIM) is used to incorporate the impacts of HIV and AIDS on fertility and mortality, and ultimately the population estimates. Spectrum requires annual estimates regarding births, deaths, and migration, among other indicators. The population estimates produced do not take into account the impact of Covid-19 as necessary input data regarding deaths due to Covid-19 are yet to be published in the vital registration system. To include speculative annual Covid-related deaths without sufficient trend data will create a far greater uncertain set of population estimates for current planning and decision-making.

Stats SA subscribes to the specifications of the Special Data Dissemination Standards (SDDS) of the International Monetary Fund (IMF). This standard is related to the dissemination of this report, which dictates that it should be released within one month of the mid-year. The mid-year estimates are an estimate of the population as at 1 July in a given year. The estimates of stock such as population size, number infected with HIV etc. pertain to the middle of the year i.e. 1 July, whilst the estimates of flow e.g. births, deaths, Total Fertility Rates (TFRs), Infant Mortality Rates (IMRs) etc. are for a 12-month period e.g. 1 July 2019 to 30th June 2020. A stock variable is measured at a given time, and represents a quantity at each moment in time – e.g. the number of people within the population at a certain moment whilst an estimate of flow is typically measured over a certain interval of time. The mid-year population estimates are published annually. It is misleading to compare values and rankings with those of previously published reports, due to revisions and updates of the underlying data and adjustments. Users are advised to use the complete series published along with this report on the Stats SA website.

2. Demographic and other assumptions

A cohort-component projection requires a base population distributed by age and sex. Levels of mortality, fertility and migration are estimated for the base year and projected for future years. The cohort base population is projected into the future according to the projected components of population change. The DemProj module of Spectrum is used to produce a single-year projection, thus the TFR and the life expectancy at birth must be provided in the same format i.e. single years. The time series of TFR estimates for all population groups in South Africa are derived following a detailed review of TFR estimates (1985–2020), published and unpublished, from various authors, methods and data sources. The finalised TFR assumptions can be found in Table 2 (page 3). The estimates of fertility show a fluctuation over the period 2002–2020, giving rise to a population structure indicative of that of Census 2011 population structure. Between the period 2009 and 2020, fertility has declined from an average of 2,62 children per woman to 2,33 children in 2020. Other inputs required in DemProj include the age-specific fertility rate (ASFR) trend, sex ratios at birth and net international migration.

In estimating South Africa's population, international migration is provided as an input into the model (see Table 3). If the net flow is outward, then net migration is reflected as a negative number. If the net flow is inward, then it is reflected as a positive number. Net international migration estimates are derived using not only Census 2011 migration data, but also migration numbers and proportions from various other authors, methods and data sources such as the Organisation for Economic Co-operation and Development (OECD), International Organisation for Migration (IOM), which forms part of the UN network as well as census data from National statistics offices (NSOs) of various countries**.** Assumptions regarding future migration patterns are based on past and current trends. Compared to other components of change, the net migration rate can be volatile, as it is significantly impacted by economic and policy changes. As encountered in the recent outbreak of Covid-19 in March 2020. International migration assumptions by sex incorporate the impact of Covid-19 for 3 months (April, May, June) and translated into a yearly input as is required in MYPE. International migration for the period April 2020–June 2021 at national level is assumed to have declined, reflective of current lockdown regulations. Current data on emigration levels are limited.

The life expectancy assumption entered into DemProj by sex is the life expectancy in the absence of HIV/AIDS (see Table 2). Each population group is also subjected to non-AIDS mortality according to the input non-AIDS life expectancy and the selected model life table. AIM calculates the number of AIDS deaths and determines a new set of life expectancies that incorporate the impact of AIDS, (see Figure 3, page 6). Stats SA applies the country-specific UN Model Life table for South Africa in Spectrum. The age pattern of mortality is based on various sources, data and methods – these include death data from the RAPID mortality surveillance report, Mortality and causes of death report, and the Demographic and Health Survey report, among others. Survival rates from the selected life tables were then used to project the population forward.

Table 2: Assumptions of expectation of life at birth without HIV/AIDS and total fertility rate, 2002–2020

Year	TFR	Life expectancy at birth without HIV/AIDS	
		Male	Female
2002	2,45	59,9	67,2
2003	2,42	59,8	67,9
2004	2,54	60,0	68,1
2005	2,59	60,0	68,1
2006	2,63	60,0	68,2
2007	2,65	60,3	68,2
2008	2,66	60,4	68,2
2009	2,62	60,4	68,3
2010	2,58	61,7	68,4
2011	2,51	62,9	68,9
2012	2,46	63,2	69,4
2013	2,42	63,5	69,9
2014	2,39	63,6	69,9
2015	2,38	63,7	70,2
2016	2,37	63,7	70,2
2017	2,36	64,0	70,5
2018	2,35	64,0	70,5
2019	2,34	64,3	70,7
2020	2,33	64,6	71,3

Table 3: International net-migration assumptions for the period 1985–2021

	Black African	Indian/Asian	White	Net international migration
1985–2000	632 633	36 908	-202 868	466 673
2001–2006	565 916	25 310	-99 574	491 652
2006–2011	815 780	43 222	-106 787	752 215
2011–2016	972 995	54 697	-111 346	916 346
2016–2021	867 860	44 921	-86 520	826 261

Note: The estimate refers the flow figure from 30th June of the first year in the period to 1st July of the last year of the period.

The Spectrum Policy Modelling System (Futures Group) consists of a number of components that result in the estimation of population size to assist in costing and planning of, and future healthcare services. For the purpose of the production of the MYPE, Stats SA uses two of the available components in this projection model, namely (a) **Demproj** for population projections and (b) **AIM** in which the consequences of the AIDS epidemic were projected. In the AIM projection, several programmatic and epidemiological data inputs specific to South Africa are required. These include programme coverage of adults and children on antiretroviral treatment (ART) and Prevention of mother-to-child-transmission (PMTCT) treatment (NDoH, 2019). In addition

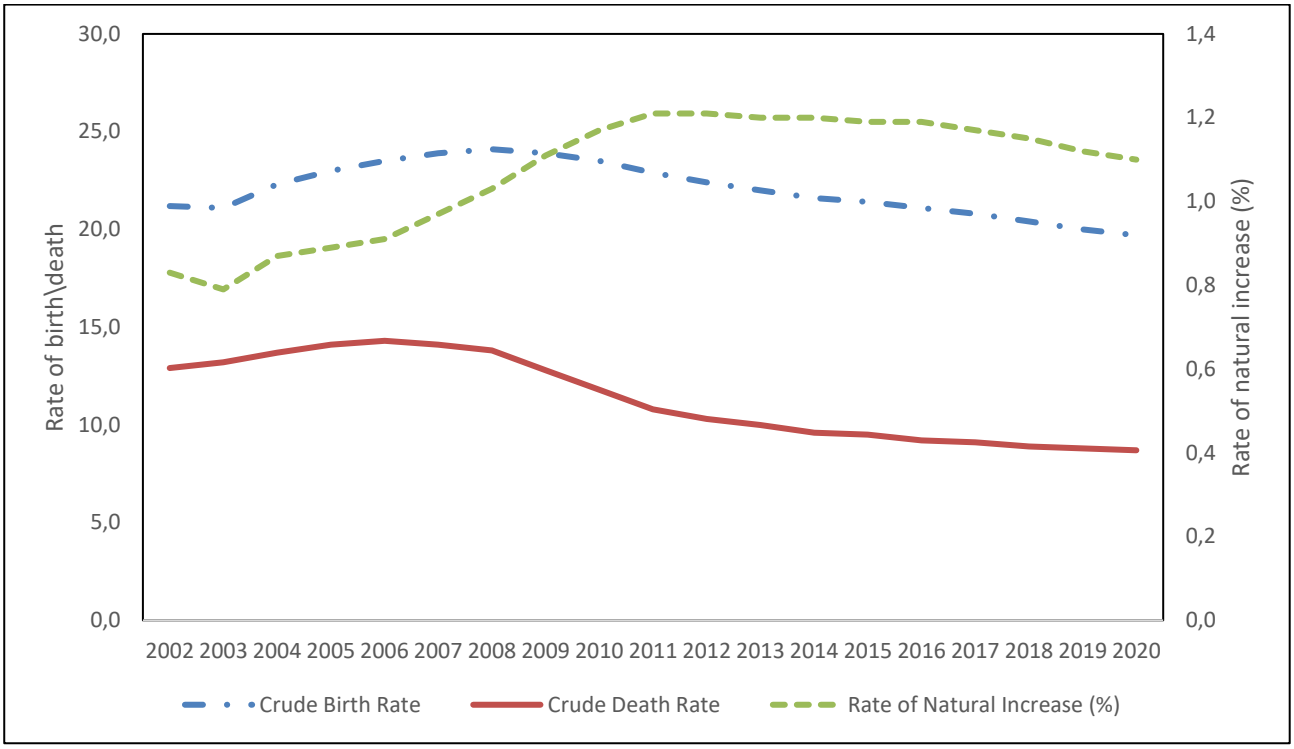
to eligibility for treatment as per national guidelines, the epidemiological inputs include antenatal clinic data (ANC). The assumptions regarding the HIV epidemic in South Africa are based primarily on the prevalence data collected annually from pregnant women attending public service antenatal clinics (ANC) since 1990 to the most recent estimates of 2017 (Woldesenbet, S.A, et al., 2018). However, antenatal surveillance data produce biased prevalence estimates for the general population because only a select group of people (i.e. only pregnant women attending public health services) are included in the sample. The South African National HIV prevalence, incidence, behaviour and communication survey data that produces national estimates for the country are used in the model to correct for this bias (Shisana et al., 2014; Simbayi et al., 2019). Other inputs in the AIM model include the following: Median time from HIV infection to death, and Ratio of new infections. Indicators of HIV prevalence, incidence and HIV population numbers over time show the impact of HIV on the population. HIV indicators shown in Figures 5 and 6 are based on the aforementioned assumptions.

The accuracy of the estimates depends on a number of factors that may be difficult to anticipate, such as economic crises, wars and natural disasters as well as pandemics, all of which can potentially impact the estimates.

3. Demographic and other indicators

Figure 2 indicates that the crude birth rate (CBR) has increased between 2003 and 2008, thereafter it declines in the period 2009 to 2020. The CBR is directly related to the rise and fall of TFR assumptions over time (Table 2, page 3). Figures 2-4 and Table 4 offer a glimpse into the mortality experience of South Africa, which incorporates the impact of HIV and AIDS (using the AIM model). The crude death rate (CDR) has declined from 12,9 deaths per 1 000 people in 2002 to 8,7 deaths per 1 000 people in 2020. However due to the AIDS epidemic experience, the crude death rate in South Africa did increase between 2002–2006 thereafter declining as access to HIV treatment and care became available. The RNI (rate of natural increase) fluctuates over time, mirroring the CBR, indicating the great influence of births in South Africa.

Figure 2: Crude birth rate, crude death rate, and rate of natural increase over time, 2002–2020



Life expectancy at birth declined between 2002 and 2006, largely due to the impact of the HIV and AIDS epidemic experienced, but expansion of health programmes to prevent mother-to-child transmission as well as access to antiretroviral treatment has partly led to the increase in life expectancy since 2007. By 2020 life expectancy at birth is estimated at 62,5 years for males and 68,5 years for females. Figures 3 and 4 indicate that life expectancy is increasing, and this may be related to marginal gains in survival rates among infants and children under-5 post HIV interventions in 2005. The infant mortality rate (IMR) has declined from an estimated 55,5 infant deaths per 1 000 live births in 2002 to 23,6 infant deaths per 1 000 live births in 2020. Similarly the under-five mortality rate (U5MR) declined from 75,3 child deaths per 1 000 live births to 34,1 child deaths per 1 000 live births between 2002 and 2020. The IMR and U5MR shown in Figure 4 are based on the selected model life table and may differ to similar indices published elsewhere.

Figure 3: Life expectancy by sex over time, 2002–2020

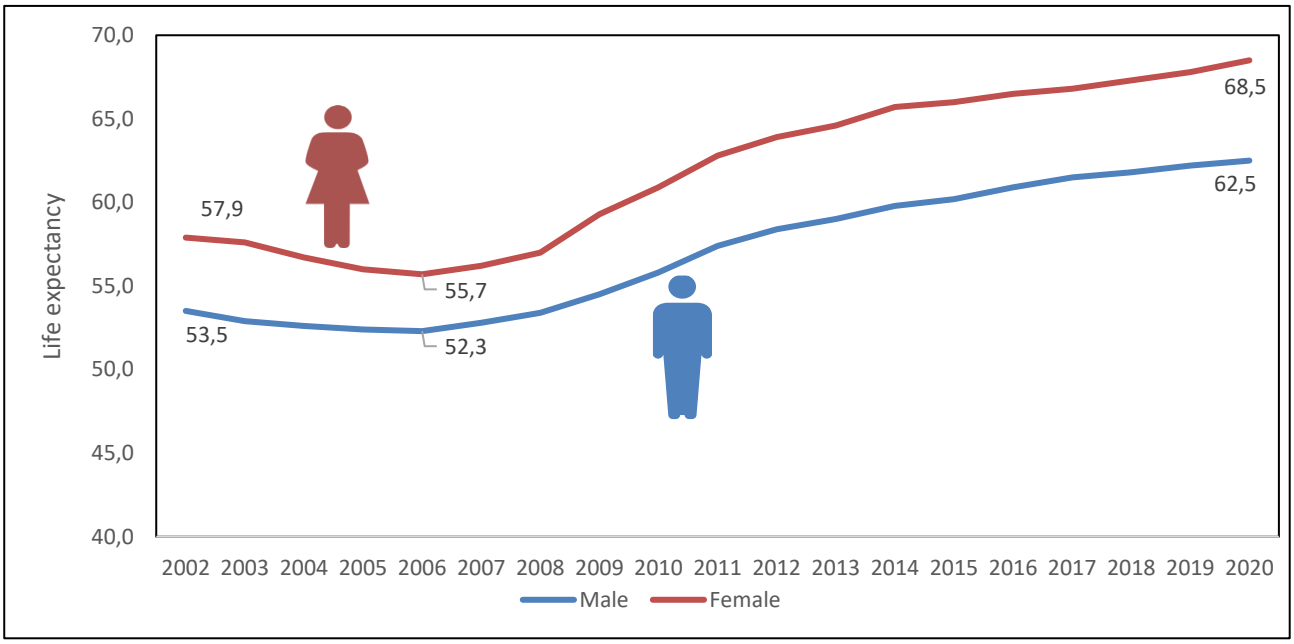


Figure 4: IMR, U5MR and Total LE over time, 2002–2020

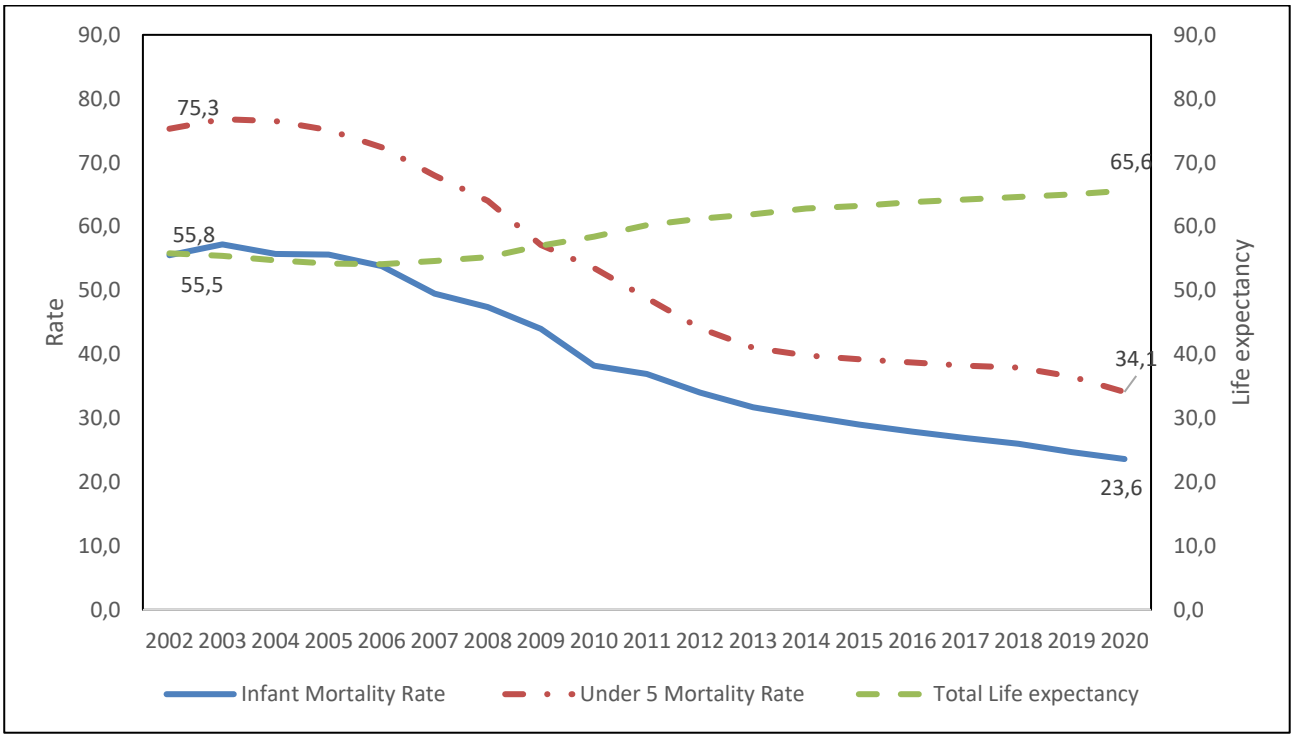


Table 4 below shows estimates for selected indicators. The highest number of deaths was estimated for the period 1 July 2005 to 30 June 2006. The decline in the percentage of AIDS-related deaths since 2006 can be attributed to the increase in the roll-out of ART over time. The national roll-out of ART began in 2005 with a target of one (1) service point in each of the 53 districts of South Africa at the time (later reduced to 52 districts). The estimated number of AIDS-related deaths declined consistently since 2007 from 272 093 to 79 625 AIDS related deaths in 2020. Access to antiretroviral treatment has changed significantly over time, altering the pattern of mortality over time. Access to ART has extended the lifespan of many in South Africa, who would have otherwise died at an earlier age, as evidenced in the decline of AIDS deaths post-2006.

Table 4: Births and deaths for the period 2002–2020

Year	Number of births*	Number of deaths*	Number of AIDS related deaths*	Percentage of AIDS related deaths
2002	983 035	598 348	182 902	30,6
2003	990 926	618 825	211 327	34,1
2004	1 057 662	647 852	240 387	37,1
2005	1 102 003	675 610	265 026	39,2
2006	1 136 810	695 461	275 100	39,6
2007	1 171 037	693 652	272 093	39,2
2008	1 196 639	684 140	255 639	37,4
2009	1 203 375	643 390	202 573	31,5
2010	1 203 777	602 514	177 415	29,4
2011	1 191 786	561 287	158 309	28,2
2012	1 184 121	542 479	141 111	26,0
2013	1 179 890	535 947	133 785	25,0
2014	1 177 790	521 842	113 260	21,7
2015	1 184 554	524 567	112 060	21,4
2016	1 186 863	519 084	98 366	18,9
2017	1 185 832	517 909	93 063	18,0
2018	1 182 200	517 533	83 065	16,1
2019	1 178 178	517 618	79 744	15,4
2020	1 174 320	515 804	79 625	15,4

*The flow data as shown above are for a 12-month period e.g. 1st July 2019 to 30th June 2020

HIV prevalence

Figures 5 and 6 show the HIV prevalence estimated for the period 2002–2020. For 2020, an estimated 13,0% of the total population is HIV positive. Over a fifth of South African women in their reproductive ages (15–49 years) are HIV positive. HIV prevalence among the youth aged 15–24 has remained stable over time. The total number of persons living with HIV in South Africa increased from an estimated 3,8 million in 2002 to 7,8 million by 2020.

Figure 5: HIV prevalence by selected age groups, 2002–2020

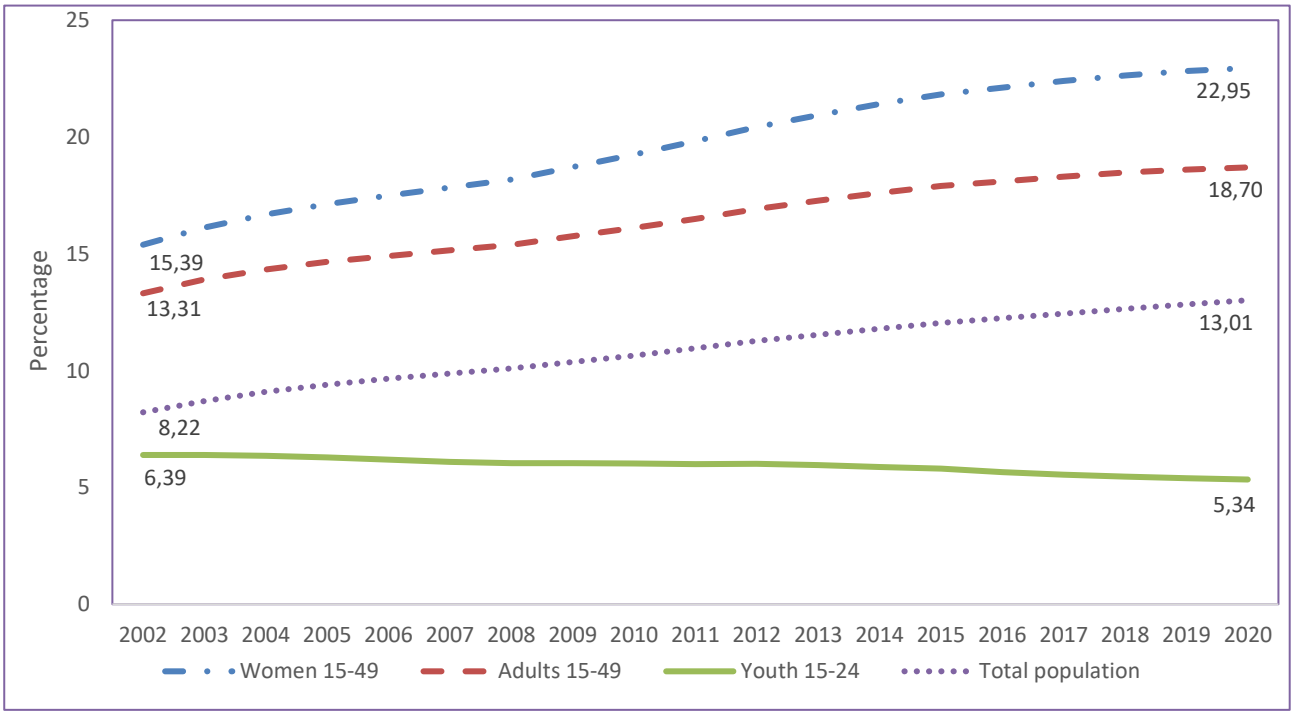
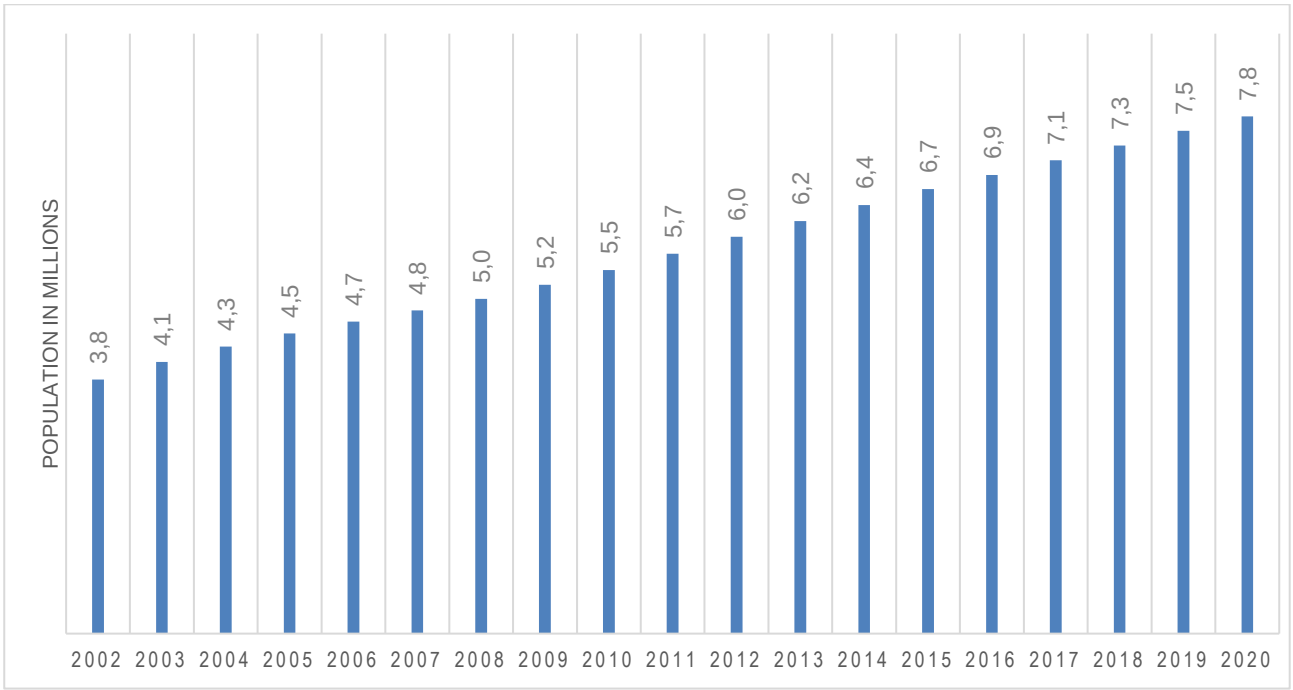


Figure 6: HIV Population over time, 2002–2020



4. National population estimates

Table 5 shows the mid-year population estimates by population group and sex. The mid-year population is estimated at 59,6 million. The black African population is in the majority (48,2 million) and constitutes approximately 81% of the total South African population. The white population is estimated at 4,7 million, the coloured population at 5,2 million and the Indian/Asian population at 1,5 million. Fifty-one per cent (30,5 million) of the population is female.

Table 5: Mid-year population estimates by population group and sex, 2020

Population group	Male		Female		Total	
	Number	% of total male population	Number	% of total female population	Number	% of total population
Black African	23 519 474	80,7	24 634 253	80,8	**48 153 727**	**80,8**
Coloured	2 555 204	8,8	2 692 536	8,8	**5 247 740**	**8,8**
Indian/Asian	787 662	2,7	753 451	2,5	**1 541 113**	**2,6**
White	2 266 535	7,8	2 413 235	7,9	**4 679 770**	**7,8**
Total	**29 128 875**	**100,0**	**30 493 475**	**100,0**	**59 622 350**	**100,0**

Figure 7 shows that the overall rate of growth for the South African population has increased between 2002 and 2020. The estimated overall growth rate increased from approximately 1,0% for the period 2002–2003 to 1,4% for the period 2019–2020. The proportion of the elderly in South Africa is on the increase with the growth rate among elderly (60 years older) rising from 1,1% for the period 2002–2003 to 3,0% for the period 2019–2020. Given the fluctuation in fertility over time, the increase in the growth rate among children aged 0–14 between 2002 and 2013 is indicative of the rise in fertility between 2004 and 2008, ageing of children into the next age category, as well as the decline in infant and child mortality post-2006 (Appendix 4).

Figure 7: Population growth rates by selected age groups over time, 2002–2020

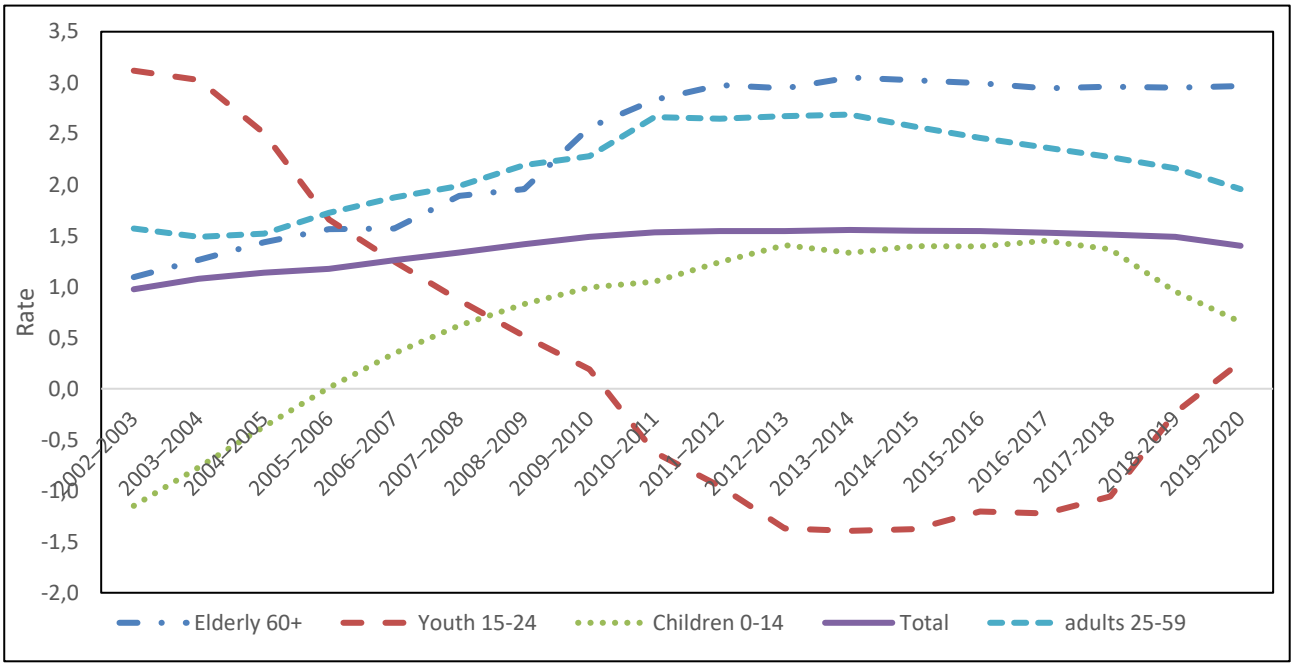


Table 6 shows the 2020 mid-year population estimates by age, sex and population group. About 28,6% of the population is aged 0–14 years and approximately 9,1% is 60 years and older.

Table 6: Mid-year population estimates by population group, age and sex, 2020

	Black African			Coloured			Indian/Asian			White			RSA		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-4	2 501 876	2 438 875	**4 940 751**	241 802	234 520	**476 322**	50 691	48 971	**99 662**	115 072	111 643	**226 715**	**2 909 441**	**2 834 009**	**5 743 450**
5-9	2 476 487	2 414 408	**4 890 895**	241 104	234 414	**475 518**	50 812	48 736	**99 548**	126 753	123 238	**249 991**	**2 895 156**	**2 820 796**	**5 715 952**
10-14	2 407 169	2 366 601	**4 773 770**	231 137	225 576	**456 713**	48 646	46 217	**94 863**	134 809	131 398	**266 207**	**2 821 761**	**2 769 792**	**5 591 553**
15-19	2 027 023	2 004 681	**4 031 704**	207 599	203 457	**411 056**	45 504	43 048	**88 552**	122 761	120 506	**243 267**	**2 402 887**	**2 371 692**	**4 774 579**
20-24	2 030 142	2 013 290	**4 043 432**	213 479	209 701	**423 180**	54 400	47 890	**102 290**	127 180	127 285	**254 465**	**2 425 201**	**2 398 166**	**4 823 367**
25-29	2 315 171	2 271 609	**4 586 780**	219 429	216 317	**435 746**	72 139	58 435	**130 574**	133 699	133 955	**267 654**	**2 740 438**	**2 680 316**	**5 420 754**
30-34	2 412 556	2 356 943	**4 769 499**	216 963	214 311	**431 274**	80 537	64 280	**144 817**	148 546	147 614	**296 160**	**2 858 602**	**2 783 148**	**5 641 750**
35-39	1 983 049	1 979 731	**3 962 780**	187 873	193 985	**381 858**	79 657	65 039	**144 696**	153 973	154 986	**308 959**	**2 404 552**	**2 393 741**	**4 798 293**
40-44	1 464 366	1 524 633	**2 988 999**	156 956	159 655	**316 611**	65 989	55 929	**121 918**	149 724	156 690	**306 414**	**1 837 035**	**1 896 907**	**3 733 942**
45-49	1 163 595	1 229 722	**2 393 317**	151 954	160 711	**312 665**	58 225	52 793	**111 018**	172 253	180 395	**352 648**	**1 546 027**	**1 623 621**	**3 169 648**
50-54	826 898	1 007 293	**1 834 191**	139 393	162 831	**302 224**	48 624	48 385	**97 009**	164 319	173 520	**337 839**	**1 179 234**	**1 392 029**	**2 571 263**
55-59	657 553	889 121	**1 546 674**	121 876	143 091	**264 967**	40 735	44 510	**85 245**	150 853	163 570	**314 423**	**971 017**	**1 240 292**	**2 211 309**
60-64	487 043	723 755	**1 210 798**	92 187	115 516	**207 703**	32 760	38 250	**71 010**	145 871	160 934	**306 805**	**757 861**	**1 038 455**	**1 796 316**
65-69	351 949	566 655	**918 604**	62 862	88 079	**150 941**	25 382	32 420	**57 802**	131 643	149 675	**281 318**	**571 836**	**836 829**	**1 408 665**
70-74	218 084	401 022	**619 106**	37 570	59 557	**97 127**	17 124	25 144	**42 268**	115 212	133 461	**248 673**	**387 990**	**619 184**	**1 007 174**
75-79	119 451	245 958	**365 409**	20 028	36 794	**56 822**	9 785	16 923	**26 708**	84 341	103 782	**188 123**	**233 605**	**403 457**	**637 062**
80+	77 062	199 956	**277 018**	12 992	34 021	**47 013**	6 652	16 481	**23 133**	89 526	140 583	**230 109**	**186 232**	**391 041**	**577 273**
Total	**23 519 474**	**24 634 253**	**48 153 727**	**2 555 204**	**2 692 536**	**5 247 740**	**787 662**	**753 451**	**1 541 113**	**2 266 535**	**2 413 235**	**4 679 770**	**29 128 875**	**30 493 475**	**59 622 350**

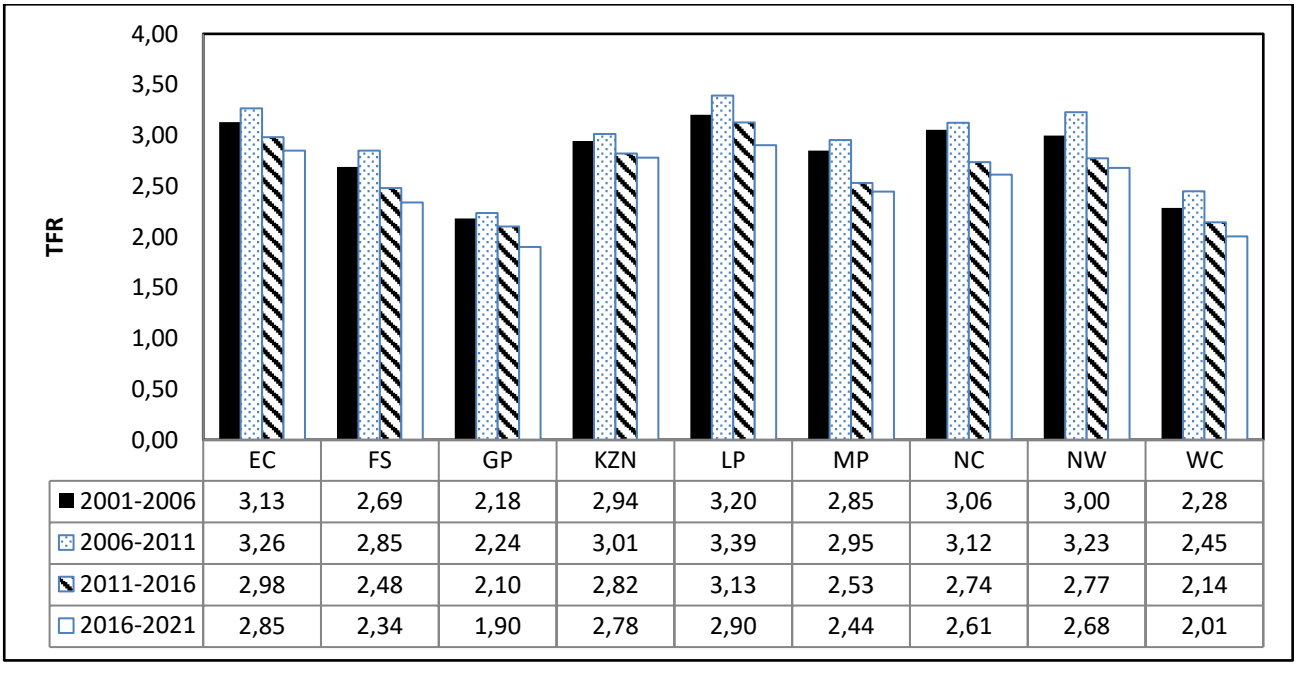
5. Provincial population estimates

Provincial estimates are derived using a cohort-component method as suggested by the United Nations (United Nations, 1992), incorporating changes in births, deaths as well as migration over time. When provincial population estimates are desired and the appropriate data are available, a multi-regional approach should be considered as this is the only way to guarantee that the total migration flows between regions will sum to zero (United Nations, 1992). Multi-regional methods require the estimation of separate age-specific migration rates between every region of the country and every other region and such detailed data are rarely available. Although it is possible to estimate some of the missing data (see Willekens et al., 1978) the task of preparing data can become overwhelming if there are many regions. If there are only a few streams however the multi-regional method is the best method to use. In South Africa 2 448 (9x8x17x2) migration streams are derived if the multi-regional model is applied in calculating migration streams by age group (17 in total) and sex for each of the nine provinces.

5.1 Demographic assumptions

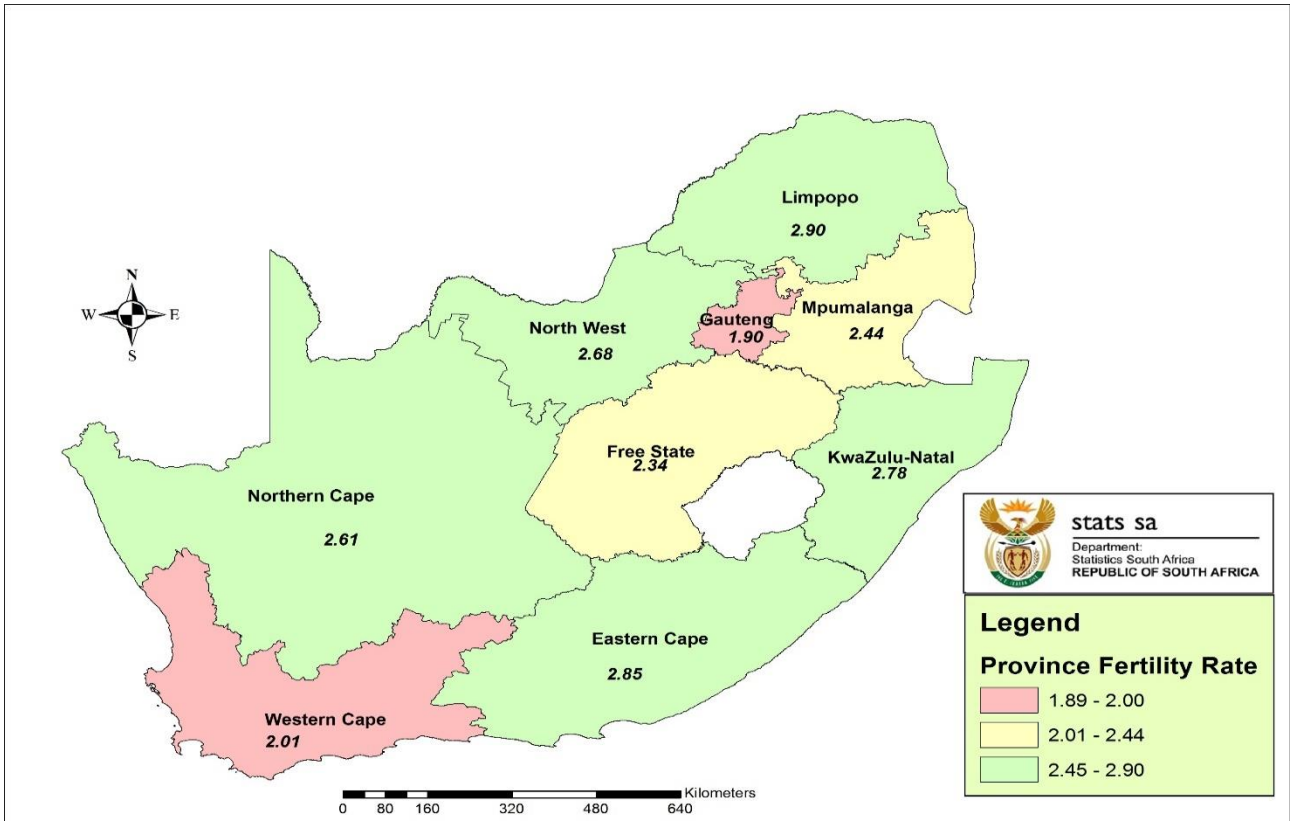
The demographic data from the 2011 Census i.e. fertility, mortality and migration rates are incorporated in the assumptions. The population structure as per Census 2011 as well as the distribution of births and deaths from vital registrations (adjusted for late registration and completeness) are used to determine provincial estimates (Stats SA, 2017). Figure 8 shows the provincial fertility estimates for the periods 2001–2006; 2006–2011; 2011–2016 and 2016–2021. In the period 2006–2011, there is a general rise in TFR, giving shape to the Census 2011 provincial population structure. However for the period 2011–2021 there is an overall decline in TFR over time. Fertility varies from province to province as is depicted in Figure 8. The more rural provinces of Limpopo and Eastern Cape indicate higher fertility rates whilst more urbanised provinces such as Gauteng and the Western Cape indicate lower levels of fertility.

Figure 8: Provincial average total fertility rate over time, 2001–2021



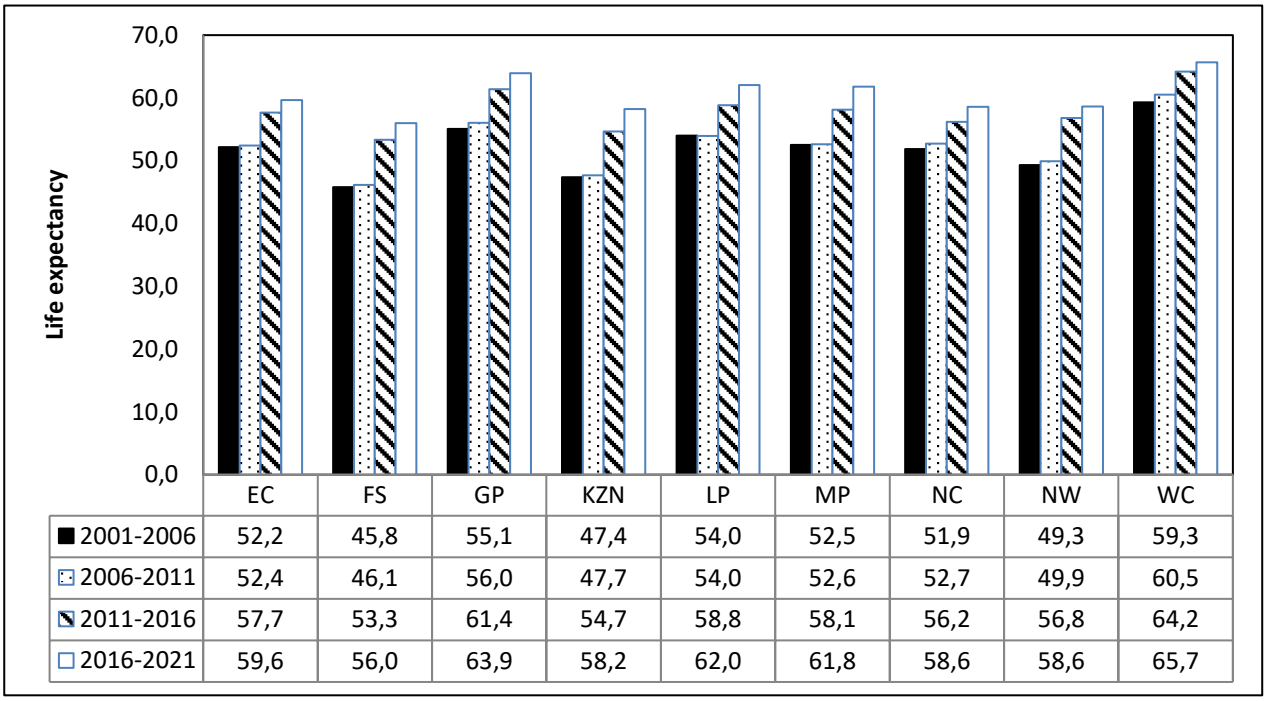
	EC	FS	GP	KZN	LP	MP	NC	NW	WC
2001-2006	3,13	2,69	2,18	2,94	3,20	2,85	3,06	3,00	2,28
2006-2011	3,26	2,85	2,24	3,01	3,39	2,95	3,12	3,23	2,45
2011-2016	2,98	2,48	2,10	2,82	3,13	2,53	2,74	2,77	2,14
2016-2021	2,85	2,34	1,90	2,78	2,90	2,44	2,61	2,68	2,01

Figure 9: Provincial average total fertility rate, 2016–2021



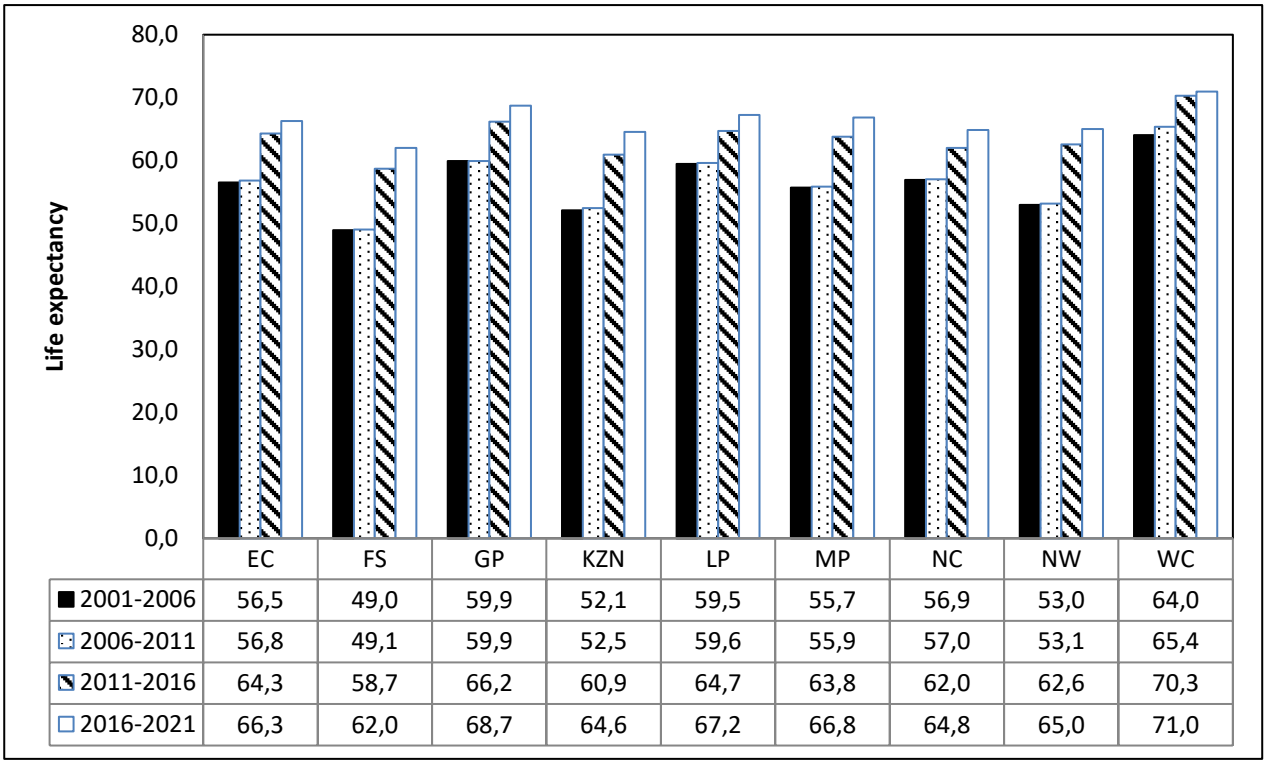
Life expectancy at birth reflects the overall mortality level of a population. Figures 10 and 11 show the average provincial life expectancies at birth for males and females for the 5-year periods 2001–2006; 2006–2011; 2011–2016 and 2016–2021. We have made no revision in the estimation of deaths by province. We choose to retain the current distribution of annual births and deaths available in the published vital registration system. Western Cape has been declared the epicentre of Covid-19 in terms of number of infections and deaths for the months of May and June. The South African COVID-19 Modelling Consortium anticipate that epidemics in KwaZulu-Natal, Gauteng and Western Cape are expected to peak earlier, whilst other provinces will trail behind. The consortium acknowledges that models do not account for population-wide behaviour changes as the response to high levels of mortality and understanding of the virus's epidemiology is continually evolving, both locally and globally (South African Covid-19 Modelling Consortium, 2020). For the purpose of the Mid-year estimates, we have cautiously opted to base our estimates on current empirical data sources used to guide the estimates. According to Figures 10 and 11, the life expectancy increased incrementally for each period across all provinces but more significantly in the period 2011–2016 due to the uptake of antiretroviral therapy over time in South Africa. Though the life expectancy in the periods 2001–2006 and 2006–2011, depicts marginal improvement, this masks the interaction between the highest number of deaths in 2006 in combination with declining numbers of deaths between 2007 and 2010. In the period 2016–2021 there is an average 6-year gap between male and female life expectancy in SA. Western Cape consistently has the highest life expectancy at birth for both males and females over time whilst the Free State has the lowest life expectancy at birth.

Figure 10: Provincial average life expectancy at birth (males), 2001–2021



	EC	FS	GP	KZN	LP	MP	NC	NW	WC
2001-2006	52,2	45,8	55,1	47,4	54,0	52,5	51,9	49,3	59,3
2006-2011	52,4	46,1	56,0	47,7	54,0	52,6	52,7	49,9	60,5
2011-2016	57,7	53,3	61,4	54,7	58,8	58,1	56,2	56,8	64,2
2016-2021	59,6	56,0	63,9	58,2	62,0	61,8	58,6	58,6	65,7

Figure 11: Provincial average life expectancy at birth (females), 2001–2021



	EC	FS	GP	KZN	LP	MP	NC	NW	WC
2001-2006	56,5	49,0	59,9	52,1	59,5	55,7	56,9	53,0	64,0
2006-2011	56,8	49,1	59,9	52,5	59,6	55,9	57,0	53,1	65,4
2011-2016	64,3	58,7	66,2	60,9	64,7	63,8	62,0	62,6	70,3
2016-2021	66,3	62,0	68,7	64,6	67,2	66,8	64,8	65,0	71,0

5.2 Migration patterns

From Census 2011 it was possible to determine out-migration rates for each province. Applying these rates to the age structures of the province it was possible to establish migration streams between the provinces. The results of these analyses is shown in Tables 7, 8 and 9. The international migration to receiving provinces reflects that reduction post Covid-19 travel restrictions and movement is possible. Inter-provincial migration for the period June 2016–June 2021 (based on Census 2011 migration rates) have not been adjusted for Covid-19. Provincial estimates are developed based on a 5-year cohort component method; and as such interprovincial movement assumptions are required for a 5-year period (2016–2021). Inter-provincial migration assumptions by sex have not incorporated any impact of Covid-19 for the period March 2020–June 2021 (16 months). Movement made during lockdown constitutes a temporary one in the majority of cases whilst inter-provincial migration in the mid-year estimation constitutes a more permanent move. In addition, the provincial estimates are for a 5-year period, and a 16-month period would have a negligible impact. The assumptions indicate that Gauteng and Western Cape received the highest number of in-migrants for all periods. The Eastern Cape, Limpopo and Gauteng experienced the largest number of outflow of migrants. Gauteng, Mpumalanga, Northern Cape, North West and Western Cape provinces received positive net migration over all three periods. For all periods, the number of international migrants entering the provinces was highest in Gauteng, with Western Cape ranking second.

Table 7: Estimated provincial migration streams 2006–2011

Province in 2006	Province in 2011									Out -migrants	In-migrants	Net migration
	EC	FS	GP	KZN	LP	MP	NC	NW	WC			
EC	0	12 894	144 519	97 268	13 848	16 637	7 988	37 346	173 138	503 639	161 639	-342 000
FS	8 187	0	79 692	7 630	6 354	10 456	8 793	23 057	11 813	155 983	114 680	-41 302
GP	39 856	30 932	0	53 620	63 469	63 119	9 648	84 842	74 736	420 223	1 394 988	974 765
KZN	23 407	11 326	205 845	0	8 783	33 679	7 891	10 708	30 581	332 220	255 923	-76 296
LP	4 166	5 416	322 552	7 648	0	44 213	2 406	30 151	10 565	427 117	220 743	-206 374
MP	4 569	4 736	121 843	11 475	21 318	0	2 099	12 175	8 890	187 106	243 155	56 049
NC	4 095	8 181	15 374	5 241	2 442	4 149	0	11 732	16 821	68 035	76 198	8 163
NW	4 554	10 383	95 304	5 371	17 554	10 483	20 743	0	7 992	172 386	275 164	102 778
WC	44 310	6 903	53 467	11 264	4 987	6 246	11 031	7 173	0	145 380	421 814	276 434
Outside SA (net migration)	**28 493**	**23 908**	**356 392**	**56 405**	**81 987**	**54 172**	**5 599**	**57 981**	**87 278**			

Table 8: Estimated provincial migration streams, 2011–2016

Province in 2011	Province in 2016									Out-migrants	In-migrants	Net migration
	EC	FS	GP	KZN	LP	MP	NC	NW	WC			
EC	0	13 011	145 819	98 121	13 971	16 784	8 075	37 579	174 590	507 950	181 109	-326 841
FS	8 374	0	81 405	7 805	6 503	10 698	8 997	23 584	12 109	159 474	128 179	-31 295
GP	45 871	35 590	0	61 796	91 147	72 677	11 105	97 700	86 252	502 137	1 528 589	1 026 451
KZN	24 784	11 986	217 611	0	9 338	35 691	8 365	11 358	32 413	351 546	280 666	-70 880
LP	4 356	5 651	336 704	8 000	0	46 149	2 518	31 438	11 021	445 838	270 970	-174 868
MP	4 961	5 132	132 233	12 434	23 058	0	2 282	13 195	9 633	202 928	270 665	67 736
NC	4 335	8 717	16 388	5 561	2 601	4 409	0	12 476	17 892	72 380	83 008	10 628
NW	4 986	11 328	103 941	5 867	19 129	11 430	22 653	0	8 754	188 087	305 900	117 813
WC	48 830	7 670	59 492	12 550	5 545	6 958	12 247	7 998	0	161 291	458 892	297 601
Outside SA (net migration)	**34 613**	**29 095**	**434 995**	**68 530**	**99 678**	**65 869**	**6 768**	**70 572**	**106 227**			

Table 9: Estimated provincial migration streams 2016–2021

Province in 2016	Province in 2021									Out-migrants	In-migrants	Net migration
	EC	FS	GP	KZN	LP	MP	NC	NW	WC			
EC	0	13 192	147 876	99 442	14 168	16 996	8 184	38 047	176 984	514 888	191 931	-322 957
FS	8 613	0	83 824	8 030	6 693	11 012	9 265	24 275	12 471	164 185	134 256	-29 929
GP	52 196	40 565	0	70 546	103 684	82 955	12 663	111 507	98 647	572 765	1 553 162	980 398
KZN	26 474	12 804	232 459	0	9 965	38 148	8 941	12 156	34 636	375 583	287 420	-88 163
LP	4 576	5 924	353 346	8 406	0	48 355	2 645	32 910	11 532	467 693	278 581	-189 112
MP	5 391	5 570	143 588	13 483	25 013	0	2 481	14 323	10 454	220 302	281 336	61 034
NC	4 600	9 264	17 449	5 901	2 768	4 685	0	13 259	19 027	76 954	88 507	11 554
NW	5 456	12 386	113 683	6 416	20 913	12 499	24 787	0	9 582	205 723	318 604	112 881
WC	53 664	8 469	65 793	13 883	6 128	7 699	13 521	8 855	0	178 013	468 568	290 555
Outside SA (net migration)	**30 961**	**26 081**	**395 145**	**61 313**	**89 249**	**58 986**	**6 019**	**63 273**	**95 234**			

5.3 Provincial distributions

Table 10 below shows the estimated percentage of the total population residing in each of the provinces from 2002 to 2020. The provincial estimates show that Gauteng has the largest share of the population followed by KwaZulu-Natal, Western Cape and Eastern Cape. Inter-provincial as well as international migration patterns significantly influence the provincial population numbers and structures in South Africa. By 2020 approximately 11,8% of South Africa's population live in Western Cape. Northern Cape has the smallest share of the population (2,2%). Free State has the second smallest share of the South African population, constituting 4,9% of the population. Figure 12 indicates that Limpopo and Eastern Cape (39,2% and 36,6% respectively) have the highest proportions of persons younger than 15 years. The highest proportions of elderly persons aged 60 years and above are found in Eastern Cape (11,4%), Western Cape (10.3%) and Northern Cape (10,2%), as shown in Figure 13.

Table 10: Percentage distribution of the projected provincial share of the total population, 2002–2020

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
EC	14,3	14,1	13,9	13,8	13,6	13,4	13,3	13,1	12,9	12,7	12,6	12,4	12,2	12,1	11,9	11,8	11,6	11,4	11,3
FS	5,9	5,9	5,8	5,7	5,7	5,6	5,6	5,5	5,4	5,4	5,3	5,3	5,2	5,2	5,1	5,0	5,0	5,0	4,9
GP	20,9	21,2	21,5	21,8	22,1	22,4	22,7	23,0	23,3	23,6	23,8	24,1	24,4	24,7	25,0	25,2	25,5	25,7	26,0
KZN	20,8	20,7	20,6	20,5	20,4	20,3	20,2	20,1	20,0	19,8	19,8	19,7	19,6	19,6	19,5	19,5	19,4	19,4	19,3
LP	11,0	10,9	10,9	10,8	10,7	10,7	10,6	10,6	10,5	10,4	10,4	10,3	10,2	10,2	10,1	10,0	10,0	9,9	9,8
MP	7,7	7,7	7,7	7,7	7,7	7,8	7,8	7,8	7,8	7,8	7,8	7,8	7,8	7,8	7,8	7,8	7,8	7,8	7,8
NC	2,3	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2	2,2
NW	6,6	6,7	6,7	6,7	6,7	6,7	6,7	6,7	6,8	6,8	6,8	6,8	6,8	6,8	6,8	6,8	6,9	6,9	6,9
WC	10,5	10,6	10,7	10,8	10,8	10,9	11,0	11,1	11,2	11,3	11,3	11,4	11,5	11,5	11,6	11,6	11,7	11,7	11,8
Total	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**

Table 11 (a): Provincial mid-year population estimates by age and sex, 2020

	Eastern Cape			Free State			Gauteng			KwaZulu-Natal			Limpopo		
Age	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**
0-4	355 102	346 941	**702 044**	133 687	130 633	**264 320**	660 151	644 775	**1 304 927**	655 109	635 756	**1 290 865**	322 724	312 392	**635 117**
5-9	380 986	370 788	**751 774**	140 559	137 395	**277 954**	619 420	605 227	**1 224 646**	627 808	610 457	**1 238 265**	341 352	330 001	**671 354**
10-14	387 092	378 088	**765 180**	146 591	144 707	**291 297**	561 254	556 672	**1 117 926**	595 505	584 226	**1 179 731**	339 541	325 409	**664 950**
15-19	303 960	295 224	**599 184**	125 095	124 045	**249 141**	529 249	533 353	**1 062 602**	504 415	496 411	**1 000 825**	277 029	262 340	**539 369**
20-24	240 486	237 987	**478 473**	116 805	117 271	**234 076**	670 458	669 911	**1 340 369**	493 043	490 336	**983 379**	225 012	214 965	**439 977**
25-29	252 521	248 952	**501 473**	123 974	122 707	**246 681**	824 402	830 902	**1 655 304**	521 483	519 022	**1 040 504**	235 776	225 817	**461 593**
30-34	260 777	264 217	**524 994**	132 061	130 618	**262 679**	869 820	849 294	**1 719 113**	510 794	518 832	**1 029 626**	236 020	240 535	**476 555**
35-39	217 961	233 046	**451 007**	111 829	114 850	**226 679**	723 640	702 276	**1 425 916**	409 820	443 965	**853 785**	200 108	212 017	**412 125**
40-44	166 431	189 072	**355 503**	85 145	93 739	**178 883**	567 767	536 290	**1 104 058**	294 693	343 169	**637 862**	150 936	181 255	**332 191**
45-49	140 096	175 236	**315 332**	73 996	83 382	**157 378**	484 082	424 052	**908 134**	245 198	294 736	**539 934**	119 337	160 567	**279 903**
50-54	108 750	160 292	**269 042**	59 765	73 583	**133 348**	361 793	354 300	**716 093**	176 536	247 337	**423 872**	89 948	132 644	**222 592**
55-59	93 864	155 105	**248 969**	50 304	64 828	**115 132**	293 687	305 149	**598 836**	147 275	228 556	**375 830**	71 473	121 558	**193 030**
60-64	80 308	143 176	**223 485**	40 520	54 670	**95 191**	226 849	252 332	**479 181**	115 026	190 526	**305 552**	54 616	100 797	**155 413**
65-69	64 577	116 845	**181 422**	31 526	46 412	**77 938**	164 722	195 404	**360 126**	90 548	155 583	**246 130**	43 030	87 170	**130 199**
70-74	46 789	89 316	**136 105**	20 811	34 293	**55 104**	107 737	136 884	**244 621**	64 283	122 426	**186 709**	29 801	64 457	**94 258**
70-79	33 856	66 598	**100 454**	12 872	22 103	**34 975**	59 133	82 737	**141 871**	36 812	73 438	**110 251**	17 730	43 442	**61 172**
80+	42 877	86 685	**129 562**	8 977	19 149	**28 126**	30 469	53 943	**84 412**	27 831	60 677	**88 507**	19 698	63 057	**82 755**
Total	**3 176 434**	**3 557 567**	**6 734 001**	**1 414 517**	**1 514 385**	**2 928 903**	**7 754 633**	**7 733 504**	**15 488 137**	**5 516 177**	**6 015 451**	**11 531 628**	**2 774 130**	**3 078 423**	**5 852 553**

Table 11 (b): Provincial mid-year population estimates by age and sex, 2020 (concluded)

	Mpumalanga			Northern Cape			North West			Western Cape			All provinces		
Age	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
0-4	230 489	226 069	**456 558**	62 697	61 011	**123 707**	202 627	199 219	**401 845**	286 855	277 213	**564 068**	**2 909 441**	**2 834 009**	**5 743 450**
5-9	230 427	227 261	**457 688**	63 317	61 244	**124 561**	201 657	197 707	**399 364**	289 631	280 715	**570 346**	**2 895 156**	**2 820 796**	**5 715 952**
10-14	234 666	232 540	**467 206**	63 469	63 259	**126 728**	202 312	199 865	**402 177**	291 331	285 027	**576 358**	**2 821 761**	**2 769 792**	**5 591 553**
15-19	196 368	195 255	**391 623**	52 653	53 714	**106 368**	163 479	161 136	**324 615**	250 639	250 212	**500 852**	**2 402 887**	**2 371 692**	**4 774 579**
20-24	196 753	194 880	**391 634**	48 017	49 415	**97 432**	157 898	149 579	**307 477**	276 728	273 822	**550 550**	**2 425 201**	**2 398 166**	**4 823 367**
25-29	221 280	205 658	**426 938**	54 252	52 090	**106 342**	185 079	162 820	**347 899**	321 672	312 347	**634 019**	**2 740 438**	**2 680 316**	**5 420 754**
30-34	235 503	214 857	**450 361**	61 202	55 361	**116 563**	204 905	176 491	**381 397**	347 519	332 943	**680 462**	**2 858 602**	**2 783 148**	**5 641 750**
35-39	199 699	185 778	**385 478**	54 630	47 810	**102 440**	179 624	155 111	**334 735**	307 240	298 888	**606 128**	**2 404 552**	**2 393 741**	**4 798 293**
40-44	144 770	147 197	**291 967**	42 157	38 182	**80 339**	142 524	126 520	**269 044**	242 611	241 483	**484 094**	**1 837 035**	**1 896 907**	**3 733 942**
45-49	113 974	126 949	**240 923**	35 274	34 121	**69 396**	117 791	110 019	**227 810**	216 279	214 559	**430 838**	**1 546 027**	**1 623 621**	**3 169 648**
50-54	85 043	105 307	**190 350**	27 726	30 416	**58 142**	93 740	91 675	**185 415**	175 934	196 475	**372 410**	**1 179 234**	**1 392 029**	**2 571 263**
55-59	69 718	89 496	**159 214**	22 183	26 627	**48 810**	79 691	78 498	**158 189**	142 823	170 476	**313 299**	**971 017**	**1 240 292**	**2 211 309**
60-64	52 372	68 828	**121 200**	18 035	23 119	**41 154**	62 207	64 612	**126 819**	107 927	140 394	**248 321**	**757 861**	**1 038 455**	**1 796 316**
65-69	40 163	56 656	**96 820**	14 166	19 728	**33 894**	42 628	51 855	**94 483**	80 476	107 176	**187 652**	**571 836**	**836 829**	**1 408 665**
70-74	25 790	39 352	**65 142**	9 524	14 853	**24 376**	27 129	37 398	**64 527**	56 129	80 205	**136 333**	**387 990**	**619 184**	**1 007 174**
70-79	15 432	25 792	**41 224**	6 268	10 686	**16 954**	16 780	28 089	**44 868**	34 722	50 571	**85 294**	**233 605**	**403 457**	**637 062**
80+	14 758	30 703	**45 461**	4 936	10 643	**15 579**	10 603	27 548	**38 151**	26 082	38 636	**64 718**	**186 232**	**391 041**	**577 273**
Total	**2 307 207**	**2 372 580**	**4 679 786**	**640 506**	**652 280**	**1 292 786**	**2 090 673**	**2 018 143**	**4 108 816**	**3 454 599**	**3 551 142**	**7 005 741**	**29 128 875**	**30 493 475**	**59 622 350**

Figure 12: Population under 15 years of age

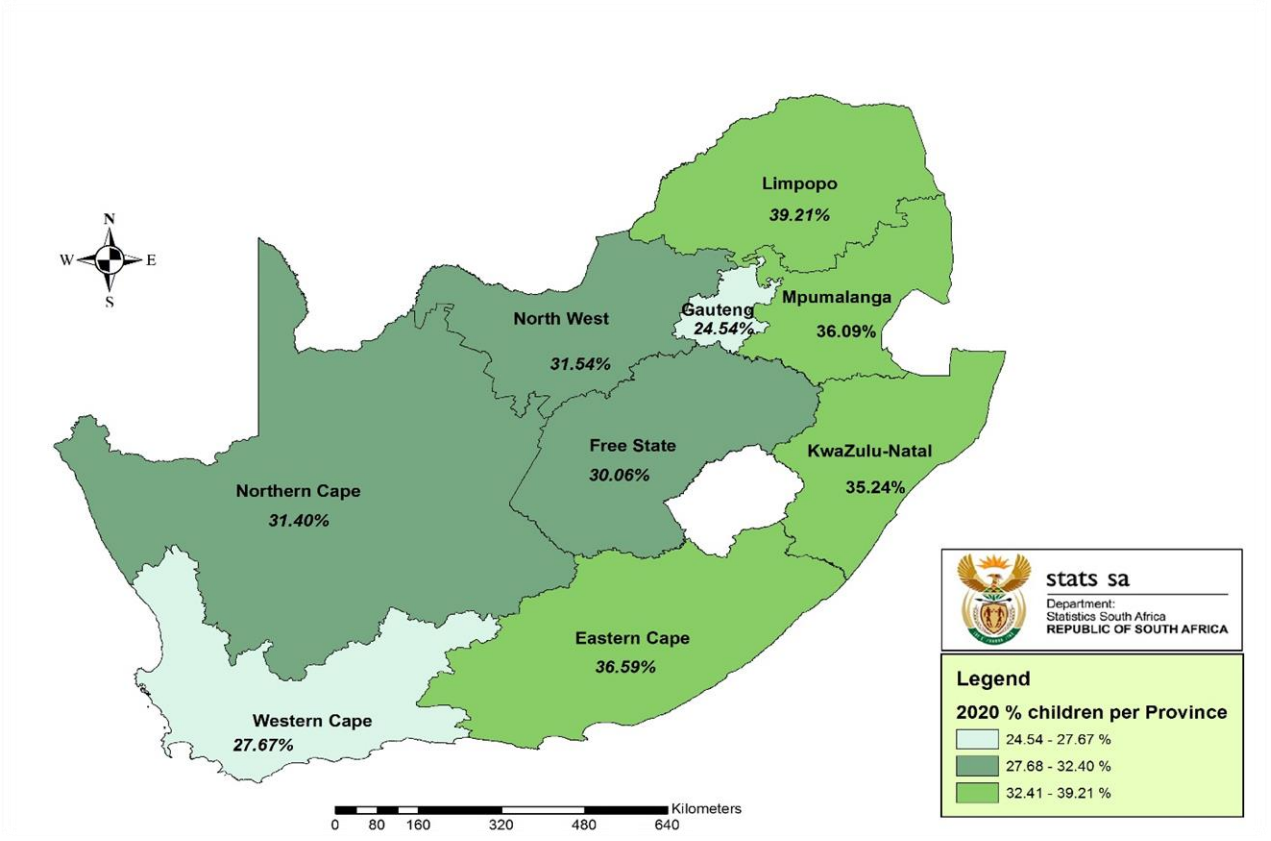
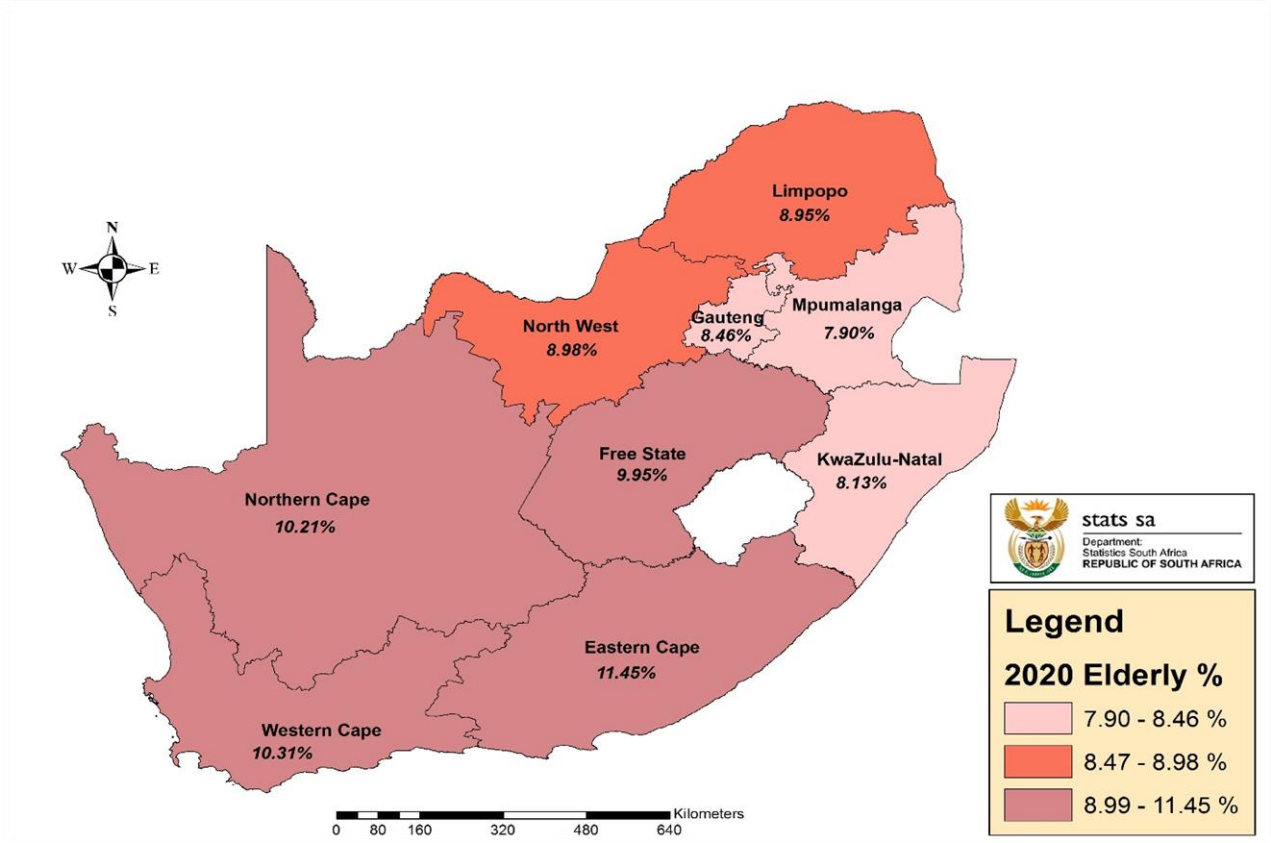


Figure 13: Proportion of elderly aged 60+



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Appendices

Appendix 1: Mid-year population estimates by province, 2020

	Population estimate	% of total population
Eastern Cape	6 734 001	11,3
Free State	2 928 903	4,9
Gauteng	15 488 137	26,0
KwaZulu-Natal	11 531 628	19,3
Limpopo	5 852 553	9,8
Mpumalanga	4 679 786	7,8
Northern Cape	1 292 786	2,2
North West	4 108 816	6,9
Western Cape	7 005 741	11,8
Total	**59 622 350**	**100,0**

Appendix 2: Demographic indicators, 2002–2020

Year	Crude birth rate	Life expectancy			Infant mortality rate	Under-5 mortality rate	Crude death rate	Rate of natural increase (%)
		Male	Female	Total				
2002	21,2	53,5	57,9	55,8	55,5	75,3	12,9	0,8
2003	21,1	52,9	57,6	55,4	57,2	76,8	13,2	0,8
2004	22,3	52,6	56,7	54,7	55,7	76,5	13,7	0,9
2005	23,0	52,4	56,0	54,2	55,6	75,1	14,1	0,9
2006	23,5	52,3	55,7	54,1	53,8	72,4	14,3	0,9
2007	23,9	52,8	56,2	54,6	49,5	68,0	14,1	1,0
2008	24,1	53,4	57,0	55,2	47,4	64,0	13,8	1,0
2009	23,9	54,5	59,3	57,0	44,0	57,1	12,8	1,1
2010	23,5	55,8	60,9	58,4	38,2	53,5	11,8	1,2
2011	22,9	57,4	62,8	60,2	36,9	48,8	10,8	1,2
2012	22,4	58,4	63,9	61,2	34,0	44,1	10,3	1,2
2013	22,0	59,0	64,6	61,9	31,7	41,0	10,0	1,2
2014	21,6	59,8	65,7	62,8	30,3	39,8	9,6	1,2
2015	21,4	60,2	66,0	63,2	29,0	39,2	9,5	1,2
2016	21,1	60,9	66,5	63,8	27,9	38,7	9,2	1,2
2017	20,8	61,5	66,8	64,2	26,9	38,2	9,1	1,2
2018	20,4	61,8	67,3	64,6	26,0	37,9	8,9	1,2
2019	20,0	62,2	67,8	65,0	24,7	36,5	8,8	1,1
2020	19,7	62,5	68,5	65,6	23,6	34,1	8,7	1,1

Appendix 3: HIV prevalence estimates and number of people living with HIV, 2002–2020

	Prevalence %				Incidence rate %	HIV population (in millions)
	Women 15–49	Adults 15–49	Youth 15–24	Total population	15–49	
2002	15,39	13,31	6,39	8,22	1,95	3,81
2003	16,12	13,90	6,39	8,70	1,86	4,08
2004	16,69	14,33	6,35	9,09	1,78	4,31
2005	17,12	14,66	6,28	9,40	1,71	4,50
2006	17,50	14,91	6,19	9,65	1,66	4,68
2007	17,84	15,15	6,10	9,87	1,62	4,85
2008	18,18	15,39	6,04	10,09	1,59	5,02
2009	18,71	15,76	6,04	10,37	1,59	5,23
2010	19,25	16,11	6,03	10,65	1,52	5,45
2011	19,83	16,50	6,00	10,96	1,52	5,70
2012	20,43	16,92	6,01	11,27	1,50	5,95
2013	20,94	17,27	5,96	11,54	1,40	6,19
2014	21,41	17,60	5,87	11,80	1,34	6,43
2015	21,83	17,90	5,80	12,05	1,31	6,67
2016	22,12	18,10	5,65	12,24	1,18	6,88
2017	22,40	18,30	5,55	12,44	1,17	7,10
2018	22,64	18,48	5,47	12,64	1,14	7,32
2019	22,83	18,61	5,40	12,83	1,14	7,54
2020	22,95	18,70	5,34	13,01	1,13	7,76

Appendix 4: Estimates of annual growth rates, 2002–2020

Period	Children 0–14	Youth 15–24	Elderly 60+	Adults 25–59	Total
2002–2003	-1,15	3,12	1,09	1,57	**0,97**
2003–2004	-0,77	3,03	1,26	1,49	**1,08**
2004–2005	-0,37	2,51	1,44	1,52	**1,14**
2005–2006	0,01	1,66	1,56	1,72	**1,18**
2006–2007	0,35	1,25	1,57	1,88	**1,26**
2007–2008	0,62	0,87	1,89	1,99	**1,34**
2008–2009	0,83	0,51	1,96	2,19	**1,42**
2009–2010	0,99	0,19	2,56	2,28	**1,49**
2010–2011	1,05	-0,62	2,83	2,66	**1,53**
2011–2012	1,24	-0,96	2,98	2,65	**1,55**
2012–2013	1,41	-1,37	2,94	2,67	**1,54**
2013–2014	1,33	-1,39	3,05	2,69	**1,56**
2014–2015	1,40	-1,38	3,02	2,57	**1,55**
2015–2016	1,39	-1,20	2,99	2,46	**1,55**
2016–2017	1,45	-1,22	2,94	2,36	**1,53**
2017–2018	1,37	-1,06	2,96	2,27	**1,51**
2018-2019	0,95	-0,24	2,95	2,16	**1,49**
2019-2020	0,66	0,26	2,97	1,96	**1,40**

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