



# South Africa

## Sectoral Scenarios for South Africa

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## Table of contents

Sectoral Scenarios for South Africa	3
Stability scenario	3
Demographic scenario	7
Health/WaSH scenario	11
Agriculture scenario	13
Education scenario	17
Manufacturing scenario	21
Leapfrogging scenario	25
Free Trade scenario	30
Financial Flows scenario	33
Infrastructure scenario	38
Governance scenario	42
Impact of scenarios on carbon emissions	45
Endnotes	47
Donors and Sponsors	47
Reuse our work	47
Cite this research	47

## Sectoral Scenarios for South Africa

- Stability scenario
- Demographic scenario
- Health/WaSH scenario
- Agriculture scenario
- Education scenario
- Manufacturing scenario
- Leapfrogging scenario
- Free Trade scenario
- Financial Flows scenario
- Infrastructure scenario
- Governance scenario
- Impact of scenarios on carbon emissions



### Stability scenario

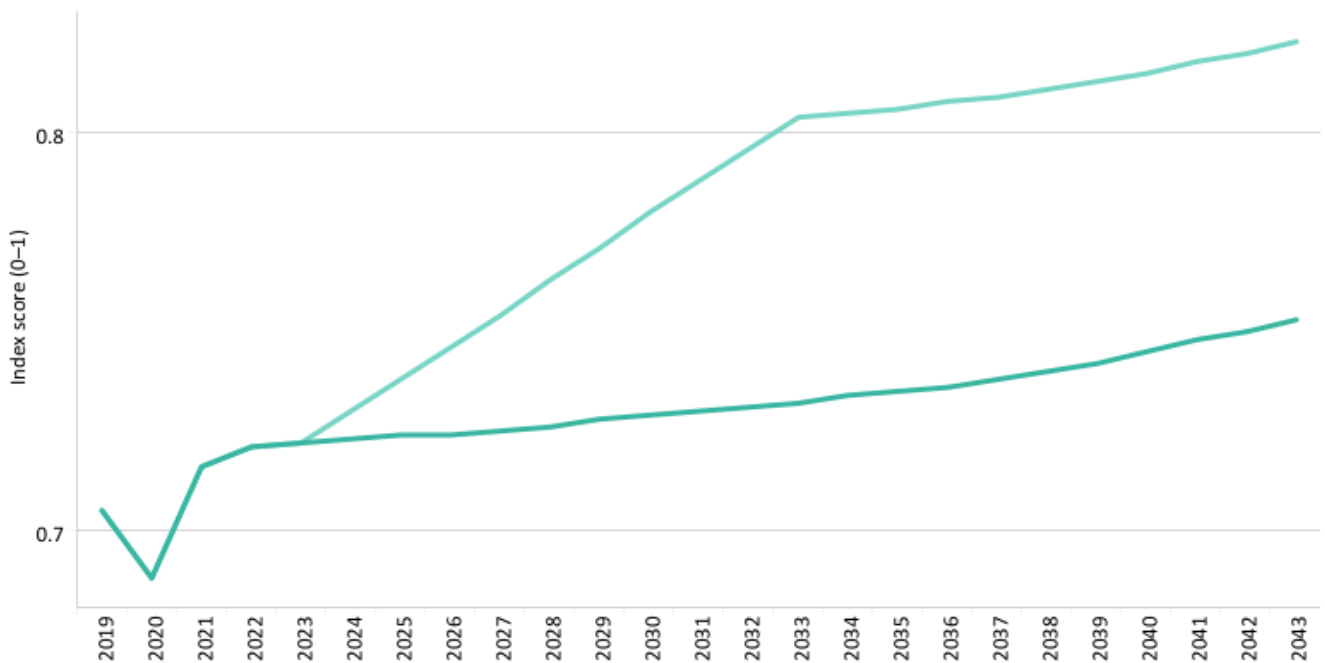
Chart 2 Chart 3 Chart 5 Chart 6 Chart 7 Chart 8 Chart 9 Chart 10 Chart 11 Chart 12 Chart 13 >

Chart 13: Governance security in CP and Stability scenario, 2019–2043

IFs index 0–1



South Africa



■ South Africa, Current ... ■ South Africa, Stability

Source: IFs 7.63 governance security index using internal war and government risk

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The Stability scenario represents reasonable but ambitious reductions in risk of regime instability and lower levels of



internal conflict including crime. Stability and the rule of law are generally a prerequisite for other aspects of development and encourage inflows of foreign direct investment (FDI) and improve business confidence. Better governance through the accountability that follows substantive democracy is modelled separately.

The intervention is explained in detail on the [Stability](#) theme.

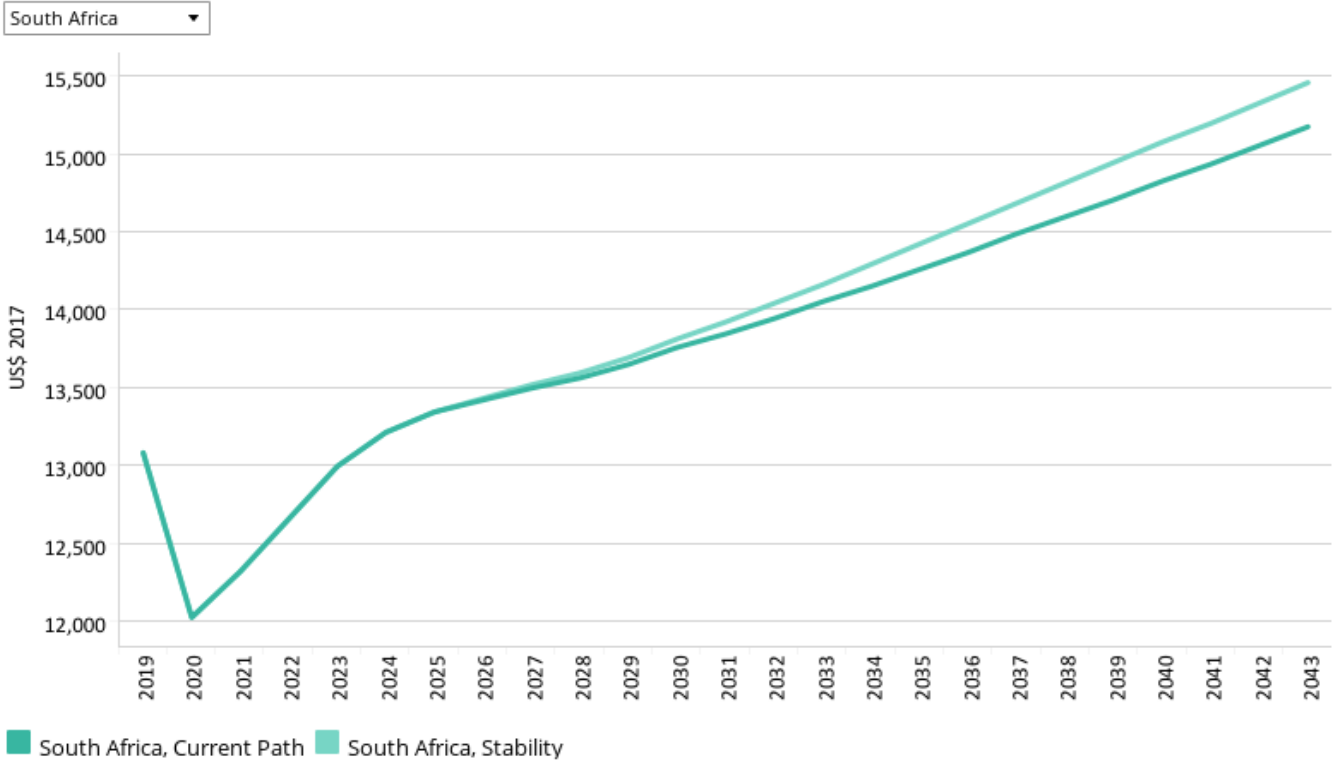
Homicides serve as a useful proxy for broader violence patterns in a society. According to data from the Global Burden of Disease Study 2017, [1] South Africa ranked sixth globally for homicide death rates among adult men and second globally for women, with most deaths occurring among those aged 15–64. The homicide death rate among children under 15 from violence, traffic accidents and communicable diseases (see [Charts 20](#) on life expectancy) is also particularly high. A separate 2018 study found that the yearly cost of violence against children alone came to nearly 5% of the GDP. [2] The overall burden of violence in South Africa was estimated to cost the economy as much as 13% of the GDP in 2016.[3] A 2023 report by the [World Bank](#) estimates that the impact of crime is 'at least 10 percent of GDP per year, comprising transfer, protection, and opportunity costs.'

Within IFs, high levels of crime from homicide rates impact social capital and translate into a drag on growth.

Because of its high levels of crime, including murder rates, the IFs governance security index ranks South Africa at 25th in Africa — although it is always important to recognise that South Africa is one of the few African countries that produces regular crime statistics. The result of its poor ranking on the index translates into lower than expected productivity when considering its levels of education and income.

The Stability scenario improves South Africa's security index by 9.3% in 2043 compared to the Current Path forecast.

**Chart 14: GDP per capita in CP and Stability scenario, 2019–2043**  
Purchasing power parity



Source: IFs 7.63 initialising from UN Population Division World Population Prospects and World Development Indicators data

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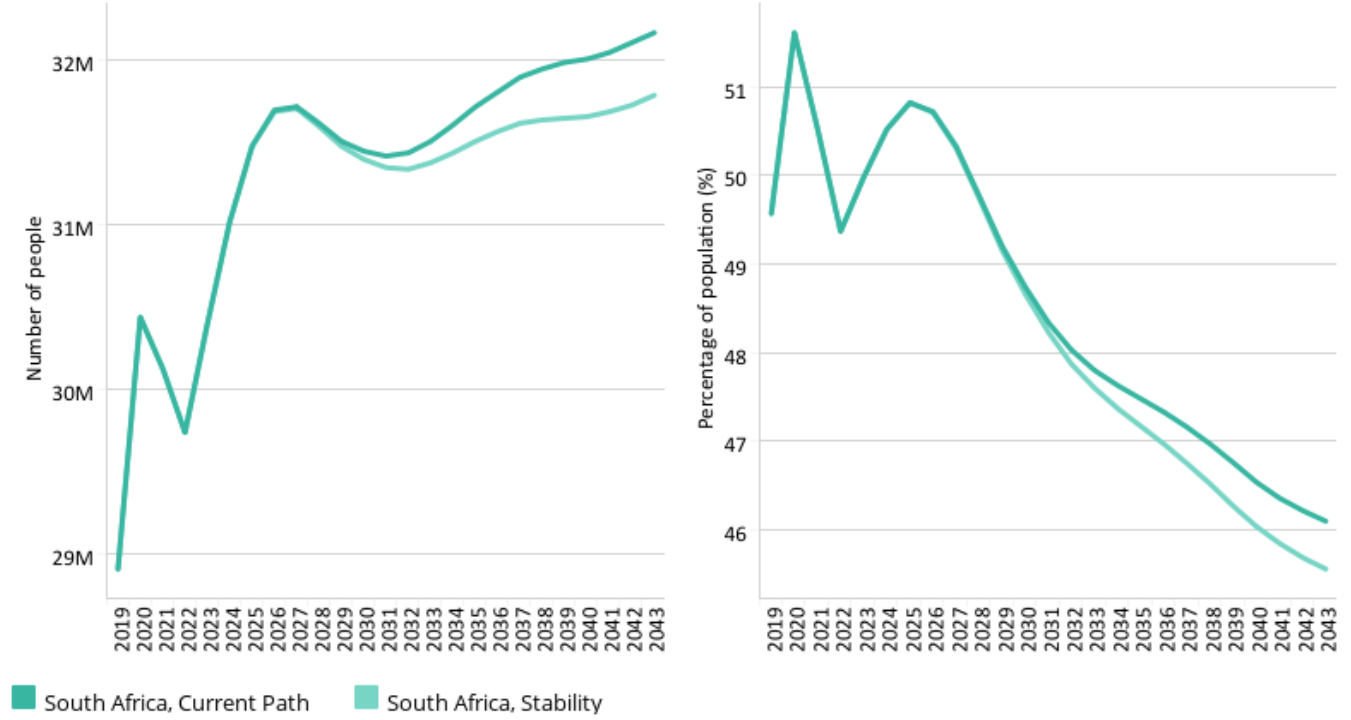
The GDP per capita in 2019 was US\$13 080 and is forecasted to improve to US\$15 173 in 2043 in the Current Path forecast. The Stability scenario improves the GDP per capita to US\$15 456, a modest improvement of US\$283 (2%).

According to the World Economic Forum, lack of security acts as a major deterrent to investment in South Africa (see [Chart 42](#)), as do issues relating to government adaptability, the lack of business dynamism because of its rigid labour market, and administrative burdens. [4] These issues detract from the attraction of its developed financial services, legal system and the quality of its democracy. Improved security from this scenario, therefore, has important forward linkages to improved governance and growth that are reflected in the Combined Agenda 2063 scenario.

**Chart 15: Poverty in CP and Stability scenario, 2019–2043**  
 Millions of people and % of total population



South Africa \$5.50



Source: IFs 7.63 initialising from UN Population Division Population Prospects estimate, World Development Indicators population data and DevPalNet World Bank data

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The Stability scenario reduces extreme poverty (using US\$1.90 per day) by 210 000 people compared to the Current Path forecast in 2043 and by 380 000 people using US\$5.50. Given the endemic nature of poverty in South Africa (standing at 49.6% in 2019), these are small reductions. Eventually, only rapid, inclusive economic growth will substantively alleviate extreme poverty in South Africa.



## Demographic scenario

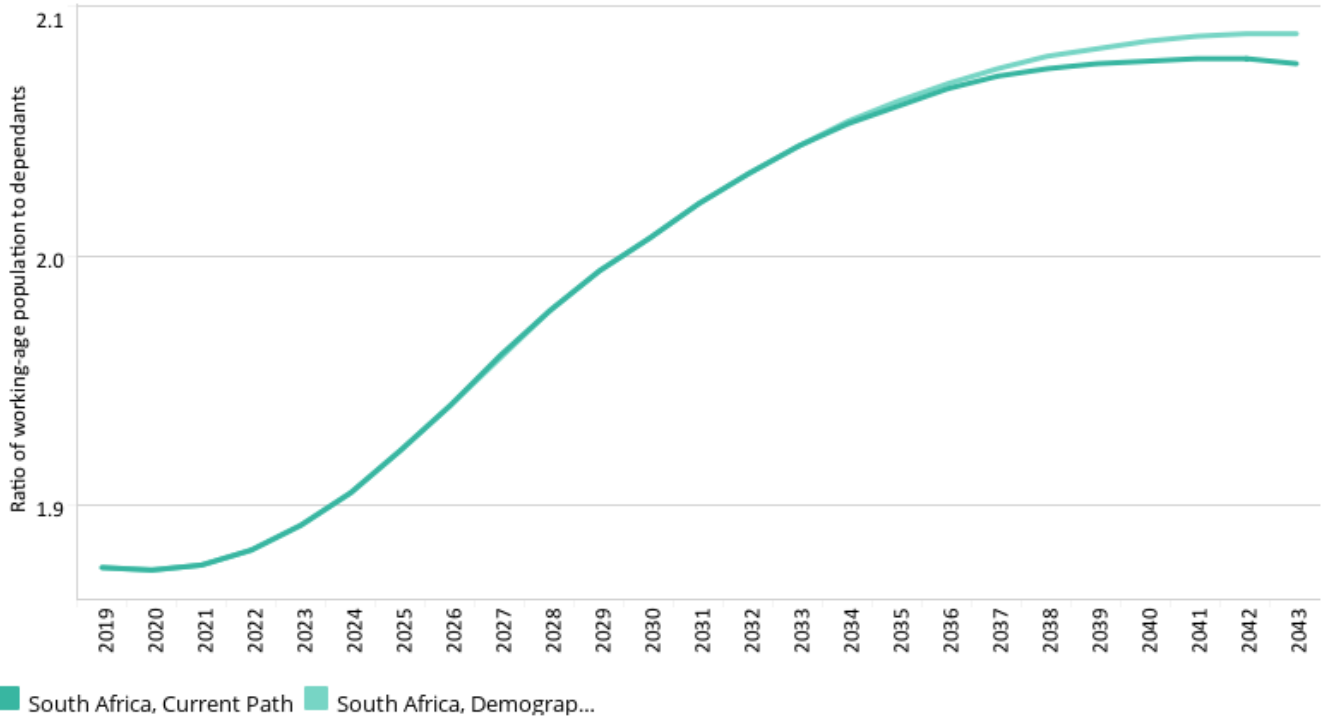
Chart 11 Chart 12 Chart 13 Chart 14 Chart 15 Chart 16 Chart 17 Chart 18 Chart 19 Chart 20 Chart 21

### Chart 16: Demographic dividend in CP and Demog scenario, 2019–2043

Ratio of working-age population to dependants



South Africa



Source: IFs 7.63 initialising from UN Population Division Population Prospects

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This section presents the impact of a Demographic scenario that aims to hasten and increase the demographic dividend through reasonable but ambitious reductions in the communicable-disease burden for children under five, the maternal mortality ratio and increased access to modern contraception.

The intervention is explained [here](#) in the thematic part of the website.

Demographers typically differentiate between a first, second and even a third demographic dividend. We focus here on the contribution of the size of the labour force (between 15 and 64 years of age) relative to dependants (children and the elderly) as part of the first dividend. A window of opportunity opens when the ratio of the working-age population to dependants is equal to or surpasses 1.7.

Key to South Africa's growth potential is its position in a window of demographic opportunity with the ratio of its working-age persons to dependants in 2019 already at 1.9:1. Only seven other African countries are in this fortunate position. Apart from Mauritius and Seychelles, the others are all in North Africa. In the Current Path forecast, South Africa's demographic dividend is still increasing and will peak at 2.1:1 in 2041 before starting to decline.

Outside Africa, most upper middle-income countries have passed their peak dividend and are already experiencing a decline in the ratio of working-age persons to dependants. South Africa's working-age population is, however, set to

increase from 65% of its total population in 2019 to 68% by 2043. The larger pool of workers could potentially accelerate rates of economic expansion

Given its existing positive location in the demographic transition, the Demographic scenario has limited impact on South Africa, slightly increasing the ratio of working-age persons to dependants by 2043.

The extent to which South Africa will be able to feed, educate and create employment opportunities for its large working-age population (as well as ensure that its workforce is healthy) is therefore very important.

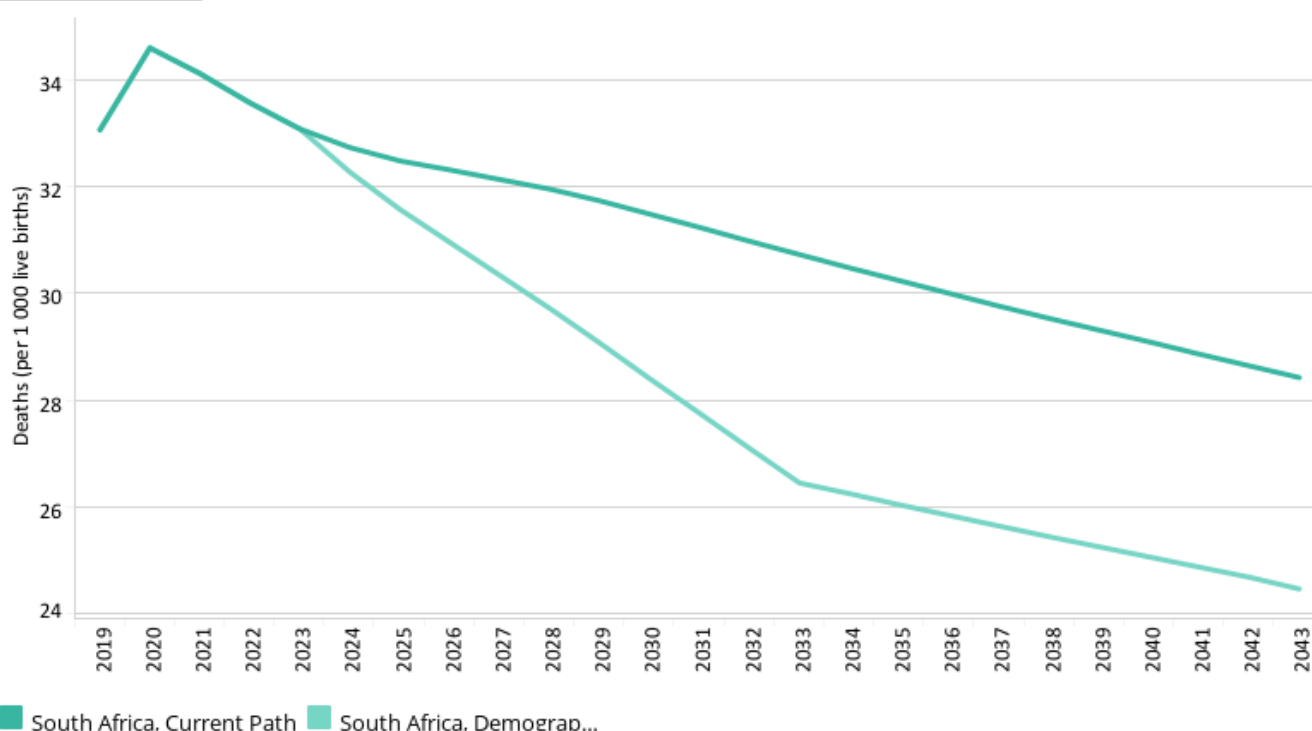
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**Chart 17: Infant mortality in CP and Demog scenario, 2019–2043**

Deaths per 1 000 live births



South Africa ▼



Source: IFs 7.63 initialising from Institute for Health Metrics and Evaluation Mortality Visualization Tool data

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The infant mortality rate is the number of infant deaths per 1 000 live births and is an important marker of the overall quality of the health system in a country.

In 2019, infant deaths per 1 000 live births in South Africa were almost three times the average of upper middle-income countries globally (33.1 vs 12.2), mostly due to HIV infections. And, while the average for upper middle-income countries globally can expect a near halving of infant mortality rates by 2043 (to 7.5), the Current Path forecast for South Africa in 2043 is still an extraordinarily high 28.4 deaths per 1 000 live births. At that point, infant mortality rates in South Africa will even be above the rates for low and lower middle-income countries globally, largely due to the lingering impact of HIV/AIDS. In the Demographic scenario, South Africa's rates decline to 24.5 in 2043, a reduction of 14% on the Current Path forecast.

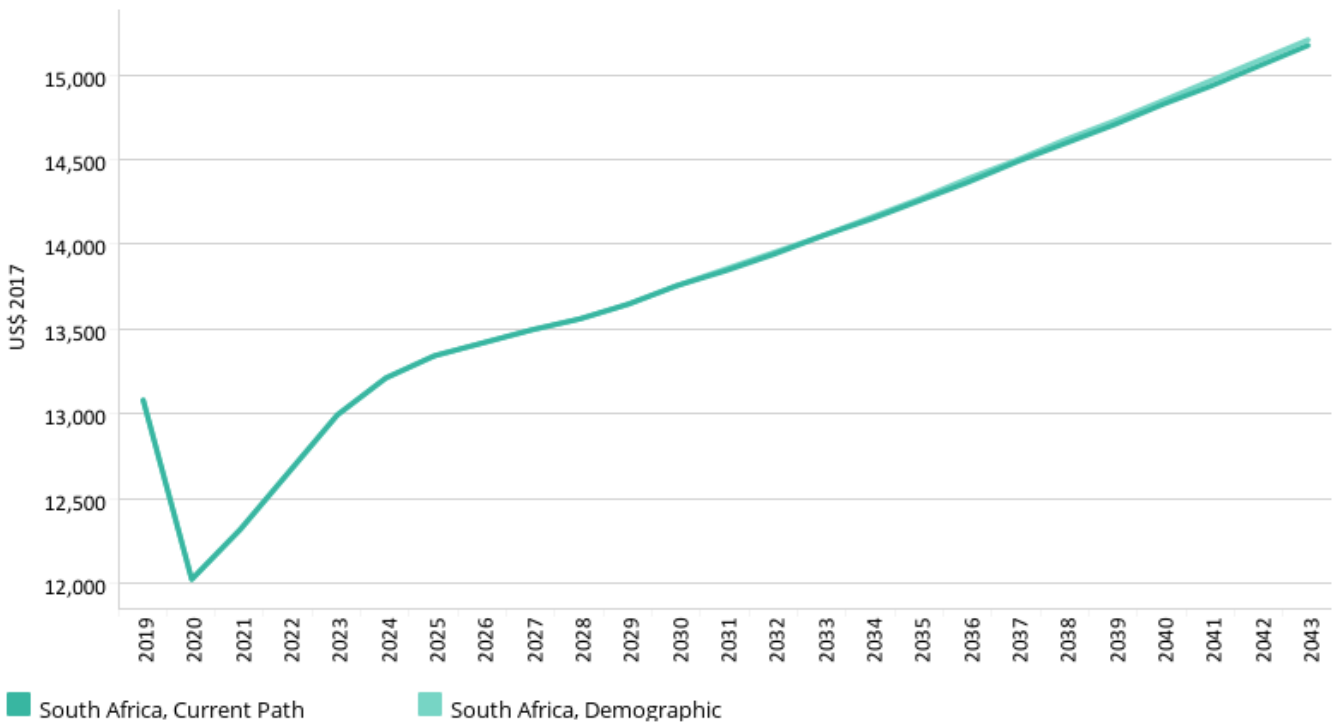


### Chart 18: GDP per capita in CP and Demog scenario, 2019–2043

Purchasing power parity



South Africa



Source: IFs 7.63 initialising from UN Population Division World Population Prospects and World Development Indicators data

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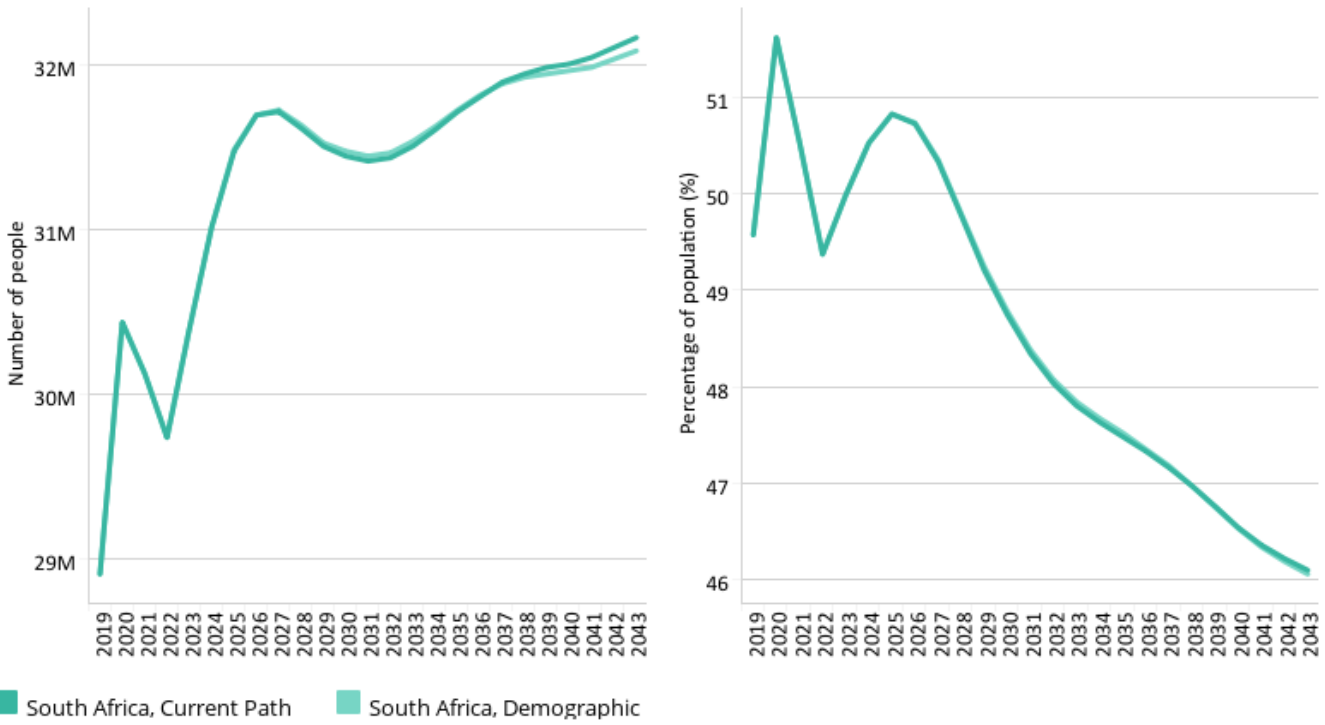
Because South Africa is already experiencing a first demographic dividend, the impact of the Demographic scenario on the GDP per capita is negligible. The GDP per capita in South Africa increases from US\$13 080 in 2019 to US\$15 206 in 2043 in the Demographic scenario, US\$33 above the Current Path forecast for the same year. The income gap between South Africa and the average for upper middle-income countries in Africa will continue to grow throughout the forecast horizon.

### Chart 19: Poverty in CP and Demog scenario, 2019–2043

Millions of people and % of total population



South Africa \$5.50



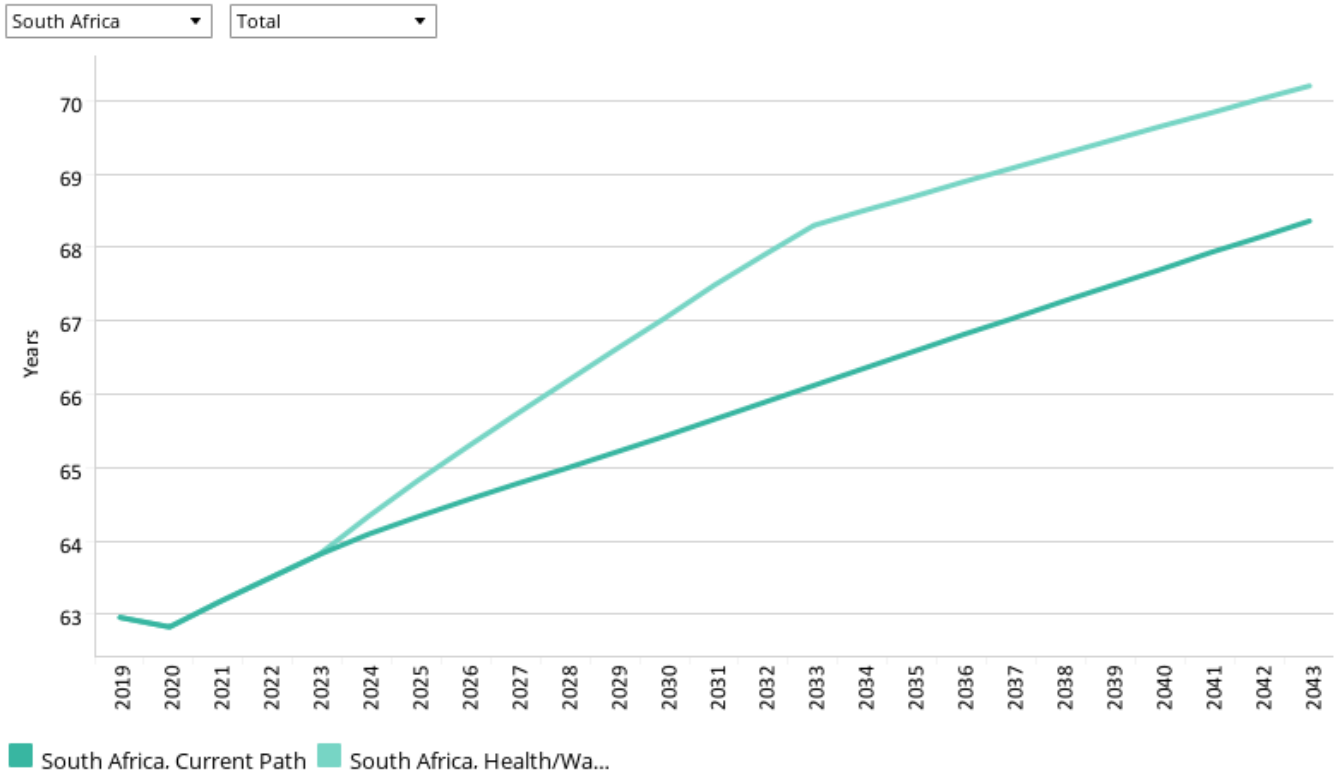
Source: IFs 7.63 initialising from UN Population Division Population Prospects estimate, World Development Indicators population data and DevPalNet World Bank data

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As South Africa is already experiencing a first demographic dividend, the impact of the Demographic scenario on rates of extreme poverty is modest, reducing extreme poverty by 30 000 persons in 2043 compared to the Current Path forecast using US\$1.90 and 80 000 using US\$5.50. Given the high rates of extreme poverty in South Africa, these are marginal reductions.



Chart 20: Life expectancy in CP and Health/WaSH scenario, 2019–2043



Source: IFs 7.63 initialising from Institute for Health Metrics Evaluation GBD Foresight Tool data

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This section presents reasonable but ambitious improvements in the Health/WaSH scenario, which include reductions in the mortality rate associated with both communicable diseases (e.g. AIDS, diarrhoea, malaria and respiratory infections) and non-communicable diseases (NCDs) (e.g. diabetes), as well as improvements in access to safe water and better sanitation. The acronym WaSH stands for water, sanitation and hygiene.

The intervention is explained [here](#) in the thematic part of the website.

Life expectancy at birth is one of the best aggregate measures of health and well-being and a powerful tool in explaining the huge drag that poor human capital in South Africa has on economic growth.

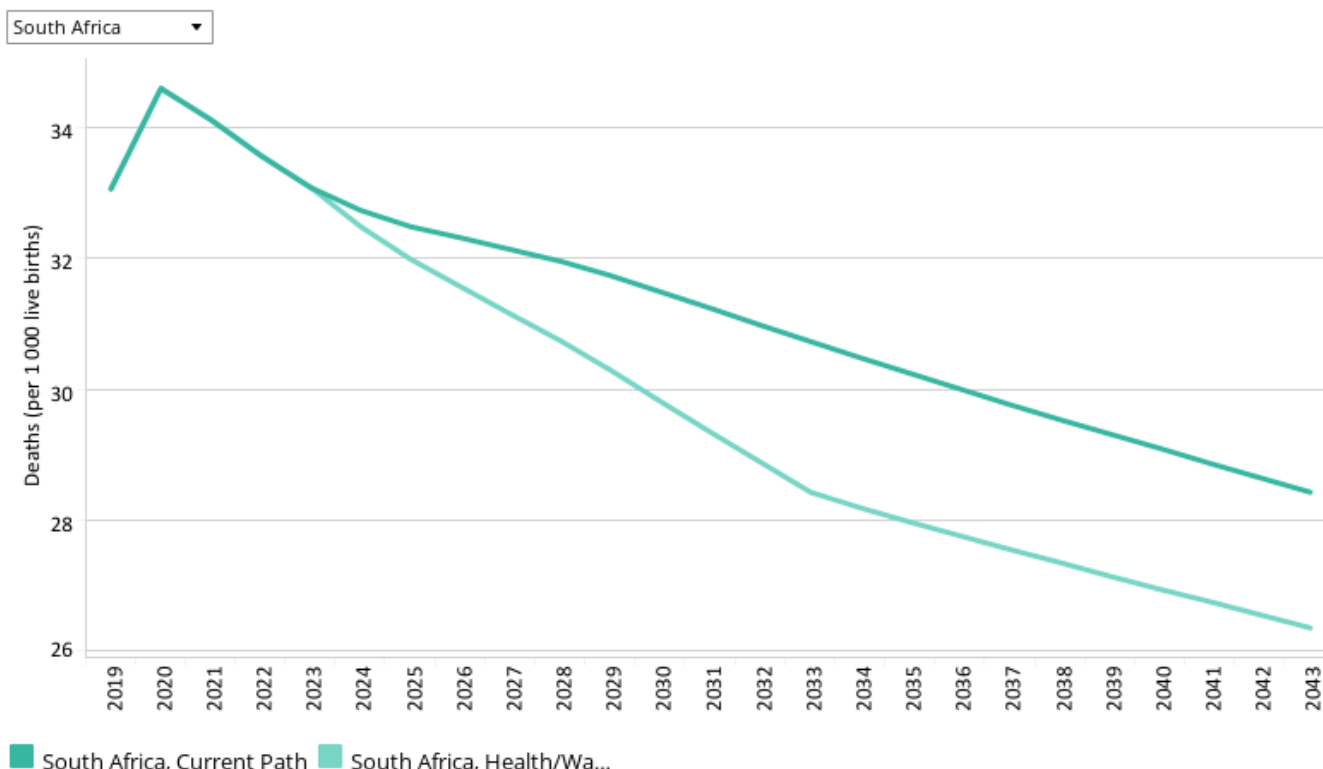
At the height of the HIV/AIDS scourge in 2006, life expectancy in South Africa was a mere 51 years, compared to an average of 72 years for upper middle-income countries globally. South Africa's life expectancy has subsequently recovered to its previous trajectory, but in 2019 it was still 13 years below that of upper middle-income countries globally (63 years vs 76 years) in large part due to an unusually high burden of communicable diseases, in particular HIV/AIDS and tuberculosis. In 2019, South Africa's life expectancy was also lower than the average for upper middle-income countries in Africa by 1.7 years and lower than the average for Africa by 2.8 years. The Current Path forecast is that the gap between South Africa and the average for upper middle-income countries globally will remain relatively constant to 2043. In the Health/WaSH scenario, life expectancy in South Africa improves by 1.8 years above the Current Path forecast by 2043, to 70.2 years.

Signing the Presidential Health Compact in July 2019, President Ramaphosa publicly acknowledged the crisis in South Africa’s health system. The biggest obstacles to achieving improved health outcomes are a poorly functioning public healthcare system, over-servicing and inflated costs in the private healthcare system, and public debt. [5]

Better management and more competition are vital, but given poor efficiencies and high debt levels, South Africa will struggle to implement the National Health Insurance scheme as envisioned in its 2017 White Paper.

▼ < Chart 16 Chart 17 Chart 18 Chart 19 Chart 20 Chart 21 Chart 22 Chart 23 Chart 24 Chart 25 Chart >

**Chart 21: Infant mortality in CP and Health/WaSH scenario, 2019–2043**  
Deaths per 1 000 live births



Source: IFs 7.63 initialising from Institute for Health Metrics and Evaluation Mortality Visualization Tool data

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In 2019, South Africa had an infant mortality rate of 33.1 deaths per 1 000 live births (the 13th highest in Africa, largely as a result of HIV infections), forecast to decline to 28.4 by 2043 in the Current Path forecast. Similar to life expectancy, the difference between rates of infant mortality in South Africa and the average for upper middle-income countries globally is large.

In the Health/WaSH scenario, South Africa reduces the rate of infant mortality to 26.3 by 2043 — a reduction of 7.4% below the Current Path forecast.



## Agriculture scenario

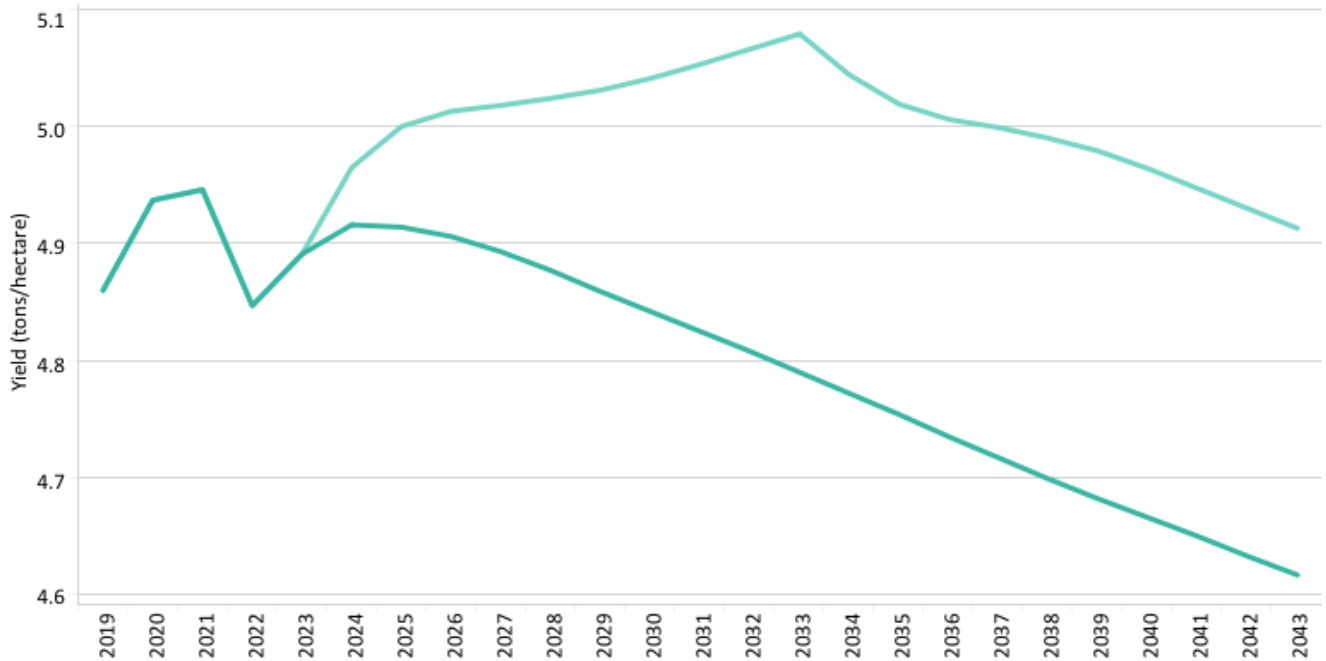
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### Chart 22: Yield/hectare in CP and Agric scenario, 2019–2043

Pre-loss levels



South Africa



South Africa. Current ... South Africa. Agricult...

Source: IFs 7.63 initialising from FAOSTAT on-line statistical service data

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The Agriculture scenario represents reasonable but ambitious increases in yields per hectare (reflecting better management and seed and fertilizer technology), increased land under irrigation and reduced loss and waste. Where appropriate, it includes an increase in calorie consumption, reflecting the prioritisation of food self-sufficiency above food exports as a desirable policy objective.

The intervention is explained [here](#) in the thematic part of the website.

The data on yield per hectare (in metric tons) is for crops but does not distinguish between different categories of crops.

In 2019, South Africa produced 4.9 metric tons of crops per hectare, which is forecast to decline to 4.6 tons by 2043, largely due to the impact of climate change.

Initialising from IPCC data, IFs includes country-level estimations of the impact of increased carbon emissions. These are that South Africa would likely experience an average of above 1 °C warming from 2019 to 2043 and a 2.6% decline in precipitation that results in an average agricultural yield decline of 4%. The 2019 situation was that crop yields in South Africa were the 12th highest in the continent, although substantially below countries such as Mauritius, Eswatini and Egypt, albeit slightly higher than the average for upper middle-income countries in Africa.



In the Agriculture scenario, yields improve by 6.3% in 2043, compared to the Current Path forecast, reversing the decline in the Current Path. This is likely if a suite of adaptation mechanisms is employed by the agricultural sector to mitigate the negative impacts of climate change.

South Africa's agriculture sector consists of a small but highly productive private sector and large expanses of subsistence and smallholder farming in the former apartheid homelands. The ownership of private farming land is skewed in favour of large commercial farmers while productivity in the former homelands is constrained by traditional land tenure practices. Both trajectories paint a worrisome picture for food security given the growth in population expected throughout the forecast horizon.

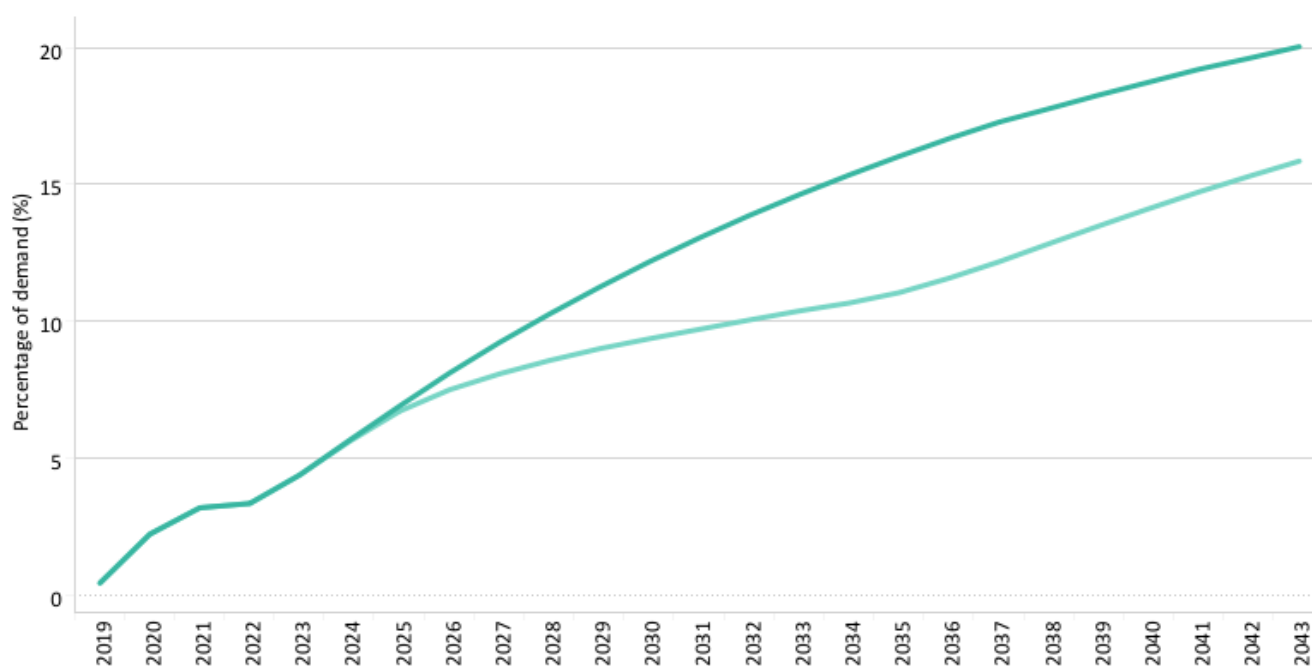
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### Chart 23: Agriculture imports in CP and Agric scenario, 2019–2043

Net imports for meat, crops and fish, % of demand



South Africa



South Africa, Current Path South Africa, Agriculture

Source: IFs 7.63 initialising from Food and Agriculture Organization Food Balance Sheets data

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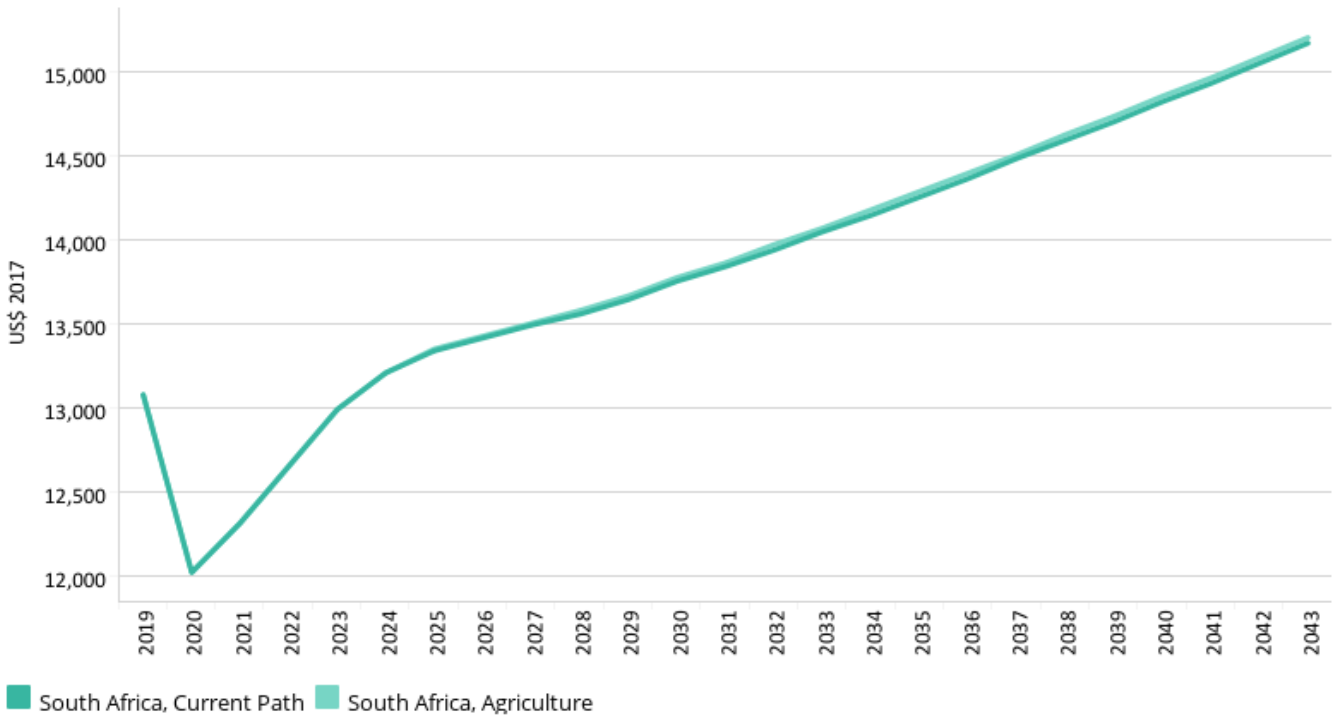
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In spite of its small agriculture sector, South Africa is one of the few African countries that are largely food secure, and the country makes a significant contribution to the food required in the SADC region. [6] The future situation is, however, less promising. In the Current Path forecast, South Africa's dependence on agricultural crop imports grows to 20% of demand in 2043; in the Agriculture scenario, it is 15.9%.

Chart 24: GDP per capita in the CP and Agric scenario, 2019–2043  
Purchasing power parity



South Africa



Source: IFs 7.63 initialising from UN Population Division World Population Prospects and World Development Indicators data

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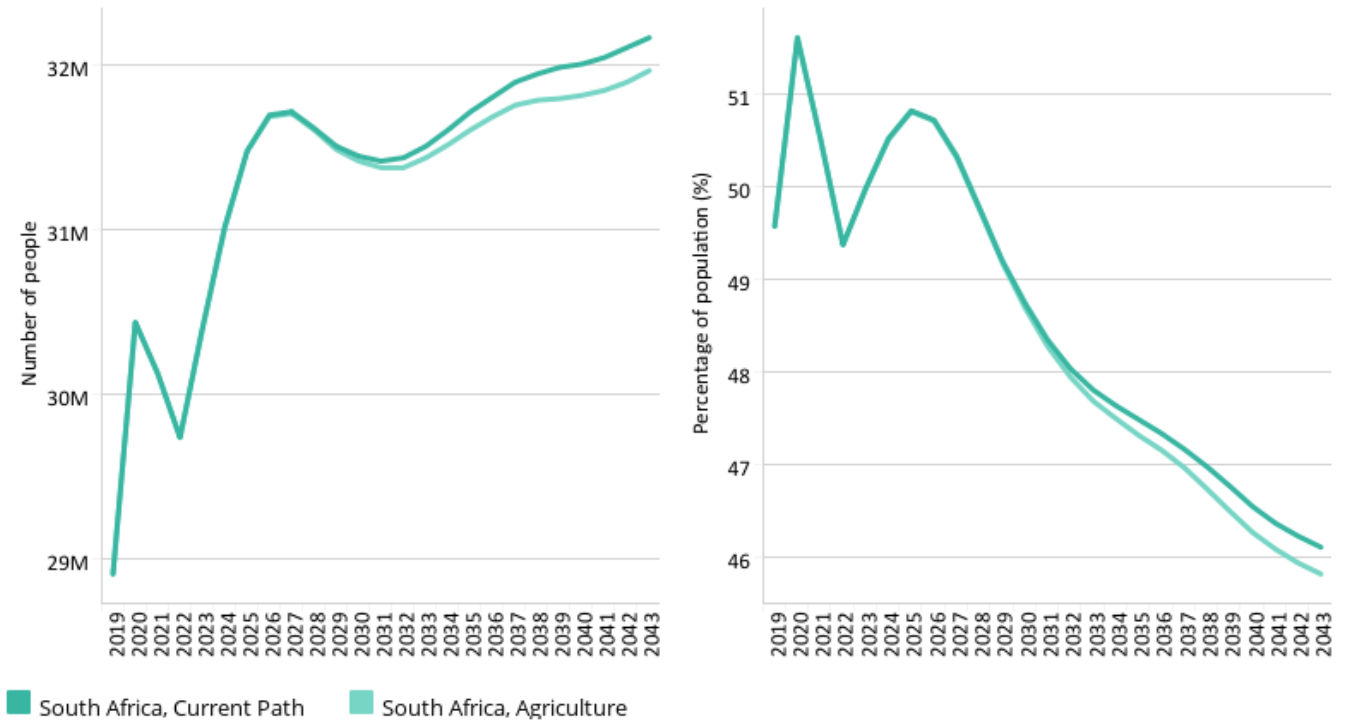
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In 2019, South Africa’s GDP per capita was US\$13 080 per person, improving to US\$15 173 by 2043 in the Current Path forecast. Given the small size of the agriculture sector, accounting for 2.1% of the GDP in 2019, the 6% improvement in yields (Chart 22) has little impact on the GDP per capita. The Agricultural Scenario improves per capita income to US\$15 206 — an improvement of US\$33 above the Current Path forecast. There is, however, the significant potential to improve the livelihoods of subsistence and small-scale farmers in the former homelands.

**Chart 25: Poverty in CP and Agric scenario, 2019–2043**  
Millions of people and % of total population



South Africa \$5.50



Source: IFs 7.63 initialising from UN Population Division Population Prospects estimate, World Development Indicators population data and DevPalNat World Bank data

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Improving the contribution that the agriculture sector makes to poverty alleviation in South Africa requires land reform, particularly in the former homelands and the release of large tracts of government-owned land for productive use, together with appropriate support of new farmers. South Africa can increase land under cultivation using available state-owned land and tenure reform in the former homeland areas.

In the Agriculture scenario, the poverty rate will decrease from 49.1% in 2019 to 45.8% by 2043. Poverty rates will however still be above the average for upper middle-income economies in Africa.

The Agriculture scenario will result in a modest 204 000 fewer people in extreme poverty by 2043 (using US\$5.50) compared to the Current Path forecast. The number of people living in extreme poverty in 2043 will be 31.7 million in the Agriculture scenario, compared to 32.1 million in the Current Path forecast.



## Education scenario

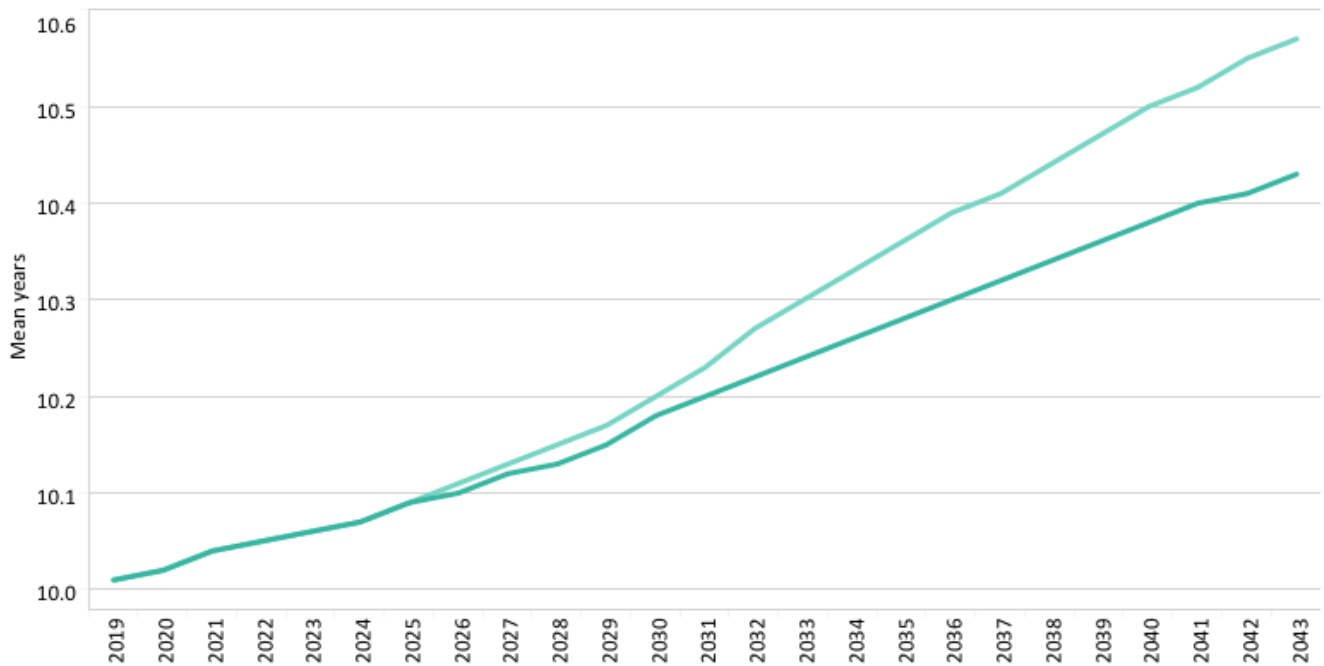
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### Chart 26: Mean years of education in CP and Educ scenario, 2019–2043

Mean years of adult (+15) education



South Africa ▼ Total ▼



■ South Africa. Current ... ■ South Africa. Educati...

Source: IFs 7.63 initialising from Barro-Lee data

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The Education scenario represents reasonable but ambitious improved intake, transition and graduation rates from primary to tertiary levels and better quality of education. It also models substantive progress towards gender parity at all levels, additional vocational training at secondary school level and increases in the share of science and engineering graduates.

The intervention is explained [here](#) in the thematic part of the website.

With the advent of democracy, the South African education system has had to compensate for successive generations of low spending on blacklearners. This challenge has been compounded by considerable policy incoherence, bad management, corruption, aggressive unionisation and insufficient focus on technical and vocational education at secondary and at tertiary levels — an issue that is now attracting more government attention.

In contrast to its poor indices in health, South Africa provides more education than comparable global and African averages. Mean years of adult (15 years and older) education in 2019 was 10 years in South Africa, two years above the mean for upper middle-income countries globally and almost four years more than the average for Africa. Young South Africans (15 to 24 years of age) have an even larger advantage. In the Current Path forecast, the mean years of adult education in South Africa would improve to 10.4 years in 2043.

In 2019, government spending on education was at 5.2% of the GDP, almost two percentage points above the average for upper middle-income countries globally and one percentage point above the average for Africa. In 2019, South Africa had the 16th largest education expenditure in Africa (as a per cent of GDP) but in absolute numbers, it had the largest education budget in Africa.

In the Education scenario, South Africa's mean years of adult education modestly increase by 0.2 years to 10.6 years in 2043. Because the intervention is also aimed at closing the gap between males and females, the improvements in mean years of female education are larger.

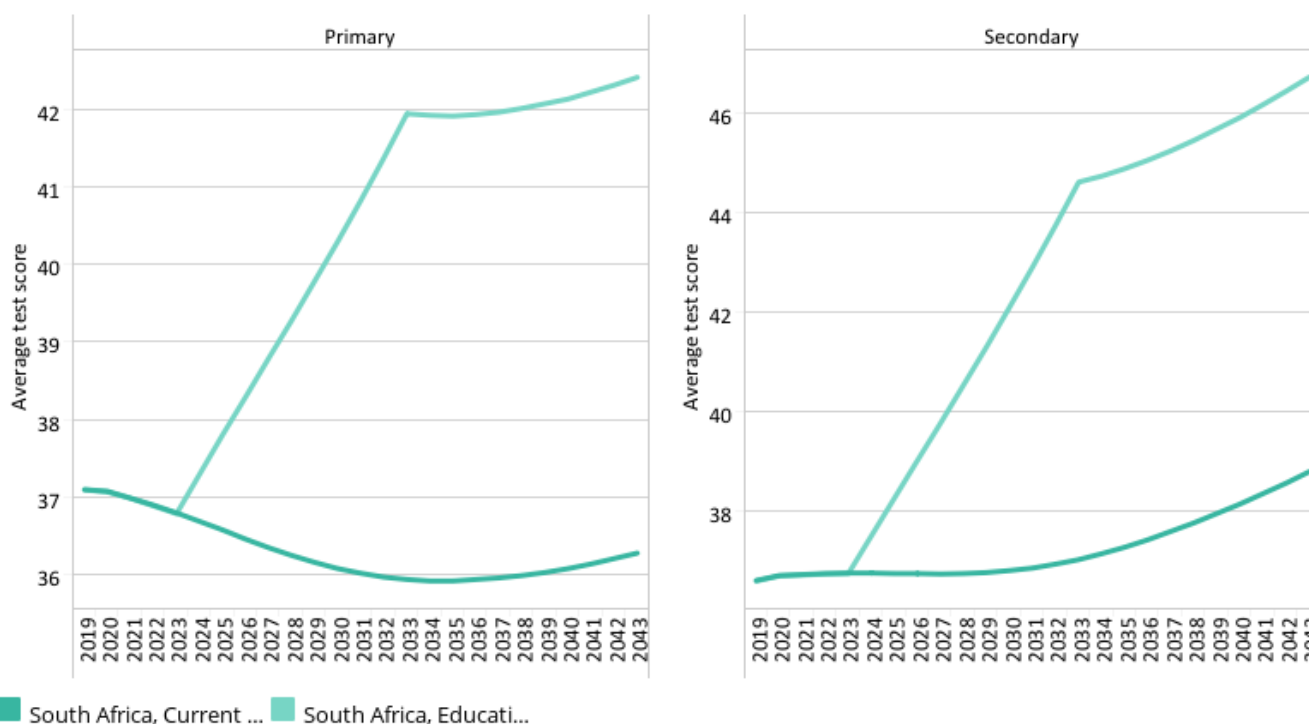
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### Chart 27: Education quality in CP and Educ scenario, 2019–2043

Average test scores for primary and secondary learners



South Africa ▼



Source: IFs 7.63 initialising from World Bank EDSTATS

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South Africa's high levels of mean years of education (quantity) compared to its peers are, however, offset by poor scores in education quality. In 2019, the South African average of 37 out of a possible 100 for both primary and secondary education test scores, scoring seven and three percentage points below the average for upper middle-income countries globally.

The Current Path gap between South Africa and the average for upper middle-income countries globally is forecast to increase to 2043, largely due to the impact of lower levels of spending on education as the economy is forecast to grow slowly. The Education scenario improves primary and secondary quality scores by 17% and 21% respectively in 2043.

A comprehensive report [7] identified four binding constraints to improved educational outcomes in South Africa for learners from low- income backgrounds:



- Weak institutional functionality impacting most negatively at the provincial level.
- Undue union influence.
- Teachers' lacking basic levels of content knowledge and pedagogical skills.
- Wasted learning time and insufficient opportunity to learn.

The result, the report found, is that around 60% of South African children did not learn to read for meaning in any language by the end of Grade 3.

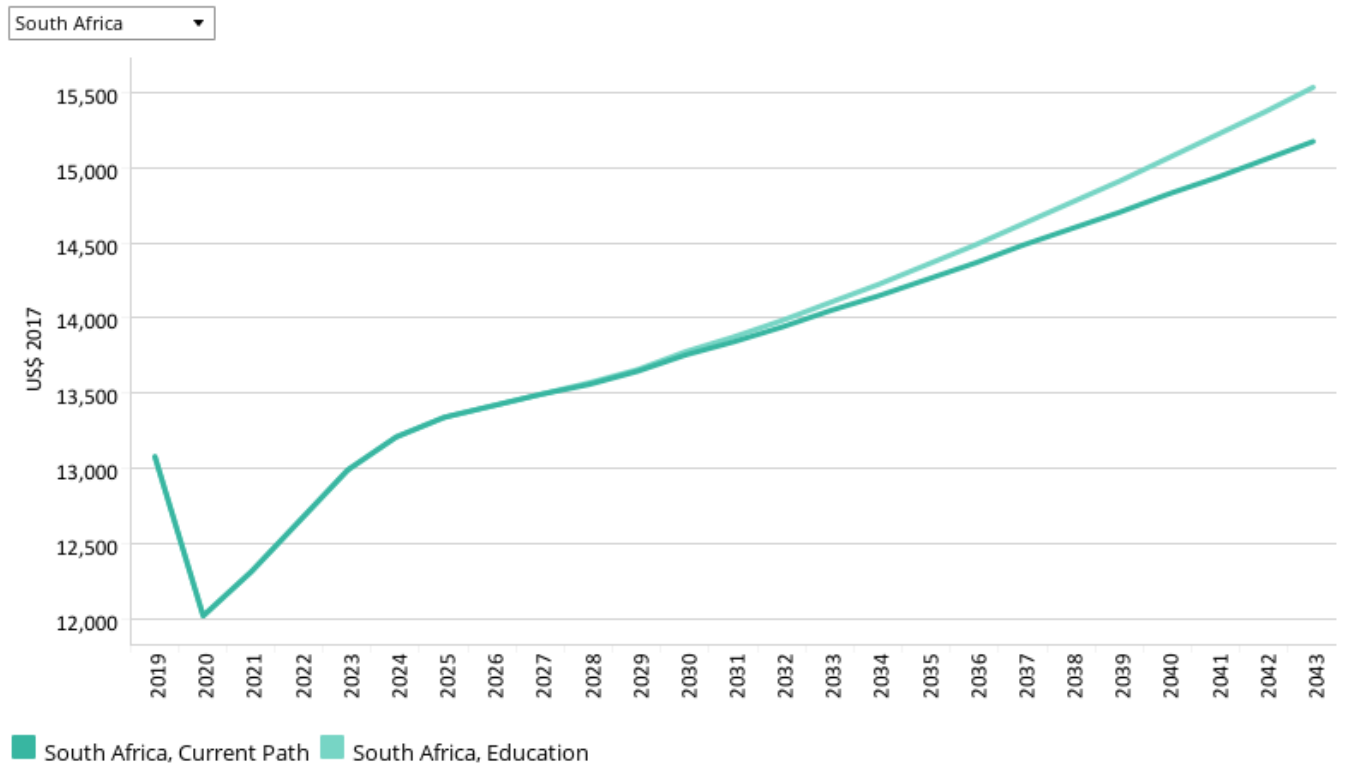
South Africa has no vocational enrolment at lower secondary levels, and at the upper secondary level in 2016 its proportion of learners in vocational training (12%) was very low. [8]

Data on the National Senior Certificate (NSC) also speaks to the lack of preparation among learners to enter science, technology and mathematics (STEM) fields. [9]

These concerns have been amplified by the COVID-19 pandemic that has disrupted education in South Africa and elsewhere, with likely learning loss experienced disproportionately by more vulnerable learners.

Navigation bar: < Chart 23 Chart 24 Chart 25 Chart 26 Chart 27 Chart 28 Chart 29 Chart 30 Chart 31 Chart 32 Chart >

**Chart 28: GDP per capita in CP and Educ scenario, 2019–2043**  
Purchasing power parity



Source: IFs 7.63 initialising from UN Population Division World Population Prospects and World Development Indicators data

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The GDP per capita was US\$13 080 in 2019, improving to US\$15 173 in the Current Path forecast. In the Education

scenario, the GDP per capita improves to US\$15 533 in 2043, an increase of 2.4% (US\$360) in 2043.

### Chart 29: Poverty in CP and Educ scenario, 2019–2043

Millions of people and % of total population



South Africa \$5.50



Source: IFs 7.63 initialising from UN Population Division Population Prospects estimate, World Development Indicators population data and DevPalNet World Bank data

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Given high levels of unemployment and inequality, the Education scenario has limited impact on extreme poverty. Using US\$1.90, it reduces the number of South Africans in extreme poverty by 390 000 in 2043. Using US\$5.50, it reduces the number of South Africans in extreme poverty by 600 000 in 2043.



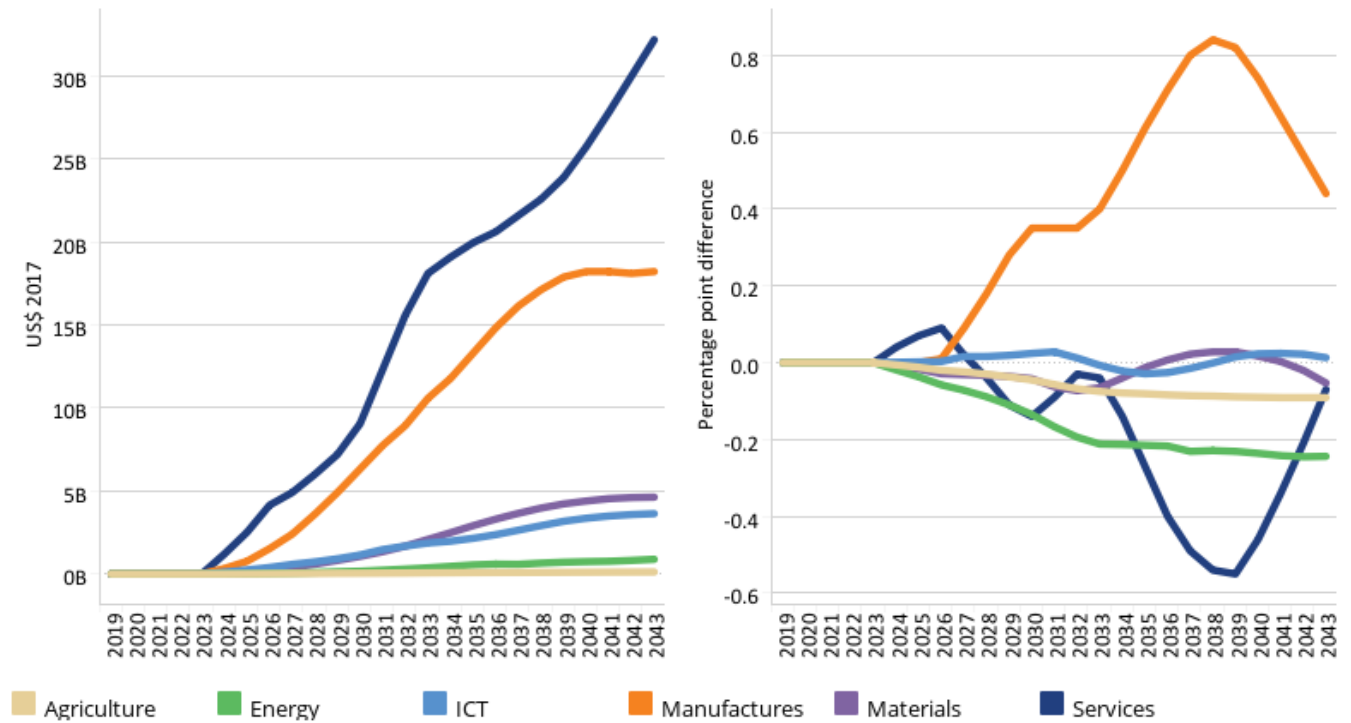
## Manufacturing scenario

Chart 25 Chart 26 Chart 27 Chart 28 Chart 29 Chart 30 Chart 31 Chart 32 Chart 33 Chart 34 Chart

### Chart 30: Value added by sector in CP and Manufac/Transfers scenario, 2019-2043



South Africa



Source: IFs 7.63 initialising from International Monetary Fund World Economic Outlook database

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The Manufacturing/Transfers scenario represents reasonable but ambitious manufacturing growth through greater investment in the economy, investments in research and development, and promotion of the export of manufactured goods. It is accompanied by an increase in welfare transfers (social grants) to moderate the initial increases in inequality that are typically associated with a manufacturing transition. To this end, the scenario improves tax administration and increases government revenues.

The intervention is explained [here](#) in the thematic part of the website.

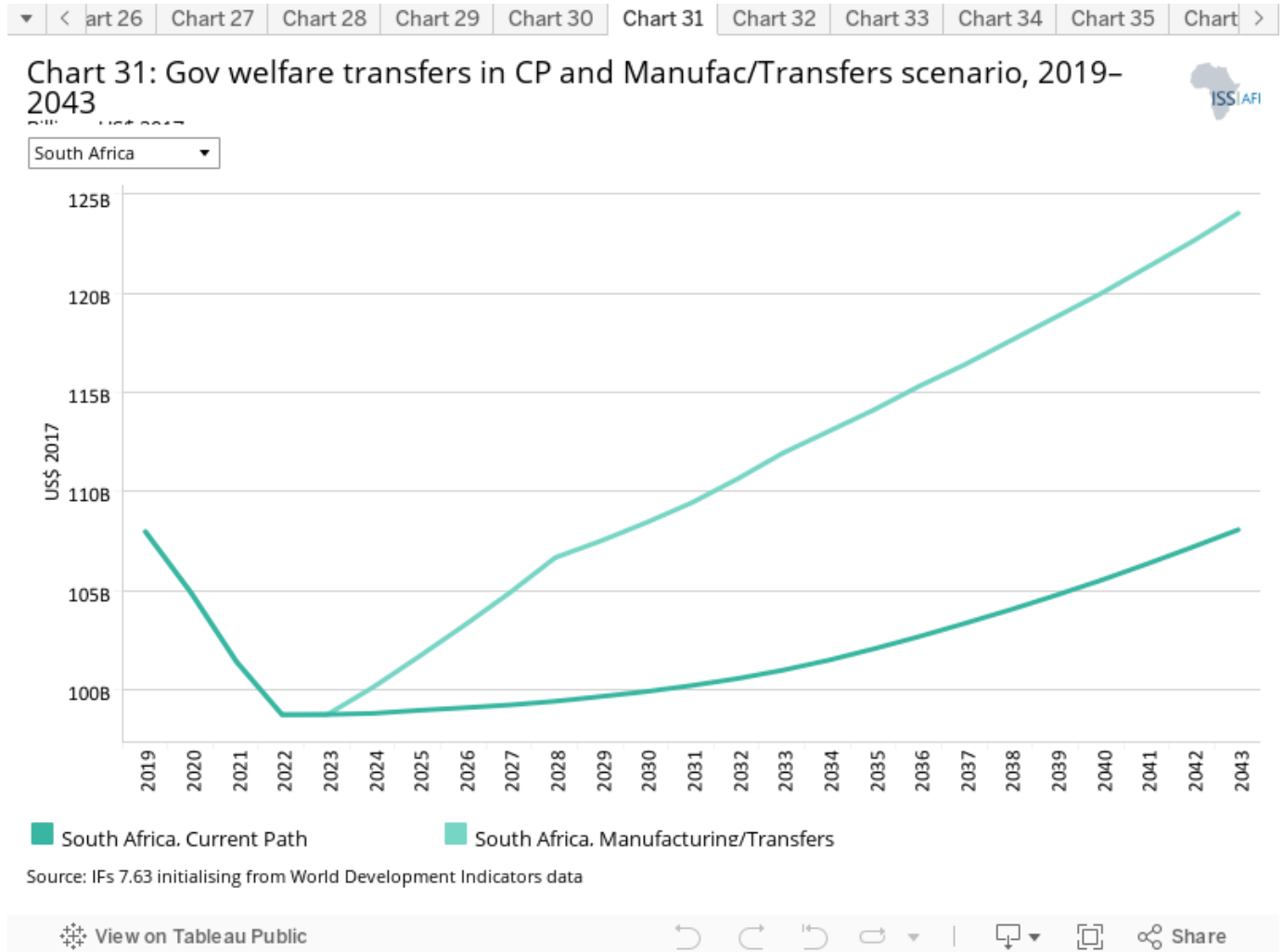
Chart 30 should be read with Chart 8 that presents a stacked area graph on the contribution to GDP and size, in billion US\$, of the Current Path economy for each of the sectors.

During his June 2019 State of the Nation address, President Ramaphosa spoke about the need to ‘rebuild the foundations of our economy by revitalising and expanding the productive sectors’ that ‘requires us to reimagine our industrial strategy, to unleash private investment and energise the state to boost economic inclusion.’ [10]

Instead of an economy that is US\$694.4 billion in size in 2043, the Manufacturing/Transfers scenario results in an economy that is US\$98.9 billion larger at US\$793.3 billion, a difference of 8%. The main reason for this increase is the increase in the size of the manufacturing sector that contributes 0.44 percentage points more to the GDP in 2043 compared to the

Current Path forecast. Hence the manufacturing sector is US\$18.2 billion larger in 2043 compared to the Current Path forecast and the service sector US\$32.2 billion larger.

The ICT sector also grows by an additional 0.01 percentage points as a result of the Manufacturing/Transfers scenario. All other sectors decline in their contribution, although, since the economy is growing more rapidly, all are larger.



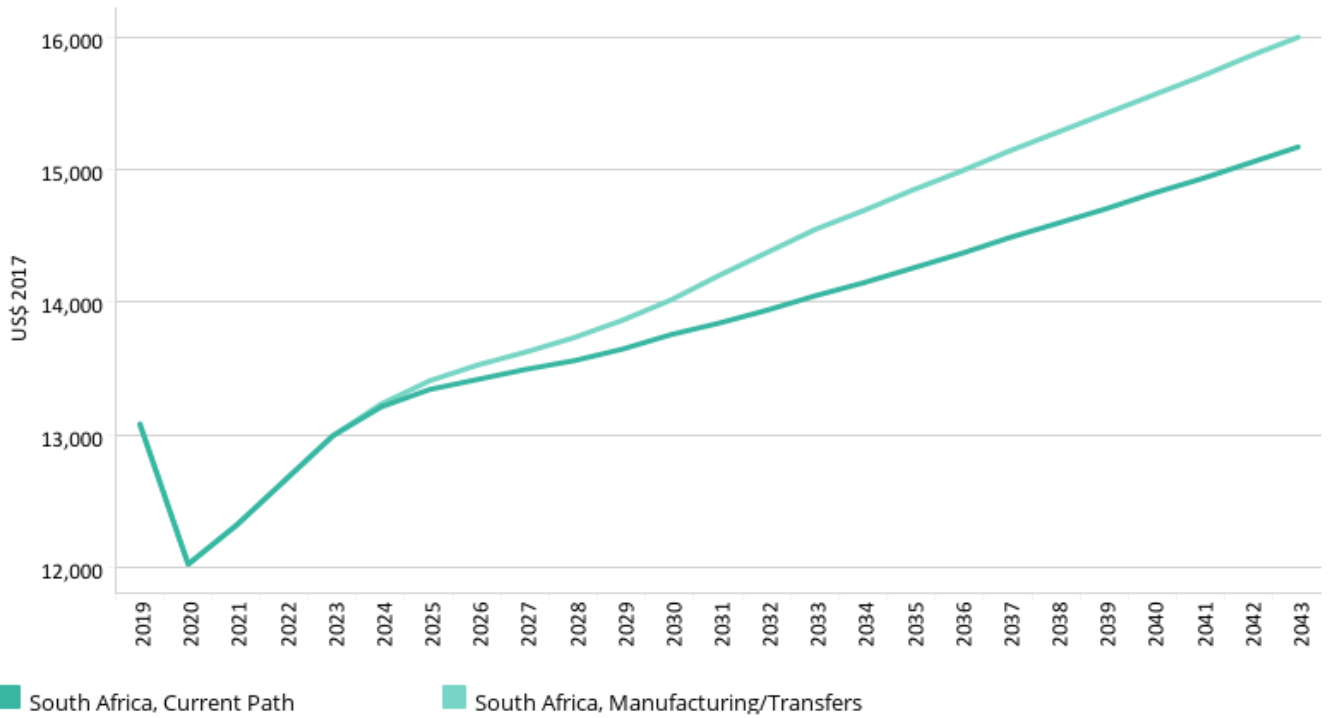
In an effort to reduce inequality and extreme poverty, South Africa has a progressive tax regime and already allocates a significant portion of government expenditure to social grants/transfers. In the Manufacturing/Transfers scenario, transfers to unskilled workers are increased from US\$108.07 billion in the Current Path forecast to US\$124.04 billion in 2043 — a difference of almost US\$16 billion.

### Chart 32: GDP per capita in CP and Manufac/Transfers scenario, 2019–2043

Purchasing power parity



South Africa



Source: IFs 7.63 initialising from UN Population Division World Population Prospects and World Development Indicators data

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The Manufacturing/Transfers scenario will have a significant impact on the GDP per capita of South Africa in 2043, increasing it by 5.5% (US\$828) above the Current Path forecast. The GDP per capita is expected to increase by 2043 to US\$16 001 compared to US\$15 173 in the Current Path forecast.

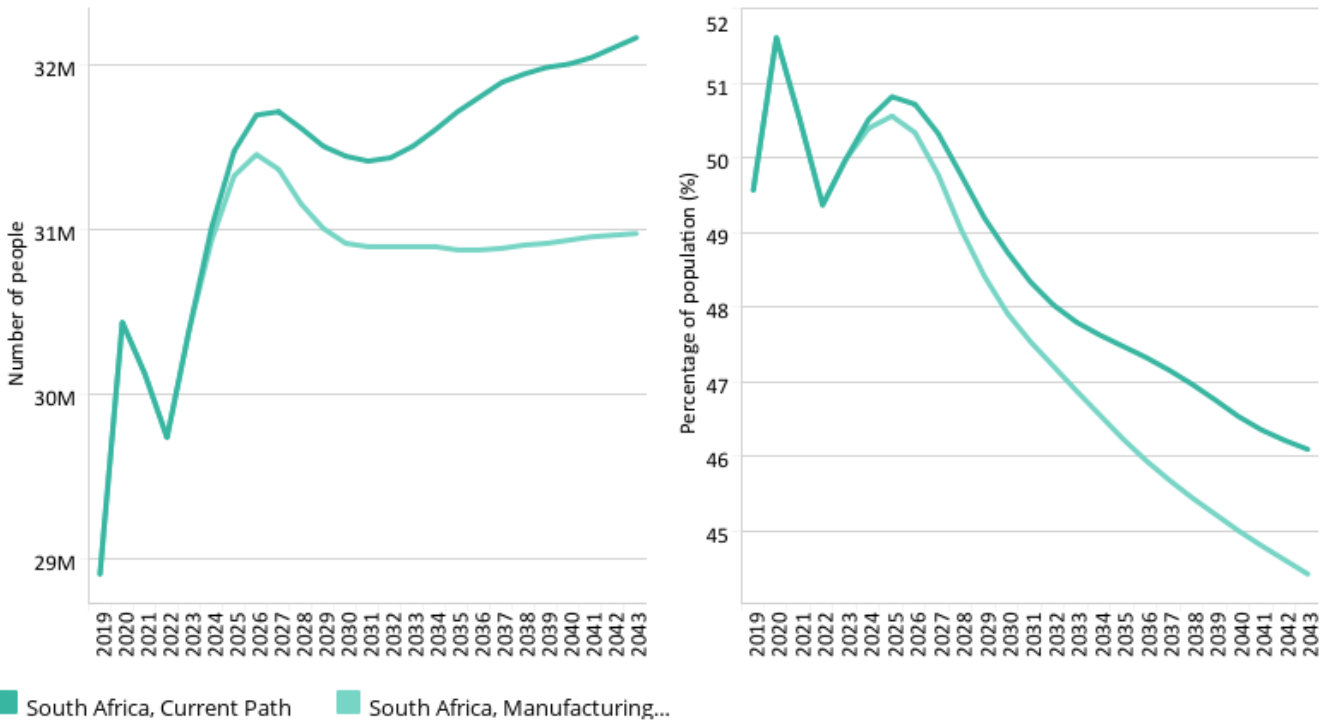


### Chart 33: Poverty in CP and Manufac/Transfers scenario, 2019–2043

Millions of people and % of total population



South Africa \$5.50



Source: IFs 7.63 initialising from UN Population Division Population Prospects estimate, World Development Indicators population data and DevPalNat World Bank data

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In 2019, 49.6% (28.9 million people) of South Africans lived below the US\$5.50 poverty line, a number that modestly declines to 46.1% (32.2 million) by 2043 in the Current Path forecast. The Manufacturing/Transfers scenario would reduce South Africa’s rate of extreme poverty by almost two percentage points to 44.4% (or 31 million people).



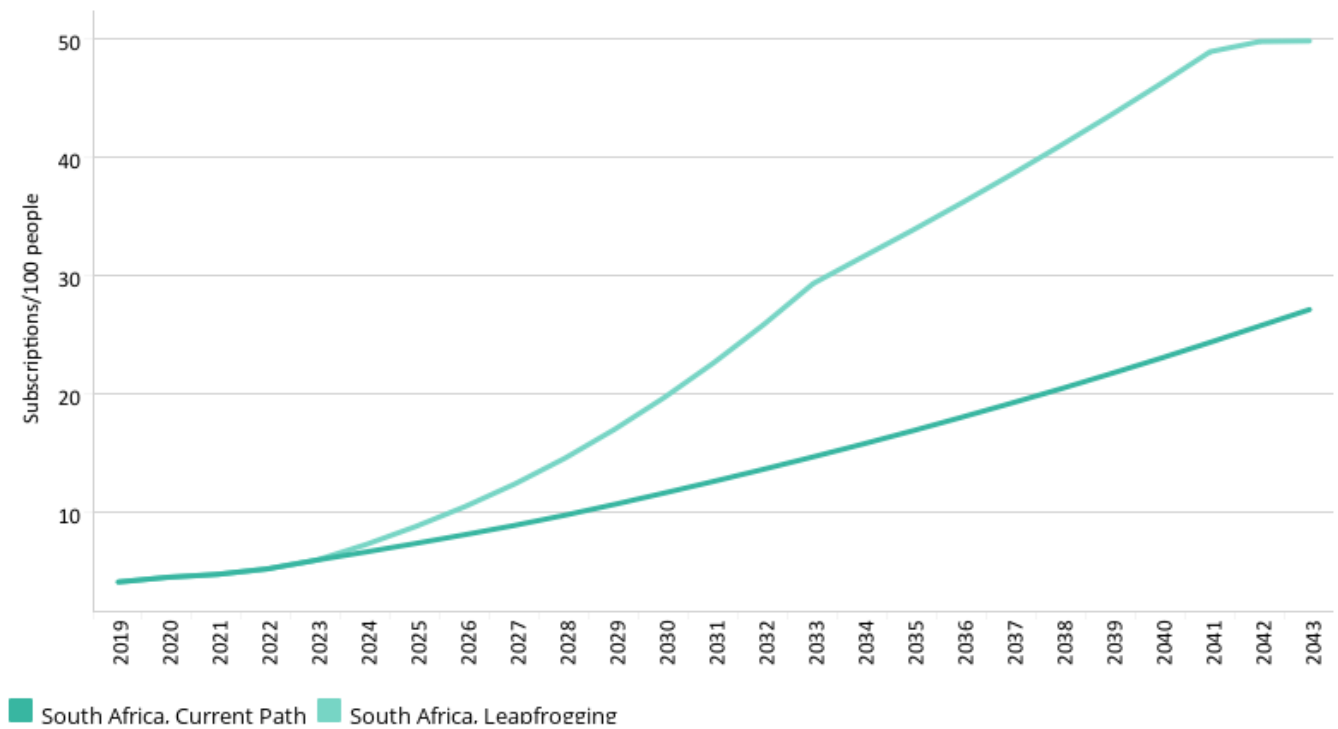
## Leapfrogging scenario

▼ < | art 29 | Chart 30 | Chart 31 | Chart 32 | Chart 33 | Chart 34 | Chart 35 | Chart 36 | Chart 37 | Chart 38 | Chart 39 | >

Chart 34: Fixed broadband access in CP and Leapfrogging scenario, 2019–2043  
Subscriptions per 100 people



South Africa ▼



Source: IFS 7.63 initialising from International Telecommunication Union data

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The Leapfrogging scenario represents a reasonable but ambitious adoption of and investment in renewable energy technologies, resulting in better access to electricity in urban and rural areas. The scenario includes accelerated access to mobile and fixed broadband and the adoption of modern technology that improves government efficiency and allows for the more rapid formalisation of the informal sector.

The intervention is explained [here](#) in the thematic part of the website.

Fixed broadband includes cable modem Internet connections, DSL Internet connections of at least 256 KB/s, fibre and other fixed broadband technology connections (such as satellite broadband Internet, ethernet local area networks, fixed-wireless access, wireless local area networks, WiMAX, etc.).

In 2019, South Africa had 4 fixed broadband subscribers per 100 people, a number set to increase to 27.1 in 2043 in the Current Path forecast. The average for Africa in 2019 was 3.2, improving to 27.7 in 2043 in the Current Path forecast. In 2019, South Africa only had the 15th highest penetration rate in Africa and was surpassed by a number of lower middle-income countries on the continent. In the Leapfrogging scenario, South Africa's ratio increases to 49.8 by 2043, increasing by more than 80%, while Africa's ratio increases to 47.9 in this scenario. Mobile broadband increases are more rapid (see [Chart 35](#)).

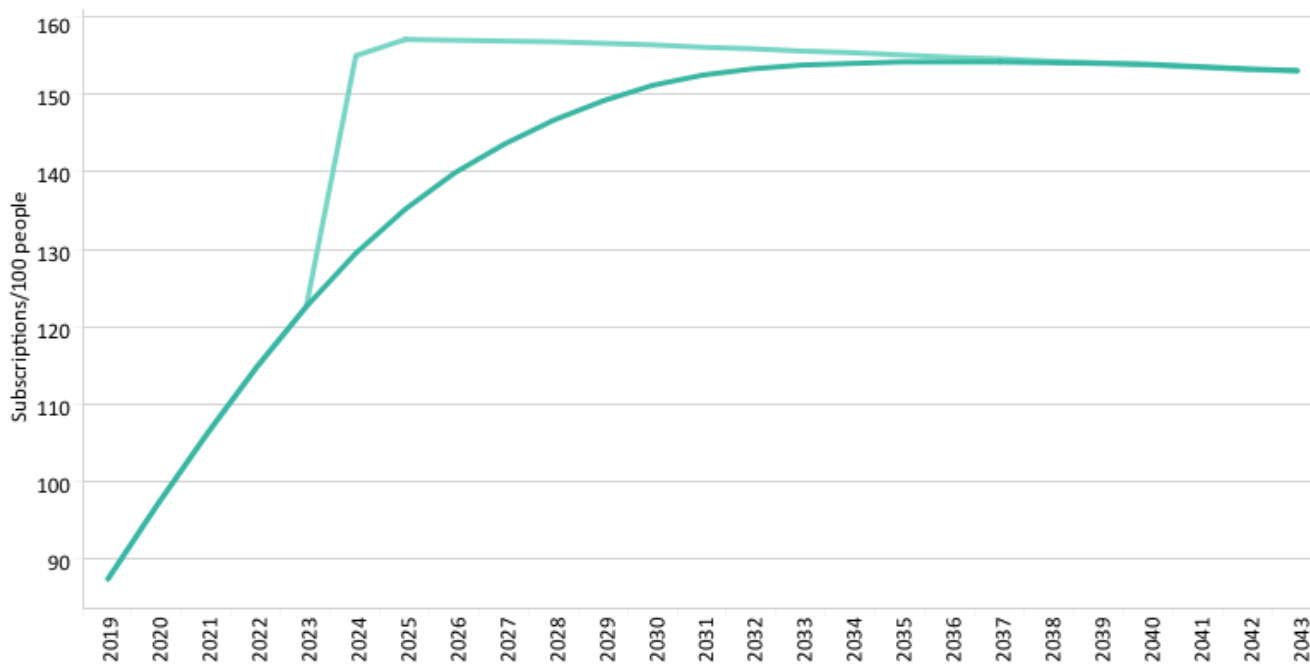
South Africa's ICT sector is forecast to increase in size from 5.5% to 6% of the GDP from 2019 to 2043 in the Current Path forecast. The average size of the ICT sector in Africa in the Leapfrogging scenario is to increase from 5.6% in 2019 to 6.8% in 2043.

Chart 30 | Chart 31 | Chart 32 | Chart 33 | Chart 34 | Chart 35 | Chart 36 | Chart 37 | Chart 38 | Chart 39 | Chart 40

**Chart 35: Mobile broadband access in CP and Leapfrogging scenario, 2019–2043**  
Subscriptions per 100 people



South Africa



■ South Africa, Current Path ■ South Africa, Leapfrogging

Source: IFs 7.63 initialising from International Telecommunication Union data

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Mobile broadband refers to wireless Internet access delivered through cellular towers to computers and other digital devices.

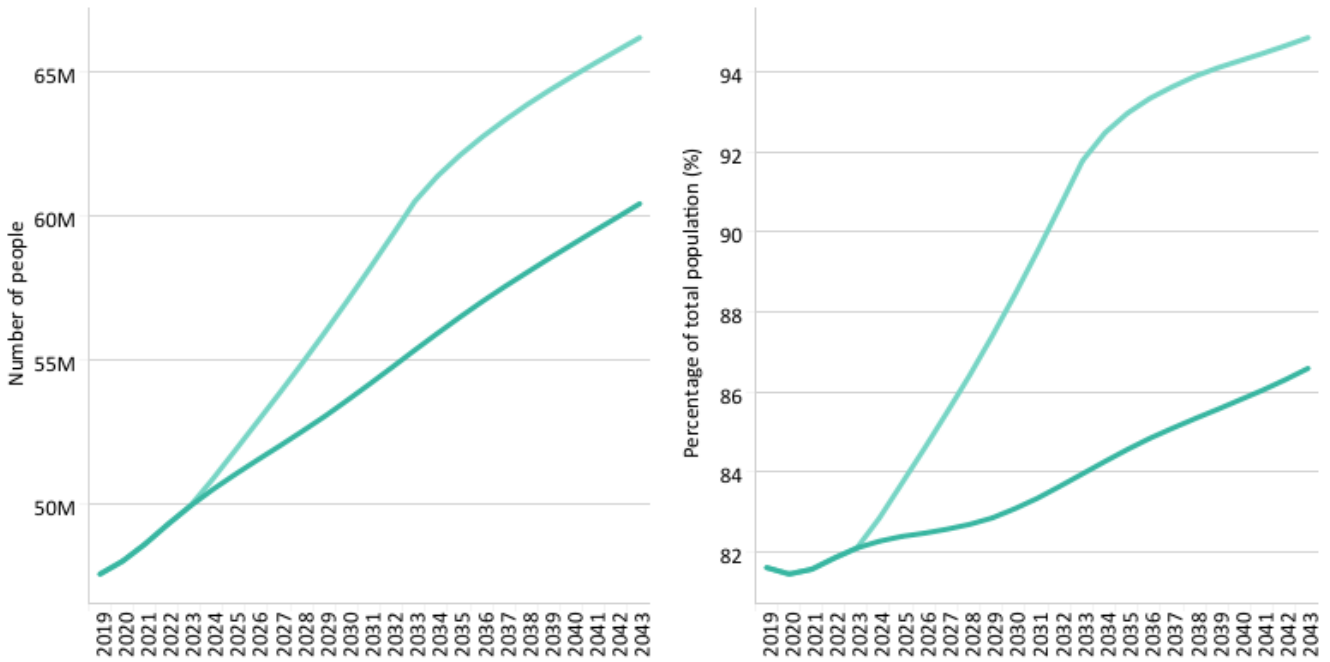
Mobile broadband is exploding in Africa. In 2019, 40.5 out of 100 Africans had mobile broadband. South Africa had more than double that rate at 87.5 subscribers per 100 people. In the Current Path forecast, South Africa would get to 155 per 100 people by 2024, and then level off due to the saturation effect, while the average for Africa in 2043 would be 144 subscriptions per 100 persons.

### Chart 36: Electricity access in CP and Leapfrogging scenario, 2019–2043

Millions of people and % of population



South Africa Total



■ South Africa, Current Path ■ South Africa, Leapfrogging

Source: IFs 7.63 initialising from World Development Indicators data

[View on Tableau Public](#)

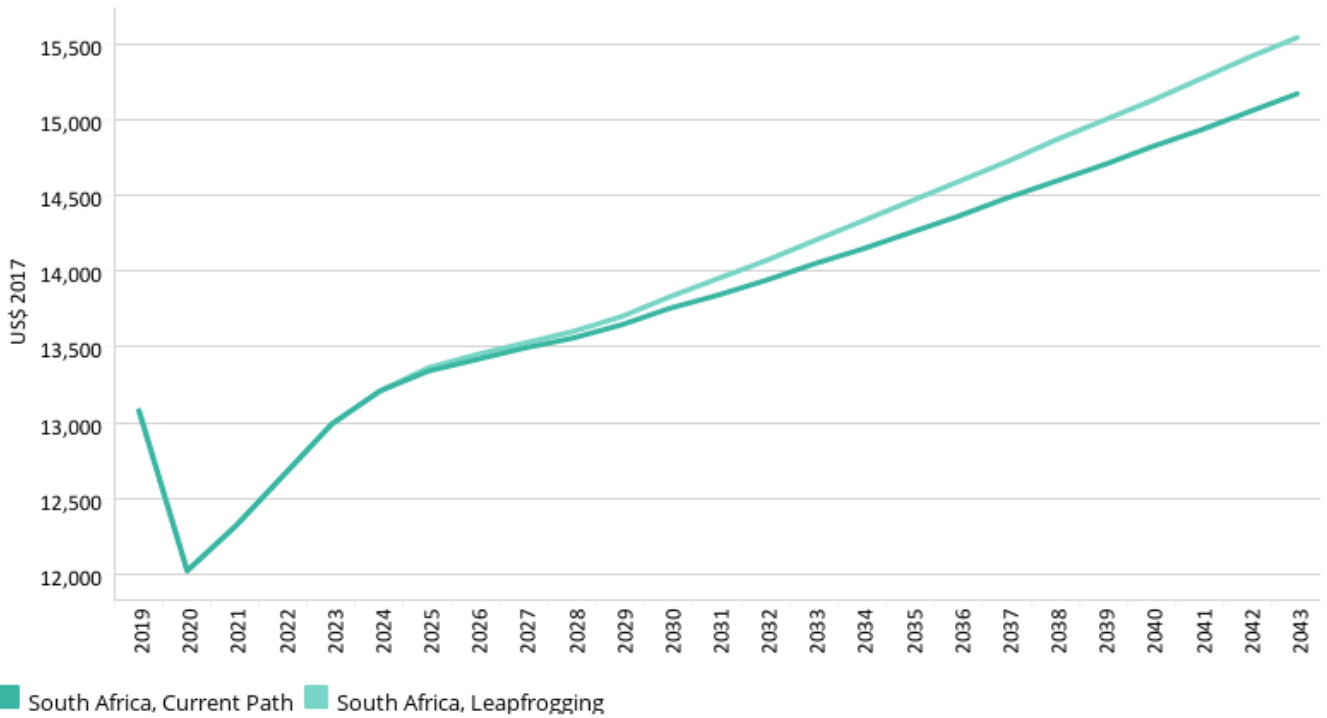
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South Africa has made significant progress in rolling out electricity access for its population compared to most other African countries, except for countries in North Africa which have done exceptionally well. Already, in 2019, 81.6% of South Africans had access to electricity (the tenth highest rate in Africa), a number set to increase to 86.6% in the Current Path forecast and 94.8% in the Leapfrogging scenario. The average for Africa was 53.2% in 2019, improving to 72.7% in 2043 in the Current Path and 83.8% in the Leapfrogging scenario. Unlike many other African countries, electricity access in rural areas in South Africa is only two percentage points below urban access, standing at 80.3% in 2019. The average rural access in Africa in 2019 was 39%. However, since 2007, South Africa has experienced ongoing power constraints due to a lack of generation capacity.

Chart 37: GDP per capita in CP and Leapfrogging scenario, 2019–2043  
Purchasing power parity



South Africa



Source: IFs 7.63 initialising from UN Population Division World Population Prospects and World Development Indicators data

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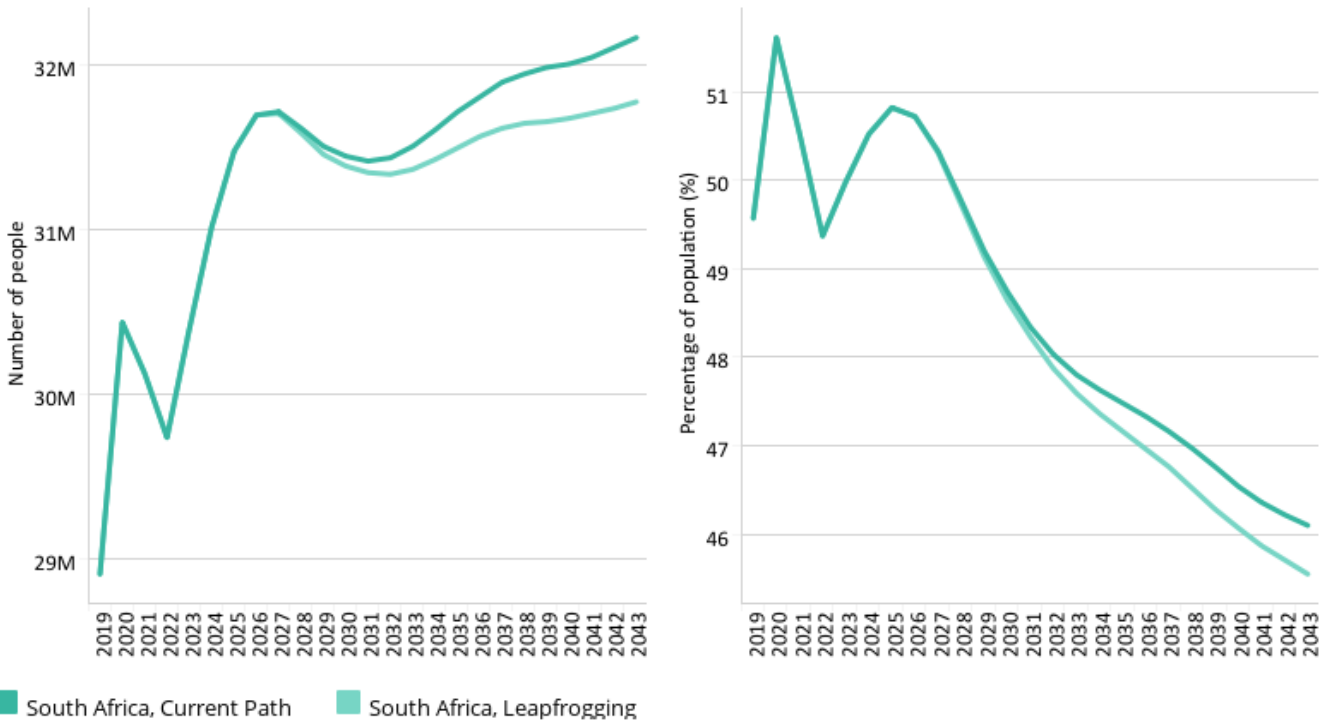
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Government inaction (and slow action) has exacerbated South Africa’s electricity crisis, which will remain a constraint on South Africa’s growth in the near future. In fact, without resolving its electricity generation problems, GDP growth will stay hobbled. The GDP per capita was US\$13 167 in 2019 and is set to improve to US\$15 173 in the Current Path to 2043. In the Leapfrogging scenario, the GDP per capita increases to US\$15 534, an improvement of 2.4% (US\$370) in the Current Path forecast for 2043. The country could be doing much better. This relatively poor performance is reflected when considering that the absolute increase in GDP per capita in South Africa in the Leapfrogging scenario is only the 23rd highest in Africa, a low ranking considering its status as one of seven upper middle-income countries on the continent.

**Chart 38: Poverty in CP and Leapfrogging scenario, 2019–2043**  
Millions of people and % of total population



South Africa \$5.50



Source: IFs 7.63 initialising from UN Population Division Population Prospects estimate, World Development Indicators population data and DevPalNet World Bank data

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High levels of inequality and unemployment mean that the Leapfrogging scenario makes limited contributions to poverty reduction in South Africa. Using US\$1.90, only 170 000 fewer South Africans would be considered absolutely poor in 2043. Using US\$5.50, the reduction is 390 000 compared to the Current Path forecast.



## Free Trade scenario

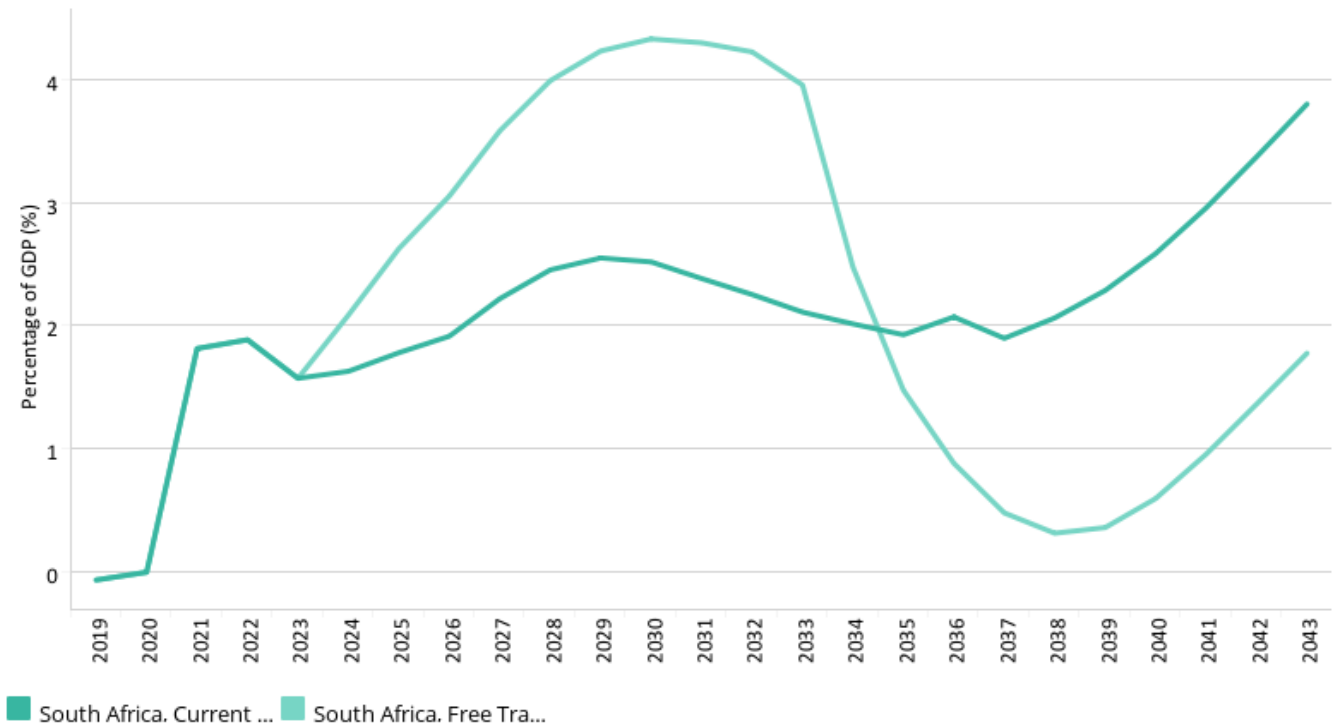
▼ < | art 34 | Chart 35 | Chart 36 | Chart 37 | Chart 38 | Chart 39 | Chart 40 | Chart 41 | Chart 42 | Chart 43 | Chart >

### Chart 39: Trade balance in CP and Free Trade scenario, 2019–2043

% of GDP



South Africa ▼



Source: IFs 7.63 initialising from World Development Indicators data

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The Free Trade scenario represents the impact of the full implementation of the African Continental Free Trade Area (AfCFTA) by 2034 through increases in exports, improved productivity and increased trade and economic freedom.

The intervention is explained [here](#) in the thematic part of the website.

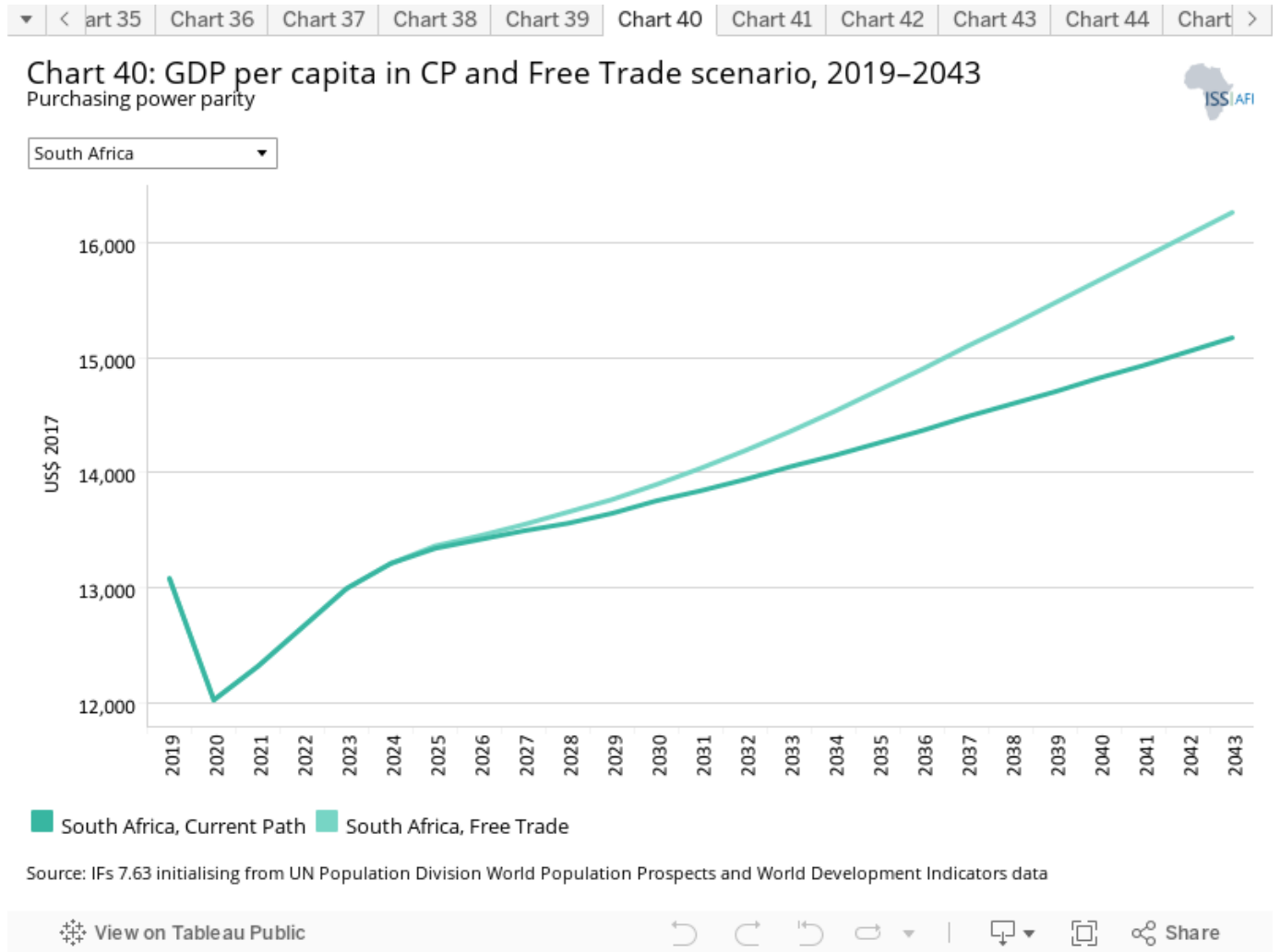
The trade balance is the difference between the value of a country's exports and its imports. A country that imports more goods and services than it exports in terms of value has a trade deficit, while a country that exports more goods and services than it imports has a trade surplus.

GDP growth in South Africa has a propensity to rapidly increase imports and often results in a negative trade balance that requires efforts to temper growth down.

South Africa's annual trade balance has generally deteriorated since a positive peak of 8.7% of GDP in 1987. In 2019, South Africa's trade balance was modestly negative at 0.07% of GDP. Imports and exports both grow more rapidly in the Free Trade scenario than in the Current Path. In the Free Trade scenario, South Africa's trade balance improves to peak at 4.3% of GDP in 2030 before declining to 0.3% of GDP in 2038. The increase in export value is largely due to more manufactured exports.



Next to Nigeria and Egypt, South Africa will experience the largest growth in the value of its exports and imports in the Free Trade scenario

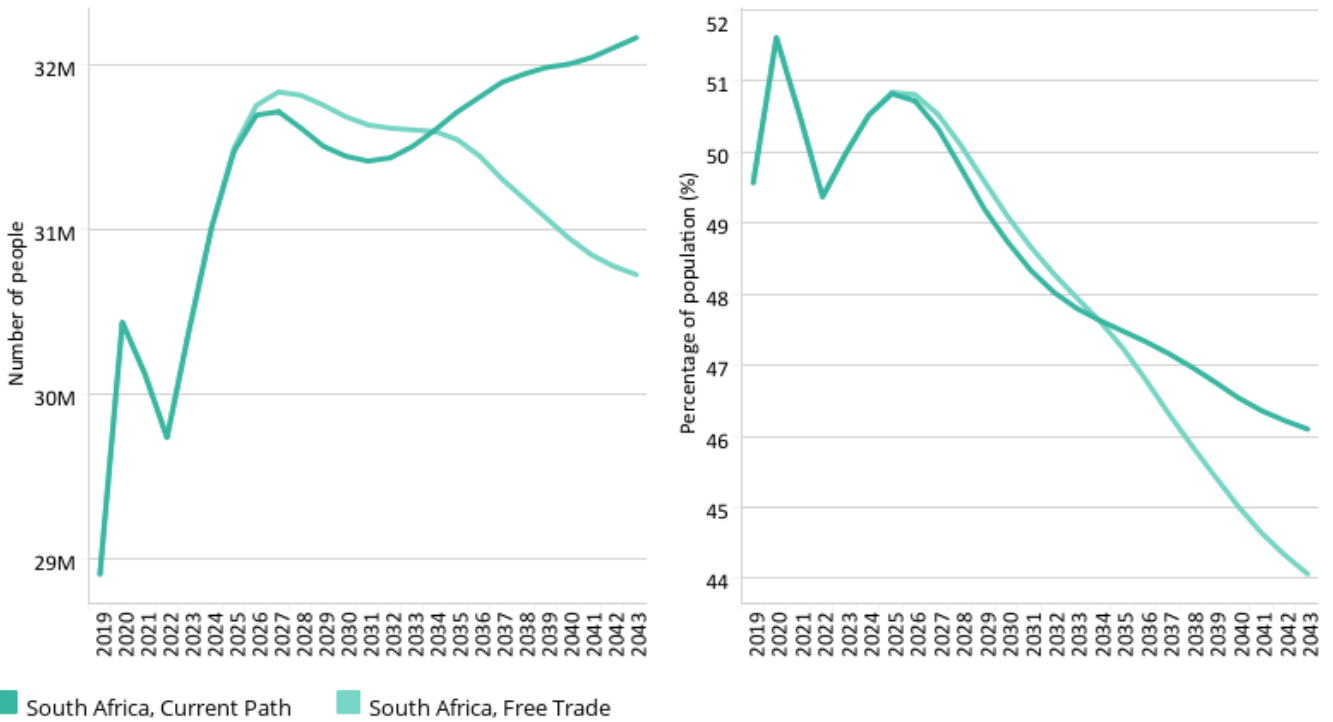


South Africa stands to benefit greatly from the Free Trade scenario. Only Seychelles, Libya, Cape Verde, Eswatini, Egypt and Botswana will gain a larger increase in GDP per capita from the Free Trade scenario. The GDP per capita in South Africa was US\$13 167 in 2019 and is set to increase to US\$15 173 on the Current Path forecast. In the Free Trade scenario, South Africa’s GDP per capita increases to US\$16 263, an improvement of more than 7% (or US\$1 090).

**Chart 41: Poverty in CP and Free Trade scenario, 2019–2043**  
 Millions of people and % of total population



South Africa \$5.50



Source: IFs 7.63 initialising from UN Population Division Population Prospects estimate, World Development Indicators population data and DevPalNet World Bank data

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In the Free Trade scenario, 734 000 fewer South Africans will be extremely poor in 2043 (using US\$1.90), a difference of one percentage point. Using US\$5.50, the number would be 1.44 million fewer poor people. Again, high levels of inequality mean that economic growth has a marginal impact on poverty reduction.



## Financial Flows scenario

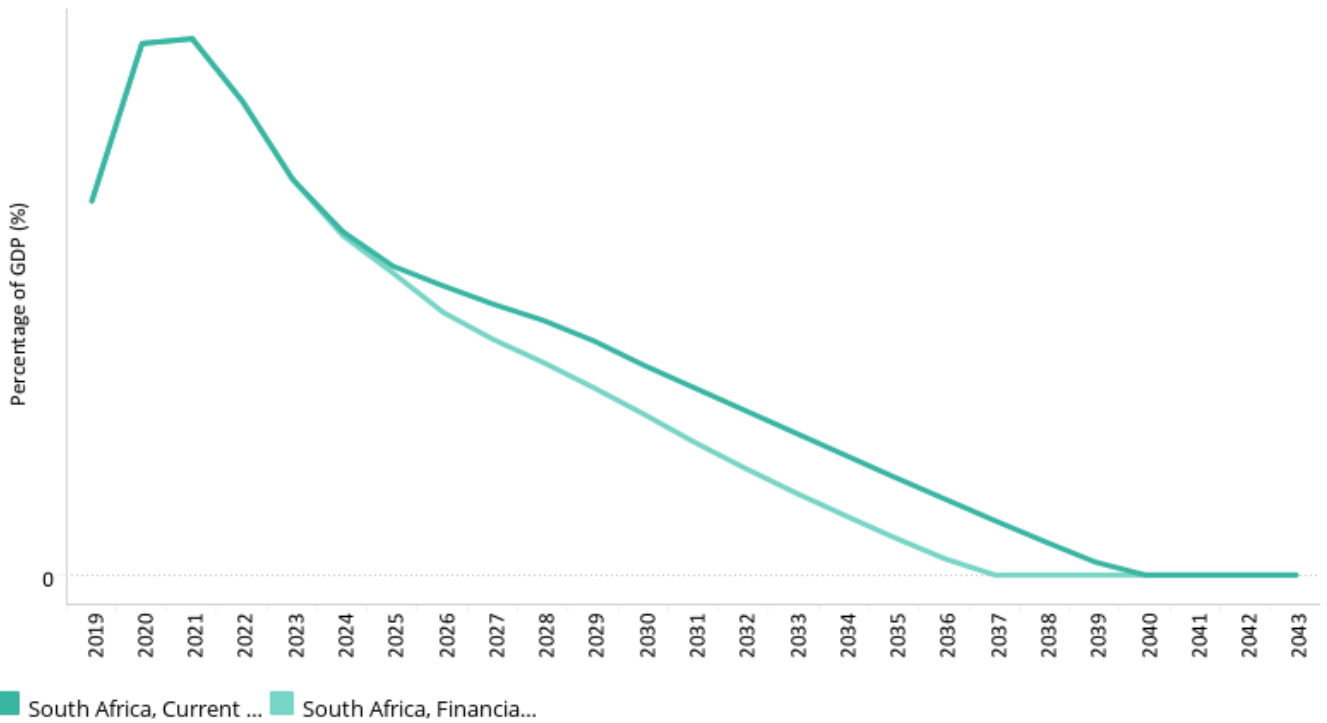
Chart 37 Chart 38 Chart 39 Chart 40 Chart 41 Chart 42 Chart 43 Chart 44 Chart 45 Chart 46 Chart 47

### Chart 42: Foreign aid in CP and Financial Flows scenario, 2019–2043

% of GDP



South Africa



Source: IFs 7.63 initialising from Development Assistance Committee of the OECD data, and World Bank and OECD GNI estimates.

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The Financial Flows scenario represents a reasonable but ambitious increase in worker remittances and aid flows to poor countries, and an increase in the stock of foreign direct investment (FDI) and additional portfolio investment inflows to middle-income countries. We also reduced outward financial flows to emulate a reduction in illicit financial outflows.

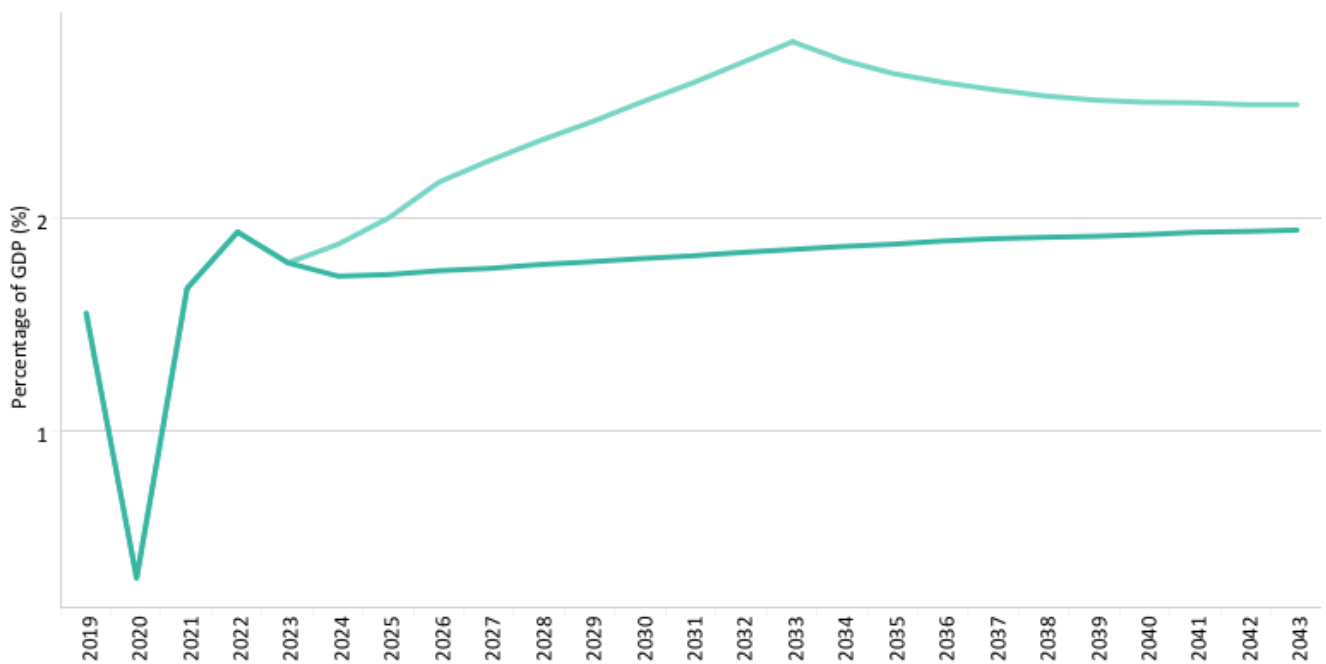
The intervention is explained [here](#) in the thematic part of the website.

Given its status as an upper middle-income country, South Africa gets very little aid, which is also declining. In 2019, the country received aid equivalent to 0.6% of the GDP (US\$2.8 billion). Since the Financial Flows scenario increases aid to low-income countries, the amount of aid going to middle-income countries declines and South Africa gets no aid from 2037 onwards in the Financial Flows scenario. In the Current Path forecast, aid to South Africa will end in 2040.

Chart 43: Inflow of FDI in CP and Financial Flows scenario, 2019–2043  
% of GDP



South Africa



■ South Africa, Current Path ■ South Africa, Financial Flows

Source: IFs 7.63 initialising from International Monetary Fund World Economic Outlook database

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Investor confidence in South Africa is low. In 2019, South Africa received FDI inflows of roughly 1.55% of GDP, significantly below the average for Africa at 2.8%. The average for upper middle-income countries globally was at 3.3% of GDP. In the Current Path forecast, FDI inflows increase to 1.9% of GDP in 2043. In the Financial Flows scenario, FDI inflows increase to 2.5% of GDP in 2043. The impact is forecast to increase South Africa’s stock of FDI in 2043 to US\$271.2 billion from the Current Path forecast of US\$230.5 billion — a difference of 28%. The stock of FDI in South Africa was US\$137 billion in 2019.

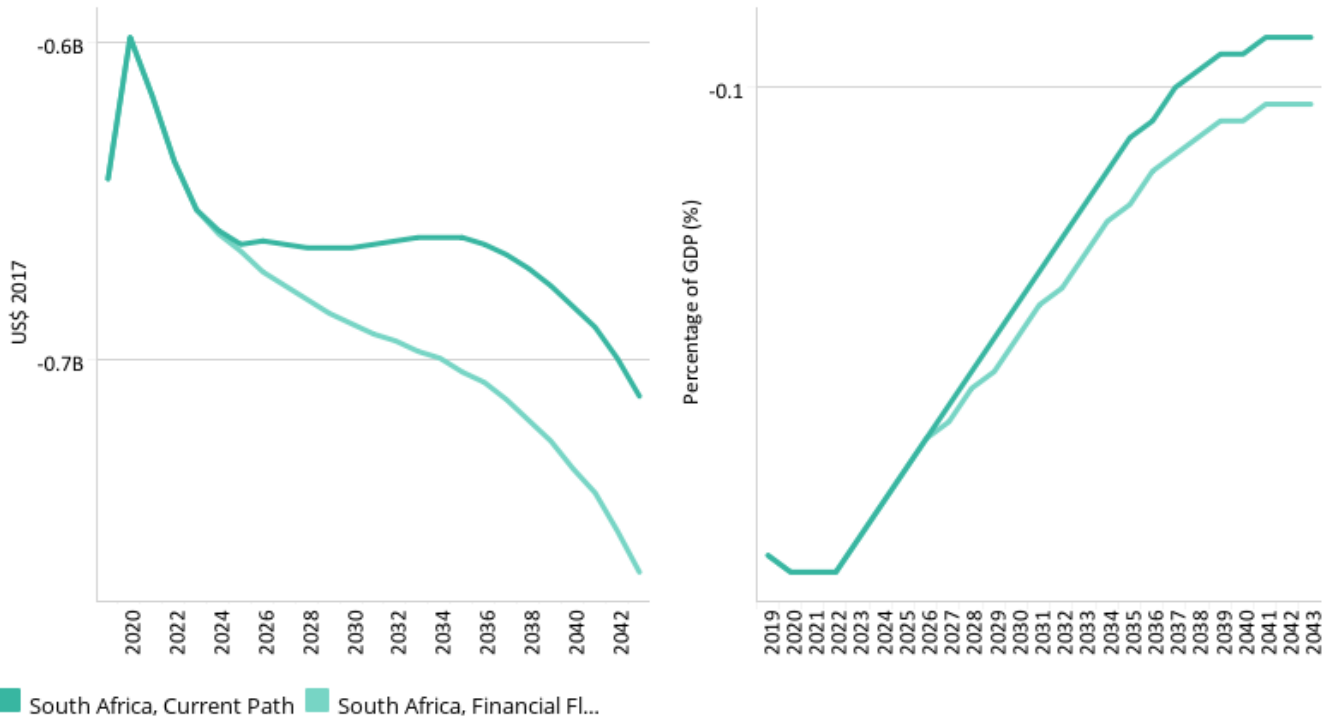
Although it did attract more FDI after its transition to democracy in 1994, inflows slowed after 2000. The Ramaphosa government has been actively pursuing domestic and international investment and hosted investment summits in 2018, 2019 and 2022 — against a target to raise US\$100 billion in new investment over five years. These targets have fallen foul of COVID-19 and ongoing challenges in infrastructure, poor investment climate and, recently, indications of instability with large riots in KwaZulu-Natal and Gauteng in July 2021 that accompanied the incarceration of former president Jacob Zuma.

Without unlocking and sustaining significantly larger levels of domestic and foreign investment, South Africa will not escape its slow economic growth trajectory.

**Chart 44: Remittances in CP and Financial Flows scenario, 2019–2043**  
 Billions US\$ 2017 and % of GDP



South Africa



Source: IFs 7.63 initialising from World Development Indicators data

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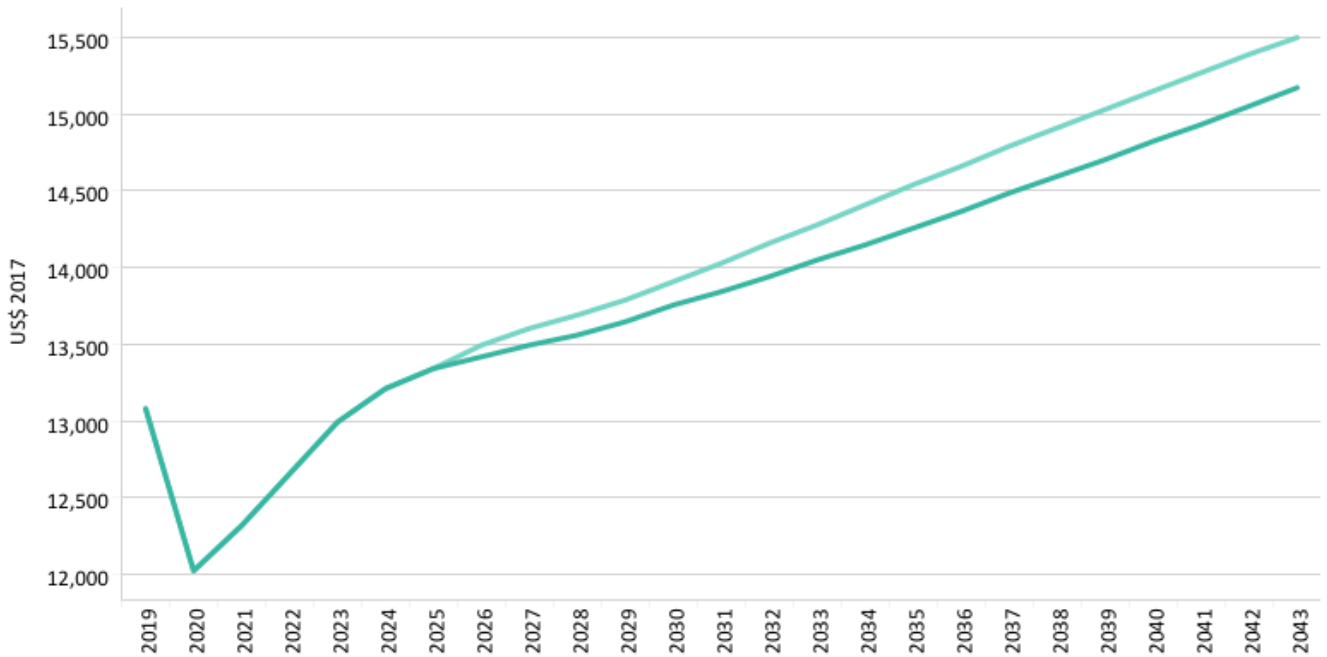
South Africa has been a source of outward remittance flows to many of its neighbouring countries on the back of its historical reliance on labour from countries such as Lesotho for its mines. The size of its gold and other mining activities has, however, declined over successive decades. In 2019, South Africa served as a source for remittances amounting to US\$643 million. In the Current Path forecast, remittance outflows will modestly increase to US\$712 million and to US\$767 million in the Financial Flows scenario.

### Chart 45: GDP per capita in CP and Financial Flows scenario, 2019–2043

Purchasing power parity



South Africa



■ South Africa, Current Path ■ South Africa, Financial Flows

Source: IFs 7.63 initialising from UN Population Division World Population Prospects and World Development Indicators data

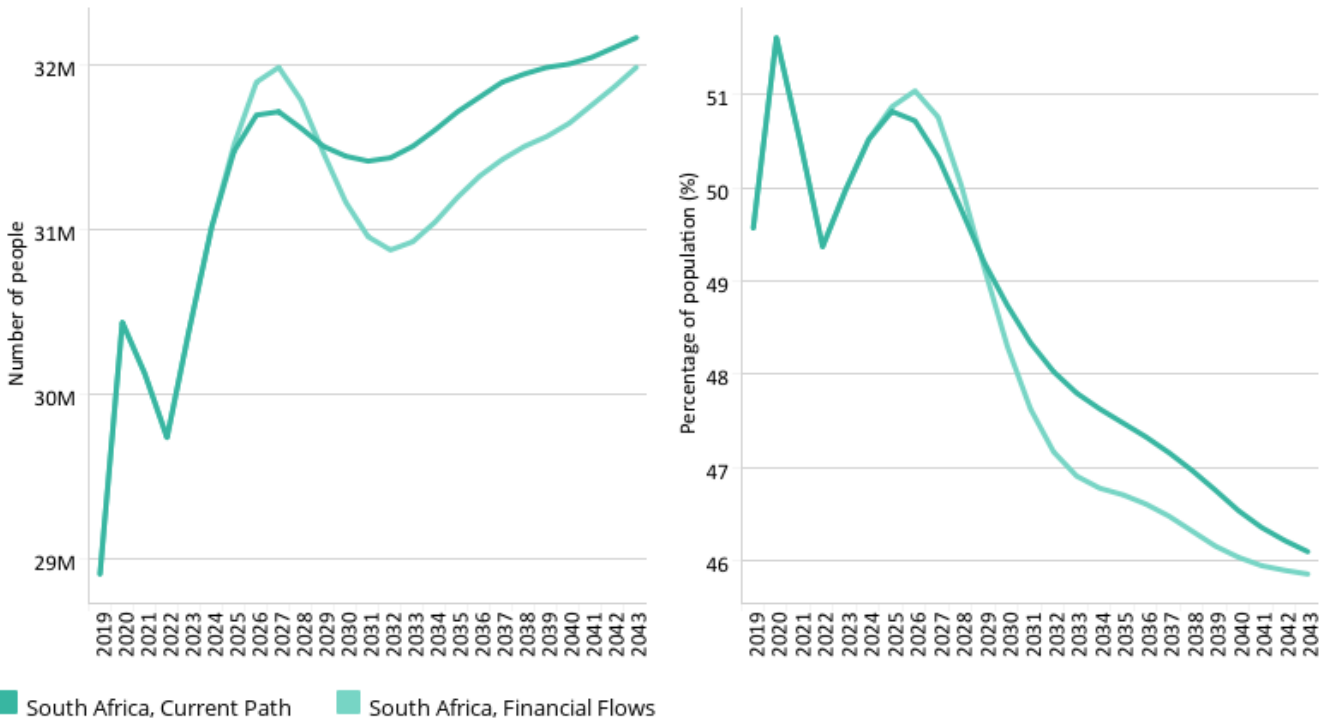
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In 2019, the GDP per capita in South Africa was US\$13 167 and is forecast to increase to US\$15 173 in 2043 in the Current Path forecast. In the Financial Flows scenario, GDP per capita increases by 2.2% (US\$327) to US\$15 500. Since South Africa does not receive much aid and is a source country for remittances, the increase is attributable to larger FDI inflows.

**Chart 46: Poverty in CP and Financial Flows scenario, 2019–2043**  
Millions of people and % of total population



South Africa \$5.50



Source: IFs 7.63 initialising from UN Population Division Population Prospects estimate, World Development Indicators population data and DevPalNat World Bank data

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Trade openness will reduce poverty in the long term after initially increasing it due to the redistributive effects of trade. Most African countries export primary commodities and low-tech manufacturing products, and therefore a continental free trade agreement (AfCFTA) that reduces tariffs and non-tariff barriers across Africa will increase competition among countries in primary commodities and low-tech manufacturing exports. Countries with inefficient, high-cost manufacturing sectors might be displaced as the AfCFTA is implemented, thereby pushing up poverty rates. In the long term, as the economy adjusts and produces and exports its comparatively advantaged (lower relative cost) goods and services, poverty rates will decline.

The Financial Flows scenario has little impact on extreme poverty in South Africa because the country has very high levels of inequality, does not receive much aid, is a net provider of remittances to its neighbours, and receives low levels of FDI. Using the US\$1.90 GDP per capita extreme poverty line, 100 000 fewer South Africans will live below US\$1.90 in 2043 and 180 000 fewer using US\$5.50.





## Infrastructure scenario

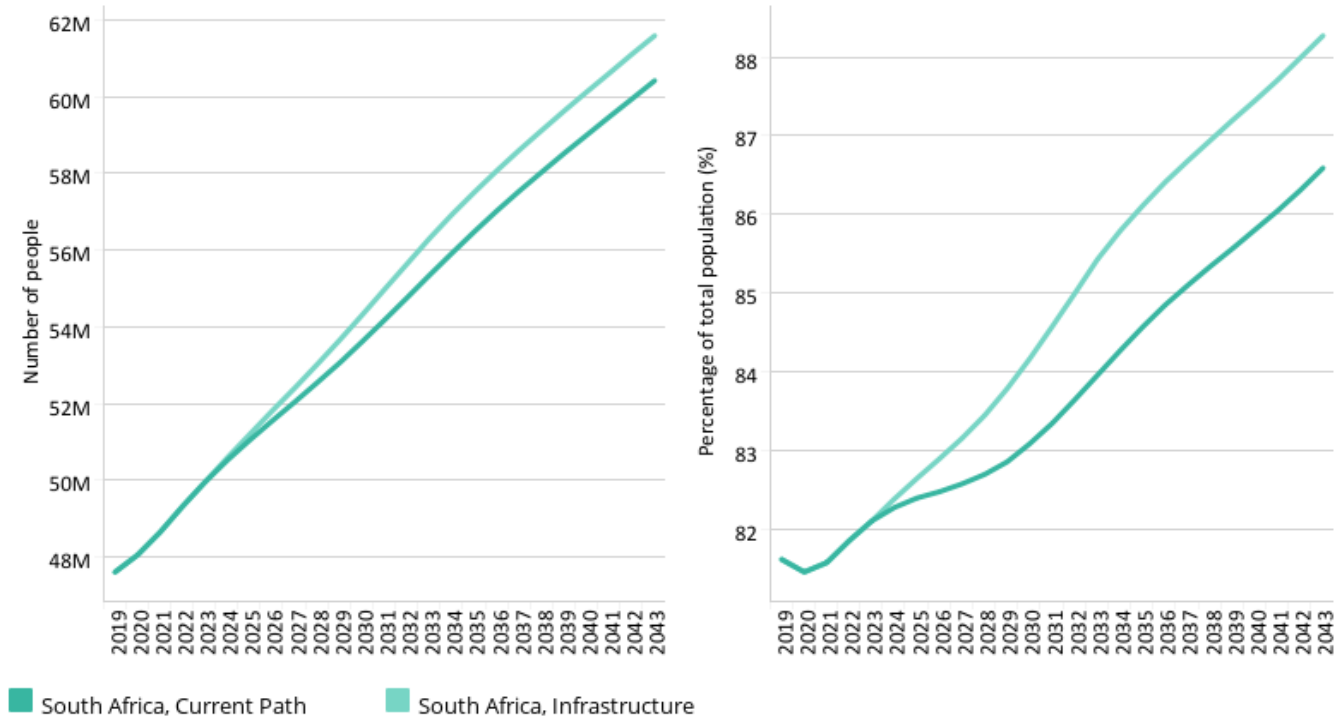
Chart 42 Chart 43 Chart 44 Chart 45 Chart 46 Chart 47 Chart 48 Chart 49 Chart 50 Chart 51

### Chart 47: Electricity access in CP and Infrastructure scenario, 2019–2043

Millions of people and % of population



South Africa Total



Source: IFs 7.63 initialising from World Development Indicators data

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The Infrastructure scenario represents a reasonable but ambitious increase in infrastructure spending across Africa, focusing on basic infrastructure (roads, water, sanitation, electricity access and ICT) in low-income countries and increasing emphasis on advanced infrastructure (such as ports, airports, railway and electricity generation) in higher-income countries.

Note that health and sanitation infrastructure is included as part of the Health/WaSH scenario and that ICT infrastructure and more rapid uptake of renewables are part of the Leapfrogging scenario. The interventions there push directly on outcomes, whereas those modelled in this scenario increase infrastructure spending, indirectly boosting other forms of infrastructure, including that supporting health, sanitation and ICT.

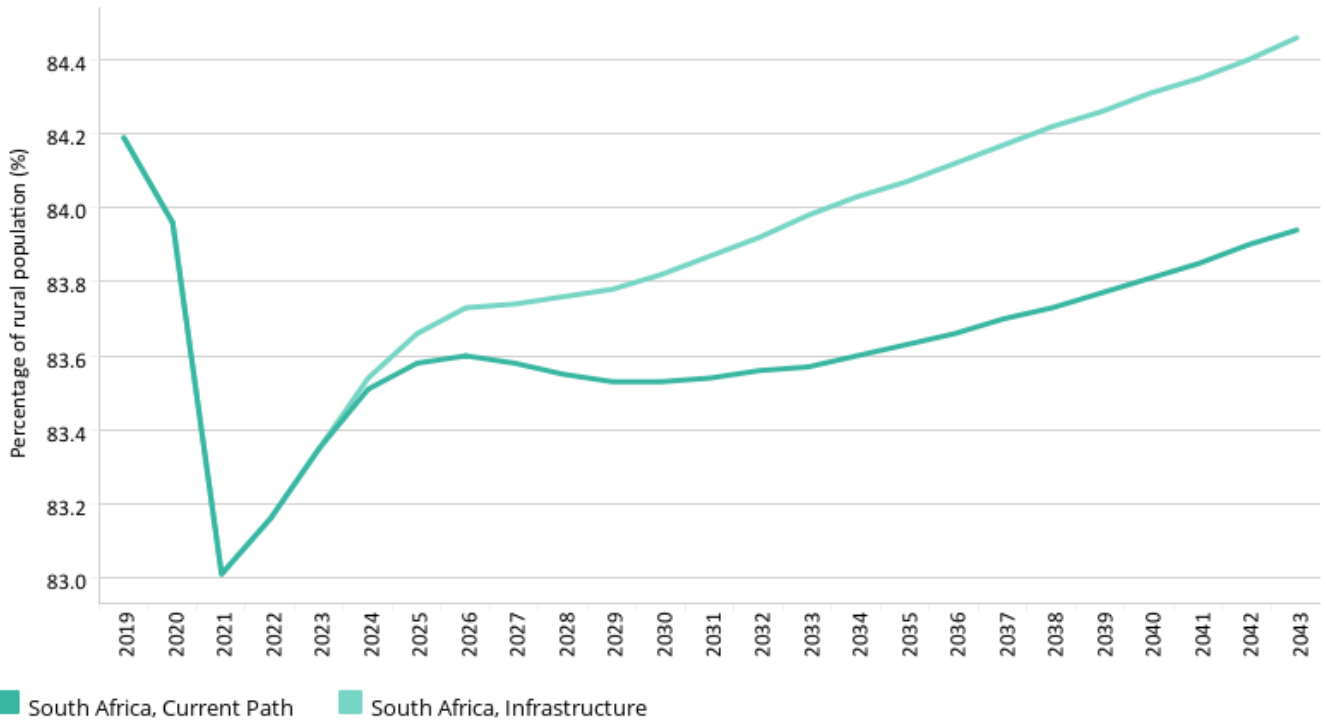
The intervention is explained [here](#) in the thematic part of the website.

South Africa has high levels of electricity access in urban and rural areas compared to most other African countries. In 2019, 81.6% of South Africa’s population had access to electricity. In the Current Path forecast, that number increases to 86.6%, and it increases to 88.3% in the Infrastructure scenario. The country has, however, suffered from a deficit in electricity generation for more than a decade.

**Chart 48: Rural road access in CP and Infrastructure scenario, 2019–2043**  
 % of rural population within 2 km of an all-weather road



South Africa



Source: IFs 7.63 initialising from World Bank Rural Access Index data

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Indicator 9.1.1 in the Sustainable Development Goals refers to the proportion of the rural population who live within 2 km of an all-season road and is captured in the Rural Access Index.

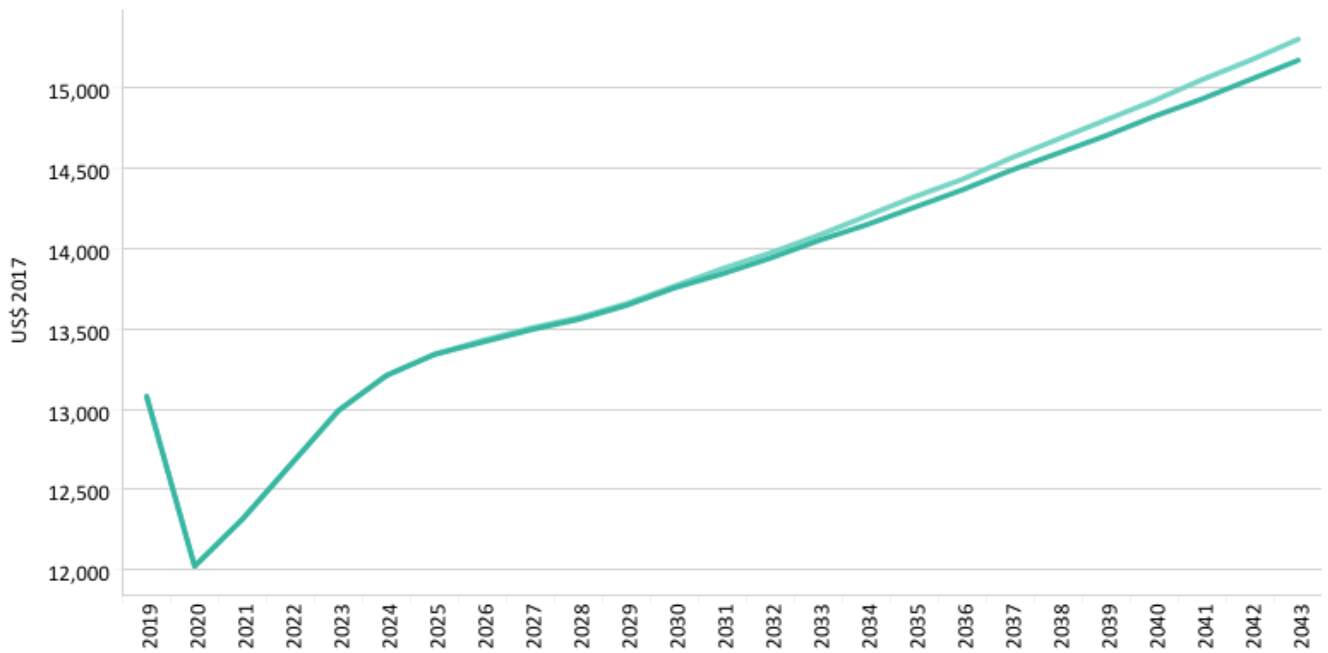
Measuring rural accessibility is a very important development indicator. The road network in South Africa plays a vital role in the economy, given the nature of the country's agriculture and mining sector as well as its distributed network of cities and towns.

Next to Egypt and Algeria, South Africa has the largest network of roads in Africa, although lack of maintenance in recent years has led to a significant deterioration, especially in the Free State province. In 2019, 84.2% of South Africans living in rural areas lived within 2 km of an all-season road. In the Current Path forecast, that number will increase to 83.9% and to 84.5% in the Infrastructure scenario.

Chart 49: GDP per capita in CP and Infrastructure scenario, 2019–2043  
Purchasing power parity



South Africa



■ South Africa, Current Path ■ South Africa, Infrastruct...

Source: IFs 7.63 initialising from UN Population Division World Population Prospects and World Development Indicators data

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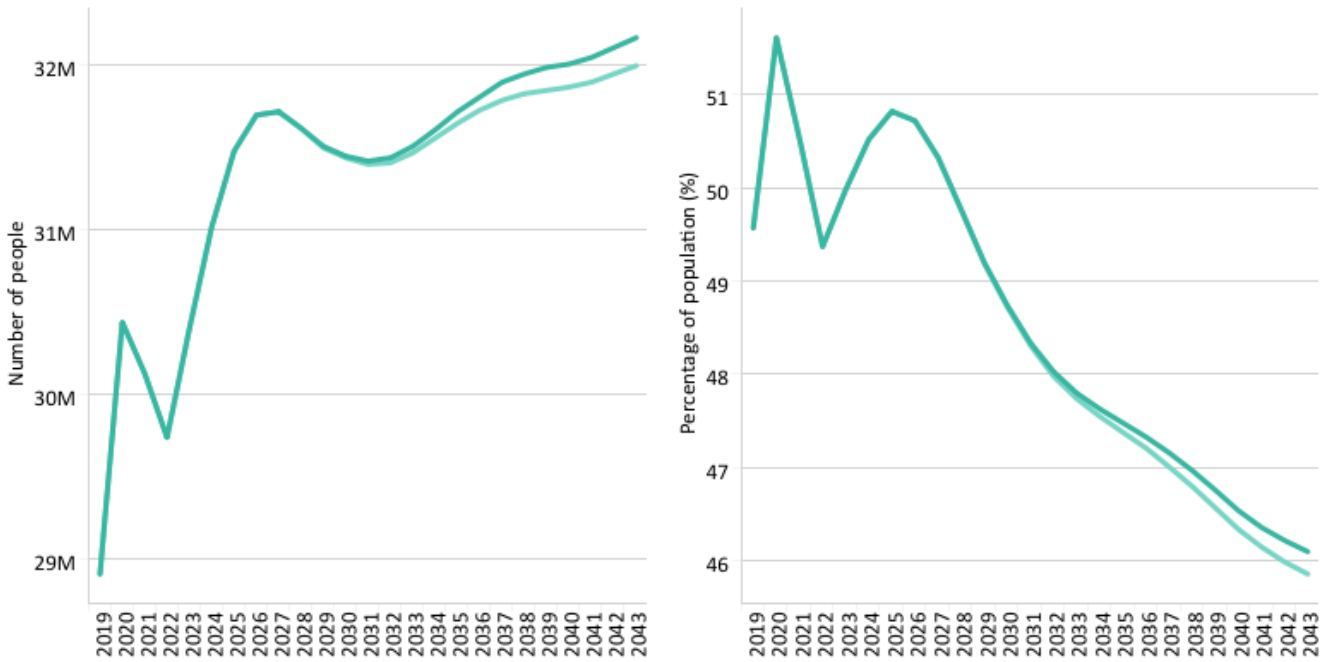
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By 2043, the GDP per capita is expected to increase to US\$15 304 in the Infrastructure scenario, compared to US\$15 173 in the Current Path forecast — an increase of only US\$131 per capita. The GDP per capita for South Africa is expected to continue to lag behind its income peers, with a growing per capita income gap throughout the forecast horizon.

**Chart 50: Poverty in CP and Infrastructure scenario, 2019–2043**  
 Millions of people and % of total population



South Africa \$5.50



■ South Africa, Current ... ■ South Africa, Infrastr...

Source: IFs 7.63 initialising from UN Population Division Population Prospects estimate, World Development Indicators population data and DevPalNet World Bank data

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The Infrastructure scenario has little impact on extreme poverty in South Africa because the country has very high levels of inequality. South Africa also has much higher levels of basic infrastructure by comparable African standards. Using the US\$1.90 GDP per capita extreme poverty line, 100 000 fewer South Africans will live below US\$1.90 in 2043, and 170 000 fewer using US\$5.50.



## Governance scenario

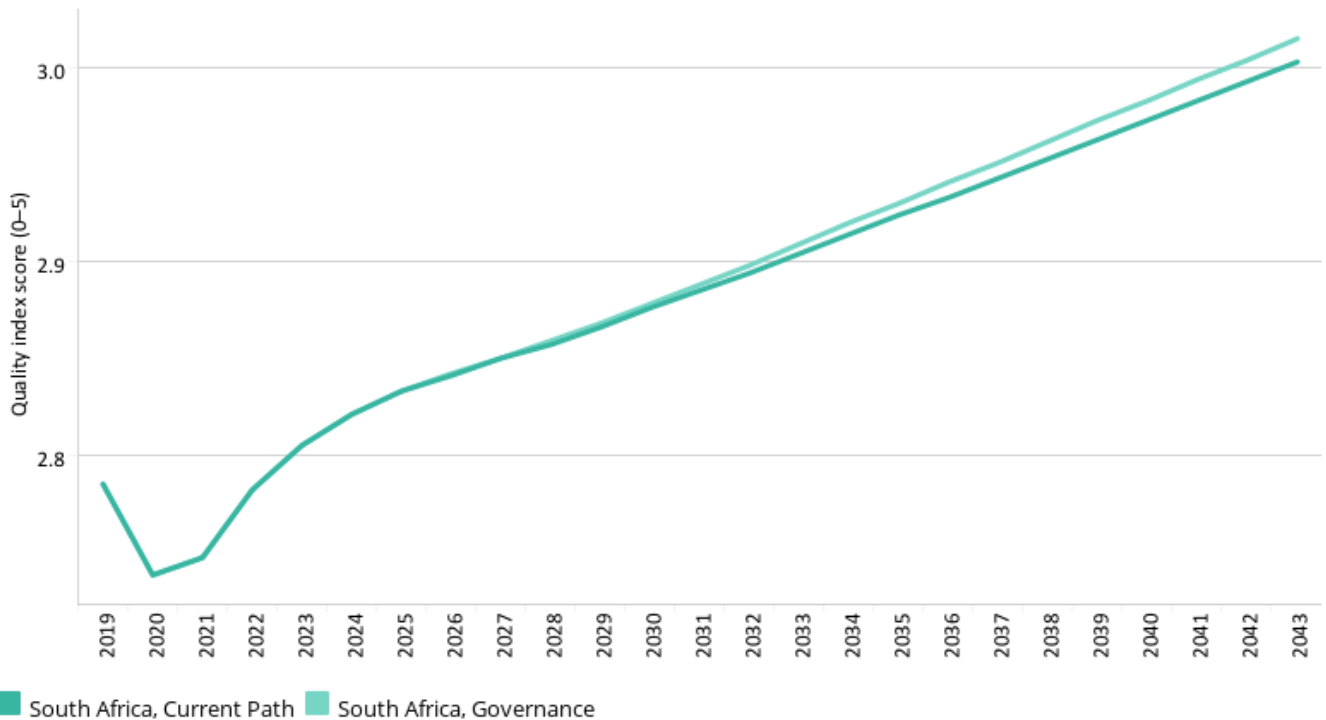
▼ < art 46 Chart 47 Chart 48 Chart 49 Chart 50 Chart 51 Chart 52 Chart 53 Chart 54 Chart 55 Chart >

### Chart 51: Gov effectiveness in CP and Governance scenario, 2019–2043

World Bank quality index score for government effectiveness



South Africa ▼



Source: IFs 7.63 initialising from Kaufmann, Kraay and Mastruzzi (2010) data

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The Governance scenario represents a reasonable but ambitious improvement in accountability and reduces corruption, and hence improves the quality of service delivery by government.

The intervention is explained [here](#) in the thematic part of the website.

As defined by the World Bank, government effectiveness ‘captures perceptions of the quality of public services, the quality of the civil service and the degree of its independence from political pressures, the quality of policy formulation and implementation, and the credibility of the government’s commitment to such policies’.

Chart 51 presents the impact of the interventions in the Governance scenario on government effectiveness.

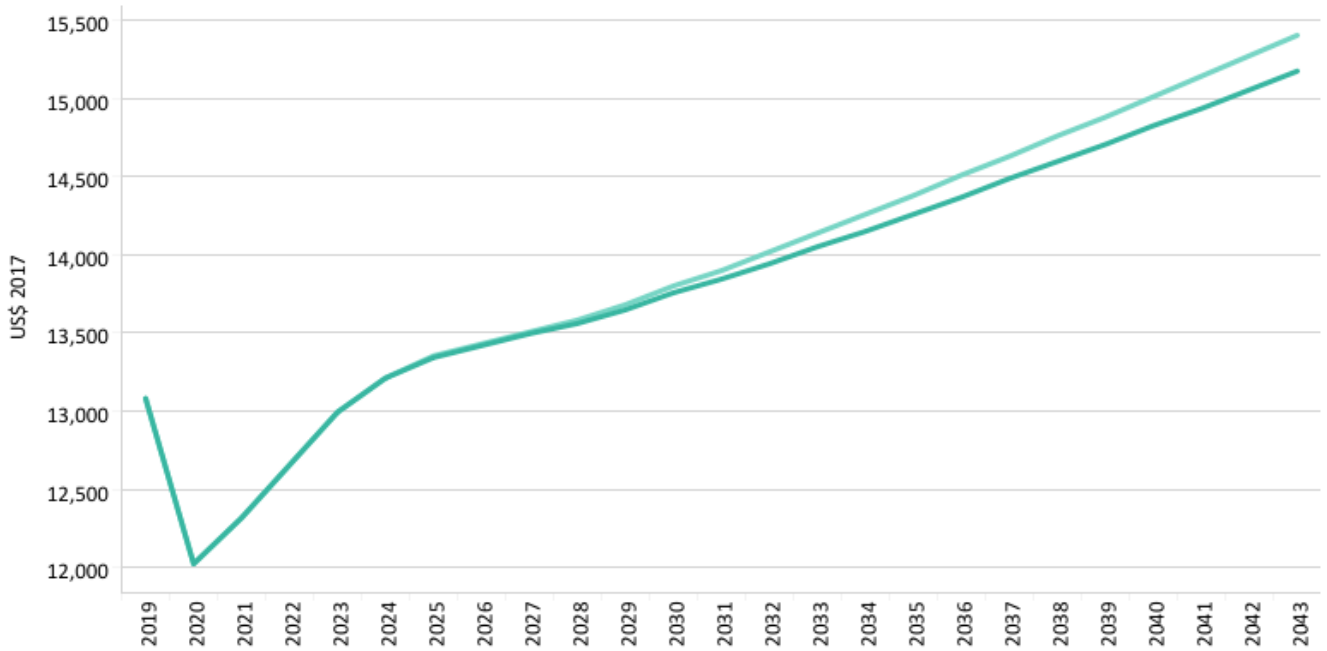
Compared to most African countries, South Africa has high levels of democracy reflected in its liberal constitution and bill of rights, but these do not translate into more accountability or, indeed, better governance. Governance effectiveness in South Africa has actually steadily declined over the last two decades, affected by state capture, corruption and various inefficiencies but was still, in 2019, the fourth highest in Africa. The prospect for betterment is not a straightforward task but has improved significantly under the administration of President Ramaphosa. The improvements in effectiveness in the Governance scenario are, however, minimal.

### Chart 52: GDP per capita in CP and Governance scenario, 2019–2043

Purchasing power parity



South Africa



■ South Africa, Current Path ■ South Africa, Governance

Source: IFs 7.63 initialising from UN Population Division World Population Prospects and World Development Indicators data

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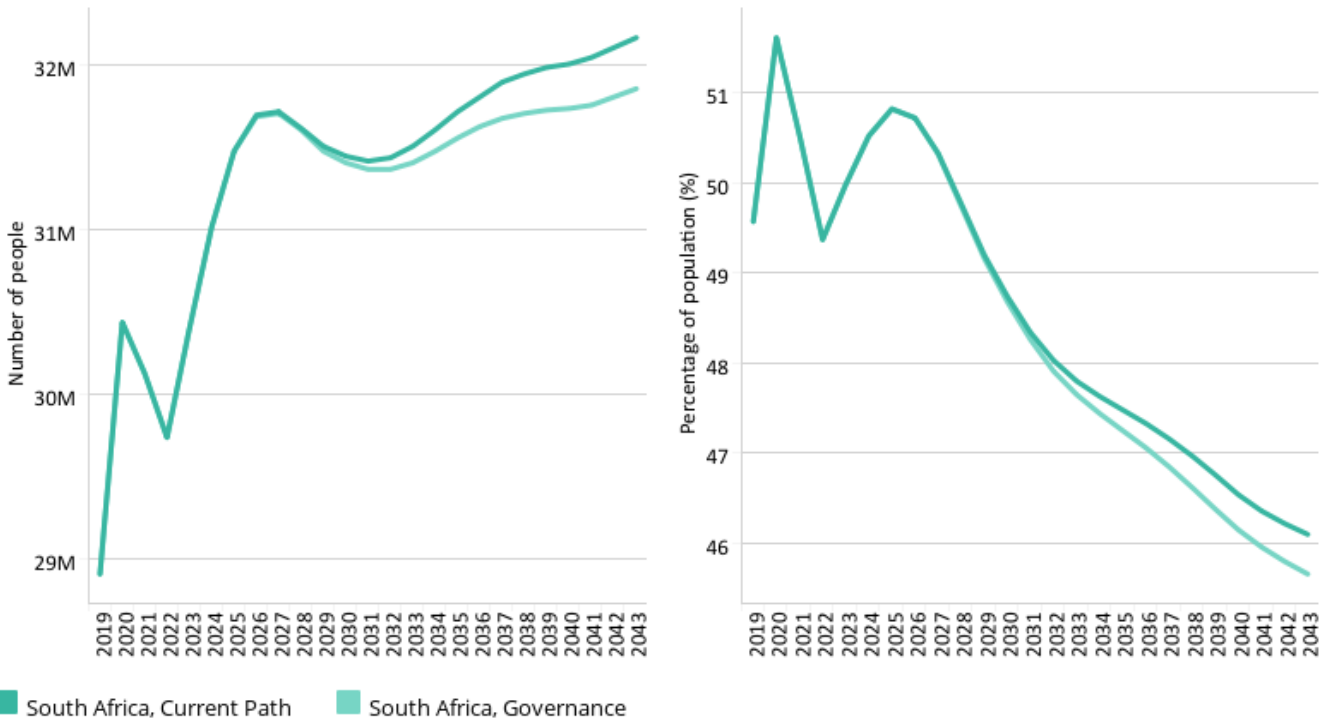
Navigation icons: back, forward, refresh, search, share

The Governance scenario has a small impact on South Africa’s GDP per capita. The GDP per capita is expected to increase to US\$15 402 in this scenario compared to US\$15 173 in the Current Path forecast for 2043, an increase below 2%.

**Chart 53: Poverty in CP and Governance scenario, 2019–2043**  
 Millions of people and % of total population



South Africa \$5.50



Source: IFs 7.63 initialising from UN Population Division Population Prospects estimate, World Development Indicators population data and DevPalNet World Bank data

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The Governance scenario has little impact on extreme poverty in South Africa because the country has very high levels of inequality and already has high levels of democracy by comparable African standards. Using the US\$1.90 GDP per capita extreme poverty line, 180 000 fewer South Africans will live below US\$1.90 and 310 000 fewer using US\$5.50 in 2043.





## Impact of scenarios on carbon emissions

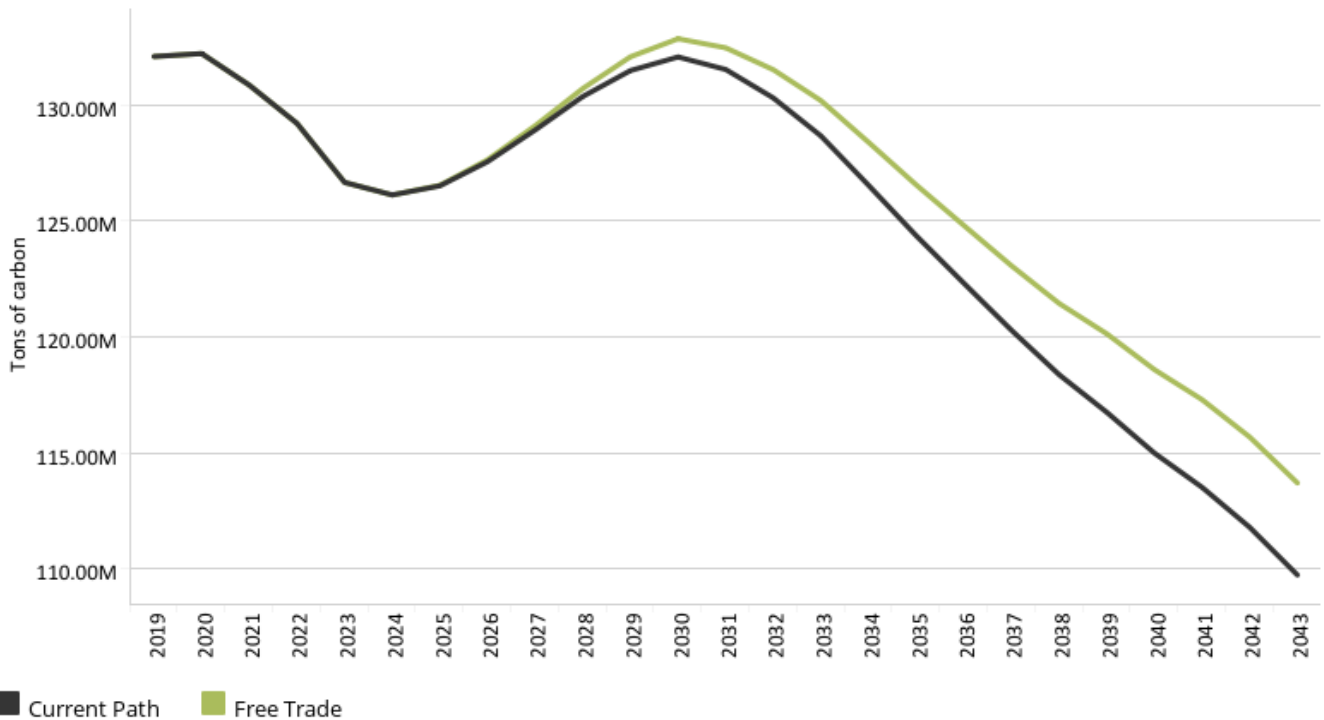
Chart 49 Chart 50 Chart 51 Chart 52 Chart 53 Chart 54 Chart 55 Chart 56 Chart 57 Chart 58 Chart 59

### Chart 54: Carbon emissions in CP and scenarios, 2019–2043

Million tons of carbon (note, not CO<sub>2</sub> equivalent)



South Africa (Multiple values)



Source: IFs 7.63 initialising from Carbon Dioxide Information Analysis Center data

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Chart 54 displays projected tons of carbon emissions for South Africa in the Current Path and the 11 intervention scenarios. Note that IFs uses carbon equivalents rather than CO<sub>2</sub> equivalents.

South Africa's carbon emissions are projected to increase most in the Free Trade scenario, emitting an additional 4 million tons of carbon by 2043 compared to the Current Path forecast, i.e. releasing 3.7% more carbon in that year. This increase reflects the fact that the South African economy will be largest in this scenario compared to any other. In the Free Trade scenario, the South African economy is 7.9% larger in 2043. The potential for large reductions in carbon is best reflected in the Leapfrogging scenario which reduces carbon emissions by 5.2 million tons below the Current Path forecast in 2043 in spite of the fact that the economy will be 3.7% larger.

The updated Integrated Resource Plan (IRP 2019) that was approved by the cabinet in October 2019 offers hope of a more rapid energy transition away from coal towards gas and renewables, although both come off a very low base. [11] Should South Africa adopt a 'least cost' energy scenario, it could be possible to achieve the 70% renewable target by 2050 set out by the Council for Scientific and Industrial Research in July 2020. [12] In addition to the existing contracted commitment to extend electricity production from coal by 5.7 GW, which should be online within the next two years, the IRP 2019 envisions an additional 1 GW of capacity from coal by 2030. To this end, the IRP 2019 envisions incremental capacity addition (modular) and flexible technology, to complement the existing installed capacity prior to 2030 but that envisions 'a completely different energy mix relative to the current mix' thereafter. [13]

In July 2022 President Ramaphosa unveiled a raft of proposals that would, once implemented, end recurring load-shedding, accelerate the transition to renewables and unlock the constraint that limited electricity production has on economic growth.

## Endnotes

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3. The cost of violence to South Africa's economy was recently estimated at over US\$97 billion. See: [Institute for Economics & Peace \(IEP\), Global peace index 2019: Measuring peace in a complex world](#), 2019, 99
4. K Schwab, [Insight report: The global competitiveness report 2019](#), *World Economic Forum*, 2019, 19
5. This was, among others, the reason for a five-year health market inquiry by the Competition Commission, which tabled its final report in late 2019.
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11. [As published in Government Gazette, 42779:652](#), 18 October 2019
12. JG Wright and JR Calitz, [Systems analysis to support increasingly ambitious CO2 emissions scenarios in the South African electricity system](#). Technical report prepared for Meridian Economics, 16 July 2020
13. Department of Energy (Republic of South Africa), [Integrated Resource Plan \(IRP2019\)](#), October 2019, 15

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## About the authors

Dr Jakkie Cilliers is the ISS's founder and former executive director of the ISS. He currently serves as chair of the ISS Board of Trustees and head of the African Futures and Innovation (AFI) programme at the Pretoria office of the ISS. His 2017 best-seller *Fate of the Nation* addresses South Africa's futures from political, economic and social perspectives. His three most recent books, *Africa First! Igniting a Growth Revolution* (March 2020), *The Future of Africa: Challenges and Opportunities* (April 2021), and *Africa Tomorrow: Pathways to Prosperity* (June 2022) take a rigorous look at the continent as a whole.

## About African Futures & Innovation

Scenarios and forecasting can help Africa identify and respond to opportunities and threats. The work of the African Futures & Innovation (AFI) program at the Institute for Security Studies aims to understand and address a widening gap between indices of wellbeing in Africa and elsewhere in the world. The AFI helps stakeholders understand likely future developments. Research findings and their policy implications are widely disseminated, often in collaboration with in-country partners. Forecasting tools inspire debate and provide insights into possible trajectories that inform planning, prioritisation and effective resource allocation. Africa's future depends on today's choices and actions by governments and their non-governmental and international partners. The AFI provides empirical data that informs short- and medium-term decisions with long-term implications. The AFI enhances Africa's capacity to prepare for and respond to future challenges. The program is headed by Dr Jakkie Cilliers.