



COVID-19 AND SOUTH AFRICA'S FUTURE ECONOMIC OUTLOOK

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“ Radical reforms – reversing the prevailing policy direction of the last four decades – will need to be put on the table. Governments will have to accept a more active role in the economy. They must see public services as investments rather than liabilities, and look for ways to make labour markets less insecure. Redistribution will again be on the agenda; the privileges of the elderly and wealthy in question. Policies until recently considered eccentric, such as basic income and wealth taxes, will have to be in the mix. ”

Financial Times Editorial,
3 April 2020



APPLIED DEVELOPMENT RESEARCH SOLUTIONS (ADRS)

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A world of people empowered to advance human development.

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Helping people gain economic insight and foresight to shape policy that matters.

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Abstract

South Africa was hit by the COVID-19 pandemic at a time when the country was already in the midst of an economic crisis. Since returning to the pre-coronavirus economic recession is not a desirable option, South Africa's current policy challenges go beyond short-term COVID-19 mitigation measures. Government policy measures must respond to the immediate COVID-19 crisis while also addressing the country's longstanding economic stagnation with high rates of poverty and inequality. To help identify actionable policy alternatives, we use an economy-wide linked macro-micro model of SA to simulate the short-, medium- and long-term impact of six COVID-19 scenarios under a status quo or "business-as-usual" policy option and an alternative six-pillar policy option. The results show that the South African Government can indeed effectively defeat the twin crises of COVID-19 and chronic stagnation with high rates of poverty and inequality.

However, to do so it must boldly chart a new economic policy course. The alternative six-pillar policy option suggested by the findings shows that: the short-term impact of COVID-19 on growth, employment and poverty will be lessened; the recovery period will be shorter; and, over the next ten years, the size of the economy will almost double (from R3.15 trillion to R6.18 trillion), the unemployment rate will be reduced by almost 70% (from 39% to 12%), the poverty rate by almost 50% (from 43% to 23%) and inequality by 22% (from 71% to 55%). The simulation results show that with the six-pillar policy framework, the benefits of rising prosperity significantly accrue to poor and working-class families, rather than primarily to the business class.



“ South Africa's current policy challenges go beyond short term COVID-19 mitigation measures ”

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EXECUTIVE SUMMARY

THE MERCURY
MONDAY 10 JUNE 2020
**VIRUS
HITS
LOCAL
BUSINESS**

**STAY
SAFE**
SAVE SOUTH AFRICA
TOGETHER WE CAN BEAT THE CORONAVIRUS

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Executive Summary

On 11 March 2020, the World Health Organization characterized the December 2019 outbreak of the coronavirus (COVID-19) in Wuhan China as a pandemic. Recent pandemics (SARS 2003 and H1N1 2009) pale in comparison to the swift and widespread devastation caused by COVID-19. When South Africa (SA) was hit by the COVID-19 health crisis, it was already in the midst of a deep and intransigent economic crisis. As such, a return to the pre-coronavirus South African economy is not a desirable option. Government policy now faces the dual challenge of effectively responding to the immediate COVID-19 crisis while addressing the persistent crisis of low growth, high unemployment, poverty and inequality that have affected at least half of the population for years. In light of these two critical crises, the main objective of the study is twofold.

First, we aim to estimate the effects of the pandemic on the South African economy.

Second, we endeavour to present a policy mix that is likely to both mitigate the negative impact of the virus and propel the economy on a growth and development trajectory that yields significant positive outcomes by the end of the new decade.

We used the ADRS economy-wide Linked National-Provincial model of South Africa (SA-LNP™) to examine the short-, medium- and long-term impact of COVID-19 on key growth and development indicators under alternative mitigation and post-COVID-19 policy scenarios at the national, provincial, district and municipal levels.

SA-LNP™ is a linked macro-micro model of SA. The macroeconomic component is a bottom-up, multi-sector-linked national-provincial model built using South African time series data. Additionally, the macro model has two-way links to a full microsimulation model of taxes, transfers, poverty and inequality. The linked model includes more than 12,500 equations with about 1,100 estimated regression equations that capture the laws of motion of the South African

economy at national and provincial levels. The model has a heterodox theoretical orientation and generates projections for indicators at the national, provincial, district and municipal levels. The model is publicly available through a user-friendly web-platform of the ADRS website.

COVID-19 scenarios

Three scenarios related to the spread of the COVID-19 pandemic in SA are considered. Under the low scenario, about 0.5% of South Africans (i.e. about 300,000) will be infected by COVID-19. The moderate and high scenarios consider the possibility of COVID-19 infecting close to 1% and 2% of the population (about 600,000 and 1,200,000), respectively. The low and moderate scenarios assume that the pandemic will be contained during the third quarter of 2020, and the economy will begin to recover during the fourth quarter of 2020. The high scenario assumes that the virus will be contained only during the fourth quarter of 2020.

In terms of economic impact, we assume that illnesses related to the pandemic and the social and governmental containment responses result in unexpected shocks to the economy. The initial economic shocks of the pandemic are assumed to last between three (March to May 2020) to ten (March to December 2020) months, depending on the COVID-19 scenario. The key economic variables that are shocked by domestic responses to the pandemic include demand variables (i.e. household consumption expenditure and private investment expenditure), and supply variables (i.e. production and employment).

Additionally, moderate and high scenarios are included to capture the major impacts of COVID-19 on the global economy that have negative spillover effects on the South African economy. The spillover effects of the COVID-19 pandemic on the South African economy are transmitted through at least six channels: exports, imports, foreign direct investment (FDI), gold price, oil price and the exchange rate.

Six full scenarios designed to capture the economic impact of COVID-19 in SA are derived from the combination of three scenarios for the direct impact of the virus and two spillover effect scenarios. Table A lists our assumptions regarding the magnitudes of unexpected shocks to the economic variables under each scenario.

Executive Summary

Table 2: COVID-19-Related Shocks to the South African Economy (2020)

List of Shocks	Types	Origin	Duration/Range	Group A Scenarios		Group B Scenarios		Group C Scenarios	
				A1	A2	B1	B2	C1	C2
Domestic (Direct) Shock Scenarios:				Low	Low	Moderate	Moderate	High	High
International (Indirect or spillover) Shock Scenarios:				Moderate	High	Moderate	High	Moderate	High
Percentage of South African population infected by COVID-19				0,50%	0,50%	1,0%	1,0%	2,0%	2,0%
Number of South Africans infected by COVID-19				300 000	300 000	600 000	600 000	1 200 000	1 200 000
Containment timeline				During 3rd Q	During 3rd Q	End of 3rd Q	End of 3rd Q	During 4th Q	During 4th Q
Local (Direct) Shocks									
Household Consumption Expenditure	Demand Shock	Domestic	2nd Q (Q-on-Q) = Annual (2020)= SA-LNP Categories (Range)=	-4% -3,0% [-5.8%, +3.5%]	-4% -3,0% [-5.8%, +3.5%]	-8% -5,9% [-11.6%, +7%]	-8% -5,9% [-11.6%, +7%]	-16% -12% [-23.3%, +14%]	-16% -12% [-23.3%, +14%]
Investment Expenditure	Demand Shock	Domestic	2nd Q (Q-on-Q) = Annual (2020)= SA-LNP Sectors (Range)=	-1,7% -2,5% [-2.7%, -0.7%]	-3,4% -2,5% [-2.7%, -0.7%]	-6,8% -5,0% [-11, -2.7%]	-6,8% -5,0% [-11, -2.7%]	-13,6% -10% [-22, -5.5%]	-13,6% -10% [-22, -5.5%]
Production	Supply Shock	Domestic	2nd Q (Q-on-Q) = Annual (2020)= SA-LNP Sectors (Range)=	-0,5% -0,6% [-1.1%, -0.2%]	-0,5% -0,6% [-1.1%, -0.2%]	-1% -1,2% [-2.2%, -0.37%]	-1% -1,2% [-2.2%, -0.37%]	-2% -2,4% [-4.4%, -0.74%]	-2% -2,4% [-4.4%, -0.74%]
Employment	Demand & Supply Shock	Domestic	2nd Q = Annual (2020)= SA-LNP Sectors (Range)=	-45% (-7.3 m) -9% (-1.5 m) [-22.6%, -3.8%]	-45% (-7.3 m) -9% (-1.5 m) [-22.6%, -3.8%]	-48% (-7.8 m) -12.6% (-2.0 m) [-31.7%, -5.3%]	-48% (-7.8 m) -12.6% (-2.0 m) [-31.7%, -5.3%]	-51% (8.0 m) -16.2% (-2.5 m) [-40.7%, -6.8%]	-51% (8.0 m) -16.2% (-2.5 m) [-40.7%, -6.8%]
International Spillover (Indirect) Shocks									
Exports	Demand Shock	International	2nd Q (Q-on-Q) = Annual (2020)= SA-LNP Categories (Range)=	-20% -14,5% [-30%, 5.6%]	-26% -20% [-37%, 7%]	-20% -14,5% [-30%, 5.6%]	-26% -20% [-37%, 7%]	-20% -15% [-30%, 5.6%]	-26% -20% [-37%, 7%]
Import	Demand Shock	International	2nd Q (Q-on-Q) = Annual (2020)= SA-LNP Sectors (Range)=	-20% -14,5% [-30%, 6%]	-24,0% -20% [7.5%, 40%]	-20,0% -14,5% [-30%, 6%]	-24,0% -20% [7.5%, 40%]	-20,0% -15% [-30%, 6%]	-24,0% -20% [7.5%, 40%]
Exchange Rate	Price Shock	International		(2020: -20%) (2021: +15%)	(2020: -20%) (2021: +15%)	(2020: -20%) (2021: +15%)	(2020: -20%) (2021: +15%)	(2020: -20%) (2021: +15%)	(2020: -20%) (2021: +15%)
Gold Price	Price Shock	International		20%	35%	20%	35%	20%	35%
Oil Price	Price Shock	International		-20%	-25%	-20%	-25%	-20%	-25%
Foreign Direct Investment	Demand Shock	International		-10%	-25%	-10%	-25%	-10%	-25%

Source: Author's estimates

Policy Scenarios

In considering policy measures that go beyond addressing the COVID-19 pandemic, the report is informed by two recent developments that influence its approach. First, on 7 May 2020, a special session of the African National Congress (ANC) National Executive Committee (NEC) agreed that "as we look at economic intervention recovery, we can no longer accept the pre-COVID-19 'normal' of unacceptably high levels of joblessness and exclusion".

The NEC therefore called for the development of a Post-COVID-19 Economic Reconstruction, Growth and Transformation Plan to resemble that of a post-war reconstruction situation. Second, the impact and consequences of COVID-19 have brought about a shift in global sentiment towards the neoliberal model of free market capitalism with self-interest, small government, low taxes and the primacy of limited social security.

The Business-as-Usual Policy Scenario

The Business-as-Usual (BAU) policy scenario presents a likely outlook for the future of the South African economy that fundamentally resembles its recent performance. According to this scenario, the future policy inputs into the economy will closely follow recent policy history. For example, through the Medium-Term Strategic Framework (MTSF) and the Medium-Term Expenditure Framework (MTEF), fiscal policy will continue to prioritize lowering the debt-to-GDP ratio through expenditure measures, and monetary authorities will continue to set the interest rate to enforce strict adherence to inflation targeting, with 6% as the ceiling for the inflation rate.

The Alternative Six-Pillar Policy Scenario

In addition to the BAU policy scenario, the report presents a six-pillar policy option as an alternative policy scenario. The pillars of the policy option include the following:

Pillar 1

Macroeconomic Policy Reforms

This pillar includes the short-term use of fiscal and monetary policy measures to mitigate the impact of COVID-19 on households and businesses. Over the next decade, the pillar is designed to directly and indirectly enhance economic growth and support other policy pillars, such as the Social Policy pillar (Pillar 2) and the Trade and Industry Policy pillar (Pillar 4), to achieve industrial transformation and inclusive economic growth. The building blocks of this pillar include:

Short-Term COVID-19 macroeconomic mitigation measures:

- ① The 2020 Budget medium-term austerity proposal is set aside since a suitable fiscal response to COVID-19 demands expansion, not contraction, of available resources to address the pandemic and its effects.
- ② The Government's budget for transfer spending is increased to properly fund the expansion of social security and Expanded Public Works Programme (EPWPs) (Pillar 2).
- ③ There will be an additional R50 billion government final consumption expenditure (GFCE) to support the needs of the health care system, education, and other central, provincial and local governments during the COVID-19 pandemic.
- ④ There will be immediate allocation of financial support to businesses, estimated at R150 billion, principally in the form of tax benefits and subsidies designed to especially assist small and medium-sized enterprises so that they have a better chance to survive this period and retain their employees.
- ⑤ There will be a 4% increase in the general government's social infrastructure investment budget of 2020 to support increased COVID-19-related public health needs and the preparation for the reopening of schools and businesses.
- ⑥ There will be reductions in the interest rate and an increase in low-cost borrowing.

Long-Term Macroeconomic Policy Reforms (2021–2030)

- ① Government and public corporations will systematically increase their investment in economic infrastructure (e.g. roads, bridges, dams, electricity and water supply), social infrastructure (e.g. schools, hospitals, parks and administrative services) and economic services (e.g. business enterprises) by 10% annually over the next 11 years, which is 4% above the previous scenario.
- ② Relative to the previous scenario, the Government's annual current expenditure is increased by an additional 3% in order to provide more financial support for the delivery of social services over the next 11 years.
- ③ The Reserve Bank adopts a dual mandate of using monetary policy tools to help achieve a growth target of 6% and price stability, with a target of 8% for the upper limit of the inflation rate.
- ④ Monetary authorities will adopt necessary measures to raise the annual growth of credit extension to the private sector to 15%.





Pillar 2

Social Policy Reforms

The Social Policy pillar is built as part of a necessary policy response to both the devastating social impact of the pandemic and the persistent high rates of unemployment, poverty and inequality. We have specifically used the microsimulation component of the SA-LNP model to provide not only reliable estimates of the possible number of beneficiaries and programme cost, but also the welfare impact of the proposed measures. The pillar consists of the following:

COVID-19 Mitigation Response (2020)

- ① The Government immediately introduces an unemployment grant for all who have become unemployed in 2020 and all other skilled unemployed people. The eligible unemployed workers will be entitled to receive R1,000 a month.
- ② The Government begins to make Public Works the employer of last resort for the unskilled unemployed. In 2020, the EPWP expands to cover 35% of the unskilled unemployed, with an increase in the daily pay rate to R160.
- ③ The Department of Social Development (DSD) introduces a new caregiver grant for the family member that takes care of a child who receives either a child support grant or a care dependency grant. The programme is designed to allocate only one caregiver grant per family. The initial value of the grant is R500 per month.
- ④ There is an immediate increase in the monthly child support grant from R455 to R500.

Post-COVID-19 (2021–2030)

- ① After 2020, the Government continues expanding the EPWP to gradually make Public Works the employer of last resort for the unskilled unemployed by 2030. The coverage will grow to 73% in 2021 and by an additional 3% every year after.
- ② The caregiver grant, introduced in 2020, is extended. The initial R500 monthly value of the grant increases by 6% annually.
- ③ Post-COVID-19, the skilled unemployed can apply for an adult unemployment grant to help them remain, or become active, in the labour market. After 2020, the monthly R1,000 grant is expected to increase by 6% annually.
- ④ All other grants increase by 6% annually.



Pillar 3

Microeconomic Policy Reforms

This microeconomic policy pillar is chiefly derived from the Treasury (2019) modelling scenarios to increase the efficiency and competitiveness of the South African economy. Similar proposals are advanced by Business for South Africa (B4SA, 2020).

The measures are essentially supply-side measures that are designed to remove perceived inefficiencies and imperfections in the operation of the free market.

According to the Treasury (2019), the bulk of microeconomic interventions include reforms in the telecommunications, agriculture, services and transport industries.

Therefore, we developed a set of model scenarios that replicate the Treasury's modelling exercise to capture the essence of its microeconomic policy proposals and their expected outcomes.

This includes scenarios related to the expansion of tourism and exports from the agriculture sectors, improvements in the price competitiveness of telecommunication sector, and the gradual lowering of mark-ups of targeted sectors, such as transport, real estate and business services.





Pillar 4

Trade and Industrial Policy Reforms

To include and empirically examine the future impact of trade and industrial policy, the model scenario is designed to capture three ultimate goals of the programme: *To raise total investment in the manufacturing sector; to expand exports; and to increase local content and procurement of locally manufactured products.* In order to include the expected future macroeconomic impact of trade and industrial policy measures, we designed and simulated the following:

- ① What if industrial policy measures, such as various industrial financing incentives, succeed in increasing total annual investment in the manufacturing sector by R10 billion (in constant 2010 prices) during the next 11 years.
- ② What if trade and industrial policy measures, such as the SEZ and African integration programmes, succeed in increasing total exports by an additional 1.5% after 2020.
- ③ What if the Government's Proudly South Africa and localization policies succeed in gradually reducing import dependency ratios of some sectors by 20% over the next 11 years.
- ④ What if inter-departmental policy measures help slowly increase the labour intensity of economic sectors over the next decade.



Pillar 5

Domestic and International Private Sector Support

This pillar includes the Public-Private Growth Initiative (PPGI) partnership that has identified 14 sectors, mainly in manufacturing, to invest at least R500 billion over the next five years.

It considers "what if" the PPGI increased investment in the South African economy by R500 billion over the next 11 years. The pillar also includes possible additional investment by the Public Investment Corporation (PIC) in priority economic sectors (e.g. infrastructural investments in previously disadvantaged and underdeveloped communities) as an indicator of its contribution to the broader socio-economic development of the country.

This scenario considers "what if" PIC increased its investment in the South African manufacturing sector by R100 billion over the next five years. The pillar also considers the possibility of a gradual increase in FDI in South Africa.



Pillar 6

Provincial Growth and Development Plans

As central government policy choices condition the growth and development prospects of provinces, provincial economic plans have the potential to lift the country's overall economic performance. Ideally, this pillar should include input from all provinces.

However, for this study we have used Gauteng's medium-term plan: GGT2030

Growing Gauteng Together 2030

which includes 160 interventions to promote industrial development, provide social services, improve the social and economic environment of doing business in the province, and many other important growth and development objectives.

We simulated the provincial and national impact of GGT2030, assuming that it will be successfully implemented.

FINDINGS

The report presents alternative future outlooks for the SA economy by using the model to simulate a combination of COVID-19 and policy scenarios to answer specific questions.

Baseline Scenario: No-COVID-19 with BAU Policies

What if there were no COVID-19 and the status quo policy remained unchanged, what would be the likely economic outlook for South Africa over the next decade?

- ① Over the next decade, the real size of the economy (in 2010 prices) is projected to grow by about 23.4%, which translates to a compound annual growth rate (CAGR) of 1.9%.
- ② The total employment would increase to 20.1 million by 2030, thus adding 3.8 million jobs to the economy over ten years. By 2030, the unemployment rate is expected to be 26.3%.
- ③ The poverty rate is projected to decline by 1.8% over the next decade, from 36% in 2019 to 34.2% in 2030.
- ④ Overall, under this scenario, the economy is likely to remain stuck in low growth with high rates of unemployment, poverty and inequality.



COVID-19 Scenarios with the BAU Policy Option

What if with or without COVID-19 the policy status quo is unchanged, what would then be the likely future economic outlook?

The model results show that COVID-19 will have a major impact on the economy. Depending on the COVID-19 Scenario:

- ① The real GDP growth for 2020 is likely to drop to between -4.4% (mild COVID-19 scenario) and -12.1% (severe COVID-19 scenario).
- ② The unemployment rate is likely to increase to between 34% (mild scenario) and 39% (severe scenario) in 2020.
- ③ The poverty rate is likely to increase by between 4 and 7% points, increasing the number of poor by between 2.5 and 4.5 million.
- ④ Post-COVID-19 economic transition will neither be quick nor uniform, with more key indicators, including output, investment, export and import, following the U-shaped path. Therefore, negative economic impacts of the pandemic are expected to persist in the medium term.
- ⑤ Over time, economic indicators tend to gravitate towards the low growth, high unemployment and poverty trends of the No-COVID-19 scenario.

COVID-19 Scenarios with Six-Pillar Policy Reforms.

What if in response to COVID-19, the Government changes the policy status quo? What policy mix would likely mitigate the impact of the virus and propel the economy on a path that yields inclusive growth?

To answer these questions, we ran the SA-LNP model using the mild and severe COVID-19 scenarios with the six-pillar policy reforms. The model projections show that the short-, medium- and long-term impact of the six-pillar policy interventions differ from the COVID-19 scenarios with the BAU policy option.

- ① Reduces the negative impact of COVID-19 on growth, employment and poverty;
- ② Shortens the recovery period;
- ③ Produces average annual GDP growth of 6.2%;
- ④ Creates between 8.7 million (mild scenario) and 9.9 million (severe scenario) jobs over the next decade;
- ⑤ Reduces the unemployment rate by almost 70% to 12.2% by 2030;
- ⑥ Lowers the poverty rate by almost 50% to 23%;
- ⑦ Reduces income inequality by 16% points.

Overall, in this report we demonstrate that, with or without COVID-19, the BAU policy option will likely continue to produce low growth with high rates of unemployment, poverty and inequality. In contrast, our results show that the proposed alternative six-pillar policy framework has the potential to bridge relief from the current health and economic crises to the generation of inclusive growth. In contrast to the BAU outcomes, the six-pillar policy framework shows that as rising prosperity is obtained, the benefits significantly accrue to poor and working-class families, rather than primarily to the business class.

The six-pillar policy framework poses a challenge to the current pursued BAU policy option that follows economic orthodoxy with heavy reliance on microeconomic policy reforms. Our findings show that there is a way for the South African Government to effectively overcome the twin crises of COVID-19 and chronic stagnation with high rates of poverty and inequality, but not without boldly charting a new economic policy course.



2

INTRODUCTION & BACKGROUND



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On 11 March 2020, the World Health Organization characterized the December 2019 outbreak of the novel coronavirus (COVID-19) in Wuhan China as a pandemic.

Predecessor pandemics such as the Severe Acute Respiratory Syndrome (SARS) in 2003, and the H1N1 influenza pandemic in 2009 pale in comparison to the widespread reach and devastation caused by COVID-19. This third pandemic of the 21st century has spread to most countries in the world, infected close to 20 million people and claimed more than 700,000 lives by end of July 2020. As a result of the pandemic, the global economy has been pushed to the brink of a severe recession with major monetary authorities returning to their 2008–2009 financial crisis toolkits, and fiscal authorities rapidly designing and implementing stabilization packages.

SA was in a severe recession when it recorded its first COVID-19 cases. Consequently, returning to the pre-Covid-19 South African economy is not a desirable option. The government policy challenge is therefore to effectively respond to the immediate COVID-19 crisis while addressing the low growth and high unemployment, poverty, and inequality crises that have persistently affected at least half of the population for years. The main objective of the study is therefore twofold: first, to estimate the effects of the pandemic on the SA economy; Second, to present a policy mix that is likely to both mitigate the negative impact of the virus and propel the economy on a growth and development trajectory that yields significant positive outcomes by the end of the new decade.

The structure of the report is as follows. The next section provides a brief overview of the nature and impact of influenza pandemics in general, and the COVID-19 pandemic in SA. Section 3 presents a non-technical introduction to the South African Linked National Provincial Model that we have used to assess the impact of COVID-19 and to design and simulate the likely growth and development effects of possible short-term mitigation and long-term policies. Details of six possible COVID-19 scenarios are presented in section 4. The scenarios are a combination of three local economic shock scenarios and two international spillover scenarios. Section 5 is dedicated to detailed policy options during and after COVID-19. Analysis of the model results, in terms of their short, medium- and long-term impact, is provided in Section 6. Limitations and conclusions of the study are provided in Sections 7 and 8. The Annexes of the report provide our findings for the nine provinces and each of their districts and municipalities.



Background

2.1 The Nature of Influenza Pandemics

The last century documents epidemiologic observations of influenza in human populations, with the most prominent ones occurring in 1918, 1957, 1968, 2009 and now in 2020. Experts conclude that most influenza illness and mortality cases are due to seasonal strains that circulate each winter in temperate climates and over longer periods in the tropics (Verikos et al., 2012; Nicholson, Wood and Zambon, 2003). The lack of a ready vaccine to such pandemic strains has often resulted in widespread infection with higher attack rates. Accurate estimation of death rates due to influenza is made difficult by the potential for the misclassification of the cause of death (Warren-Gash, Smeeth and Hayward, 2009). Individuals who have recovered from their infection are less likely to be re-infected with related strains and may retain some measure of broad, cross-protection against unrelated seasonal influenza viruses (Steel et al., 2010). Interestingly, the potential role of antibodies ameliorating the re-infection rate is currently being challenged by the epidemiologic observations of COVID-19.

2.2 Influenza Epidemics and their Effects

Generally, the economic effects of illness resulting from influenza epidemics include increased healthcare expenditures by patients and funders (e.g. governments, medical aid) as well as increased workloads for healthcare workers. Indirect effects take the form of the disruption in labour supply due to increased absenteeism from work by sick workers and employees wishing to reduce the risk of contracting illness in the workplace (Verikos et al., 2012). Other effects include reduced domestic and international travel, as well as reduced public gatherings at sporting and other events (Homeland Security Council, 2006). School closures to mitigate the spread of the virus also trigger non-voluntary risk-modifying behaviour as workers with school-going children are forced to take leave (Beutels, Edmunds and Smith, 2008). As such, productivity is negatively impacted. Firms can also postpone investment decisions due to increased uncertainty and risk (Fan, 2003). Similarly, uncertainty will weigh on consumer confidence, leading to reduced spending as people elect to be less mobile to reduce the probability of infection. The sectors impacted the most by consumer confidence include tourism, transportation and retail (James and Sargent, 2006).

Finally, according to Fan (2003), an epidemic does not need to be of high morbidity and mortality to exert a significant psychological impact on attitudes towards risk. For example, the 2003 SARS epidemic, characterized by low morbidity and mortality, portrayed a significant psychological effect on attitudes to risk. Fan (2003) suggests that this paradox can be explained by factors such as modern communication technology that transmits information almost instantaneously at low cost, and the lack of adequate medical information on SARS.

2.3 The COVID-19 Pandemic in South Africa

SA's first recorded case of COVID-19 was on 5 March 2020. In the period between 5 March and 30 June 2020, over 1.6 million laboratory tests were conducted nationally. According to the National Institute for Communicable Diseases (NICD), laboratory testing for the virus causing COVID-19 increased weekly, with a growing number of testing laboratories and the implementation of targeted community symptom screening and testing referrals in early April 2020 (NICD, 2020).

At a provincial level, Western Cape (62,481) and Gauteng (4,288) account for the largest positive cases identified to date. The proportion of positive test results is the highest in the 60–69 (26.1%) and 50–59 (23.8%) age groups, and slightly higher among males than among females. By the end of June, over 151,000 cases had been recorded in SA, with about 74,000 recoveries and over 2,600 deaths. More worrying has been the epidemiological projections that indicate that, in the worst-case scenario, over 40,000 lives may be lost by the end of the year.



2.4 How the COVID-19 Pandemic Affects Economies

Historically, episodes of pandemics have had large temporary economic effects beyond those in the health services sector (Chou, Kuo and Peng, 2004; Hai et al., 2004; Lee and McKibbin, 2004). Literature abounds in the use of economic models to assess the impact of pandemics. Verikos et al. (2012), Beutels et al. (2008), Smith et al. (2005) and Lee and McKibbin (2004) make a case for the economy-wide approach to modelling to capture the economic impact of pandemics beyond the health sector. Previous studies used the single-sector and multi-sector method. For the single-sector method, Keogh-Brown et al. (2010), Jonung and Roeger (2006) and Fan (2003) applied quarterly models, thus capturing the short, sharp nature of pandemics (Verikos et al., 2012).

However, they overlook sectors that are particularly relevant to the study of the economic effects of epidemics, such as tourism, transport and storage. Other studies apply a multi-sector approach, such as computable general equilibrium (CGE) models (Verikos et al., 2012; McKibbin and Sidorenko, 2006; Lee and McKibbin, 2004; Chou, Kuo and Peng, 2004). Authors that utilize economy-wide models show that the ripple effects of a virus go well beyond the health sector to cause damage to the economy.

For example, Lee and McKibbin (2004) and Smith et al. (2005) show that the effects on the non-health sectors due to SARS far surpass the impact on the health sector. Verikos et al. (2012) and Dixon et al. (2010) have applied models with the dual advantage of including multiple industries while including quarterly periodicity in analysing the effects of a serious epidemic on the economy.

In the wake of the COVID-19 pandemic, several studies have been conducted to determine its impact on the South African economy.

A joint report by the National Treasury, the South African Reserve Bank (SARB) and the International Food Policy Research Institute (IFPRI) (Arndt et al., 2020) applied a Social Accounting Matrix (SAM) to examine the impact of three shock scenarios. According to this report, in the worst-case scenario, SA stands to lose 7 million jobs, with the unemployment rate reaching 50% as the gross domestic product (GDP) contracts by 16.1% compared to -5.4% in the quick-recovery scenario. The report, however, has some shortcomings.



1

First, as the authors acknowledge, the adopted approach does not consider important price shocks related to COVID-19, such as the exchange rate, gold price and oil price shocks. Although the report tries to minimize the importance of this shortcoming, recent price shocks (such as the 20% depreciation of the rand and the 15% rise in the gold price) have potentially considerable macroeconomic consequences that should not be ignored.¹

2

Second, it is well established that the SAM, as an accounting framework, does not capture the behaviour of the economic system, thereby limiting its usefulness.² This very shortcoming might explain why the report focuses only on the immediate impact of COVID-19 and omits quantification of the likely performance of the post-pandemic economy.

3

Third, the report does not make any observations about the impact of the COVID-19 crisis on poverty in SA, even though a SAM-based multiplier analysis is usually used to examine the effects of exogenous shocks on income distribution and poverty across socio-economic groups of households.³

4

Finally, although the report is prepared by the National Treasury and the Reserve Bank, both organs of the State, it does not propose possible solutions to a major crisis that is currently hard-hitting the country.

Rossouw et al. (2020) utilize the National Income Dynamic Survey (NIDS) to group households into five classes:

- *The Chronically Poor*
- *The Transient Poor*
- *The Vulnerable*
- *The Middle Class*
- *The Elite*

They identify the sources of income of each group and, from the numbers, suggest that few South Africans will continue to be paid while not working during lockdown, or perhaps while working from home. Wages matter more than any support that the Government can provide as many employees face the increasing possibility that their jobs will cease to exist if the opening of the economy is delayed too long.

In assessing the impact of COVID-19 on sub-Saharan economies, the World Bank (2020) applied two economy-wide models, namely the macroeconomic and fiscal model (MFMOD) and the global dynamic CGE ENVISAGE model. Their analysis was built on two scenarios.

The first scenario is based on the assumptions that the pandemic will peak in advanced economies followed by gradual removal of containment measures in the next two months as the pandemic fades and that outbreaks are contained in other countries and in sub-Saharan Africa.

The second scenario, however, assumes that the COVID-19 outbreak continues to weigh on the economy in the third and fourth quarters of 2020 and into 2021, while some social distancing measures are required to keep the spread of the virus at manageable levels.

Among key results from the first MFMOD model scenario are that, under a severe but contained crisis, growth in sub-Saharan Africa could be reduced by up to 5.2 percentage points in 2020 compared to a no-COVID-19 base case. On this basis, real GDP growth in the region is projected to drop to -2.1% in 2020 from 2.6% in 2019. In the second, more pessimistic scenario, in which COVID-19 lingers and spreads more intensively, growth in the region could drop to -3.0 in 2020.

Simulations from their CGE model suggest that the immediate impact of COVID-19 on growth in sub-Saharan Africa would be substantial, even under the most optimistic scenario of a rapid and efficient response. Simulation results show that GDP would be lower than in the no-COVID-19 base case by about 5.7 percentage points in 2020. On this basis, growth in the region is projected to decline to -2.5% in 2020 due to COVID-19. Under the most pessimistic scenario in which the COVID-19 pandemic lasts through 2021, the output decline would be catastrophic. GDP would be 7.6% lower than in the no-COVID-19 base case. In this case, growth in the region would decline to -5.1% in 2020.

As a result, Africa's big economies, namely Nigeria, SA and Angola, are expected to be hard hit by COVID-19 impacts in terms of weak growth and investment, welfare losses, supply shock and demand shock, disruption of trade and value chains, weak external demand and capital flight, as has been the case with \$1.75 billion leaving SA's shores during March 2020. Adding to these woes are looming fiscal deficits and current account deficits as trade balances deteriorate.

1. In Section 4.2, we consider the spillover effects of the global COVID-19 through several channels, including the oil price, the gold price, and the depreciation of the South African currency.
2. Round (2003) and Mainar Causapé, Ferrari and McDonald (2018).
3. Social Accounting Matrices (SAMs) and SAM-based Multiplier Analysis (Round, 2003).

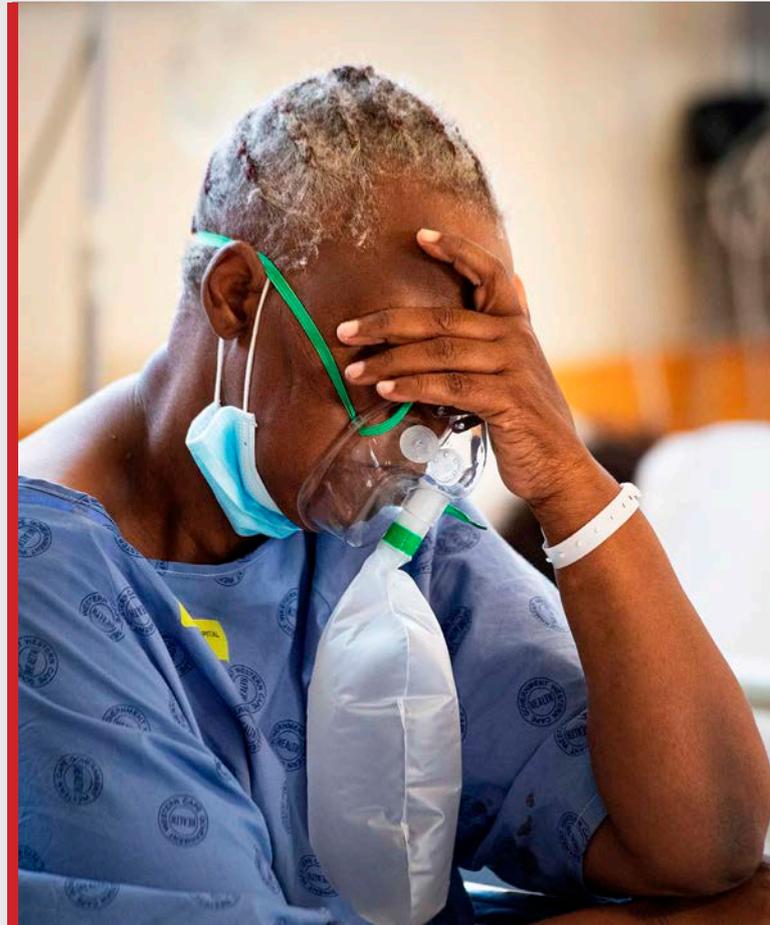
Using a NiGEM global macroeconomic model, the Organisation for Economic Co-operation and Development (OECD, 2020) points out in a related report that lower global growth, reduced tourism, increased borrowing costs, supply chain disruptions, weak retail sales and slowdown in key trading partners will also contribute to SA losing about 15% of GDP. An International Monetary Fund (IMF) report concedes that this might be the worst recession since the Great Depression. In their forecasts, SA is set to contract by 5.8% as structural constraints, low commodity prices, low external demand, declining revenue, investment downgrade, capital flight and high borrowing costs take its toll on the economy in the wake of the pandemic.

Relatedly, JP Morgan and the Bureau for Economic Research (BER) forecast SA's GDP contracting by at least 7% in 2020.⁴

A United Nations policy brief on the impact of COVID-19 in Africa (UN, 2020) groups the economic consequences as first, second and third-order effects. Within the first order, GDP drops, resulting in the worsening of trade balance, job and livelihood losses, wealth depletion and increased health and related spending. Second order effects include the collapse of domestic supply chains, stalling economic activity and increased non-formal activity. Third order effects include recession, debt crisis and financial distress. The policy brief also highlights political and social consequences.

A research report by Eighty20 provides an insightful analysis on the impact of the lockdown on the South African workforce, using the fourth quarter 2019 Quarterly Employment Statistics (QES) and the Quarterly Labour Force Survey (QLFS). The report asserts that SA's 2020 GDP growth will contract due to the downgrade of SA's credit rating and the negative impact of COVID-19 on FDI.

According to the report, construction and mining will be hard hit because they are not regarded as essential services. In contrast, there will likely be a lower impact on essential services such as electricity, gas and water. Manufacturing, transport and retail will be affected, with the exception of food-related essential services. Similarly, clothing and small informal retail owners will be impacted. The report argues that lower-skilled workers are affected during the lockdown, and only 3.8 million working South Africans were able to go to work at the height of the lockdown. Of the remaining 12.9 million, 1.7 million worked remotely while 1.2 million worked at a reduced capacity.



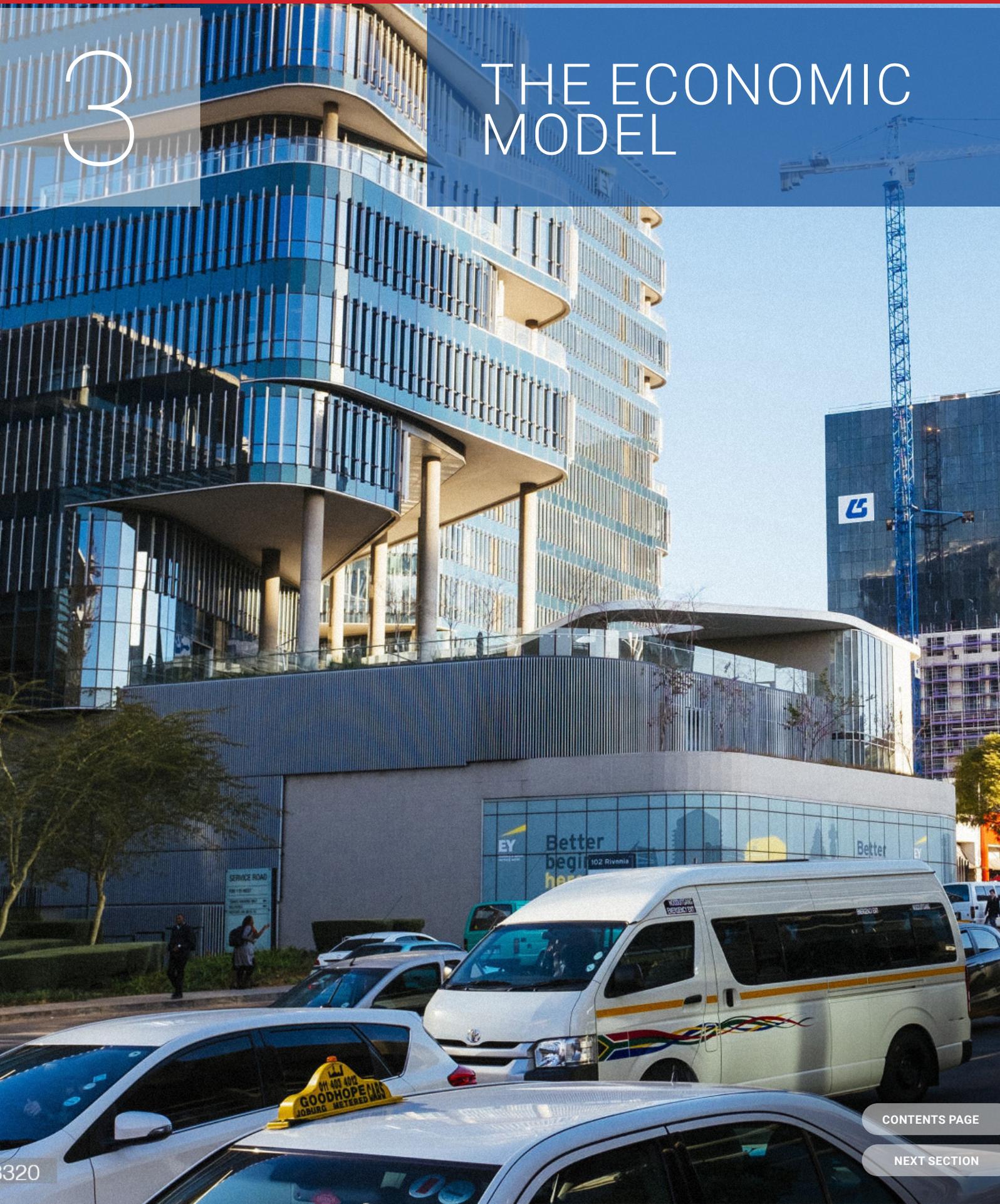
In addition to COVID-19-related woes for the South African economy, Sekyere et al. (2020) list aggravated levels of poverty for the self-employed and informal sector as well as high costs of borrowing. Davies and Vincent (2020) stress that demand suppression will be catastrophic for production and for employees who will lose out on salaries. Similarly, a report by Trade and Industrial Policy Strategies (TIPS) pointed out that the automotive sector faces huge financial losses, liquidity pressure and looming retrenchments (Barnes, 2020).

Like the previously cited studies, in this report we employ an economic model to identify the impact of COVID-19 on SA. More specifically, we use the ADRS economy-wide Linked National-Provincial model of South Africa (SA-LNP) to examine the short-, medium- and long-term impact of COVID-19 on key growth and development indicators under alternative mitigation and post-COVID-19 policy scenarios. The report also uniquely presents an analysis of the impact of COVID-19 and alternative outlooks for the economy over the next decade at the national, provincial, district and municipal levels.

4. Echoing the IMF's assertion that the Covid-19 damage to the economy is worse than the 2008/2009 financial crisis, Statistics SA (Stats SA) conducted a business impact survey. Results from the survey reveal an economy grappling with low turnover, low exports, high price of inputs, financial resource strain, business survival under threat and redundant employees, all of which do not augur well for the fragile economy ("Stats SA, 2020a").

3

THE ECONOMIC MODEL

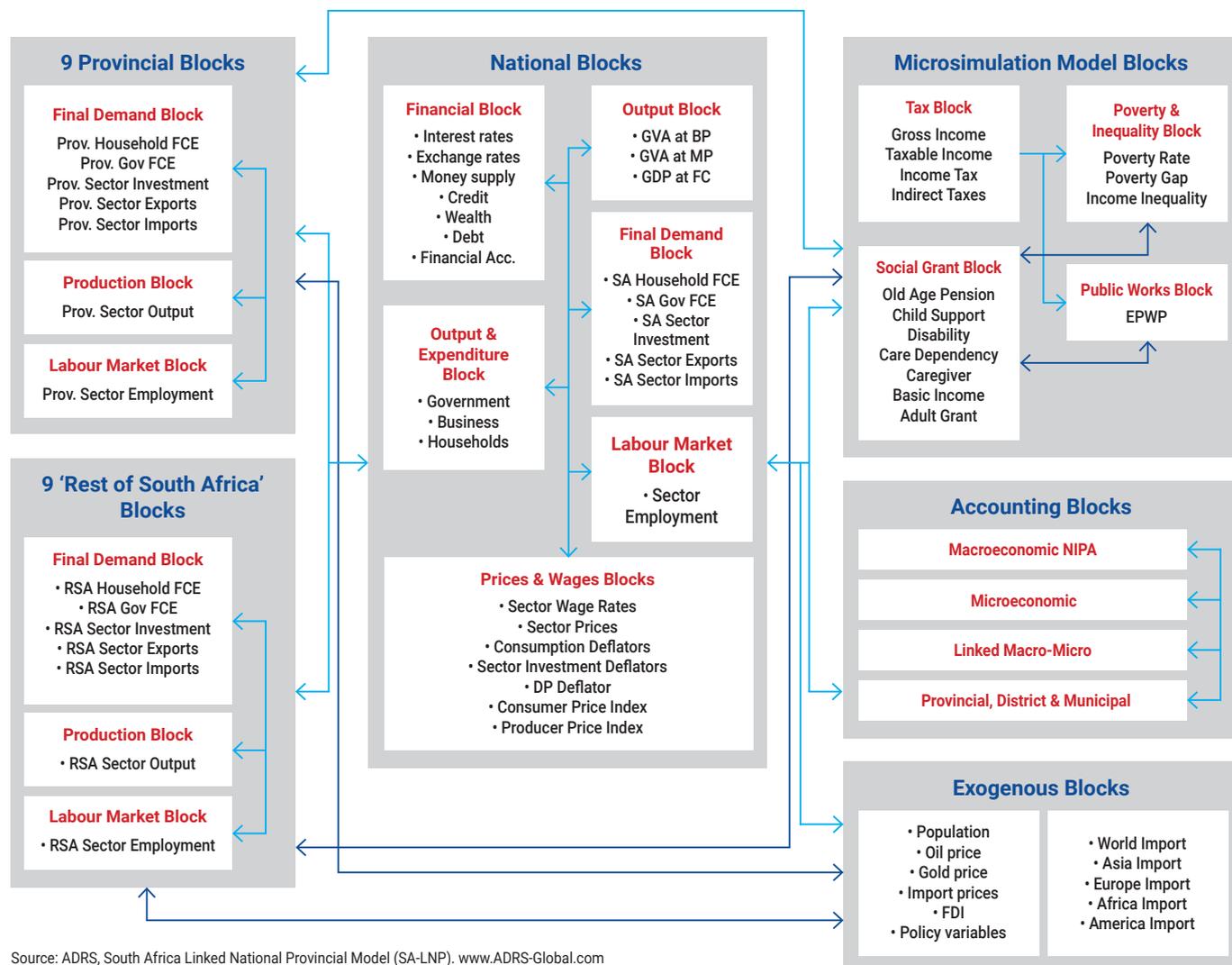


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The ADRS economy-wide Linked National-Provincial Macro-Micro Economic Model (SALNP™) captures dynamic interactions between an economy-wide macroeconomic model of SA, nine provincial economic models and a microsimulation model of household taxes, transfers, poverty and inequality (Diagram 1).

Diagram 1: The South African Linked National-Provincial Macro-Household Model (SA-LNP™)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP). www.ADRS-Global.com

Model Outputs	National Macro Results	Provincial Macro Results (9 Provinces)	District & Municipal Results	National & Provincial Industry Results	Household Results
	<ul style="list-style-type: none"> • Macroeconomic Indicators • GDP Expenditure Indicators • GDP Production Indicators • GDP Income Indicators • Financial Indicators • Labour Market Indicators • Income and Expenditure Indicators 	<ul style="list-style-type: none"> • GDP & Per Capita GDP • Employment • Unemployment Rate • Investment • Public Investment • Government Expenditure • Per Capita Gov. Expendi. & Investment 	<ul style="list-style-type: none"> • 7 Macroeconomic Indicators for each of 52 Districts & 234 Municipalities 	<ul style="list-style-type: none"> • Output • Investment • Employment 	<ul style="list-style-type: none"> • Household Direct & Indirect Taxes • Social Security Demand & Cost • EPWP Demand & Cost • Poverty Level & Rate • Poverty Gap • Inequality

Several features of the model give it an edge for impact analysis of alternative macro and micro policies for growth, industrial development, poverty and inequality. For example, the specification of the model provides the necessary flexibility to capture the underlying structure of the South African economy and its nine provinces; it is inter-temporal and dynamic. It is also sufficiently disaggregated, in terms of economic sectors, consumption goods and labour market-related variables, enabling its effective link to the provincial and microsimulation part of the model. The integrated model is designed to enable users to conduct dynamic, short-term and long-term policy simulation exercises. The following is a brief non-technical introduction to the three economic models that underlie the SALNP model and form its component parts.

3.1 The SA-LNP Macroeconomic Component

One of the three economic models that underlie SALNP is the ADRS multi-sector Macroeconometric Model of South Africa (MEMSA™), developed to simulate the impact of policy changes related to fiscal and monetary issues, as well as changes and shocks to economic sectors, private businesses, government and household incomes and expenditures. The model incorporates sector-specific estimations designed to capture the differentiation between the determinants of specific variables related to different sectors of the economy. Therefore, at the macro level, SA-LNP has a bottom-up approach to the determination of seven variables related to 45 economic sectors and includes a significant number of policy parameters.⁵

The model is relatively large, composed of more than 3,200 equations with approximately 400 estimated equations. Its main behavioural relationships include estimated equations for a number of aggregate variables, and estimations at disaggregate levels for output, investment, employment, wage rates, exports, imports, prices, consumption and investment deflators.

Its underlying accounting relationships reflect bottom-up calculations of relevant variables at real and nominal levels. These ensure consistency in relation to the flow of income, expenditure and savings in the economy. Therefore, the model solution for each period is consistent with the various identities required by the national account at real and nominal levels. Since the macro model is linked to a household model, a number of the accounting relations are met through household level information.

3.2 The SA-LNP Provincial Component

The purpose of the provincial model as a component of the SA-LNP is to provide projections of key growth and development variables for each of the nine provinces in SA; these variables are based on each province's economic structure and their links to the rest of the country's economy.

The provincial model component of SA-LNP includes the following features:

- ① An econometric estimation of more than 600 equations related to provincial investment, output and employment for 23 sectors of nine provincial economies. The estimated equations capture mainly key behavioural relationships between sectors of provincial economies and the corresponding sectors at the national level. The system of estimated equations functions as a bridge that links the model's national level macroeconomic and sector projections to the provincial level projections of three key economic variables;
- ② About 700 equations that produce provincial projections for model variables other than investment, output and employment, such as capital stock, capital and labour productivity;
- ③ Nine input-output structures that capture sector linkages within provinces and between provinces and the rest of South African economy. Each province's input-output structure includes an integrated complementary input-output table for the "rest of South Africa" that together represent the South African economy as a whole.



5. For more information about ADRS' macroeconomic model, see Adelzadeh (2019a) and visit www.adrs-global.com.

3.3 The SA-LNP Microsimulation Component

The modelling principle utilized to build the South African household model is the microsimulation modelling technique, whose application to socioeconomic modelling was pioneered by Guy Orcutt in the United States of America in the late 1950s and early 1960s (Orcutt, 1957; Orcutt et al., 1961). The South African model, which was originally built as a static model (Adelzadeh, 2001), has been expanded and complemented with dynamic properties for the purpose of linking it to the SA-LNP's macro and provincial models. This enables the final model to:

- ① Capture the two-way interactions between the macro economy and household poverty and inequality;
- ② Assess the impacts of diverse economic policy changes on poverty and inequality.

The main components of the microsimulation model are its database and its tax and social policy modules. The South African model uses a microdatabase of individuals and households. The microdatabase includes the official annual October Household Survey, the Income Expenditure Survey, the Census and the Labour Force Survey, which are the main sources of countrywide economic and demographic micro data. The model's database is prepared in terms of family units because it relates closely to the definition of the financial unit used by many of the government tax and transfer programmes.⁶ The model's database includes 125,830 individuals, making up 61,684 families or 29,800 households. It includes weights for individuals, families and households, which are used to translate each of the three samples to their corresponding populations for a given year.

Each unit record includes more than 400 columns of information for each individual in the family, including demographic, labour force, marital status, housing and income and expenditure information.

The South African microsimulation model includes government taxation policies that affect households (i.e. direct and indirect tax policies) and four of the current social security programmes (i.e. old age grant, child support, disability grant and care dependency grant). It also includes five other grant programmes (i.e. caregiver support, the basic income grant, the youth grant, the unemployment grant and the adult grant) that are not currently part of the social security system in SA but can nonetheless be used to develop "what if" scenarios.

The process of integrating the microsimulation model into the SA-LNP was as follows.

- ① **First**, the tax and transfer parameters of the model were given time dimensions to allow for possible future changes as part of developing policy scenarios, and also to allow for the annual adjustments of some of the parameters, such as the annual adjustment of the poverty line to the rate of inflation.
- ② **Second**, prior to the simulation with SA-LNP, the demographic weights were aged for the next ten years, using the existing forecast of the South African population and its distribution among the nine provinces, and by race, gender and age categories. The simulation programme is instructed to use corresponding individual weights for a given forecasting year.
- ③ **Finally**, programmes were written to use the model's projections of annual changes in employment to unemployed individuals in households and to allow for the annual uprating of household income and expenditure, using appropriate combinations of 21 consumption deflators, 38 sectoral price changes, and the consumer price index (CPI). These are generated annually by the macroeconomic model part of SA-LNP.



6. Since the South African national surveys use households, the construction of the unit record of the South African model on the basis of family unit required a substantial amount of programming. The relational codes in the October Household Survey were used to break households into the appropriate number of families.

3.4 Macro-Micro-Provincial Interactions in SA-LNP

The model establishes two-way interactions between its macro, provincial and micro components such that:

- ① Changes in macroeconomic variables (e.g. changes in prices, employment, wage rates, benefits, transfers) and changes in national-level industrial sectors influence provincial economic performance and the welfare of individuals and families at national and provincial levels;
- ② Changes in provincial economies affect national economic performance and households;
- ③ Changes in household-level economic conditions (e.g. poverty, inequality, consumption, taxes, eligibility for social grant) influence macroeconomic and provincial outcomes. The Gauss-Seidel iterative method and a calibration procedure are used to solve the overall system, taking into account interactions between the different components of the model.

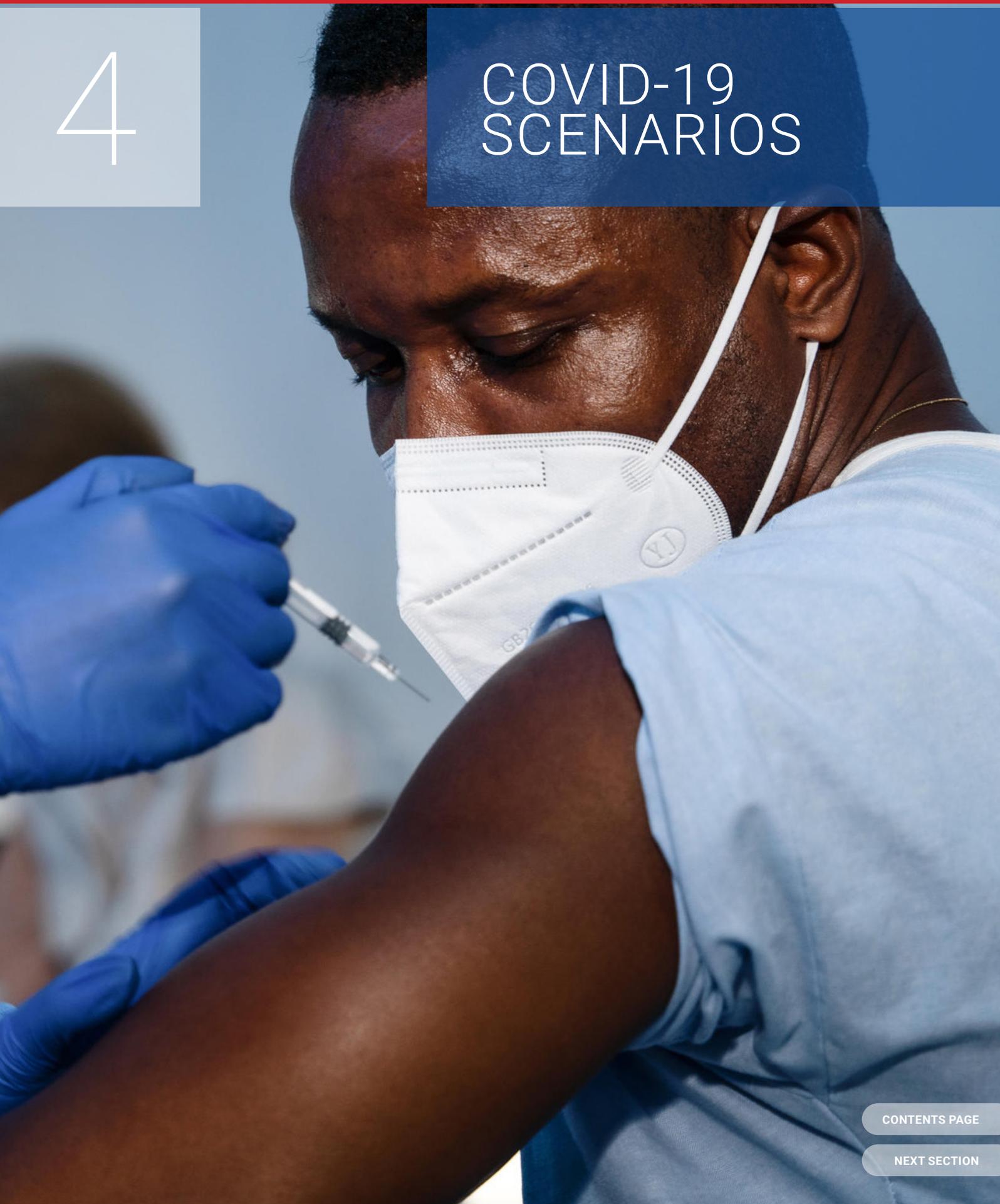
Each period's results reflect convergence of the macroeconomic variables, provincial variables and household-level variables at the aggregate level.

Therefore, the three models are dynamically integrated and generate time-based results that reflect the actual process of policymaking and evaluation.



4

COVID-19 SCENARIOS



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In the last quarter of 2019, prior to the international spread of COVID-19, the South African economy entered a recession for the second time in two years.

GDP fell by 1.4% in the fourth quarter, after dropping by 0.8% in the previous quarter. Although SA is Africa's most industrialized country, due to the drop in GDP, growth was only 0.2% in 2019, its lowest since the global financial crisis in 2009.

During the first quarter of 2020, the economy slowed down by an additional 2%. On 26 February 2020, the Treasury presented its medium-term austerity plan with the projected average annual growth rate of 1.3% for the next three years.⁷ A week later, on 5 March 2020, the Minister of Health announced the first case of the novel COVID-19 in SA (NICD, 2020).

Before the negative impact of COVID-19 hit the South African economy, the country was not only in a recession, but it was also embarking on a policy path that drifted away from a solution to the country's persistent low growth, high unemployment, poverty and inequality.⁸

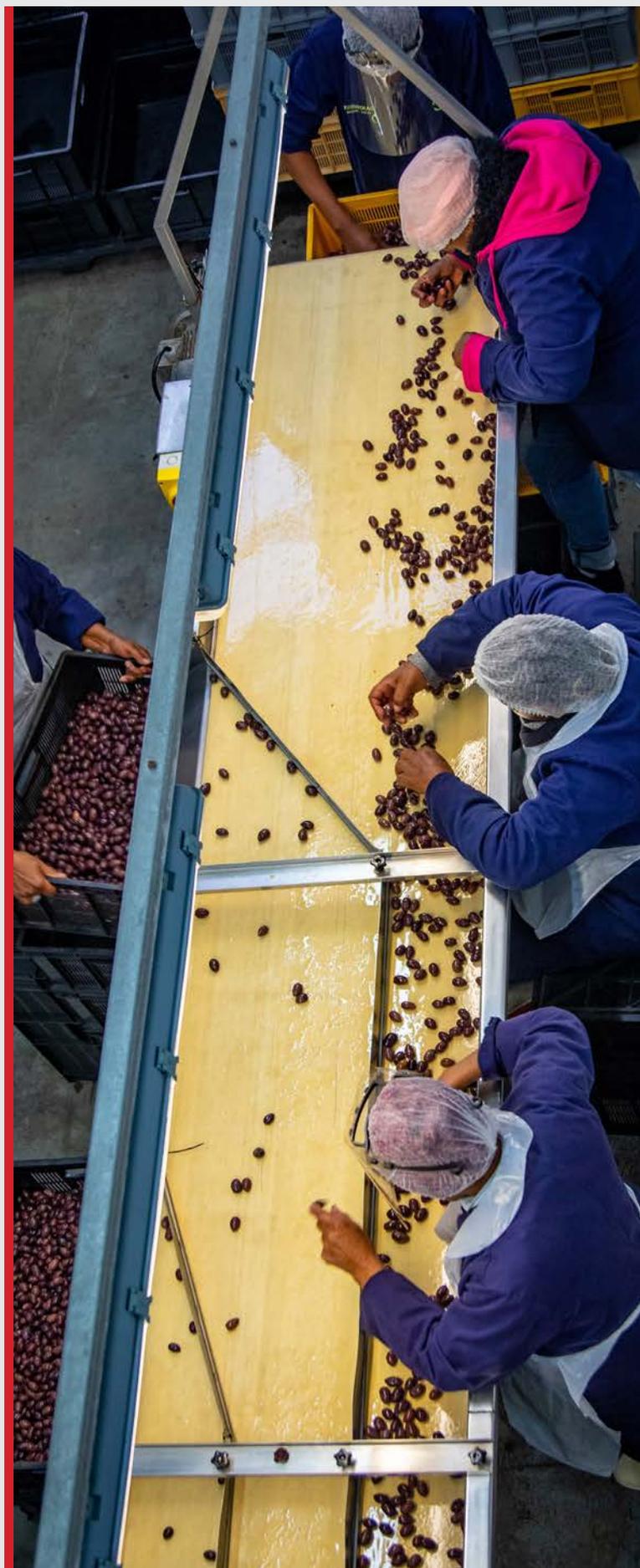
These realities beg two important questions:

- ① *What is the likely economic impact of the COVID-19 pandemic on SA's already struggling economy?*
- ② *What mix of policies is likely to mitigate the negative impact of the virus and propel the economy on a growth and development path that yields inclusive growth?*

To answer these questions, we consider scenarios for the likely spread of COVID-19 in SA and its direct economic impact. We also consider scenarios for the severity of the global pandemic, and thus the spillover economic impact on SA. Finally, we present scenarios for alternative policy responses to the pandemic and beyond.

7. See Table 2.2 of the Budget 2020.

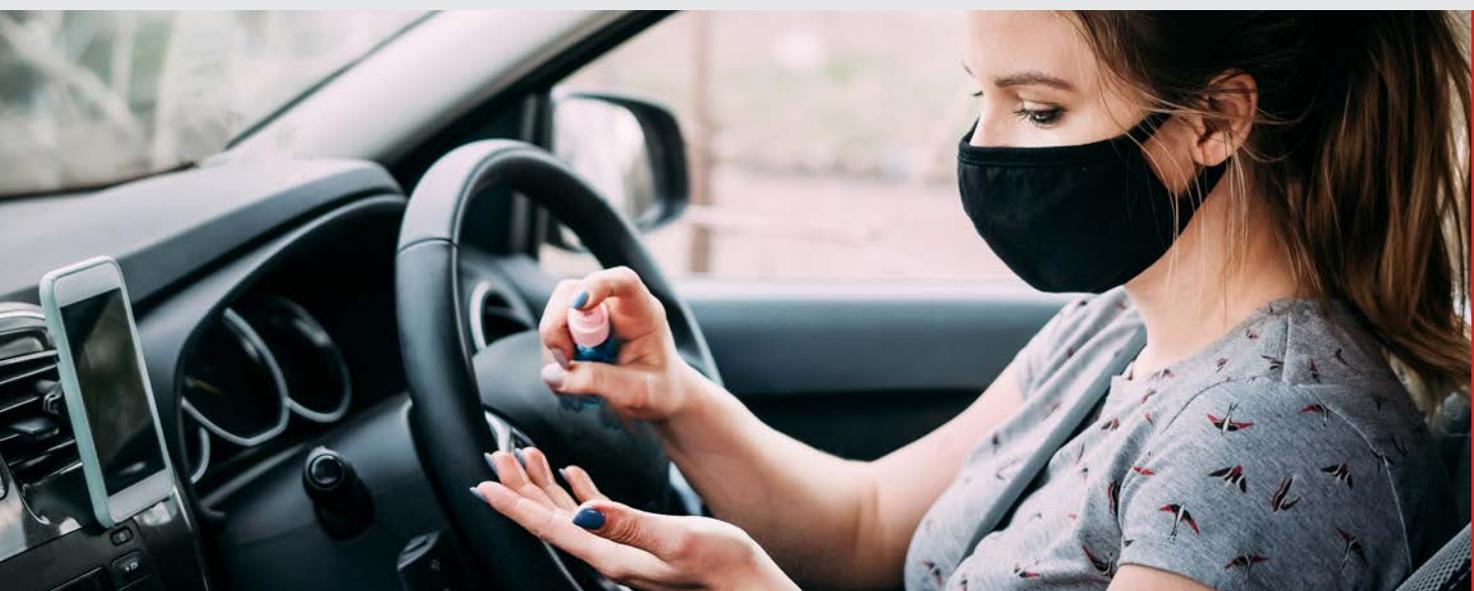
8. The country's growth prospects remained bleak before COVID-19 hit the country. At the time, the Treasury optimistically projected an average annual growth rate of 1% for the period 2020–2022. According to the Rand Merchant Bank (RMB)/ Bureau for Economic Research (BER) Business Confidence Index (BCI), businesses were already pessimistic before the coronavirus was seen as a big economic threat. The BCI slumped by eight points to 18 in the first quarter of 2020, the lowest level in 21 years; in addition, more than 80% of respondents to the survey found prevailing business conditions worrisome.



However, before explaining the details of various scenarios and shocks, two points require mention.

First, there is a difference between assumptions made about the magnitudes of shocks to variables and the model's simulation results that are generated by the SA-LNP model. The former are educated guesses about the likely immediate direct impact of an event or intervention, while the latter are generated through a simulation process and reflect the likely overall direct, indirect and dynamic impact of shocks to the economy. In this section we specify our assumptions on the unexpected shocks COVID-19 has on the economy. In section 6, we present the SA-LNP model projections of the overall likely economic impact of COVID-19.

Second, we have calculated the magnitude of various shocks to economic sectors in the SA-LNP model based on the total value of each shock at the aggregate level (e.g. shock to total investment), past sectoral shares, and a zero to five classification of sectors representing the least to the most affected by a particular COVID-19 factor.



4.1 South Africa COVID-19 Scenarios: Local Economic Shocks

We considered three scenarios related to the spread of the COVID-19 pandemic in SA. Under the low scenario, about 0.5% of South Africans (i.e. about 300,000) will be infected by COVID-19.

The medium and high scenarios consider the possibility of COVID-19 infecting close to 1% and 2% of the population (about 600,000 and 1,200,000) respectively. The low and medium scenarios assume that the pandemic will be contained during the third quarter of 2020. The high scenario assumes that the virus will be contained only during the fourth quarter of 2020.

We also consider that illnesses related to the pandemic and the social and governmental containment responses result in unexpected shocks to the economy. The initial economic shocks of the pandemic are assumed to last between three (March to May 2020) to seven (March to September 2020) months, depending on the COVID-19 scenario. The key economic variables that are shocked include demand variables, such as household consumption expenditure and private investment expenditure, and supply variables, such as production and employment.⁹ Table 1 presents short descriptions of the six COVID-19 scenarios.

Table 2 provides our assumptions with respect to the magnitudes of unexpected shocks to economic variables under each scenario.

9. The supply of labour is anticipated to decline due to voluntary and non-voluntary risk-modifying behaviour by the workforce. For example, labourers will most likely take home leave to care for children who will need home-schooling, and avoid unhygienic workplaces where there is possibility of infection. Also, as a share of the working labour force becomes infected with the coronavirus, supply is reduced due to self-containment and even death. All these ultimately weigh down on labour productivity.

4.1.1 Household Consumption Expenditure Shocks

With the COVID-19 pandemic, household consumption spending is impacted by the widespread adherence to the government “lockdown” order, “social distancing”, “self quarantine” and “isolation” by the general public.

The direct impact of COVID-19 on household spending is evident from the closing of many retail shops and facilities. As in other parts of the world, transport, recreation, furnishing and home improvement, as well as restaurants and hotel spending by consumers are negatively affected by the virus outbreak. South African consumers avoid crowded public areas to reduce their risk of infection. However, other areas such as food, grocery and drink and health spending are shielded as consumers take precautions against the virus by sheltering and consuming food and beverages at home.

Similarly, consumer spending on recreational and cultural activities is negatively affected as local travellers stay at home (self-distancing) and gathering events across the country are cancelled.

Concurrently, household spending on furnishing and home improvements are negatively affected as such purchases are considered non-essential consumer spending. Consumers are expected to put off purchases to reduce their risk of exposure and infection to COVID-19, thus contributing to a lower level of growth in furnishing and home spending. Relatedly, some consumers do not earn income during prolonged lockdown as companies downsize or shut down temporarily. The situation can be dire for small, medium and micro enterprises (SMMEs) that might not have sufficient working capital and may thus struggle to resume activities post-lockdown.

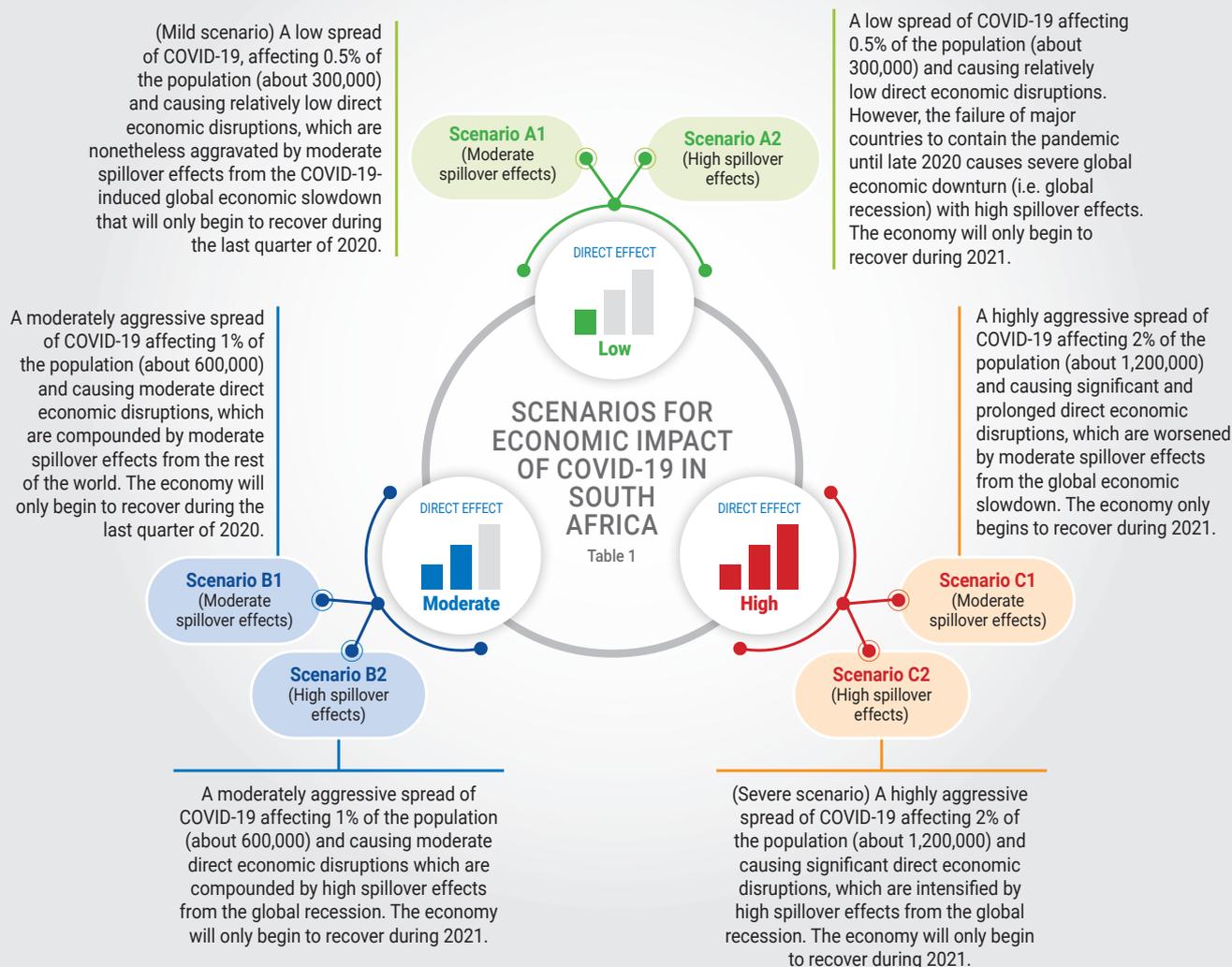


Table 2: COVID-19-Related Shocks to the South African Economy (2020)

List of Shocks	Types	Origin	Duration/Range	Group A Scenarios		Group B Scenarios		Group C Scenarios	
				A1	A2	B1	B2	C1	C2
Domestic (Direct) Shock Scenarios:				Low	Low	Moderate	Moderate	High	High
International (Indirect or spillover) Shock Scenarios:				Moderate	High	Moderate	High	Moderate	High
Percentage of South African population infected by COVID-19				0,50%	0,50%	1,0%	1,0%	2,0%	2,0%
Number of South Africans infected by COVID-19				300 000	300 000	600 000	600 000	1 200 000	1 200 000
Containment timeline				During 3rd Q	During 3rd Q	End of 3rd Q	End of 3rd Q	During 4th Q	During 4th Q
Local (Direct) Shocks									
Household Consumption Expenditure	Demand Shock	Domestic	2nd Q (Q-on-Q) = Annual (2020) = SA-LNP Categories (Range) =	-4% -3,0% [-5.8%, +3.5%]	-4% -3,0% [-5.8%, +3.5%]	-8% -5,9% [-11.6%, +7%]	-8% -5,9% [-11.6%, +7%]	-16% -12% [-23.3%, +14%]	-16% -12% [-23.3%, +14%]
Investment Expenditure	Demand Shock	Domestic	2nd Q (Q-on-Q) = Annual (2020) = SA-LNP Sectors (Range) =	-1,7% -2,5% [-2.7%, -0.7%]	-3,4% -2,5% [-2.7%, -0.7%]	-6,8% -5,0% [-11, -2.7%]	-6,8% -5,0% [-11, -2.7%]	-13,6% -10% [-22, -5.5%]	-13,6% -10% [-22, -5.5%]
Production	Supply Shock	Domestic	2nd Q (Q-on-Q) = Annual (2020) = SA-LNP Sectors (Range) =	-0,5% -0,6% [-1.1%, -0.2%]	-0,5% -0,6% [-1.1%, -0.2%]	-1% -1,2% [-2.2%, -0.37%]	-1% -1,2% [-2.2%, -0.37%]	-2% -2,4% [-4.4%, -0.74%]	-2% -2,4% [-4.4%, -0.74%]
Employment	Demand & Supply Shock	Domestic	2nd Q = Annual (2020) = SA-LNP Sectors (Range) =	-45% (-7.3 m) -9% (-1.5 m) [-22.6%, -3.8%]	-45% (-7.3 m) -9% (-1.5 m) [-22.6%, -3.8%]	-48% (-7.8 m) -12.6% (-2.0 m) [-31.7%, -5.3%]	-48% (-7.8 m) -12.6% (-2.0 m) [-31.7%, -5.3%]	-51% (8.0 m) -16.2% (-2.5 m) [-40.7%, -6.8%]	-51% (8.0 m) -16.2% (-2.5 m) [-40.7%, -6.8%]
International Spillover (Indirect) Shocks									
Exports	Demand Shock	International	2nd Q (Q-on-Q) = Annual (2020) = SA-LNP Categories (Range) =	-20% -14,5% [-30%, 5.6%]	-26% -20% [-37%, 7%]	-20% -14,5% [-30%, 5.6%]	-26% -20% [-37%, 7%]	-20% -15% [-30%, 5.6%]	-26% -20% [-37%, 7%]
Import	Demand Shock	International	2nd Q (Q-on-Q) = Annual (2020) = SA-LNP Sectors (Range) =	-20% -14,5% [-30%, 6%]	-24,0% -20% [7.5%, 40%]	-20% -14,5% [-30%, 6%]	-24,0% -20% [7.5%, 40%]	-20,0% -15% [-30%, 6%]	-24,0% -20% [7.5%, 40%]
Exchange Rate	Price Shock	International		(2020: -20%) (2021: +15%)	(2020: -20%) (2021: +15%)	(2020: -20%) (2021: +15%)	(2020: -20%) (2021: +15%)	(2020: -20%) (2021: +15%)	(2020: -20%) (2021: +15%)
Gold Price	Price Shock	International		20%	35%	20%	35%	20%	35%
Oil Price	Price Shock	International		-20%	-25%	-20%	-25%	-20%	-25%
Foreign Direct Investment	Demand Shock	International		-10%	-25%	-10%	-25%	-10%	-25%

Source: Author's estimates

In the SA-LNP model, household consumption expenditure is modelled using 22 estimated equations for the Reserve Bank's 22 household spending categories.¹⁰

The unexpected shocks induced by COVID-19 are applied to relevant consumption categories based on the asymmetric impact of the containment measures on consumption goods and services. The Household Consumption Expenditure row of Table 2 shows that under the Group A of COVID-19 scenarios, the year-on-year (y-o-y) shocks to categories of consumption expenditure are assumed to vary, from a positive 3.5% shock to spending for Medical Services to a -5.8% shock to spending for Furniture and Household Appliances and Household Services, including Domestic Workers.

Overall, assuming normalisation of household consumption expenditure during the second half of the year, the Group A Scenarios are assumed to cause a -3% shock to total annual household consumption expenditure in 2020.

Under Group B and C scenarios, we assume that the magnitudes of shocks to household consumption expenditure will double and triple, respectively.

Therefore, we have considered the possibilities that COVID-19 and relevant containment measures will shock household consumption expenditure during the second quarter between -4% and -16% on a quarter-on-quarter (q-o-q) basis, or shocks to total household consumption expenditure in 2020 of between -3% and -12%. With respect to various categories of consumption expenditure, the three groups include shock values that range from positive 14% to -23.3%.

10. This includes five durable goods categories, five semi-durable goods categories, six non-durable goods categories and six services categories.

4.1.2 Fixed Investment Shocks

The spread of the COVID-19 pandemic in SA comes with increased risk and economic uncertainty that negatively impact overall private sector fixed investment. These risks and uncertainties include the cost of capital, the exchange rate, and access to labour and imported intermediate inputs. Therefore, the three COVID-19 scenarios are expected to dampen new private investment at least until the pandemic is clearly under control.

Sectors such as wholesale and retail trade, catering and accommodation, transport, storage and construction are assumed to be the hardest hit.

Therefore, the three scenarios capture, on an annual basis, the possibility of shocks to investment expenditure during 2020, ranging from -2.5% (low scenario) to -10% (high scenario).

To capture the differential impact of the pandemic on sector investment, the SA-LNP model's bottom-up investment determination, with 40 estimated sector investment equations, provides an appropriate platform (see the Investment Expenditure row of Table 2). Therefore, the application of pandemic-related investment shocks to the model has taken into account its varied potential impact on sectors that fall under primary, secondary and tertiary, based on the classification of sectors between 0 and 5, which represent the least and most affected economic sectors. For example, under Group C COVID-19 scenarios, the shocks to investment expenditure of economic sectors vary from -5.5% for a number of manufacturing sectors, to a -22% shock to investment expenditure in the services sectors (transport, storage and communication). A -16.5% shock to investment expenditures (building construction and wholesale, retail trade, catering and accommodation) is estimated.



4.1.3 Output (Supply) Shocks

As in other parts of the world, voluntary and forced shutdowns of businesses in order to contain the spread of the virus and 'flatten the curve' have delivered major shocks to the aggregate supply in SA.¹¹ Non-essential industries are forced to partially or totally shut down to minimize and prevent the spread of the virus through human contact and interaction. As a direct result of the shutdown of non-essential economic activities, national production has plummeted. Sector outputs are expected to especially contract during the second quarter, which will likely be the height of the virus and the period when containment measures are implemented.

The Production row of Table 2 presents the magnitudes of shocks to total output and the outputs of economic sectors under each COVID-19 scenario. At the aggregate level, we have considered the possibility that total annualized output will be hit during the containment period between -0.6% (Group A Scenarios) and -2.4% (Group B Scenarios).

Accordingly, the SA-LNP model's 41 sector output equations have been shocked to reflect the impact of COVID-19 on the country's production. Sector level shocks consider the classification of essential and non-essential industries. As a result, under Group B Scenarios, shocks to the sector output equations range from approximately -2.2% to 0.4%.

Table 3 captures the classification of sectors as "essential" and "non-essential".

ECONOMIC SECTOR	NUMBER OF EMPLOYED	% OF TOTAL EMPLOYED
Agriculture, forestry and fishing	664 000	5.4%
Mining	150 000	1.2%
Manufacturing	476 000	3.9%
Electricity, gas and water	107 000	0.9%
Exterritorial organisations	1 000	0.01%
Wholesaler and retail trade	780 000	6.4%
Transport, storage and communication	495 000	4.1%
Financial services	522 000	4.3%
Community, social and personal services	1 819 000	14.9%
TOTAL	5 014 000	41.0%

Data Source: Statistics South Africa, Quarterly Labour Force Survey, 4th Quarter 2019

11. On 23 March 2020, President Ramaphosa announced a nationwide, 21-day lockdown in a bid to halt the spread of Covid-19. The measures included closing all shops and businesses regarded as non-essential services for the duration of the lockdown.

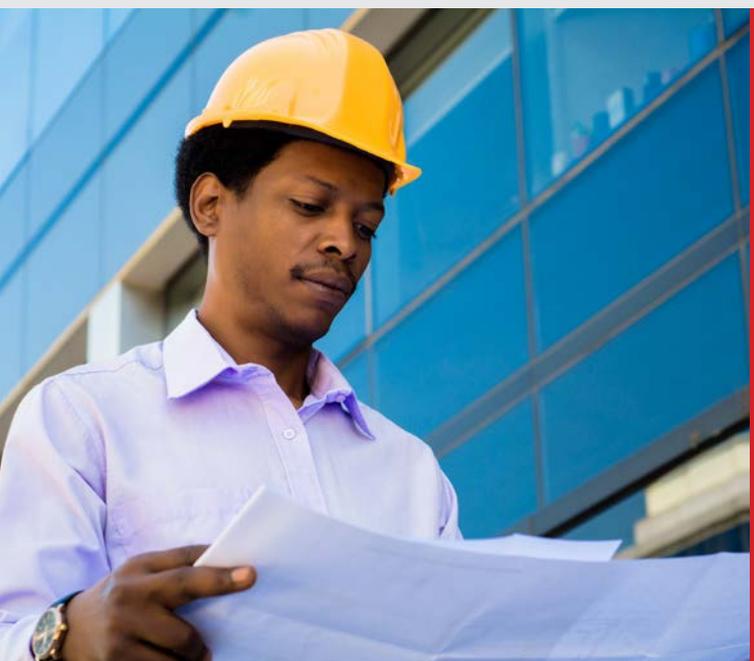
4.1.4 Employment Shocks

Globally, coronavirus-related illnesses, social distancing measures and government-enforced shutdown and stay-home orders have hit the labour market hard. Large numbers of formal and informal workers have temporarily or permanently lost their jobs.

Our estimate is that, depending on the COVID-19 scenario, between 7.3 and 8.0 million South African workers have been temporarily or permanently cut off from their livelihoods during the government shutdown order.

Assuming that most of these workers will be able to resume work before the end of the year, the three South African COVID-19 scenarios assume that the shock to the labour market during the second quarter of 2020 will add between 1.5 million (Group A Scenarios) and 2.5 million (Group C Scenario) workers to the ranks of the unemployed in 2020.

At the sector level, the above shocks to the labour market are captured through the SA-LNP model's sector-level estimated employment equations, taking into account the categorization of essential and non-essential economic sectors and their workers. As a result, there are significant variations between the magnitudes of sector employment shocks, ranging from -3.8% to -22.6% under the Group A Scenarios, and -6.8% to -40.7% under the Group C Scenarios (see the Employment row of Table 2).



4.2 South Africa COVID-19 Scenarios: International Spillover Effects

Capitalism is defined by a particular historical relationship between capital and labour that underlies how the system works and grows, and how investment, production, income and consumption are related and occur on an international scale.

It is therefore not surprising that the economic disruptions that the COVID-19 pandemic has unleashed in major parts of the global economy will have significant spillover effects on local economies across the world. The question is not whether but to what extent countries will be affected by economic forces outside their boundaries.¹²

SA is a small open economy that adheres to the World Trade Organization's (WTO) free trade principles, with a flexible exchange rate allowing the free movement of capital. These choices have facilitated the channels through which the South African economy has integrated into the world economy in terms of investment (capital flows), production and markets (sales).

Consequently, the spillover effects of the current international economic crisis, caused by the COVID-19 pandemic, are locally felt through trade, investment and price channels. As an example, factories that were shut down in Wuhan and other cities in China as well as the enforced mass quarantine not only plummeted output in China, but also seriously impacted exports to China, including those from SA.

Over the last 25 years, the share of SA's exports to global imports has consistently been roughly 0.4%.¹³ During the same period, SA's exports relative to the global GDP have only slightly increased, from 0.09% to 0.11%. These empirical observations, which are depicted in Figure 1, show that South African export growth tends to track growth of global imports and global GDP, which themselves are strongly correlated (Figure 2).¹⁴

The major impact of COVID-19 on global growth and global imports will therefore have negative spillover effects on the South African economy.

12. In its weekly economic forecast for more than 40 countries and regions around the world, the JPMorgan Chase & Co. (JP Morgan) predicted that all 40 countries and regions will suffer from declines in their GDP growth rates in 2020 (Campbell, 2020).

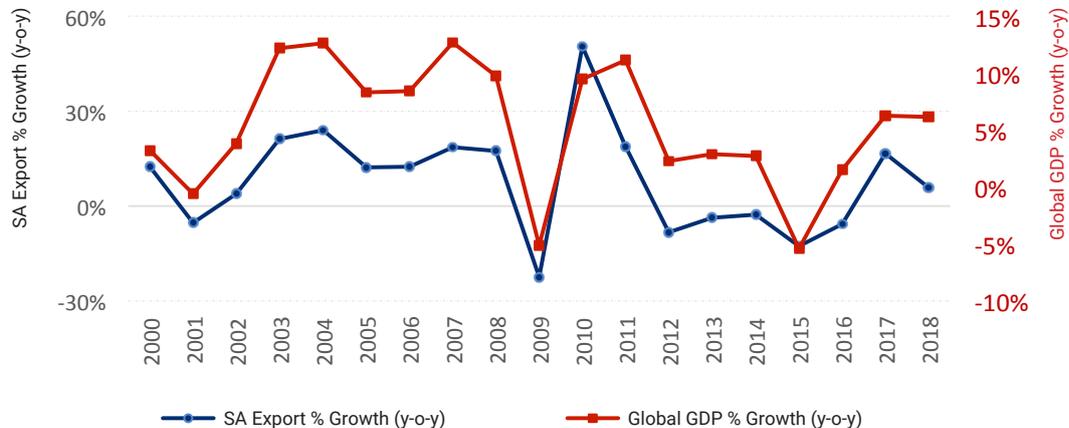
13. The standard deviation of SA's share of global imports has been 0.00034 over the period 1995 to 2018.

14. For the period 2000 to 2018, the correlations between the annual growth rates of South African exports and annual growth rates of global GDP, and of exports and imports are 0.89 and 0.83 respectively.

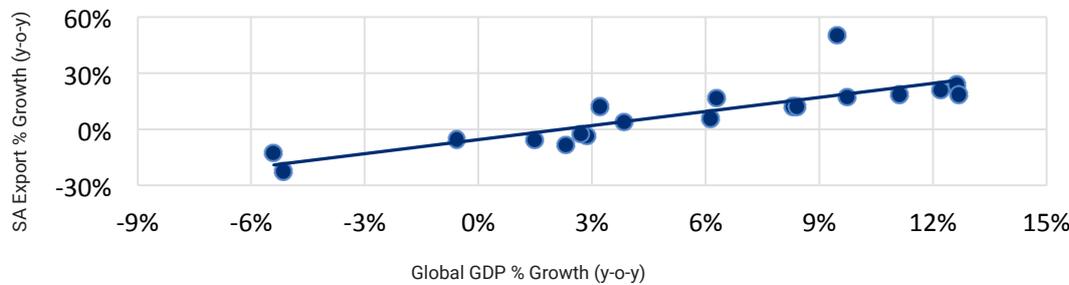
We consider the spillover effects of the global COVID-19 pandemic through two scenarios, the moderate spillover effects and high spillover effects scenarios.

Figure 1: Trends and Correlations between South African Exports, Global GDP and Global Imports

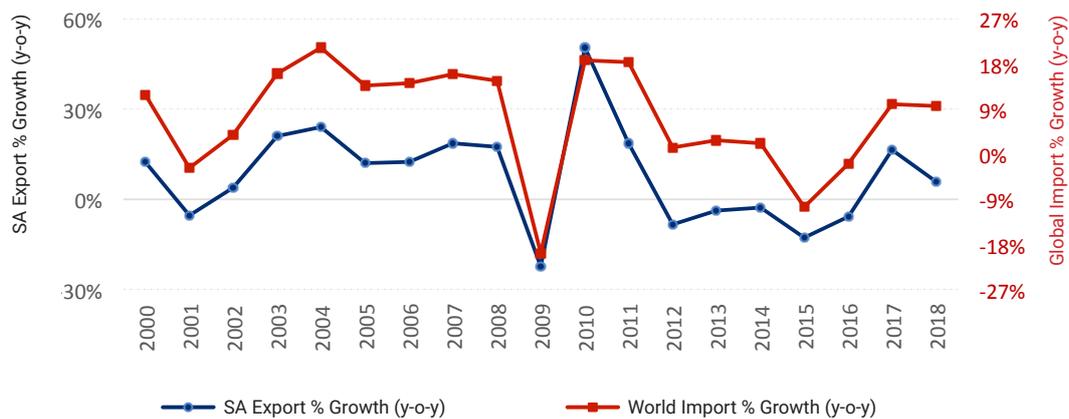
Trends of SA Export Growth and Global GDP Growth (2000-2018)



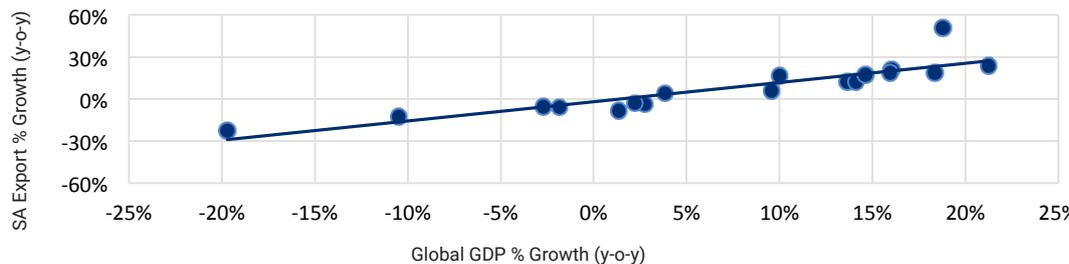
Correlation between SA Export Growth and Global GDP Growth



Trends of SA Export Growth and Global Import Growth (2000-2018)

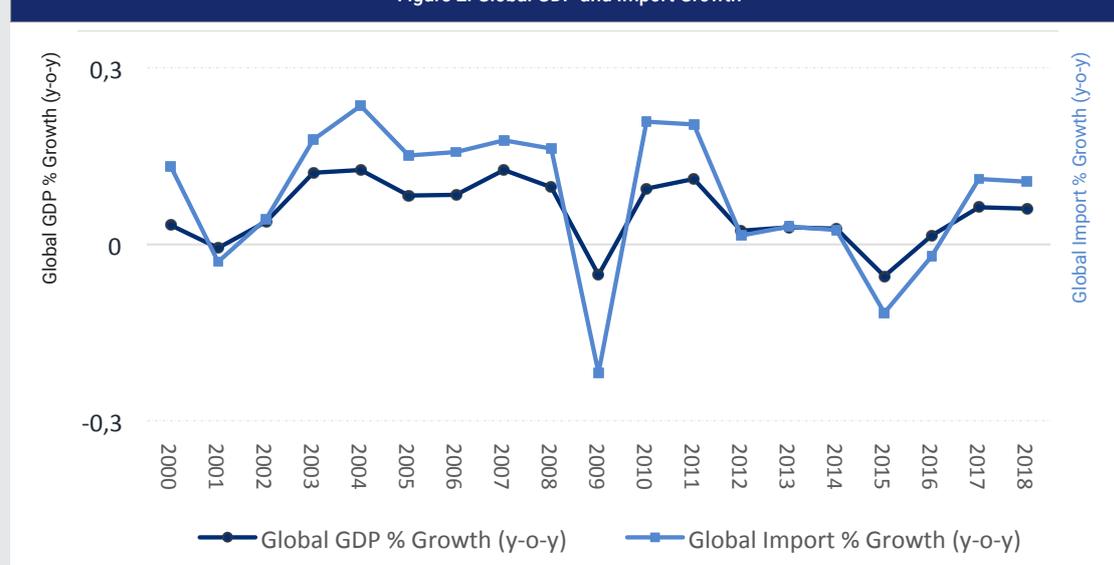


Correlation between SA Export Growth and Global Import Growth



Data Source: Quantec. Authors' calculations.

Figure 2: Global GDP and Import Growth



Data Source: World Bank.

The moderate spillover effects scenario:

This scenario envisions disruptions in the global supply chain and consumer spending that are limited to the first half of 2020. Under this scenario, COVID-19 cases will continue to rise in a large part of the world before peaking sometime during the second half of 2020. China resumes economic activity before the end of the second quarter, and consumer spending begins to pick up during the third and fourth quarters of 2020. In response, policymakers around the world, particularly in Asia, Europe and the United States, will use fiscal and monetary policy measures, not seen since 2011, to resuscitate their economies and, with it, the global economy. In this scenario, the world economy will begin to rebound during the second half of the year.

The high spillover effects scenario:

This scenario envisions the pandemic leading to a global recession (i.e. two quarters of sequential global contractions).¹⁵ According to this scenario, the global disruptions will continue to spread into the third quarter of 2020, encompassing all the large economies. The Chinese economy will not likely be able to reach full capacity status as it faces a second wave of COVID-19 cases while resuming production. The extended disruption to economic activity damages corporate profitability and leads to a rise in corporate credit risks and a significant tightening of financial conditions, which exacerbate the slowdown in global growth. While there should be a rebound in growth from the fourth quarter, given that the slowdown would extend into the third quarter of 2020, the global economy will enter into recession.¹⁶

Spillover effects of the global COVID-19 pandemic on the South African economy are transmitted through at least five channels:



15. According to Goldman Sachs, several important developments suggest a considerably more serious impact on the global economy. First, Chinese economists have cut their growth forecast, despite a sharp slowdown in regional infections in China.

16. High frequency indicators of economic activity in China (e.g. coal consumption/transportation, property transaction volumes and construction machine operating rates) remain about 60% below 2019 levels. Second, the production shutdowns in China have increased the risk of global supply chain disruptions. Third, disruptions are no longer confined to China as community transmission has spread to a broader set of countries. See Morgan Stanley scenarios.

4.2.1 Spillover Effects: Trade Channel

According to the WTO, world trade is expected to fall by between 13% and 32% in 2020 as a result of the COVID-19 pandemic (WTO, 2020). Assuming that SA's export growth closely tracks global trade, we consider, under the moderate spillover effects scenario, what if South African trade, both exports and imports, are hit by a -20% shock on a QoQ basis during the second quarter of 2020. This is equivalent to shocks of about -15% to exports and imports on a year-over-year (YoY) basis for 2020.¹⁷ Under the high spillover effects scenario, in contrast, we consider YoY shocks of -20% to total exports and total imports in 2020.

The shock to SA's exports is allocated among the 40 economic sectors of the SA-LNP model based on their shares of total exports and sector-specific considerations. The Export and Import rows of Table 2 show the range of export and import shocks applied to the economic sectors of the SA-LNP model. For example, sector export shocks range from 5.6% (A1, B1 and C1 Scenarios) and 7% (A2, B2 and C2 Scenarios) for sectors that include pharmaceutical products to -30% (A1, B1, and C1 Scenarios) and -37% (A2, B2 and C2 Scenarios) for the transport, storage and communication sector.¹⁸

Disruptions in global supply chains are expected to especially hit the South African mining sectors, whose exports are particularly used in China and other East Asian countries. SA's automotive sector also faces multiple challenges that include supply chain restrictions, workforce safety and a drop in demand.¹⁹ The sector that heavily depends on imports of parts and export markets is heavily affected by global and domestic efforts to contain the virus, which have decimated demand.

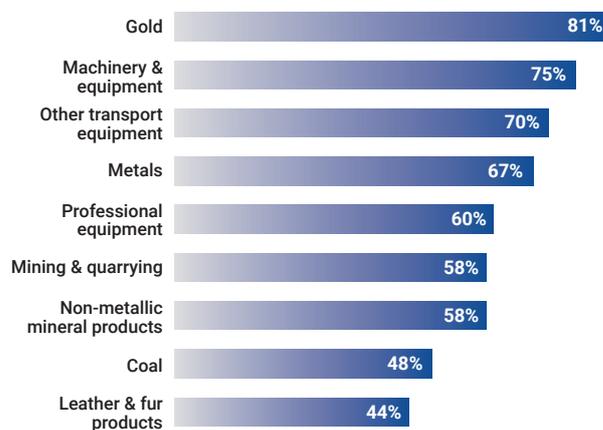


66 SA's automotive sector faces multiple challenges: supply chain restrictions, workforce safety & a drop in demand. 99

The international spread of COVID-19 has also significantly impacted inbound and outbound tourism. An important immediate channel through which many countries, including SA, are being impacted is Chinese tourism, which has quickly come to a halt by a combination of outbound and inbound travel restrictions.

There are also sectors of the South African economy whose exports significantly depend on their use of imports, such as 'petroleum products, chemicals, rubber and plastic', 'metals, metal products, machinery and equipment', and 'transport equipment'. Disruptions in global supply chains are expected to additionally disrupt local production in these sectors as they struggle to import the necessary components that are used for their exports. For the application of this local spillover effect of international disruptions in supply chains, we used a YoY shock of -3% to the output growth of these sectors. Figure 3 highlights the sectors of the South African economy with high dependency on export markets.

Figure 3: South Africa Selected Sectoral Export-Output Ratios (Average 2014-2018)



Data Source: Quantec.

Finally, the spillover effects of a global recession will be severe on South African exports that rely heavily on supplying intermediate inputs to producers from China and other countries as well as the consumers in the North, Middle East and Africa. Figure 4 highlights the shares of South African sector outputs that are exported to various regions of the world.

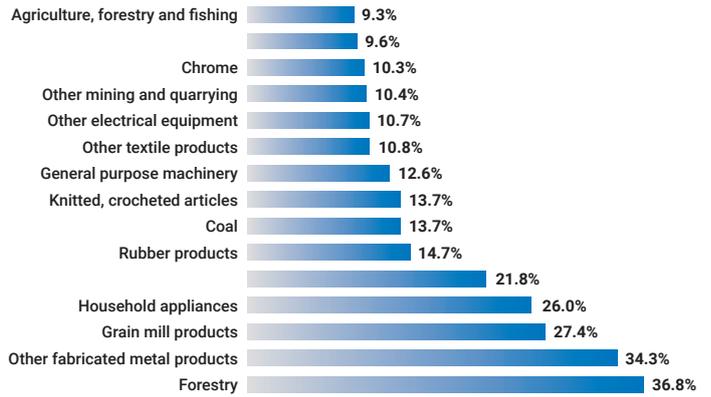
17. During the 2009–2009 global crisis, both South African exports and imports dropped by almost the same rate, 19% compared to 20%.

18. In the SA-LNP model, a combination of sector shocks that range from -37% to 7% has been used for sector exports and -40% to 7.5% for the sector imports, reflecting WTO's industry analysis of the impact of the expected direct shocks on the sectoral trade and investment (WTO, 2020).

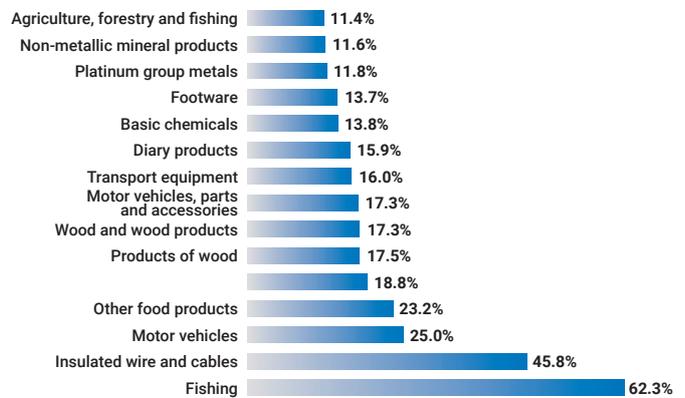
19. According to GlobalData (31 March 2020), almost all light vehicle manufacturing factories in Europe and North America have stopped operating for varying amounts of time and sales of automobiles in the United States fell around 45% in March.

Figure 4: Top South Africa Exporting Sectors to Regions of the World

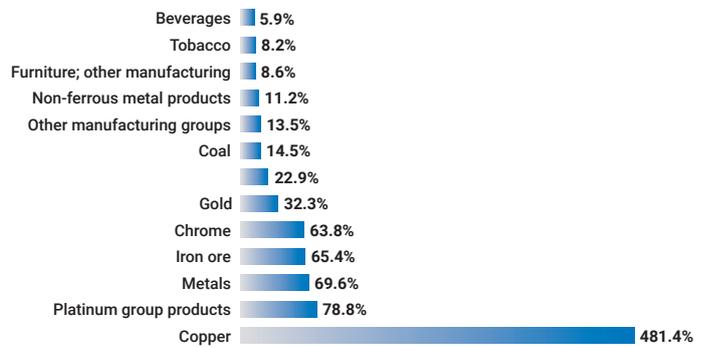
Top South Africa Exporting Sectors to Asia
CAGR (2014-2018)



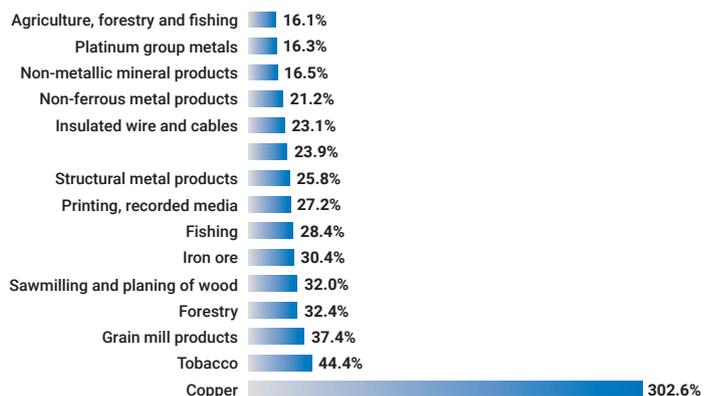
Top South Africa Exporting Sectors to Europe
CAGR (2014-2018)



Top South Africa Exporting Sectors to Africa
CAGR (2014-2018)



Top South Africa Exporting Sectors to the Americas
CAGR (2014-2018)



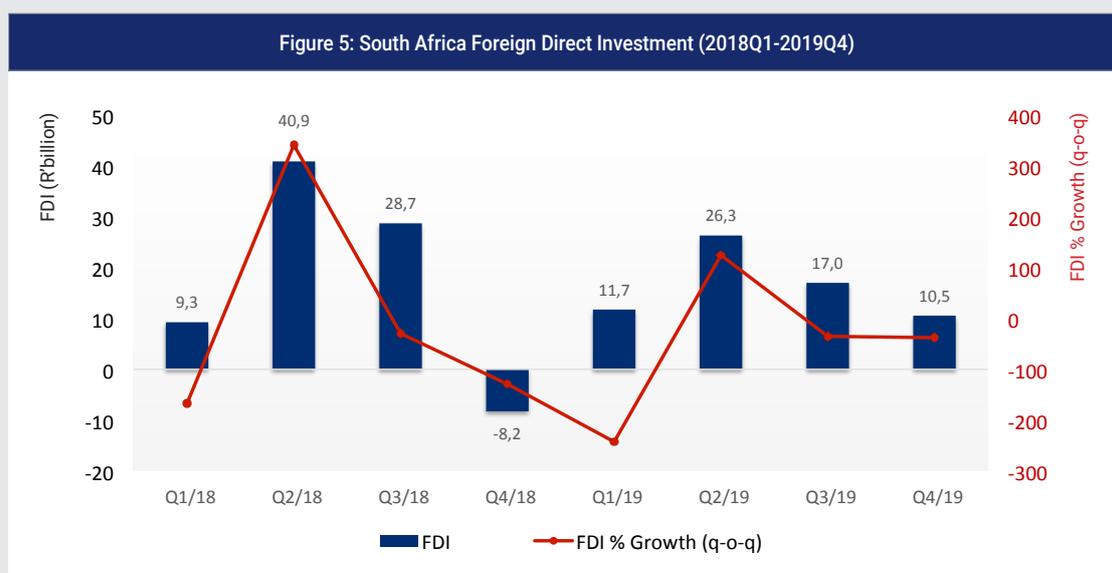
Data Source: Quantec. Authors' calculations.

4.2.2 Spillover Effects: Foreign Direct Investment Channel

In addition to the spillover effect of the international crisis on South African trade, the crisis is also expected to impact the flow of FDI, commodity prices, the exchange rate and oil prices. According to United Nations Conference on Trade and Development (UNCTAD, 2020), the immediate impact of the outbreak of COVID-19 on existing investments and investment projects under construction is likely to be limited. However, the pandemic will slow down capital expenditures of multinational enterprises and their foreign affiliates. Production sites that are closed or that operate at lower capacity will temporarily halt new investment in physical assets and delay expansions. Marketseeking investments and FDI projects in extractive industries could be delayed worldwide because of negative demand shocks. At the same time, the negative effect on efficiency-seeking investment – in production facilities that are closely integrated in global value chains – is also expected.²⁰

Finally, FDI flows could be affected through lower profits in foreign affiliates of multinational corporations, leading to lower reinvested earnings (ibid, 2020).

Figure 5 provides a snapshot of SA's FDI performance over a sample period of 2018 Q1 to most recent available data in 2019 Q4. It is evident that FDI has not only been volatile, but has also been on a downward path in 2019 Q3 and 2019 Q4. Considering the large drop in South African FDI during the global recessionary period, we see that the COVID-19 impact on FDI will likely repeat a similar negative jump in the growth rate. We therefore consider a 10% (moderate spillover effects scenario) and 25% (high spillover effects scenario) reduction in the FDI flow to SA in 2020.



20. Initially, this negative effect is centred primarily in China and East and South-East Asia. However, they could rapidly spread outside the region through global value chain linkages (UNCTAD, 2020).

4.2.3 Spillover Effects: Exchange Rate Channel

The COVID-19 crisis has produced a significant degree of uncertainty and market volatility that has precipitated depreciation of a large number of international currencies. It is therefore not surprising that SA's floating exchange rate has struggled since the onset of the COVID-19 pandemic. Figure 6 shows the performance of the rand-US dollar exchange rate before recording any COVID-19 cases in SA until the third week of May 2020. It clearly shows that the rand has been under enormous pressure, hitting a new all-time low in early April at R19 against the US dollar and becoming the worst-performing emerging-market currency over the past year.

One immediate impact of a weaker rand is on much-needed but imported medical equipment. Table 4 highlights the depreciation of a number of currencies, including the South African rand, which depreciated by more than 20% between March and mid-May. We have therefore considered a 20% depreciation of the South African rand in 2020 under both the moderate and high spillover effects scenarios. We concurrently assume that the rand will gain back some of its lost value by appreciating by 15% during 2021.

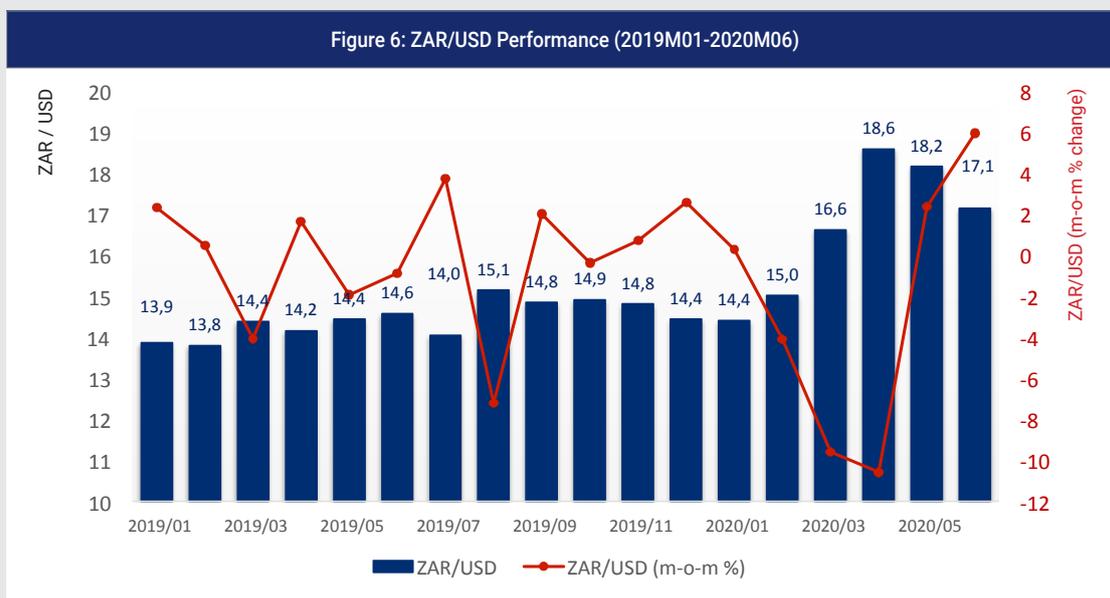


Table 4: Depreciation of Major Currencies Since the Onset of COVID-19

COUNTRY	CURRENCY	VALUE VS US DOLLARS		APPRECIATION VS DEPRECIATION (%)				
		JANUARY	MAY	USD	EUR	GBP	JPY	AUD
South Africa	ZAR	14,01	18,35	-23,7	-21,6	-17,0	-24,6	-17,9
Mexico	MXN	18,93	23,75	-20,3	-18,1	-13,4	-21,3	-14,3
Euro countries	EUR	0,89	0,92	-2,7	0,0	5,8	-3,9	4,7
Switzerland	CHF	0,97	0,97	-0,3	2,4	8,3	-1,6	7,2
Brazil	BRL	4,02	5,72	-29,7	-27,8	-23,6	-30,6	-24,4
United Kingdom	GBP	0,75	0,82	-8,0	-5,5	0,0	-9,2	-1,0
Australia	AUD	1,42	1,53	-7,0	-4,5	1,0	-8,2	0,0
Japan	JPY	108,70	107,33	1,3	4,1	10,1	0,0	9,0
Malaysia	MYR	4,09	4,36	-6,2	-3,6	1,9	-7,4	0,9
Korea	KRW	1154	1225	-5,8	-3,2	2,4	-7,0	1,3
USA	USD	1,00	1,00	0,0	2,8	8,7	-1,3	7,6
China	CNY	6,96	7,11	-2,1	0,6	6,4	-3,3	5,3
Canada	CAD	1,30	1,39	-6,8	-4,2	1,3	-8,0	0,3
Colombia	COP	3285	3851	-14,7	-12,3	-7,3	-15,8	-8,2
Kazakhstan	KZT	382,86	416,63	-8,1	-5,6	-0,1	-9,3	-1,2
Russia	RUB	61,93	72,65	-14,8	-12,4	-7,4	-15,8	-8,3

Data Source: AIRINC Workforce Globalisation (2020).

4.2.4 Spillover Effects: Oil Price Channel

Brent crude oil prices play a significant role in the South African economy, especially with regard to transportation. The majority of poor South Africans spend the largest part of their income on basic food items and transportation, both of which are directly and indirectly affected by the price of oil. Even though the oil price has been under downward pressure due to oil price wars, the drop in the world output, precipitated by COVID-19, has also significantly contributed to the drop in oil prices. As an oil importer, the South African economy experiences much-needed relief in lower oil prices. However, the depreciating exchange rate dampens the benefits of the drop in oil prices. Figure 7 shows that oil prices have been volatile over a 14-month period. Before April 2020, the price hovered around \$55 a barrel. However, it plunged to \$28.3 per barrel by the fourth week of May 2020, due to the ongoing price wars between Saudi Arabia and Russian Federation and the impact of COVID-19 on world output. We therefore consider a 20% and 25% drop in oil price in 2020 under the moderate and high spillover effects scenarios, respectively.

4.2.5 Spillover Effects: Gold Price Channel

Gold is typically seen as a safe haven when there is market uncertainty. This is depicted by the sharp increase (about 6%) in the South African gold price in January 2020 when COVID-19 hit many countries globally. The gold price has increased to its highest in more than five years, after the US Federal Reserve had declared that stocks and asset prices could suffer dramatic drops due to COVID-19. Thereafter, it climbed to about \$1,764 in April 2020, as investors sought the safe sanctuary of gold (Figure 8). Moreover, SA's net reserves increased from \$44.77 billion in March to about \$45.47 billion in April 2020, due to the global gold price increase. The gold price is likely to continue increasing during the COVID-19 pandemic. However, considering that SA is the world's largest platinum producer and second largest palladium producer, this positive impact may be offset by the 22% and 23% decrease in metal and palladium prices, respectively, since February 2020. For our modelling scenarios, the price of gold is assumed to increase by 20% and 35% under the moderate and high spillover effects scenarios, respectively, in 2020.



4.3 Final Economic Scenarios for the Effects of the COVID-19 Pandemic

The scenarios for the overall economic impact of COVID-19 are derived from combinations of the direct and spillover effects of the pandemic. The combination of three scenarios for the direct impact of the virus and two spillover effect scenarios provide six full scenarios designed to capture the economic impact of COVID-19 in SA. Table 1 presents the six possible scenarios and Table 2 presents the expression of the six scenarios in terms of quantitative model scenarios.



“ The country’s current policy challenges go beyond short-term COVID-19 mitigation measures ”

5

POLICY OPTIONS DURING AND AFTER THE COVID-19 PANDEMIC



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Policy Options During and After the COVID-19 PANDEMIC

SA was hit by the COVID-19 pandemic at a time when the economy was already in crisis. Since returning to the pre-coronavirus economic recession is not a desirable option, the country's current policy challenges go beyond short-term COVID-19 mitigation measures. Government policy measures must respond to the immediate COVID-19 crisis while also addressing the low growth, high unemployment, poverty and inequality crisis that has continuously affected at least half of the population for many years. Yet, this persistent economic crisis has never received the same level of urgency that current calls for a policy response to the COVID-19 crisis have received. To address this discrepancy, the remainder of this section focuses on the specification of a six-pillar policy framework, developed as an alternative response to the country's immediate and ongoing crises.

In considering policy measures that go beyond the COVID-19 pandemic, it is worth noting two recent developments that inform our approach. First, at a special session of the National Executive Committee (NEC) of the African National Congress (ANC) on 7 May 2020, the NEC agreed that "as we look at economic intervention recovery, we can no longer accept the pre-COVID-19 'normal' of unacceptably high levels of joblessness and exclusion". The NEC therefore called for the development of a Post- COVID-19 Economic Reconstruction, Growth and Transformation Plan (ANC, 2020). Second, the impact and consequences of COVID-19 has brought about a shift in global sentiment towards the neoliberal model of free market capitalism with self-interest, small government, low taxes and the primacy of limited social security. A recent Financial Times editorial of 3 April advocates this view:

Radical reforms – reversing the prevailing policy direction of the last four decades – will need to be put on the table. Governments will have to accept a more active role in the economy. They must see public services as investments rather than liabilities, and look for ways to make labour markets less insecure. Redistribution will again be on the agenda; the privileges of the elderly and wealthy in question. Policies until recently considered eccentric, such as basic income and wealth taxes, will have to be in the mix.

Financial Times Editorial, 3 April 2020



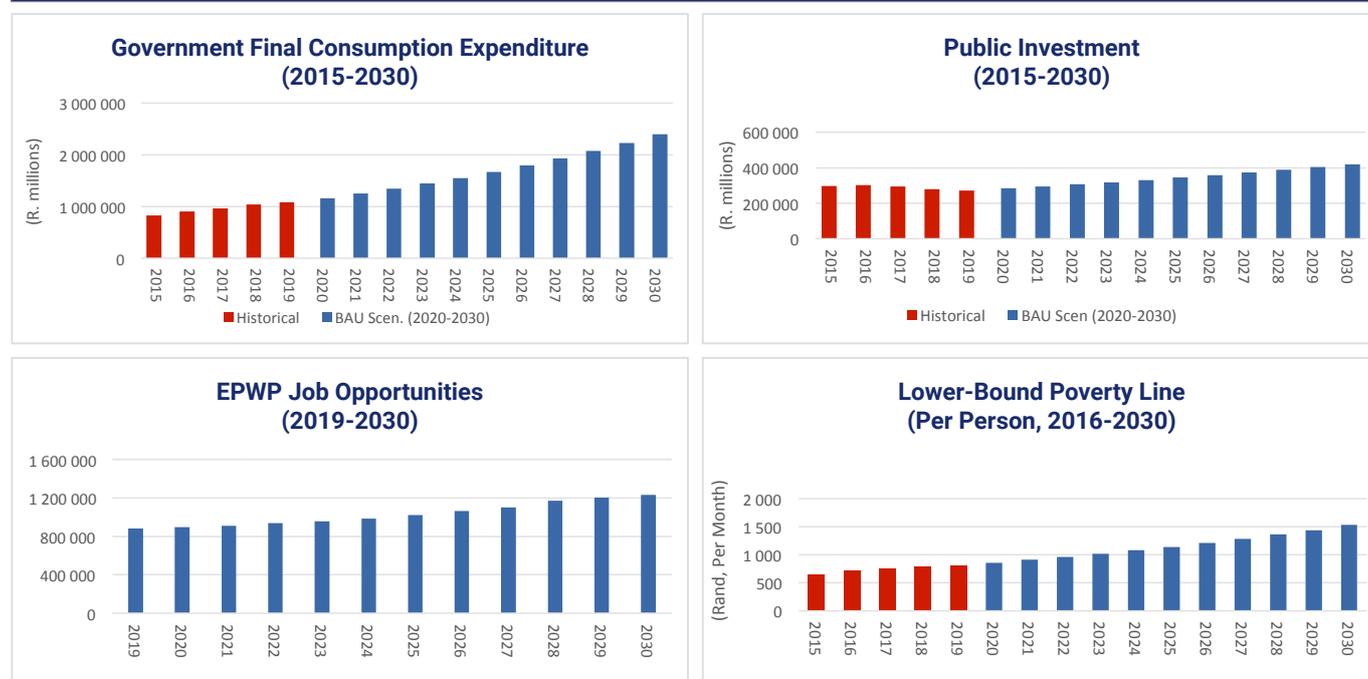
5.1 The Business-as-Usual Policy Scenario

According to the status quo, or BAU policy scenario, the future policy inputs into the economy will closely follow their most recent policy records. For example, through the Medium-Term Strategic Framework (MTSF) and the Medium-Term Expenditure Framework (MTEF), fiscal policy will continue to prioritize lowering the debt-to-GDP ratio through expenditure measures, and monetary authorities will continue to set the interest rate to enforce strict adherence to inflation targeting, with 6% as the ceiling for the inflation rate.

Other features of the BAU policy scenario are as follows:

- ① All components of the general government investment annually increase by 6%. These are investments in economic infrastructure, social infrastructure and business services.
- ② Investment by public corporations also annually increases by 6%.
- ③ General GFCE increases annually by 7.5%.
- ④ No new micro, macro or social policy measures are introduced over the next 11 years.
- ⑤ The fourth phase of the EPWP is introduced with no changes to the number of job openings and remuneration rates used during the third phase (Figure 9).
- ⑥ The social security programme remains unchanged, with the grant amount adjusted by 6% annually.
- ⑦ For 2020, the per-head poverty line of R870 is used.²¹ The line is adjusted by 6% annually (Figure 9).

Figure 9: Business-as-Usual Scenario Inputs



Source of Data: Reserve Bank, Statistics South Africa and Department of Public Works.

21. The poverty line of R870 per person is close to Statistics South Africa's (Stats SA) lower-bound poverty line. Stats SA (2019) suggests a lower-bound poverty line of R810 for 2019. Based on the Stats SA data, between 2006 and 2019, the compound annual growth rate (CAGR) of poverty line was 6.21%. Using the same overall annual growth rate of the poverty line produces a lower-bound poverty line of R860 for 2020.

5.2 Six-Pillar Policy Alternative Scenario

Pillar 1

5.2.1. Macroeconomic Policy Pillar

The pillar includes the short-term use of fiscal and monetary policy measures to mitigate the impact of COVID-19 on households and businesses. Over the next decade, the pillar is designed to directly and indirectly enhance economic growth and support other policy pillars, such as the Social Policy pillar (Pillar 2) and the Trade and Industry Policy pillar (Pillar 4), to achieve industrial transformation and inclusive economic growth. Thus, the specifics of the Macroeconomic Policy pillar can be addressed in terms of short-term measures focused on COVID-19 and long-term reforms for post- COVID-19.

COVID-19 Mitigation: Macroeconomic Policy Measures

COVID-19 and measures to contain it have impacted public health and welfare, and disrupted all forms of business activities and livelihoods.

Internationally, fiscal and monetary policy measures have been used extensively to provide necessary support to households and businesses that are affected by the pandemic.²² Drawing on current proposals and mitigation measures that the South African Government has adopted, the following is a list of macroeconomic policy measures that are part of Pillar 1 of the economic policy response to COVID-19:

22. The use of macroeconomic measures to mitigate the impact of COVID-19 has been universal. Such measures include: the reduction of the tax burdens of small and medium-sized enterprises (SMEs); provision of direct subsidies to severely afflicted enterprises; an increase in the personal income tax threshold to expand the spending power of the households; funding of tax deferrals; an increase in public investment in infrastructure projects to raise the overall level of demand; a significant increase in the fiscal budget to accommodate needed increases in the health system (e.g. increased testing, medical supplies, vaccine development, mitigation efforts) and in budgets of other departments; significant increases in government transfer spending aimed at directed aid to individual and households (e.g. wage subsidies, spending on food parcels, allocation for vouchers for low-income families, childcare subsidies); soft loans and relaxed loan payments; cash transfers for informal workers not covered by the social security fund; the provision of employment subsidies; an expansion of unemployment benefits; and a number of other measures. IMF (2020) provides a summary of measures adopted by various countries.

23. According to the table of consolidated government revenue and expenditure of the 2020 budget, between 2011 and 2019, the consolidated government expenditure grew at an average annual rate of 8.8%. The 2020 budget plans to reduce the above growth rate to 5.1%; i.e. relative to the past trend, the 2020 budget proposes a government expenditure reduction of R400 billion over the next three years.

24. This measure is designed to provide necessary funding for relevant measures that a group of economists proposed in their open letter to President Ramaphosa on 30 March 2020.

25. The proposed amount may or may not be sufficient for the task ahead.

26. This is according to an estimate by the Institute for Economic Justice (2020) that includes R50 billion for business support and industrial policy and R100 billion for tax and payment deferrals. The IEJ report provides a more detailed breakdown of its overall estimate.

27. Dooley, Bandyaly and Tschudy (2020) state that the federal government in the United States should plunge into a massive school infrastructure initiative to invest in physical plant enhancements to ensure that all school children have healthy places to learn. McGoogan and Wu's (2020) study on China states that proactive investment in public health capacity and infrastructure is vital to respond to epidemics like COVID-19. Additionally, it is even better for preparedness to deal with future public health threats.

① The pillar sets aside the 2020 medium-term austerity budget proposals that were tabled in Parliament in February and June, prior to the arrival of the pandemic in SA. According to the February budget, the spending proposals include budget cuts of R400 billion over the next three years.²³ As seen in other countries, the appropriate fiscal response to the impact of COVID-19 requires the expansion, not contraction, of available resources to address the significant number of COVID-19-related cross-departmental challenges. Therefore, we consider the implementation of a baseline 7.5% annual increase in the 2020 budget for the Government's final consumption expenditure.

② Allocation of at least R50 billion to fund government final consumption expenditure to support the needs of the healthcare system, education and other central, provincial and local governmental functions during the COVID-19 crisis.²⁴ These funds are intended to cover extraordinary spending on unexpected large quantities of goods and services (e.g. protective gear, medicine) and compensation of essential employees (e.g. additional healthcare personnel, overtime payment for essential public employees). The additional fund is also earmarked for increases in the budget for other government collective spending designed to mitigate the impact of the pandemic on households.²⁵

③ An immediate allocation of R150 billion to support private sector businesses, mainly in the form of tax benefits and subsidies. These measures are especially designed to assist small and medium-sized enterprises (SMEs) as they try to survive this period and retain their employees.²⁶

④ An immediate increase in the Government's budget for transfer spending to properly fund the proposed expansion of social security and EPWP under Pillar 2 to combat COVID-19. According to the model results, which are presented in section 6, the additional social policy measures are estimated to add R116 billion to the overall government transfer spending budget for 2020.

⑤ A 4% increase in the general government's social infrastructure investment budget of 2020 to support increased COVID-19-related capital spending in public health (e.g. building of hospitals), in the safeguarding of public transportation and preparation for the reopening of schools and businesses.²⁷

Post-COVID-19 Macroeconomic Policy Reforms (2021–2030)

For most of the last 25 years, the unemployment rate in SA has been above 20%; the poverty rate has continued to engulf about half of the population; and income inequality has reached the highest in the world. How do we ensure, once the pandemic is over, that the economy does not return to pre-coronavirus conditions of economic stagnation with high rates of poverty and inequality? Stated differently, once the pandemic is over, how do we ensure that the economy will be on a new path that produces significant reductions in the rates of unemployment, poverty and inequality over the next ten years?

To evaluate the mix of policy measures that can achieve the desired growth and development outcomes, we must consider the choice between an austerity-focused and a growth-oriented macroeconomic policy framework.

In the European Union (EU), economic recovery was elusive after the international crisis in 2008. In 2012, the EU fell into a double-dip recession with unprecedented rates of unemployment in many member states. Unlike other world powers, the EU did not bounce back from the 2008 financial crisis. Concurrently, public debt in the EU had significantly increased. The dual issues afflicting the region, namely falling GDP and rising government debt, led to much debate among EU leaders on how best to move forward and which policies would best assist the struggling economies. Through these debates, the following two distinct camps emerged, the austerity camp and the growth camp.

The austerity camp, resorting to a ‘sink or swim’ methodology, called for strict austerity measures through government budget cuts. It controlled the debate for several years. They contended that decreasing the deficit would create a business friendly environment that would be attractive to investment and would in turn increase GDP and employment. The growth camp, in contrast, called for growth-friendly policies to provide a life raft to those countries struggling to meet targets, arguing that increasing GDP is the preferred approach to cutting the debt relative to GDP.

Leaders in SA, facing low growth, high unemployment and moderate debt-to-GDP ratio, have opted for BAU fiscal and monetary policy following the austerity camp approach. Consequently, fiscal austerity, flexible exchange rates and strict inflation targeting are chief among the policies adopted in SA (Treasury, 2018). As an alternative, the six pillar policy approach includes the likely effects of the growth camp. Thus, under the Macroeconomic Policy pillar, fiscal and monetary policies are directed to pursue the “growth” approach to SA’s macroeconomic challenges. The shift from austerity to growth consists of the following:

① The overall public investment approach of the Macroeconomic Policy pillar is designed to support increased COVID-19-related capital expenditure needs and to reverse the alarming under-investment trend in SA. Figure 10 shows that in recent years, gross investment has not been sufficient to make up for capital depreciation. Between 2013 and 2019, gross nominal investment increased by R144 billion. Over the same period, total consumption of fixed capital (capital depreciation) increased by R230 billion, which is 60% higher than the increase in total investment (Reserve Bank data).²⁸ This reflects the fact that gross investment has not kept pace with capital depreciation, thereby expanding the backlog of replacement and maintenance investment, deteriorating the quality of public infrastructure, and further hampering productivity and socio-economic opportunities.²⁹

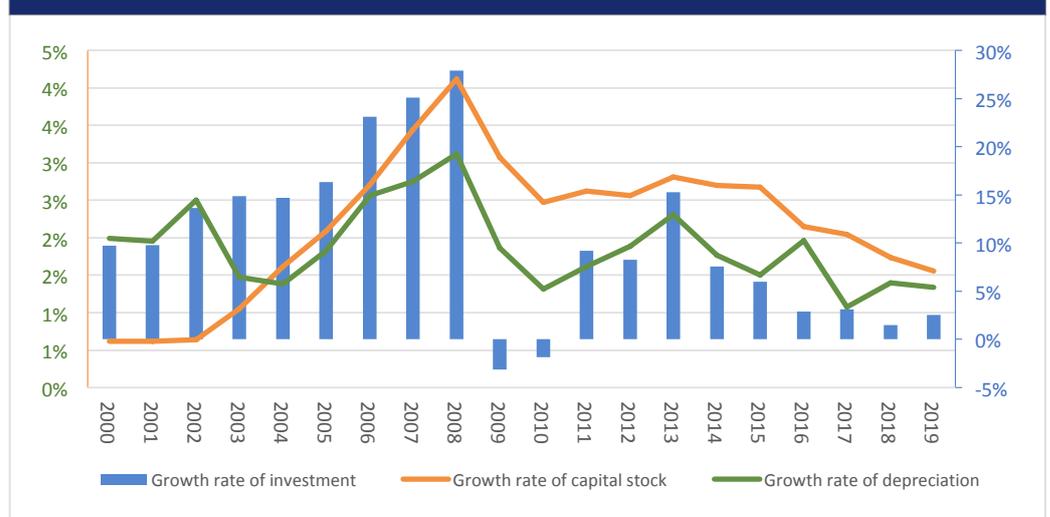
Therefore, this scenario emphasizes reversing the above trend and investing in current and long-term infrastructure needs of the country. To this end, we consider what if both government and public corporations systematically increase their investment in economic infrastructure (e.g. roads, bridges, dams, electricity and water supply), social infrastructure (e.g. schools, hospitals, parks and administrative services) and economic services (e.g. business enterprises) by 10% annually over the next 11 years, which is 4% above the BAU Scenario, starting in 2020.

28. According to the March 2020 issue of the Quarterly Reserve Bank Bulletin, between 2013 and 2019, gross investment increased from R749 billion to R893 billion compared to the consumption of fixed capital (i.e. depreciation), which increased from R483 billion to R713 billion during the same period.

29. The public sector faces a similar situation. Between 2013 and 2019, the general government capital expenditure increased by R29 billion, from R108 billion to R137 billion, compared to the capital depreciation of R32 billion, from R68 billion to R98 billion, for the same period. The situation with the public corporations deteriorated even more during the same period. Total investment by public corporations declined by R3 billion, from R141 billion in 2013 to R138 billion in 2019 compared to the increase in the capital depreciation of R29 billion, from R55 billion to R84 billion (Quarterly Reserve Bank Bulletin, March 2020, p. S-130).

66 Leaders in SA, face low growth, high unemployment and moderate debt-to-GDP ratio. 99

Figure 10: Annual Growth of Investment, Capital Stock and Depreciation



Data Source: Reserve Bank.

Under the macroeconomic policy reform scenario, the general government’s investment in economic infrastructure is pegged to increase from R137 billion in 2019 to R392 billion in 2030. At the same time, investment by public corporations is pegged to gradually increase from R135 billion in 2019 to R385 billion by 2030. As stated earlier, increased public investment provides for the allocation of significantly higher investment funds over the projection period for building roads, bridges, railways, schools, hospitals, public housing, research and development (R&D), and other economic and social infrastructure (Figure 11).

② For the post-COVID-19 period, the Macroeconomic Policy pillar departs from the BAU policy scenario by taking note of major shortages and inequalities in the provision of infrastructure and services to the majority of poor working-class communities. Therefore, under the Macroeconomic Policy pillar, the GFCE is designed to annually increase by about 10.5%.³⁰ This is 3% above the average growth rate of government spending over the last five years, but is similar to the average growth of government spending between 1994 and 2008 (Figure 11). Thus, the scenario expands GFCE from about R1.1 trillion in 2019 to R3.2 trillion by 2030. Accordingly, relative to the BAU policy scenario, during the next 11 years, the Government will be able to cumulatively spend R3.9 trillion more on the delivery of individual and collective social services.³¹

③ This Macroeconomic Policy pillar considers what if the current interest rate and credit extension policies are adjusted to lower the cost of borrowing while easing access to credit by the private sector (business and households), mainly to support the government stated objectives of promoting black-owned businesses, properties and the growth of SMEs in general. Accordingly, the monetary policy component of the Macroeconomic Policy pillar includes replacing the current single mandate inflation targeting rule with a dual mandate rule (e.g. the nominal GDP targeting) that directs the Reserve Bank to use monetary policy tools to help achieve a growth target of 6% and price stability, with a target of 8% for the upper limit of the inflation rate.³²

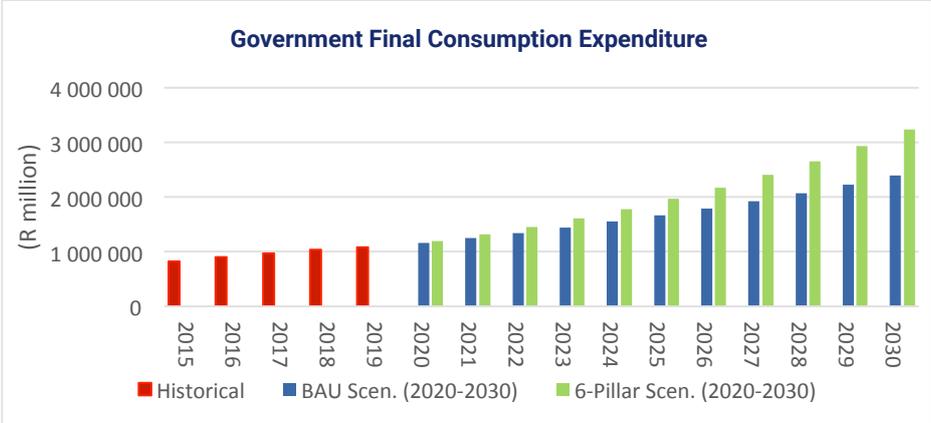
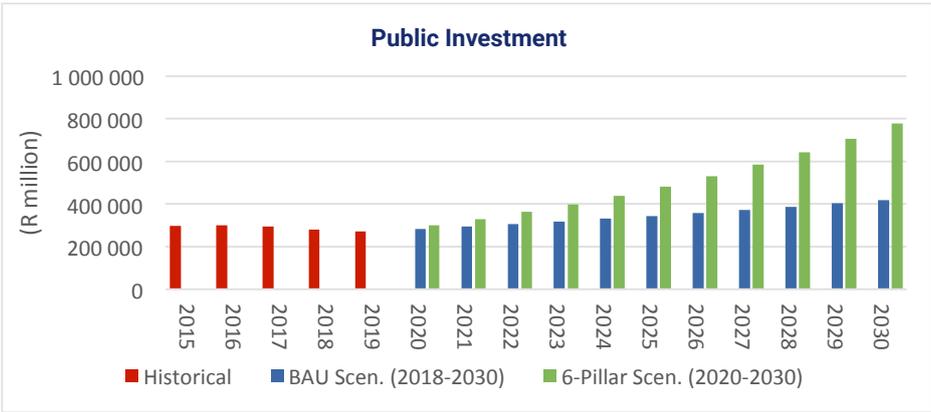
The two-pronged approach is expected to lower the average interest rate and ease access to credit by households and private businesses, especially the SMEs. Moreover, as Figure 12 shows, the compound annual growth rate (CAGR) of credit extension to the private sector is currently much lower than the rate for the period after 1994. Between 1994 and 2008, the credit extension to the private sector grew at an average annual rate of 15.3%. In comparison, between 2014 and 2019, the corresponding rate less than halved, at 6.6% (Figure 12). This decrease has limited private investment, especially the growth of the SMEs. Therefore, the Macroeconomic Policy pillar considers what if monetary authorities adopt necessary measures to increase the annual growth of credit extension to the private sector to 15%.

30. During 2000, GFCE grew at an average annual rate of 12.3%. Since 2010, the rate has decreased to 8.1% (2011–2018) (Reserve Bank Bulletin, First Quarter of 2019, National Account).

31. The cumulated amount is the sum of annual differences, over the next 11 years, between the 7.5% annual increase in the budget for the GFCE under the BAU policy scenario and the 10.5% annual increase in the GFCE under the six-pillar option.

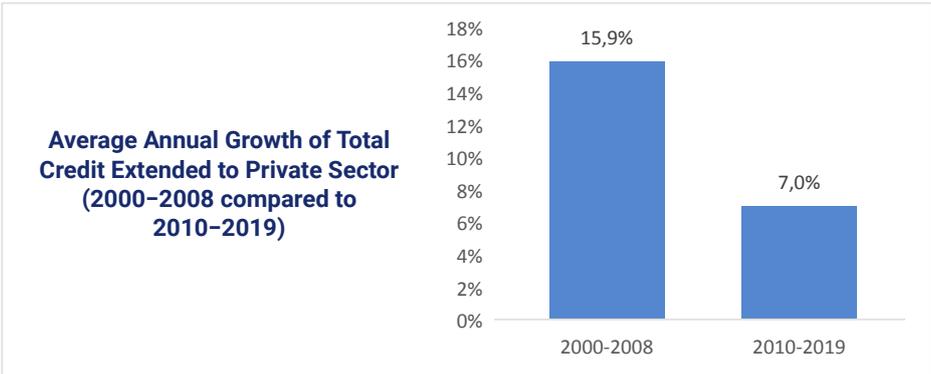
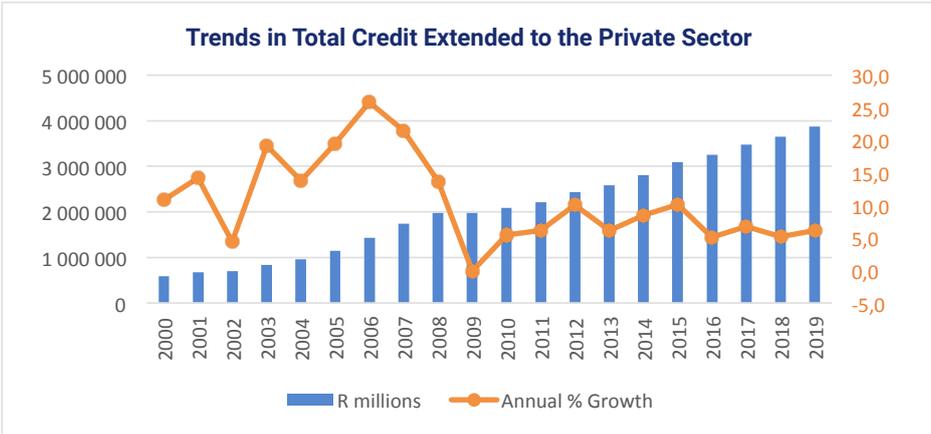
32. For more information on the nominal GDP targeting rule, see Frankel and Chinn (1995), Hall and Mankiw (1994), Guender (2007), McCallum (1997), McCallum and Nelson (1999), Kaushik (2003) and Rudebusch (2003).

Figure 11: Public Investment and Government Consumption Expenditure under the Six Pillar Policy Programme



Data Source: Reserve Bank.

Figure 12: Credit Extended to the Private Sector



Data Source: Reserve Bank.

Pillar 2

5.2.2. Social Policy

The Social Policy pillar is built as part of a necessary policy response to both the devastating social impact of the pandemic and the persistent high rates of unemployment, poverty and inequality. The pillar considers the need for a major policy response to COVID-19 that addresses five key areas. These key areas were identified in an open letter to President Ramaphosa and the Cabinet by a group of South African economists and economic and business analysts:³³

- *Support households and communities*
- *Protect workers*
- *Sustain businesses*
- *Strengthen public health interventions*
- *Strengthen the economy.*

The Social Policy pillar is also informed by findings that show that given SA's extremely high rates of unemployment and poverty, even with a high rate of economic growth, without social policy reforms, poverty would still engulf one-third of the population by 2030, and the average unemployment rate would be more than 5% higher over the next decade.³⁴ Thus, to tackle the high levels of unemployment and poverty in SA, additional measures are needed beyond those that target economic growth.

COVID-19 Social Policy Mitigation Measures

Since the discovery of the first COVID-19 patient in SA, many local and international institutions and policy analysts have provided assessments of the pandemic and views on needed social and economic mitigation measures. SA, just like other governments, has rushed to declare and implement various policies to address the severe welfare and economic impact of the intertwined humanitarian and economic crises caused by COVID-19. The range of proposed social policy responses is wide since they cover diverse areas, from general public support measures to measures directed towards particular groups or narrower issues. We have focused our analysis on five social policy measures that can potentially help millions of affected individuals and families. We have specifically used the microsimulation component of the SA-LNP model to provide not only reliable estimates of the possible number of beneficiaries and programme cost, but also the welfare impact of the proposed measures as follows:

33. This open letter by a group of economists was published in GroundUp on 30 March 2020.

34. See the DTI report produced by ADRS (Adelzadeh, 2019).

35. In a recent Stats SA online web-based survey, the majority of respondents reported salaries/wages as their primary source of income before and during the national lockdown. However, the share decreased from 76.6% before the national lockdown to 66.7% by the sixth week of national lockdown (Stats SA, 2020b).

① As a result of COVID-19, millions of formal and informal workers have temporarily or permanently lost their jobs. We consider the prospect of the Government immediately introducing an unemployment grant for all those who have become unemployed due to the spread of COVID-19 in 2020. The eligible unemployed workers will be entitled to receive R1,000 per month. According to the COVID-19 scenarios that are described in section 4, the increase in total unemployment in 2020 is estimated at between 1.5 million and 2.5 million. It is assumed that the remaining large number of workers who were retrenched during the first half of 2020 are eligible to draw on unemployment insurance funds and will return to work during the second half of 2020.³⁵ In addition, the above unemployment grant is extended to include those skilled workers who have been broadly unemployed prior to COVID-19.³⁶ The grant aims to provide resources to these skilled workers to encourage them to remain in the labour market.

② For the large number of unskilled adults who have been unemployed prior to COVID-19, we consider the expansion of the EPWP to at least 35% of this group in 2020. We also consider increasing the EPWP daily pay rate to R160.

③ We incorporate the immediate introduction of a caregiver grant for the family member that takes care of a child who receives either a child support grant or a care dependency grant. The programme is designed to allocate only one caregiver grant per family. The initial value of the grant is proposed at R500 per month and is designed to increase by 6% annually.

④ We include the immediate increase in the monthly child support grant from R455 to R500.³⁷



36. The 'broadly unemployed' refers to people who are unemployed and available to work but have not taken active steps to look for work.

37. According to the Pietermaritzburg Economic Justice and Dignity Group (PMBEJD), which recently published data showing price changes for essential goods during the coronavirus lockdown in SA, even though there have not been major price increases when observing broad categories of food, consumers are still paying more for the average household food basket. The Group found that over the first three weeks of the lockdown (2–23 April), the cost of the household food basket increased by R65.67 (1.9%) to R3,473.75. Over the two-month period (from 2 March 2020 to 23 April 2020), the cost of the household food basket increased by R252.75 (7.8%) from R3,221 on 2 March 2020 to R3,474 on 23 April 2020. The PMBEJD stated that the foods driving price increases in the household food basket are all those that are essential staple foods (PMBEJD, 2020).

Post-COVID-19 Social Policy Reforms

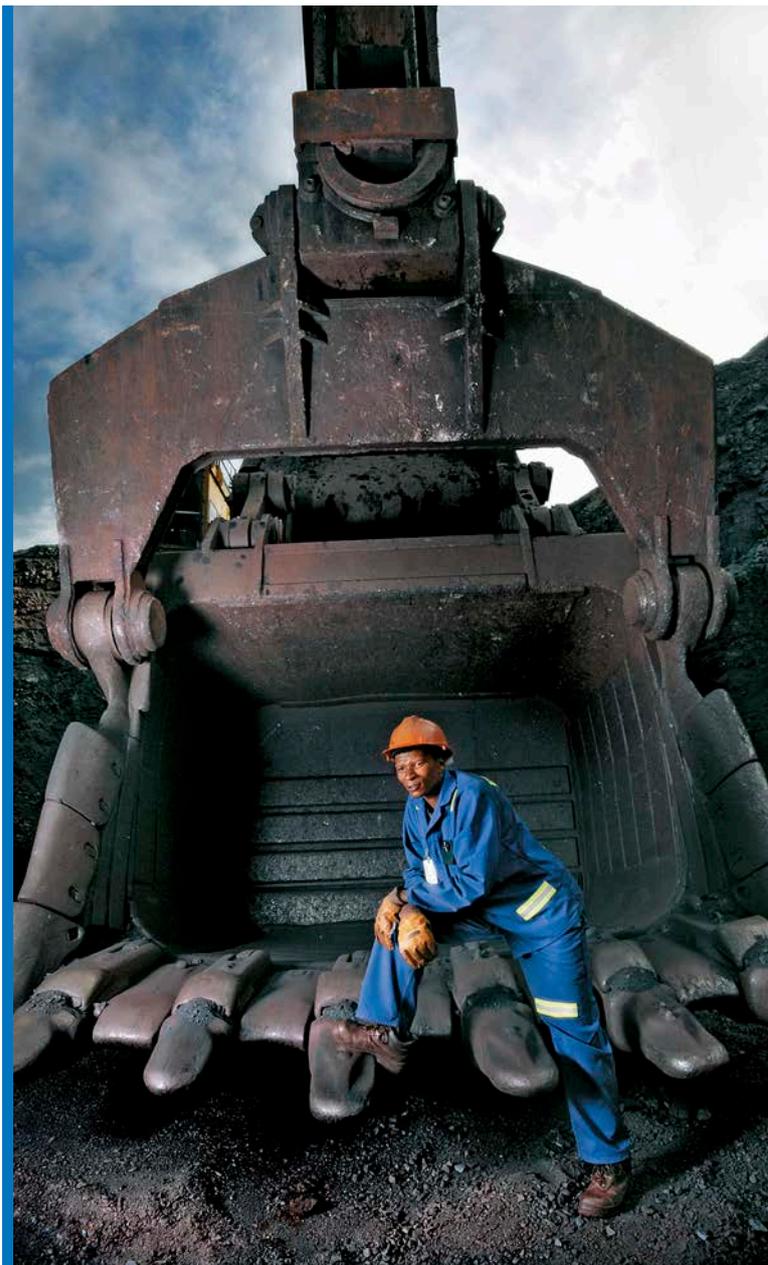
The Social Policy Reforms pillar is designed to complement other policy pillars by adding new measures to the current social security and public works programmes. Given the objectives of reducing the unemployment rate to a single digit and eradicating poverty by 2030, the social policy scenario is designed to examine the potential contributions of policy reforms in this area to achieve the aforementioned goals. Therefore, we consider the following:

- 1 According to the Quarterly Labour Force Survey for the first quarter of 2020, which was released prior to the spread of COVID-19 in SA, the labour force includes about 10.8 million working-age unemployed persons, using the expanded definition of unemployed.³⁸ This group consists of 58% with less than secondary school education. Employment creation in the South African economy has been slow-paced and increasingly skewed toward high-skilled workers. Due to the rising demand for skilled labour, there is little to no chance that the private sector alone can generate enough jobs for 6.3 million unskilled unemployed workers in SA. For these workers, the public sector remains their last chance for employment.

The Social Policy pillar therefore considers what if, after 2020, the Government continues its expansion of EPWP coverage and gradually makes public works the employer of last resort for the unskilled unemployed in SA. This is especially desirable given that the cost of EPWP can be offset if channelled into projects with positive multipliers (B4SA 2020). Therefore, for 2020 and 2021, we suggest that the EPWP cater to 35% and 73% of the unskilled unemployed, respectively. From 2022, the coverage should grow by an additional 3% every year. Thus, by 2030, the EPWP is expected to provide temporary work opportunities for all unskilled unemployed workers.³⁹ Moreover, the scenario includes continuing the daily remuneration rate of R160 per day for public works, adjusted upward by 6% annually (see Box 1).

- 2 What if the caregiver grant introduced in 2020 were extended to continue to provide a small grant to the family member that takes care of a child who receives either a child support grant or a care dependency grant? The programme is designed to allocate only one caregiver grant per family. After 2020, the initial R500 per month value of the grant would increase by 6% annually.
- 3 What if, post-COVID-19, the skilled unemployed who are not students and do not receive any other grants receive support in the form of an adult unemployment grant to help them become or remain active in the labour market? After 2020, the grant of R1,000 per month would increase by 6% annually.

The microsimulation component of the SALNP model will produce annual estimates of the number of eligible individuals, the cost of various programmes and their welfare impact. In the macroeconomic component of the model, the additional cost of social security and public works are added to government transfer payments to households, provinces and municipalities.



38. Stats SA, Quarterly Labour Force Survey, first quarter of 2019, P0211.

39. Antonopoulos (2007) provides a summary table of the cross-country variations in the policies and content of guaranteed employment programmes. This includes, among other things, overcoming challenges related to the source of financing, types of projects, eligibility criteria for the participants, method of remuneration, institutional arrangements, degree of decentralization, level of community involvement and the length of guaranteed employment for participants.

The following is a partial list of public works activities and related jobs that can benefit communities, the private sector and public enterprises

A. Public works activities

- Water conservation and water harvesting
- Drought proofing, forestation, tree planting
- Irrigation canals, including micro and minor irrigation works
- Provision of irrigation facilities to land reform beneficiaries
- Renovation of traditional water bodies
- Flood control and water protection works
- Rural connectivity to provide all-weather access
- Community catchment management
- Park maintenance
- School maintenance
- Creation and maintenance of food gardens
- Housing construction
- Provision of building materials
- Community schemes of all types
- Other works jointly identified by central and provincial governments.

B. Public works jobs

- Hydrologist helper, forest worker, tree planter
- Irrigation worker, aquacultural worker, water conservation helper
- Flood control workers, drainage workers; storm water disposal worker
- Landscaper, gardener, groundskeeper
- Painter, gutter cleaner, glass worker and basic maintenance worker
- Childminder, cooks, dishwasher, cleaner
- School maintenance workers, after-school childminder, after-school activities aide, crossing
- Guard, school cafeteria worker, school security guard
- Personal care aide, elder care worker, medicine deliverer
- Road maintenance worker, park maintenance worker
- Waste collector, environmental clean-up worker, recycling worker
- Street cleaner, garbage collector
- Brickmaker, construction worker, construction worker assistant
- Security guard.



Pillar 3

5.2.3 Microeconomic Policy

The Microeconomic Policy pillar is chiefly derived from the Treasury (2019) modelling scenarios to increase efficiency and competitiveness of the South African economy. Similar proposals are advanced by B4SA (2020). The measures are essentially supply-side measures designed to remove perceived inefficiencies and imperfections in the operation of the free market. They are composed of following five key microeconomic policy interventions: modernizing network industries; lowering barriers to entry; prioritizing labour-intensive growth; implementing industrial and trade policy; and promoting export competitiveness and regional growth.⁴⁰

Overall, according to the Treasury (2019), the bulk of the microeconomic interventions includes reforms in the telecommunications, agriculture, services and transport industries (Treasury, 2018: 9). Therefore, we developed a set of model scenarios that replicate the Treasury's modelling exercise to capture the essence of its microeconomic policy proposals and their expected outcomes. Since we are interested in the macroeconomic impact of microeconomic interventions, we gave the above proposals the benefit of the doubt and assumed that the micro interventions would lead to the anticipated outcomes for the economic sectors and variables for which they have been designed. In this regard, we followed the Treasury's approach to the quantification of its proposals (Treasury, 2018). We therefore captured the proposed microeconomic policy reforms into the following scenarios, noting that due to COVID-19, the adoption and implementation of the measures have been proposed to start in 2021, unless specifically stated otherwise.

⁴⁰ For short summaries of each intervention, see Adelzadeh (2019) and the Executive Summary of the Treasury (2019).

- ① We considered what if the proposed improvements in the tourism sector were to help the sector's exports expand by an additional 8% to 10% annually over the medium term (between 2021 and 2023). Thereafter, the positive shock to the sector's exports is expected to gradually settle to 5% by 2030. The output of trade, catering and accommodation services, which include tourism, is also expected to grow by an additional 2% to 4% between 2021 and 2023. Subsequently, the positive shock to the sector's growth is expected to gradually decline and reach 1.4% by 2030.
- ② We examined what if Treasury's proposed microeconomic measures were to help exports from the agriculture sector grow by an additional 1% in 2021 and by an additional 0.5% every year thereafter. Thus, by 2030, due to the microeconomic measures, exports from the agriculture sector are expected to be 6% higher than would be the case without the measures.
- ③ We considered what if the range of microeconomic measures proposed by the Treasury (2019) were to succeed in lowering the price of the transport, storage and communication sector over the next 11 years by 5% to 10% initially (between 2021 and 2023) and then by an additional 5% annually.
- ④ We examined what if the proposed microeconomic reform measures were to directly boost labour productivity in the transport, storage and communication, agriculture, food, basic chemicals, iron and steel sectors, and the trade, catering and accommodation services. We therefore allowed for an annual positive shock of 1% to the labour productivities of the above sectors.
- ⑤ We carefully considered what if the proposed microeconomic policy reforms were to succeed in improving competitiveness in the following sectors of the economy and thereby led to the gradual lowering of their mark-up by 2 percentage points initially and an additional one percentage point each subsequent year. The sectors that were considered are Trade, Catering and Accommodation Services; Transport, Storage and Communication; and Financial Intermediation, Insurance, Real Estate and Business Services.



Pillar 4

5.2.4. Trade and Industrial Policy Reforms

Industrial policy in SA utilizes both supply- and demand-side measures to increase investment in the manufacturing sector and expand South African exports. The Industrial Policy Action Plan (IPAP) developed by the Department of Trade and Industry in 2007 and the more recent emphasis on designing and implementing Sector Master Plans place strong emphasis on the Manufacturing sector since it has relatively better spillover effects.⁴¹

The Department of Trade and Industry (DTI) uses a combination of supply- and demand-side incentives and programmes to promote investment and export in the manufacturing sector in general and in 12 strategic sectors in particular. The mix of supply- and demand-side measures used to promote investment and exports include: public procurement and local content, industrial financing, and special economic zones (SEZ) and industrial parks.

According to the DTI's ten-year review, the Department's incentive programme has resulted in an estimated investment of R326 billion (DTI, 2018: 46). Clearly, this and other positive outcomes of industrial policy in SA are due to its diverse crosscutting or – as DTI puts it – transversal, focus areas. Even though each of IPAP's programme and policy interventions has had some desirable quantitative and qualitative impact, the extent of its overall success in raising investment and exports of the manufacturing sector is the outcome of its multiple, interdependent and cross-cutting measures and programmes.

Therefore, to include and empirically examine the future impact of the trade and industrial policy, the model scenario is designed to capture three ultimate goals of the programme, namely to: raise total investment in the manufacturing sector; expand exports; and increase the local content and procurement of locally manufactured products. To include the expected future macroeconomic impact of trade and industrial policy measures, we therefore designed and simulated the following scenarios:

- ① We considered what if the industrial policy measures, such as various industrial financing incentives, were to succeed in directly and indirectly increasing total investment in the manufacturing sector during the next ten years. More specifically, we considered the possibility that industrial policy measures might be responsible for the annual addition of R10 billion investments (in 2010 prices) in the Manufacturing sector during the next ten years (2021–2030).⁴²
- ② We examined what if trade and industrial policy measures, such as the SEZ and African integration programmes, were to succeed in increasing total exports by an additional 1.5% after 2021.
- ③ We considered what if the Government's Proudly South Africa and localization policies were to succeed in gradually reducing economic sectors' import dependency ratios⁴³ by 20% over the next ten years.⁴⁴
- ④ What if inter-departmental policy measures, such as the ones described in Box 2, help slowly increase the labour intensity of economic sectors over the next decade.

A DTI report (Adelzadeh, 2019b), prepared prior to COVID-19, shows that even with moderate to high average annual GDP growth rates, the annual unemployment rate is likely to remain high, close to 20%. Therefore, the Trade and Industrial Policy pillar included the following possibility for inter-departmental policy measures, such as the ones described in Box 2, to help gradually increase the labour intensity of production of all sectors.

41. "History has demonstrated that industrialization is integral to sustained and sustainable economic development. No countries have been able to lift substantial sections of their populations out of poverty without industrializing; in most cases, rapidly growing economies have been characterized by an increasingly broad and diversified manufacturing sector. Manufacturing-led value addition has numerous well-recognized multiplier and spill-over effects; it embeds technology-intensity and skills formation as key elements of an upward and inclusive growth trajectory" (IPAP, 2018:8). See Section 5.2.2 for the analysis on whether higher growth in manufacturing lead to higher productivity growth in SA.

42. This is in real terms; therefore, after the first year, the amount of investment in nominal terms adjusts to an average inflation rate of 6%.

43. The estimation of sector-specific import dependency rate (IDR) takes into account both import content of intermediate inputs and imported final goods

44. For example, if a sector's IDR is currently 50%, the localization scenario is designed to gradually reduce the sector's IDR to 40% by 2030, which is 20% lower than the sector's current IDR.



The pillar considers what might occur if, for example, the infrastructure investment measures of Pillar 1 are accompanied by public sector requirements and private sector decisions to use production technologies that are relatively more labour-intensive. The Trade and Industrial Policy pillar therefore postulates using a range of policy measures, including the public sector and public-private sector investment practices, to gradually increase the employment intensity of economic growth in SA. Moreover, the pillar utilizes a diffusion model of technology to allow small incremental improvements

in the sector-specific employment elasticity of growth during the next ten years. In the literature, the technology diffusion time path most typically takes the form of an S-shaped curve, which includes a slow early stage (two years) of adopting important changes in how both public and private sectors use domestic and imported technologies in the production process. This process is then expected to begin to accelerate, diffusing to all industries and firms. It then begins to tail off as sector employment intensity of production approaches industry-specific targets.

Box 2: Labour-Intensive Policy Proposals

A comprehensive policy package (including both supply-side and demand-side factors) that simultaneously addresses the linkage between economic growth and employment can include:

- Expanding aggregate demand by tackling poverty, labour income share and inequality
- Using fiscal stimulus for infrastructure investment, especially for labour-intensive investments
- Adopting tax policies that are conducive for employment creation and labour force participation
- Implementing fiscal policies to tackle labour issues such as employment of low-skilled workers and the labour force participation of women
- Employing active labour market policies that expand labour supply through the matching of skills in the labour force with the skills needed by employers
- Using product market reforms such as removing new entrant barriers to entry in order to promote competition and spur investment in physical and human capital
- Improving the process of selecting projects to maximize their potential beneficiaries and tackle the skills gap in infrastructure;
- Considering labour-intensive industrial clusters as the new model for key industrial growth and development
- Facilitating labour's social upgrading by improving working conditions and expanding education and training opportunities that increase skills, income and human capital thereby improving the possibility for domestic demand-led growth
- Upgrading trade and industry policy to directly support employment intensive growth
- Competing more effectively in labour demanding economic activities to move to a more labour absorbing growth path
- Tilting the incentive structure away from energy and capital-intensive growth towards greater labour demand and employment creation incentives
- Linking low wage employment with productivity-linked pay to increase the current employment rate
- Establishing large-scale and labour-intensive public work programmes to absorb excess labour supply, alleviate poverty and reduce inequality
- Designing labour-intensive programmes to curb youth unemployment
- Establishing rural training centres to produce skilled workers with the ability to use modern machinery in labour-intensive industries through private-government partnerships
- Using government-administered campaigns to inform women about employment possibilities in labour-intensive manufacturing firms
- Setting up 'parks of labour-intensive exports' in rural areas where small firms contribute to the supply chains of larger firms
- Implementing measures to remove infrastructure bottlenecks
- Transforming the public works programme into a long-term employment generation programme

Sources: ILO, OECD and World Bank Group (2015), Wang, Mei and ILO (2009), Black and Hasson (2012), Nattrass and Seekings (2013), Gutu and Von Bron (2019), Das and Kalita (2009), Von Bron (1993) and Thwala (2011).

Pillar 5

5.2.5. Domestic and International Private Sector Support

In April 2018, the Public-Private Growth Initiative (PPGI) was established to align strategic planning between the private sector and the Government to improve economic growth and the working relationship between business and government. The PPGI partnership has identified 14 sectors, mainly in manufacturing, to invest at least R500 billion over the next five years. Therefore, under the Private Sector Support pillar, we have considered what if the PPGI were to increase investment in the South African economy by R500 billion over the next 11 years. The scenario assumes that the PPGI's new investment will initially be a small amount before it accelerates between 2023 and 2027 but then tapers off during 2028 to 2030.

The Private Sector Support pillar also includes possible additional investment by the Public Investment Corporation (PIC) in the South African economy. While one of the PIC's top priorities is to deliver healthy returns to its shareholders, it is simultaneously expected to contribute to the broader socio-economic development of SA. To fulfil its dual mandate, the PIC may use its investment in priority economic sectors (e.g. infrastructural investments in previously disadvantaged and underdeveloped communities) as an indicator of its contribution to the broader socio-economic development of the country. Consequently, this scenario examines what if the PIC were to increase its investment in the South African manufacturing sector by R100 billion between 2021 and 2025 (five years). This pillar also weighs the contributions of the following three favourable external developments on the South African economy:

- ① **First**, it considers the possibility of a gradual increase in FDI in SA. The rationale for this possibility is that the implementation of other policy pillars is likely to put the economy on a much better growth path, which we assume will increase the inflow of FDI into the South African economy. Therefore, we included what if the level of FDI in SA gradually increased from 0.05% to 0.13% of GDP between 2021 and 2030.
- ② **Second**, historically, the gold price annually increased by about 4% on average. In recent years, prior to the COVID-19 international crisis, the gold price increased at a much slower pace. For the BAU Scenario, we assumed a 1% average annual growth rate for the gold price during 2021 and 2030. Given that the gold price has had a much higher historical growth rate, we have considered what if the gold price annually increased by 2%.
- ③ **Finally**, the BAU Scenario assumes that the nominal value of total world import grows annually by 6%. Under the six-pillar policy approach, we have considered what if world annual imports grew by 8% after 2020.





Pillar 6

5.2.6. Provincial Growth and Development Plans

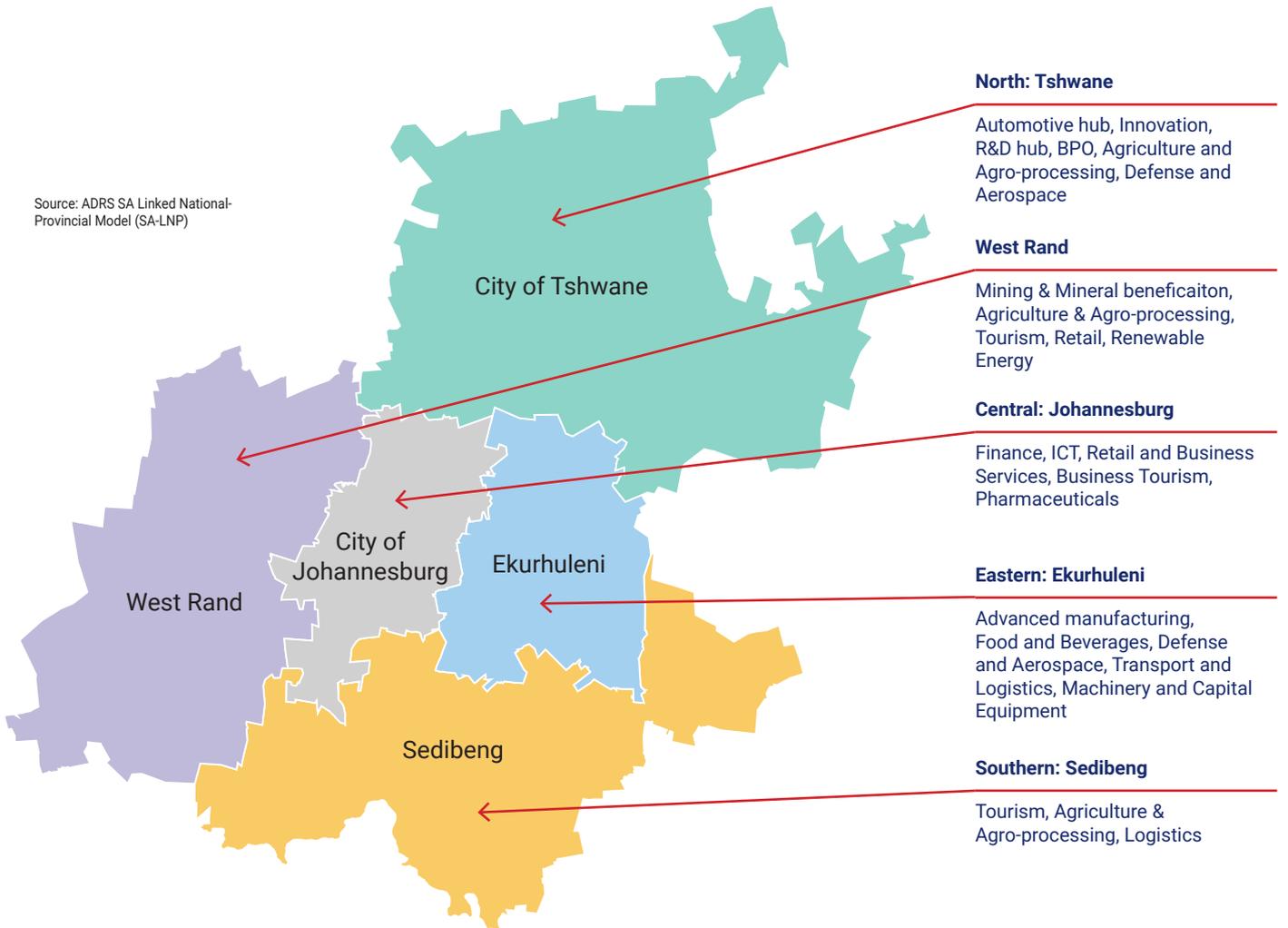
Given the complex production and distribution inter-relationship between each province and the rest of the economy, provincial growth and development plans have the potential to elevate the country’s overall economic performance. This potential is demonstrated by the ADRS Team (2019) that used the SA-LNP model to append the central government’s policy choices with Growing Gauteng Together 2030) (GGT2030) provincial interventions and assessed the likely impact of Gauteng’s medium-term GGT2030 plan on the province and on the rest of SA.

The Provincial Reform pillar thus augments and reinforces other policy reform pillars to build a comprehensive policy bridge between a national and provincial growth and development trajectory. This trajectory will yield significant positive outcomes by the time the country has reached its next two major milestones, namely, the 30th and 40th anniversaries of the democratic transformation. Ideally, the Provincial Policy Reform pillar should include inputs from all provincial plans.

However, due to time constraints, we include only Gauteng’s medium-term plan (i.e. GGT2030), which is composed of more than 160 interventions to realize close to 30 social, economic, development and governance strategies over the next decade (Figure 13). These interventions can be grouped as follows:

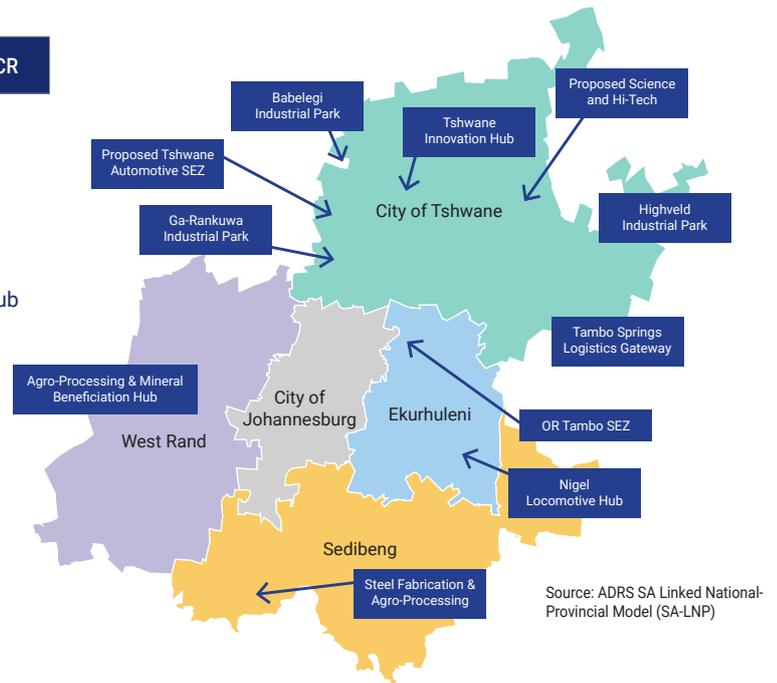
- ① Fifty microeconomic interventions that are designed to improve the social, economic and legal environment of doing business in the province;
- ② Forty interventions that fall under public and private sector trade and industry policy and support measures, designed to support equitable industrial growth and the greening of the Gauteng economy, and to promote regional (African) trade;
- ③ Twenty macroeconomic interventions related to fiscal and monetary measures to support growth and employment;
- ④ Fifty-two social policy interventions that are designed to promote social cohesion and inclusivity.

Source: ADRS SA Linked National-Provincial Model (SA-LNP)



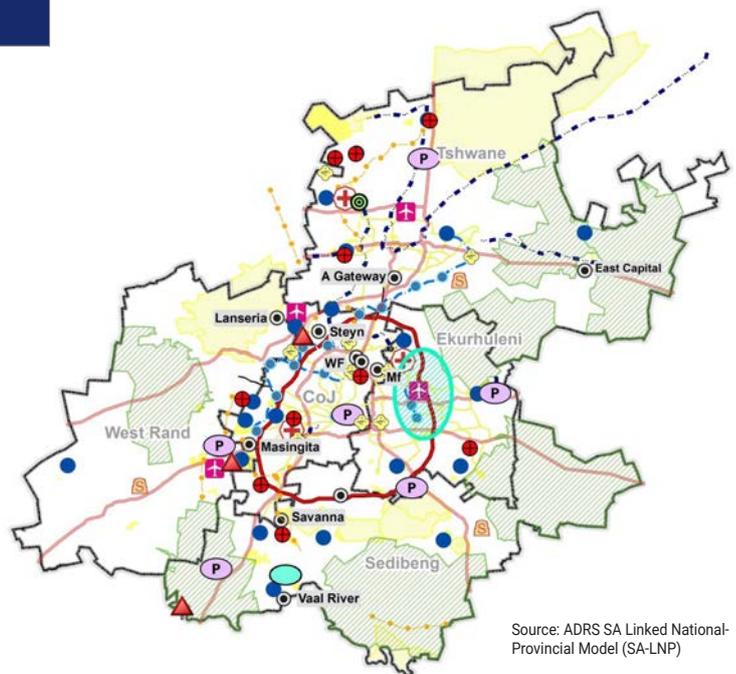
The Roadmap to the Multi-Tier, Mega Special Economic Zone in the GCR

1. Development of Tshwane Automotive SEZ
2. Development of the Science and High Tech SEZ in Ekandustria
3. Accelerated implementation of OR Tambo SEZ
4. SEZ in Emfuleni, Sedibeng Region (Vaal Industrial areas)
5. Development of West Rand Agri industrial Park and Logistics Hub
6. Tambo Springs Logistics Gateway
7. Nigel Locomotive Hub
8. Revitalization of the Babelegi Industrial Park
9. Revitalization of Garankuwa Industrial Park
10. Establishment of the Township Enterprise Hubs



GCR Apex Infrastructure Projects

1. Gautrain Phase 2 PPP
2. Gauteng Broadband Network Rollout partnership with business
3. Kopanong Precinct Development PPP
4. Bulk infrastructure for SEZs, new nodes, Township Industrial Parks and building Agri Parks
5. Mega Human Settlements Projects
6. Aerotropolis Master Plan implementation
7. Roll out and integration of BRT systems, new highways and maintenance of road network
8. Building of new smart schools and ECDs
9. Maintenance of hospitals and building of new clinics and hospitals
10. Township industrial hubs (refurbish and additional)
11. Safety and Sporting facilities as well as Heritage infrastructure
12. Energy and renewable energy
13. Water and Sanitation

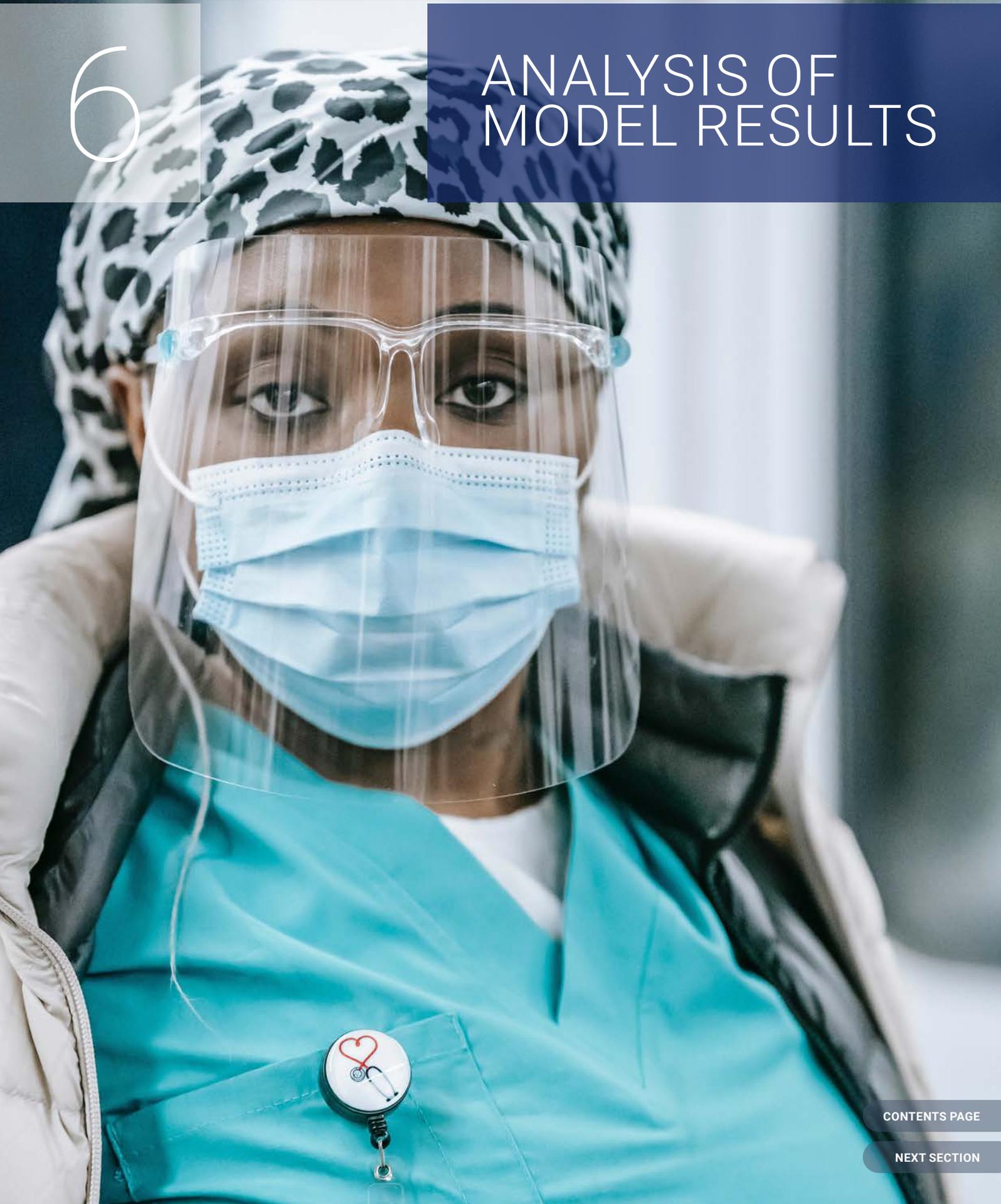


Just as with the Microeconomic and Trade and Industry Policy pillars (Pillars 2 and 3), we have examined the case in which the GGT2030 is successfully implemented and consider its contribution to national and provincial growth and development. To assess the expected future impact of the GGT2030, we designed and simulated the following scenarios based on GGT2030's detailed description of planned interventions and included the following:

- ① What if provincial industrial measures succeed in increasing Gauteng's total real output by 0.5% in 2021 and by an additional .5% each year thereafter?
- ② What if provincial measures to promote African regional trade succeed in increasing Gauteng exports to Africa by an additional 0.5% annually?
- ③ What if extensive provincial sector strategies and support measures successfully lead to an additional 0.5% annual investment increase in Gauteng's agriculture, food, electricity, water, construction, transportation and communication sectors?

6

ANALYSIS OF MODEL RESULTS



[CONTENTS PAGE](#)

[NEXT SECTION](#)

In this section, we present the likely impact of COVID-19 on the South African economy using the SA-LNP model. The first set of SA-LNP model simulations were conducted to establish the extent to which COVID-19 is expected to change the short-, medium- and long-term outlooks for the economy.

To this end, we compared the model results for the six COVID-19 scenarios with the projections for the baseline scenario (i.e. no-COVID-19), all based on the BAU policy option.

The next set of simulations were undertaken to show the extent to which the proposed six pillar policy reforms help mitigate the short-term social and economic impact of the pandemic and whether they are able to provide a better long-term growth and development outlook for the country.

For this purpose, we ran the SA-LNP model with two COVID-19 scenarios (i.e. mild and severe scenarios) and the alternative six-pillar policy proposal.

In the remainder of this section, we present the SALNP model results for the national level. Annexes 10.1 to 10.3 provide a summary presentation of model results for the provincial, district and municipality levels.

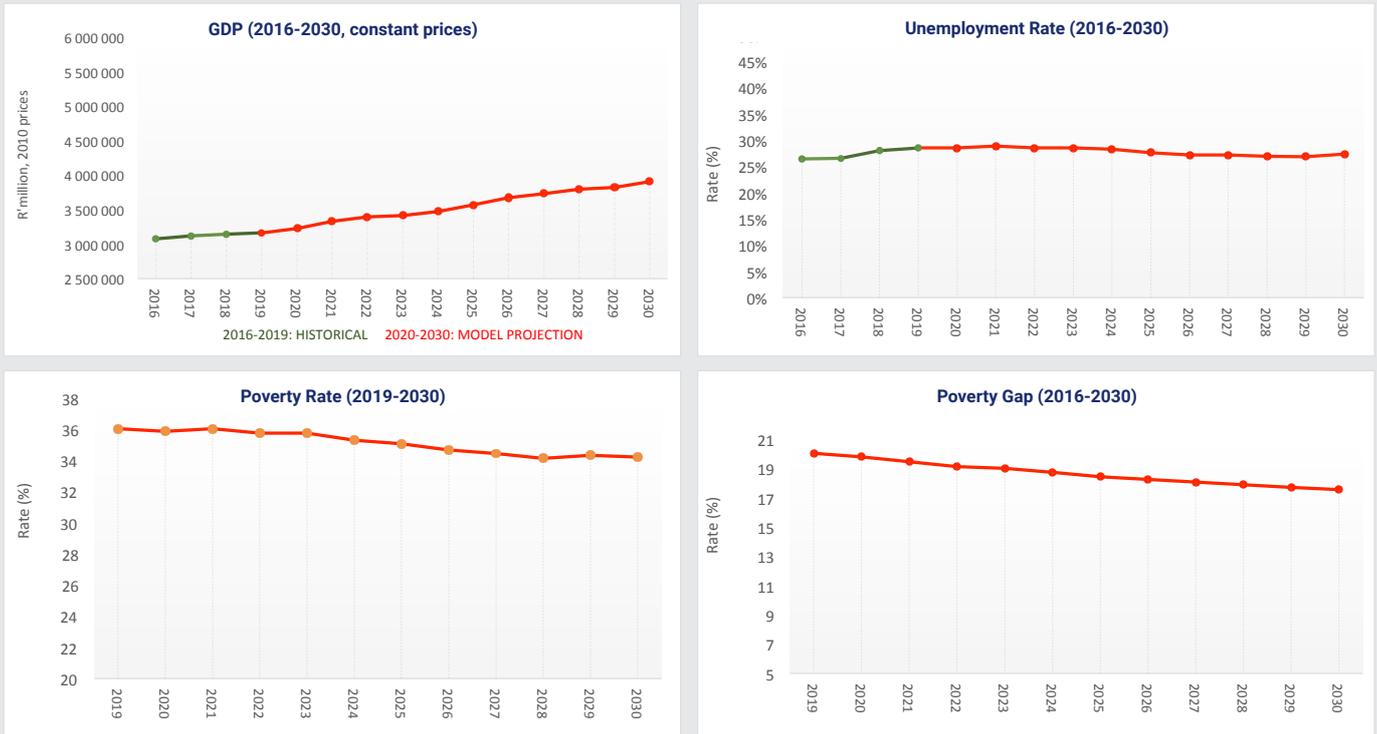
6.1 The Baseline Scenario: No-COVID-19 with BAU Policies

What if there were no COVID-19, and government economic policy remained unchanged? What would be the likely economic outlook for SA over the next decade? The model results for this scenario provide the baseline values with which to measure the likely impact of COVID-19 and to compare the effectiveness of alternative policy proposals.

Simulation of the no-COVID-19 Scenario with the BAU policy option provides the following outlook for SA (Figure 14). Over the next 11 years, the real size of the economy (in 2010 prices) would grow by about 23.4%, from R3,165 billion in 2019 to R3,905 billion in 2030, which translates to a CAGR of 1.9% for the period (i.e. 2020–2030). Real per capita GDP would increase slightly, i.e. by R4,440, or about 8.2%. Total employment in the economy would increase to 20.1 million by 2030, thus adding 3.8 million jobs to the economy over the projected time period. By 2030, the unemployment rate would be as high as 26.3%, and the poverty rate would decline by less than 2 percentage points, from 36% in 2019 to 34.2% in 2030.



Figure 14: No COVID-19 with BAU Policy Scenario (2016-2030)



Source: ADRS-SA-LNP Model Projections.

6.2 COVID-19 Scenarios with the BAU Policy Option

What if the BAU policy option continues during and after the COVID-19 pandemic? To what extent would the COVID-19 scenarios change the country's outlook for the next decade? We ran the SA-LNP model using specifics of the six COVID-19 scenarios with the BAU policy option. As Figure 15 shows, the extent to which the pandemic impacts a particular indicator depends on the COVID-19 scenario. Under each COVID-19 scenario, simultaneous demand, supply and price shocks reverberate throughout the economy, with complex impacts.

The SA-LNP model, through its equation system, captures the direct, indirect and dynamic impacts of the shocks as it generates annual projections of key economic and development indicators. As a result, the model is equipped to quantify supply (demand) shocks that may lead to demand (supply) shocks with larger economic impacts than the supply (demand) shocks that caused them.

Therefore, it is probable that the range of impacted indicators and the magnitude of the overall impact of a particular shock may differ from the initial shocks.

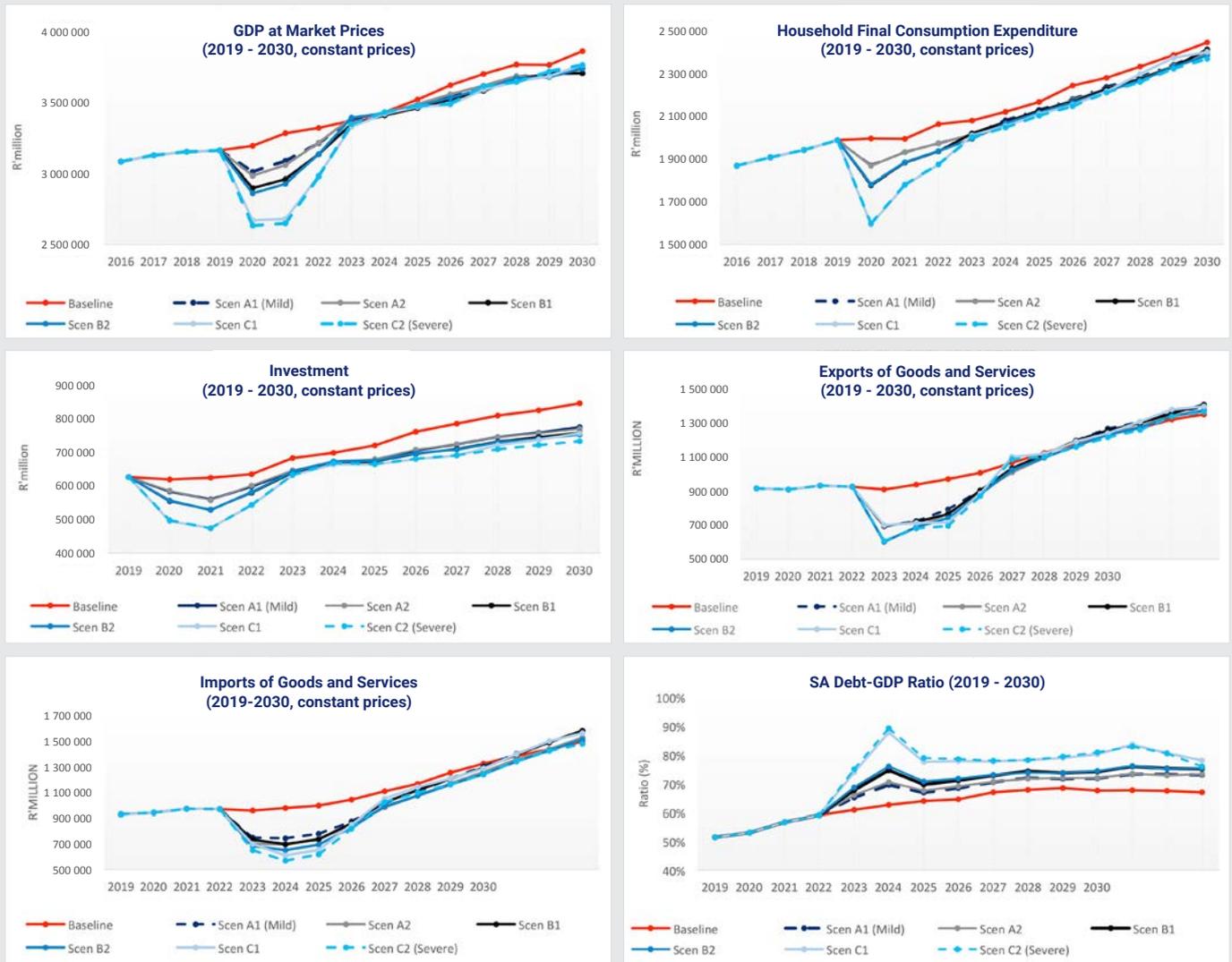
Our key short-, medium- and long-term findings follow.

6.2.1 Short-Term Impact (2020)

The extent of COVID-19 damage to economic activity depends on the size and duration of locally and internationally initiated shocks. The six COVID-19 scenarios with BAU policy choices are found to have a significantly large negative impact on economic growth. The results show that the real GDP growth for 2020 is likely to drop to between -4.4% (mild scenario) and -12.1% (severe scenario). Similar outcomes are likely at the provincial level where, for example, Gauteng's economic growth is projected to drop to between -4.4% and -16.4%, depending on the COVID-19 scenario. Figure 15 highlights the SA-LNP model projections of the negative impact the pandemic has on GDP and its components.



Figure 15: COVID-19 Scenarios with the Business-as-Usual Policy Option



Source: ADRS SA Linked National-Provincial Model (SA-LNP).

The impact of the pandemic and containment measures on workers and their families is far-reaching. The rise in the number of infected individuals together with containment measures involving nationwide lockdown enforcement, social distancing and isolation have resulted in a sudden major increase in unemployment. The SA-LNP model estimates that SA's official unemployment rate is likely to increase from 29% in 2019 to between 35% (mild scenario) and 40% (severe scenario) in 2020, reflecting a rise in the number of unemployed by between 1.5 and 2.5 million. Moreover, an additional 5.5 million workers are expected to be temporarily out of work, but will gradually return to work as the lockdown period ends.

The sharp increase in the total number of workers out of work has led to a significant increase in poverty and vulnerability. According to the microsimulation component of the SALNP model, the number of poor in 2020 is expected to increase by between 2.5 million (mild scenario) and 4.5 million (severe scenario), which translates to a rise in the poverty rate of between 3.9% and 7.3% points. Concurrently and relatedly, the poverty gap, which measures the depth of poverty, is likely to increase by between 2.4 (mild scenario) and 4.6 (severe scenario) percentage points (Figure 16).

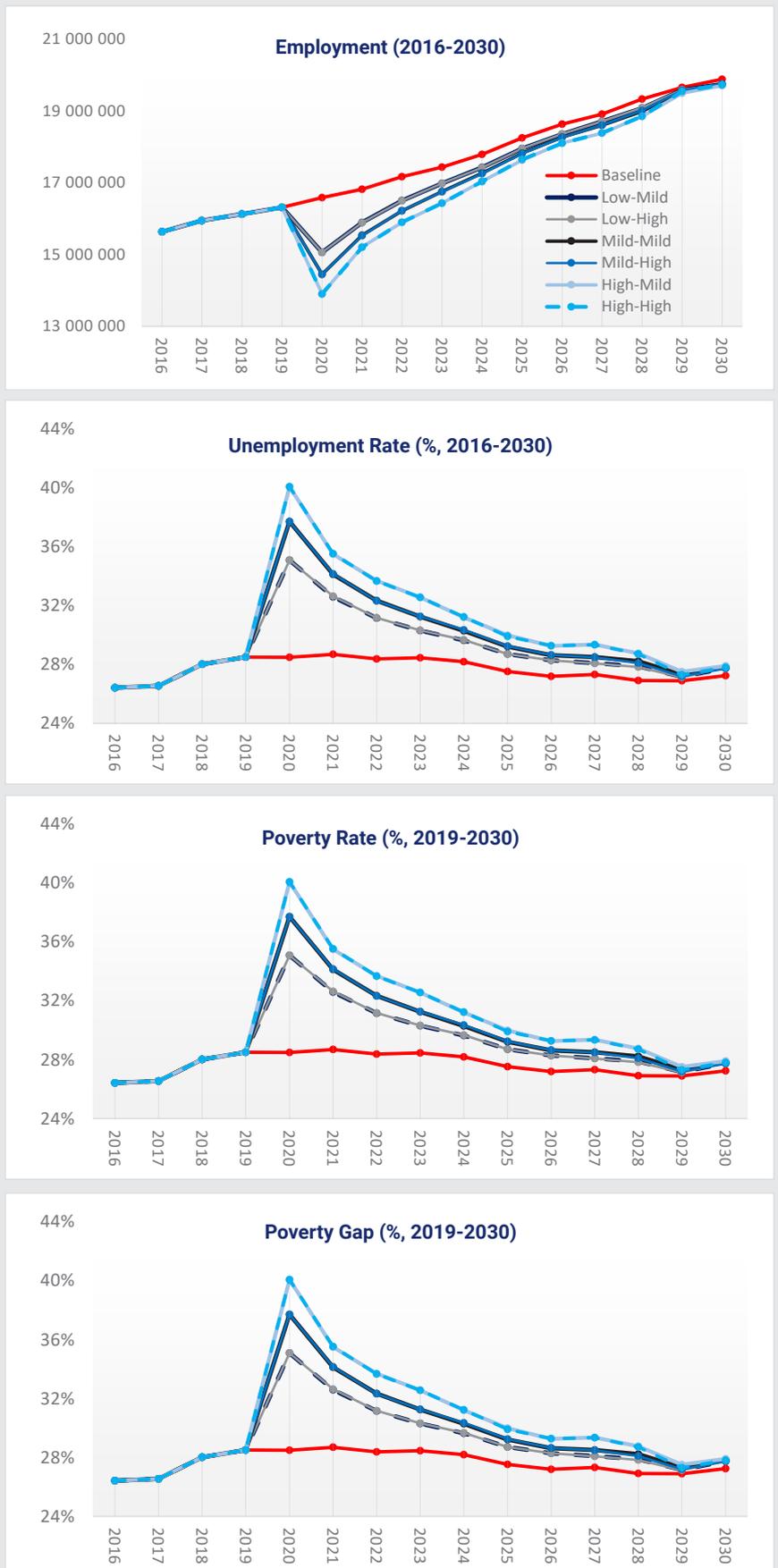


The economic shocks associated with the COVID-19 pandemic impact both wage and profit earners, and thus potentially income inequality. The SA-LNP model estimate of the Gini coefficient shows that COVID-19 is likely to worsen inequality; the more severe the pandemic, the more negatively it impacts inequality. The Gini coefficient is projected to increase from 0.68 in 2019 to 0.698 (mild scenario) and 0.712 (severe scenario) in 2030.

Finally, with COVID-19, the debt-to-GDP ratio is projected to increase in the short term. Therefore, relative to the projection of the debt-GDP ratio for 2020 under the baseline scenario, with COVID-19, the debt-to-GDP ratio is estimated to increase in 2020 by between 4 percentage points (mild scenario) and 14 percentage points (severe scenario), due mainly to the significant drop in the GDP and tax revenue.



Figure 16: COVID-19 Scenarios with the Business-as-Usual Policy Option



Source: ADRS SA Linked National-Provincial Model (SA-LNP).

6.2.2 Medium-Term Impact (2021–2023)

The SA-LNP simulation results show that the post-COVID-19 economic transition will neither be quick nor uniform. Depending on the indicator, the post-COVID-19 adjustment may follow a V-shape or U-shape process, with more key indicators, including output, investment, export and import following the U-shape path. The SALNP model results show that the average values of key indicators over the next three years will be lower than the corresponding average values for the baseline scenario. For example, during the three-year period from 2021 to 2023, the average GDP for the six COVID-19 scenarios is projected to be lower than the corresponding average for the baseline scenario by between 2.9% (mild scenario) and 10% (severe scenario). Hence, given the extensive disruptions in the supply chain and in local and international demand, the recovery will take time, and the GDP will not quickly rebound to the pre-COVID-19 trajectory. Figures 15 and 16 compare model projections of the GDP across post-COVID-19 scenarios.⁴⁶

Our simulation results show that under the BAU policy scenario, the recovery of the manufacturing sector is projected to be slower than the recovery of the primary and services sectors. This is due to the relatively high trade-to-output ratio of the manufacturing sector in SA, which conditions the recovery of the sector to the economic recovery of the rest of the world. As a result, depending on the COVID-19 scenario, average output of the manufacturing sector over the three-year period (2021–2023) is estimated at between 11% and 17% lower than the corresponding value for the baseline scenario. Overall, total economic output during 2021–2023 will be on average lower by 2.7% (mild scenario) and 9.3% (severe scenario).

Therefore, what emerges from the simulation of six COVID-19 scenarios is that, under the BAU policy scenario, it will take at least several years for the economy to gradually recover from the COVID-19-related disruptions to local and international production, trade, consumption and investment. The issue of a probable lengthy economic recovery after COVID-19 is widely discussed internationally, especially when considering policy responses to the pandemic.⁴⁷

Figure 16 compares the implication of the six BAU COVID-19 scenarios for employment and the unemployment rate. It shows that the initial major drop in the level of employment under the six BAU COVID-19 scenarios is expected to be followed by a slow, gradual employment recovery. The average unemployment rate for three years after the pandemic, 2021–2023, is likely to be higher than the corresponding average for the baseline scenario. During the three-year period, the unemployment rate for the six BAU COVID-19 scenarios will be on average 2.8 percentage points (mild scenario) to 4.4 percentage points (severe scenario) higher than the average unemployment rate for the same period under the baseline scenario (Figure 16).

As Figure 16 shows, both the poverty rate and poverty gap will gradually improve after 2020. By 2025, their values approach corresponding projections of 35% and 18.5% for the baseline scenario.

Overall, in the medium term, under the BAU policy scenario, the negative economic impact of the COVID-19 pandemic is expected to persist for several years. Neither growth nor development indicators are expected to fully recover, much less surpass, the baseline scenario outlook of an economy with an ongoing crisis of high unemployment, poverty and inequality.



45. According to the World Economic Forum, 60% of economists believe that the economic recovery will be U-shaped (WEF, 2020). Deloitte suggests that the epidemic may continue with severe infections until 2021. Moreover, the economy may only begin to recover in 2022 (Deloitte, 2020).

46. The recovery of main components of aggregate demand will also be slow. For example, by 2023, the real value of household consumption expenditure is projected to be lower than the projected value under the baseline scenario by at least 3%. The difference is found to be even larger for real investment (at least 5.7% lower), real export (at least 10% lower) and real import (at least 16%).

47. See footnote 38.

6.2.3 Long-Term Impact (2020–2030)

The simulation results show that after the medium term recovery period, values of economic indicators tend to gravitate towards the baseline scenario's long-term values for the same indicators. Therefore, the post-COVID-19 economic recovery is not likely to outperform the baseline scenario's low growth and high unemployment path. At best, under the BAU policy option, the post-COVID-19 economy would trail the baseline scenario's future trajectory, which President Ramaphosa and the ANC NEC have declared inadequate and unacceptable.

For example, Figure 15 shows that the long-term outlooks for the GDP under the six COVID-19 BAU scenarios correspond to the long-term outlook for the GDP under the baseline scenario. Figure 16 includes the likely long-term poverty outcomes of the six COVID-19 scenarios under the BAU policy option. It shows that after the initial sharp increases in both the poverty rate and the poverty gap, the values of the two indicators will gradually improve as they move toward the baseline scenario results.

The above analysis of the short-, medium- and long-term impact of the COVID-19 with the BAU policy option shows that the pandemic is likely to elevate the chronic crisis of high rates of unemployment, poverty and inequality. If economic policy remains unchanged during and after the COVID-19 pandemic, our findings show that the negative impact of COVID-19 will persist until the middle of the next decade. Afterward, during the rest of the decade, there will be only small progress.

By 2030, the unemployment rate will still be more than four times higher than the NDP target of 6%; the per capita GDP will improve by less than 10% over the next decade; and more than one-third of the population (34%) will still live in poverty.



6.3 COVID-19 Scenarios with the Six-Pillar Policy Reforms

What if the South African Government adopted the proposed six-pillar policy approach to mitigate the impact of COVID-19 and to address the chronic crisis of high rates of unemployment, poverty and inequality? To what extent would the outcomes be different during the COVID-19 pandemic (i.e. during 2020), the recovery period after the pandemic (i.e. 2021–2024) and in the long term (i.e. over the next decade)?

To answer the above questions, we ran the SALNP model using the mild and severe COVID-19 scenarios with the six-pillar policy reforms.⁴⁸ The model projections show that the short-, medium and long-term impact of the six-pillar policy interventions are different from the COVID-19 scenarios with the BAU policy option.

6.3.1 Short-term Impact (2020)

The SA-LNP model projections for 2020 demonstrate that, for a year when the country struggles to contain the virus and grapples with an economy hard hit by major domestic and international shocks, the proposed six-pillar policy interventions can successfully mitigate the pressing impact of COVID-19 on employment, poverty and economic growth.

More specifically, the introduction of a caregiver grant, as part of the Social Policy pillar (Pillar 1), is estimated to directly help between 6.6 million (mild scenario) and 7.3 million (severe scenario) families during 2020, when the pandemic's health threat and containment measures are at their peak. Moreover, the simulation results estimate that the introduction of an adult unemployment grant for those who have become unemployed in 2020 due to COVID-19 will financially help between 2.5 million (mild scenario) to 3.6 million (severe scenario) workers and their families. Furthermore, the expansion of EPWP during the second half of 2020 to cover 35% of the unskilled unemployed that existed prior to the pandemic will support between 2.5 million (mild scenario) to almost 3 million (severe scenario) workers and their families in 2020. Fourth, the increase in the child support grant will additionally help poor families, especially considering price increases for food essentials during the pandemic.⁴⁹

The above support measures will help families that have directly or indirectly been affected by COVID-19. At the same time, other policy support measures that are part of the Macroeconomic Policy pillar (Pillar 1), such as the increased budget for government's collective consumption expenditure, provide additional support to the affected population.

Finally, the Macroeconomic Policy pillar is designed to increase the 2020 budget for public infrastructure investment to provide necessary resources for preparing schools, hospitals and public transportation for their gradual reopening in a safe manner.

Through its employment and anti-poverty measures, the proposed six-pillar policy interventions help combat the short-term social and economic impact of the pandemic. As a result, the poverty rate, which was estimated at 36% at the beginning of 2020 and projected to significantly rise to between 40% (mild scenario) and 43% (severe scenario) during the first half of 2020, is likely to decline to 31% (mild scenario) and 33% (severe scenario) by the end of the year if the proposed measures are fully implemented; i.e. the proposed measures can lessen the projected poverty level of 22 million at the height of the pandemic to 17 million by the end of 2020.

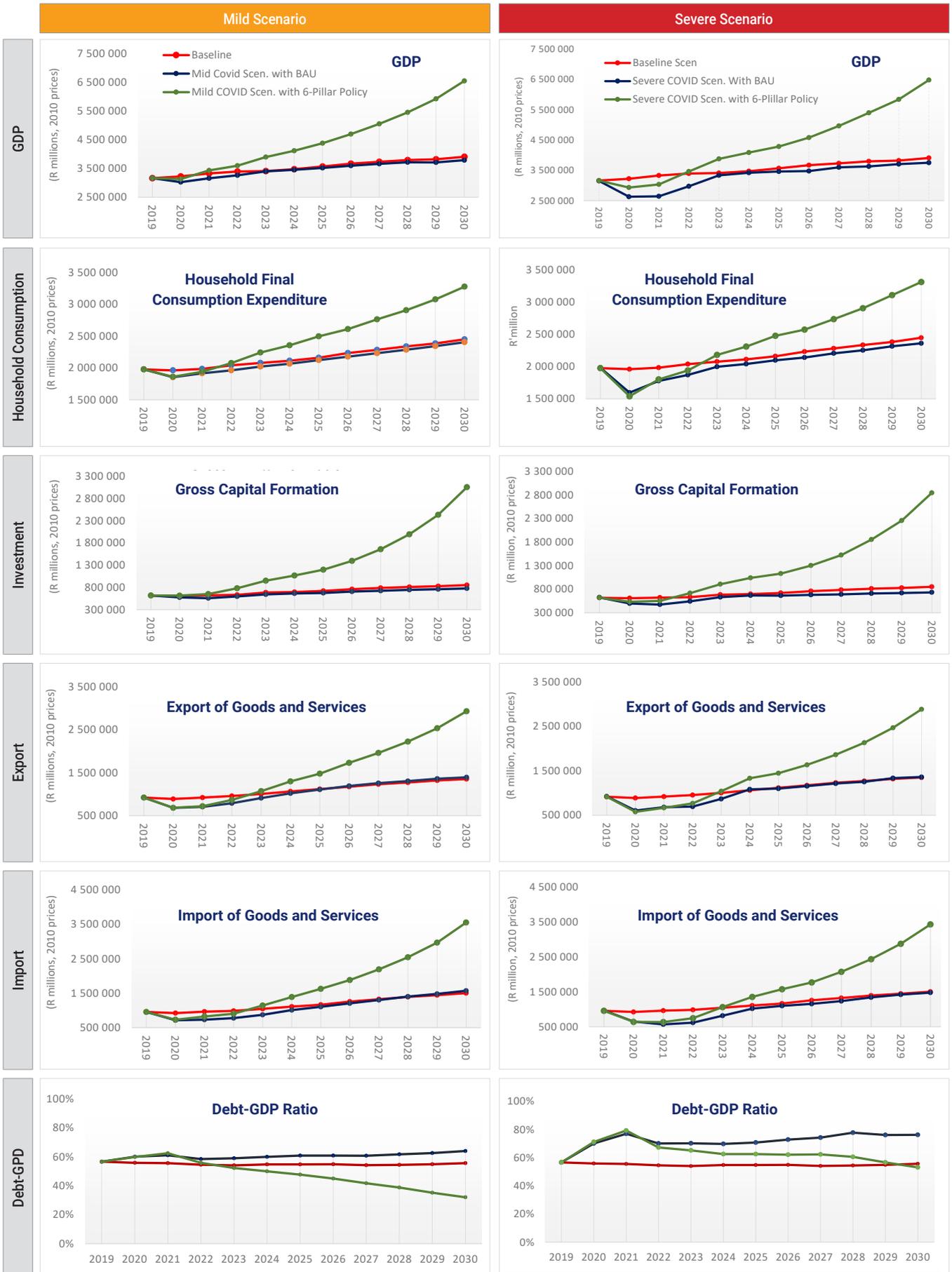
Moreover, during 2020, when both aggregate demand and aggregate supply are hard hit by pandemic-related internal and external shocks, the above expansions of public employment, anti-poverty measures, public investment and government expenditure on social services help stimulate the economy and thus mitigate the COVID-19-related damage to economic growth during 2020. Therefore, instead of an annualized growth of between -4.4% (mild scenario) and -12.1% (severe scenario) in 2020, the drop in economic growth could be contained to -1.0% (mild scenario) and -7.1% (severe scenario) (Figure 17).

“Six-pillar policy interventions can successfully mitigate the pressing impact of COVID-19 on employment, poverty and economic growth.”

⁴⁸. We have assumed that the actual impact of the pandemic will probably fall between the impact of an overall mild COVID-19 scenario (represented by a combination of the low local scenario and the moderate spillover effects scenario) and a severe COVID-19 scenario (representing the high local scenario and high spillover effects scenario).

⁴⁹. See footnote 38.

Figure 17: COVID-19 Scenarios with the BAU and the Six-Pillar Policy Alternatives



Source: ADRS SA Linked National-Provincial Model (SA-LNP).

6.3.2 Medium-Term Impact (2021–2023)

In addition to diminishing the immediate negative impact of COVID-19, the proposed six-pillar policy programme helps shorten the period that the economy will take to fully recover from the COVID-19-related shocks. As Figure 17 shows, relative to the BAU scenarios (Scenarios A1 to A6), the post-COVID-19 recovery period is projected to be noticeably shorter for both mild and severe scenarios under the six-policy pillar option.

In quantitative terms, for three years after COVID-19 (2021–2023), the mild COVID-19 scenario with the six-pillar policy option is projected to perform better than the corresponding COVID-19 scenario with the BAU policy option. The model results show that it generates a higher average annual GDP growth rate (by about 4% percentage

points), a lower average unemployment rate (by about 6%) and a lower average poverty rate (by 10.6 percentage points).⁵⁰ Similar results are found for the severe scenario.⁵¹

Overall, with the six-pillar policy programme, it is possible to diminish the lingering negative impact of COVID-19 after 2020 and shorten the post-COVID-19 recovery period using demand management policy tools that are designed to counter the social and economic impact of the COVID-19 diverse supply and demand shocks.

50. From the estimated average annual number of 22.3 million under the BAU policy scenario to 17.1 million under the proposed policy pillars.

51. Relative to the projections for the Severe Scenario with the BAU policy scenario, under the same COVID-19 scenario but with the proposed policy bridge, for the three years after COVID-19 (2021–2023), the average annual growth rate of the GDP will be 2.8 percentage points higher; the average unemployment rate will be lower by 7.3 percentage points; and the average poverty rate will be lower by 9.2 percentage points.

Figure 18: COVID-19 and Likely Outlook for Unemployment, Poverty and Inequality



Source: ADRS SA Linked National-Provincial Model (SA-LNP).

6.3.3 Long-Term Impact (2020–2030)

Given the under-utilization of human and capital resources in SA, the six-pillar policy approach has the potential to propel the economy on a higher long-term growth path, and the SA-LNP simulation results quantitatively demonstrate this possibility.

Figures 17 and 18 compare the likely long-term path of the economy under the BAU policy option with the results for the six-pillar policy option. They show that the proposed six-pillar policy programme will generate a much stronger long-term growth and development outlook through its social support, demand management and supply-side measures that stimulate the economy. In addition, as Figure 19 highlights, the six-pillar policy scenario is expected to produce balanced economic growth by simultaneously expanding both aggregate demand and aggregate supply over the next ten years.

Overall, under the six-pillar policy option, the outlook for the economy will be characterized by the GDP CAGR of 6.2% , an unemployment rate that will gradually decline from a range of 34.2% (mild scenario) and 39.2% (severe scenario) in 2020, to 12.2% by 2030, a poverty rate that will drop from an estimated 39.8% (mild scenario) and 43.2% (Severe Scenario) in 2020 to 22.9% in 2030, and the improvement in income inequality (Gini index) from 69.8% (mild scenario) and 71.2% (severe scenario) in 2020 to 55.3% in 2030.

“ The unemployment rate will gradually decline from a range between 34.2% (mild scenario) and 39.2% (severe scenario) in 2020. ”



Figure 19: Balanced Growth of Aggregate Demand and Supply (Severe Scenario with the Six-Pillar Policy Option)



Source: ADRS SA Linked National-Provincial Model (SA-LNP).

Note: Aggregate supply is calculated as the sum of model projections of sectoral gross value added at basic prices and the net of taxes on products. Aggregate demand is estimated as the sum of model projections of household and government final consumption expenditures, investment, and exports of goods and services minus imports of goods and services.

6.4 Inclusive Growth and the Six-Pillar Policy Reforms

The SA-LNP model results indicate that the six-pillar policy approach is likely to produce an inclusive growth path in terms of producing concrete and significant benefits to poor families, working-class families and the private sector. The economic impact of the six-pillar policy reforms is found to significantly help poor households in SA over the next decade by moving a significant portion of the poor out of poverty and improving their living conditions. These expected outcomes are reflected in the halving of the poverty rate over the next 11 years, which is estimated to reduce the number of poor by almost 10 million. Moreover, significant improvement in the delivery of social services (e.g. education, health, land reform, housing) and economic infrastructure across the country (e.g. roads, bridges, transportation) particularly improves the living conditions of poor families.

Working-class families are also expected to materially benefit from the proposed six-pillar policy framework. The unemployment rate is expected to decline by two-thirds, from 35% (mild scenario) and 40% (severe scenario) in 2020 to 12% in 2030. Therefore, the economy is projected to add between 8.7 million (mild scenario) and 9.8 million (severe scenario) jobs to total employment between 2020 and 2030, and income inequality, measured by the Gini coefficient, is projected to decline by more than 15% points. In addition, better delivery of social services (e.g. education, health, land reform, housing) and improved economic infrastructure across the country (e.g. roads, bridges, transportation) enhance the living conditions of millions of working-class families.

Finally, the business class is expected to prosper and grow significantly over the next decade. Under the six-pillar policy programme, real GDP is projected to almost double over the next decade, which implies a significant expansion of the domestic market. Also, the average profit rate is projected to remain above 16%. Moreover, improvements in the economy and the overall well-being of the population are likely to enhance average labour productivity growth while the government debt-to-GDP ratio is projected to gradually decline to between 30% (mild scenario) and 50% (severe scenario) over the next ten years. Finally, the average investment-GDP ratio is estimated to increase to between 26.7% (mild scenario) and 25.2% (severe scenario), and the increase in social cohesion, which is expected to accompany inclusive growth, is expected to promote stable capital accumulation.



6.5 Macrodynamics of Six-Pillar Policy Reforms



The six-pillar policy reforms engender economic dynamics that are supported by the consistent implementation of stimulus-oriented policies designed to gradually expand both aggregate demand and aggregate supply and raise output, employment, income and expenditure of households and businesses. The macrodynamics associated with the six-pillar policy approach include significant spin-off effects of the proposed policies. For example, the simulation results show that the scenario's public investment measures (Pillar 1) affects the economy by boosting aggregate demand through the short-term fiscal multiplier, whose magnitude may vary with the state of the economy (Auerbach and Gorodnichenko, 2012; 2013). It also significantly catalyses and crowds in private investment and, over time, has a positive supply-side effect as the productive capacity of the economy increases with the higher infrastructure capital stock ("hysteresis") (Abiad, Furceri and Topalova, 2015: 6). Similarly, the positive impact of the proposed PIC injection of R100 billion into the manufacturing sector over the next five years (Pillar 5) goes beyond the investment period due to its dynamic effects. By expanding the productive capacity of the sector and the economy, as it directly and indirectly augments the physical stock, the five-year investment injection contributes to the long-term growth of the sector and the economy.

Moreover, by significantly increasing employment and reducing poverty and income inequality, the six-pillar policy plan provides the foundation for increased participation in the economy of the currently poor and excluded. This prospective result helps overcome the chronic shortage of aggregate demand in the economy and moves the economy from stagnation to sustainable economic growth. Finally, the model results confirm that investment in the manufacturing sector, which is directly promoted by measures in Pillars 1, 4, 5, and 6, leads to higher productivity growth in the manufacturing sector and across the economy.

This is in line with similar findings for other countries and confirms that growth of the manufacturing sector has a relatively larger macroeconomic spillover.⁵² This argument has its origin in Kaldor's three laws of economic growth, which state that higher growth in manufacturing lead to higher productivity growth, both within the manufacturing sector and across the economy, raising economic growth (Kaldor, 1966; 1967).

52. The literature on testing the validity of the Kaldor's three laws is extensive at both country level and regional level. For example, Bernat (1996), Guo (2007), McCombie (1983), Thirlwall (1983) and Alexiou and Tsalki (2010).

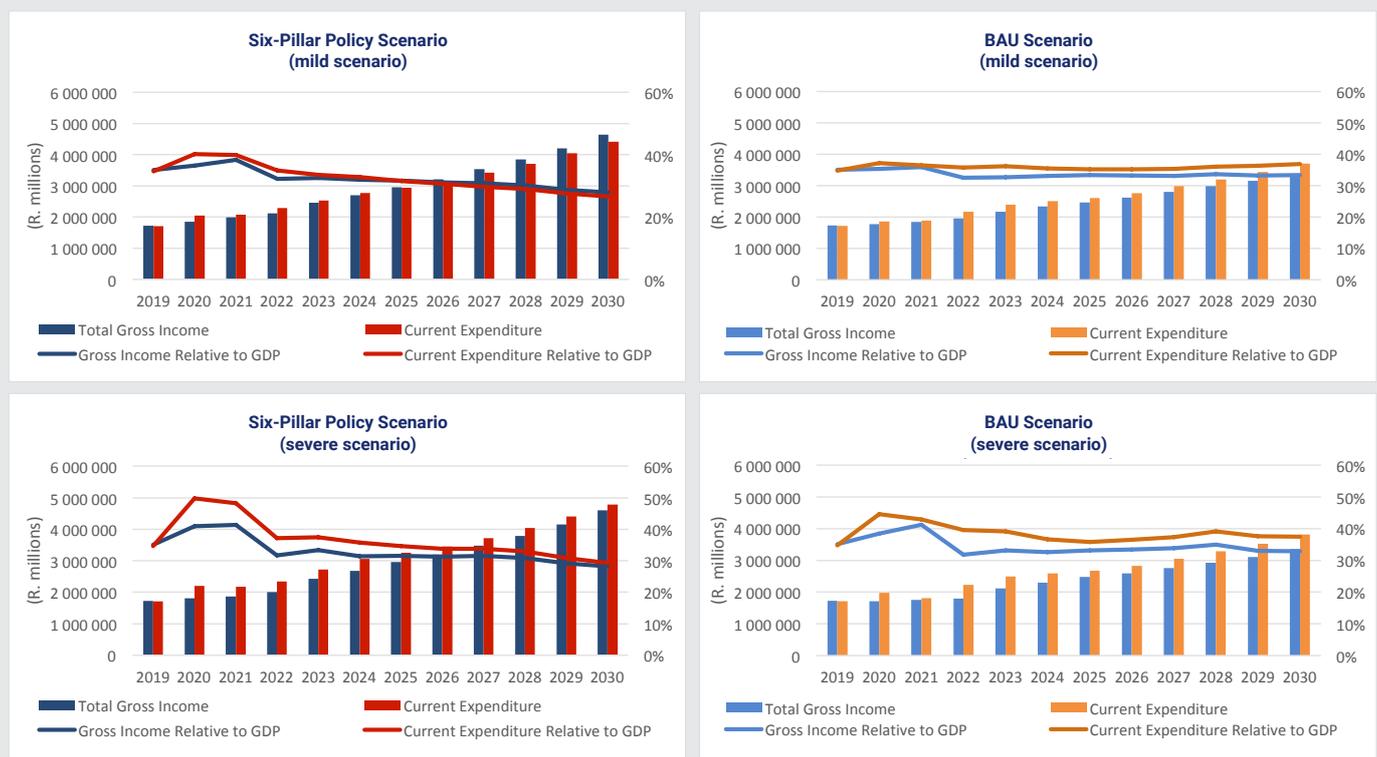
6.6 Fiscal and Debt Sustainability of Six-Pillar Policy Reforms

The six-pillar policy reform proposal suggests important fiscal mitigation measures to respond to the social and economic impact of COVID-19 and medium- to long-term fiscal policy measures to help propel the economy on a higher growth path with lower unemployment, poverty and inequality. Consequently, it has budgetary (fiscal) implications. As such, we consider whether the scenario is fiscally sound and has a desirable impact on the evolution of debt-GDP ratio over the next ten years.

Figure 20 displays the SA-LNP model results for likely future trends in government total current expenditure and income under the BAU and six-pillar policy scenarios.⁵³ The figure shows the expected increase (compared to the BAU) in the level of government current expenditure that is required to properly fund the six-pillar policy scenario's proposed expansion of the EPWP (Pillar 2),

social security (Pillar 2) and government expenditure on social and economic services (Pillar 1). It shows that, under the six-pillar policy scenarios, government current expenditure is expected to increase at a CAGR of 9% (mild scenario) to 9.8% (severe scenario) between 2020 and 2030, that is, from about R1.7 trillion in 2019 to R4.4 trillion (mild scenario) and R4.8 trillion (severe) in 2030. Given the scenarios' expected economic growth, Figure 20 shows the concurrent expected increase in government gross income during the same period at CAGR of 9.4% (mild) and 9.3% (severe), or from R1.73 trillion in 2019 to R4.64 trillion (mild) and R4.8 trillion (severe) in 2030.⁵⁴ Therefore, as depicted in Figure 20, and except for the COVID-19 period, government income and expenditure are expected to closely grow together under the six-pillar policy programme.

Figure 20: Outlook for Government Income and Expenditure (2020-2030)



Source: ADRS South Africa Linked National-Provincial Model (SA-LNP).

⁵³ Total government current expenditure refers to the sum of current payments and transfers and subsidies of the consolidated general government.

⁵⁴ Government gross income refers to total income of consolidated general government from property, taxes on production and imports, current taxes on income and wealth, social contributions received, and other current transfers received.

From a fiscal sustainability point of view, Figure 20 depicts the trends in government revenue and expenditure relative to GDP and shows that their future paths, whose difference defines the deficit-GDP ratio, are expected to be parallel and close to each other, especially after the COVID-19 pandemic. As a result, for the period 2020 to 2030, the scenario's average annual deficit-GDP ratio is estimated at -2.28%, which is almost half of the corresponding value of -4.5% for the BAU Scenario. Overall, the fiscal outlook of the six-pillar policy scenario is sensible and sound.

The above fiscal outlook of the six-pillar policy scenario is one of three factors that directly impact the evolution of the debt-GDP ratio under that scenario; economic growth and monetary policy are the other two factors. For a given initial value, the debt-GDP ratio is positively (negatively) affected when the real interest rate is greater (smaller) than real GDP growth or when the primary balance ratio is negative (positive). Based on this basic economic relationship, the future outlook of the debt-GDP ratio is directly linked to the overall economic growth, interest rate (i.e. monetary policy) and primary balance (i.e. fiscal policy).⁵⁵

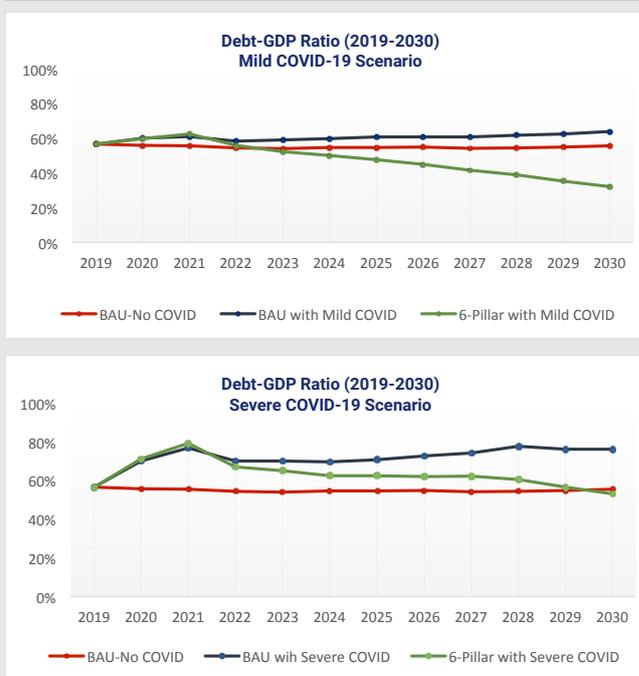
The SA-LNP model provides projections of the debt-GDP ratio and its underlying factors. For example, the simulation results show that under the BAU policy scenario, a combination of higher real interest rates relative to real GDP growth rates and negative primary balance ratios (ranging from -10.5% to -4.5%) exerts upward pressure on the debt-GDP ratio over the next ten years. As a result, the debt-GDP ratio is expected to increase, slightly (mild) to moderately (severe), relative to 2019, as shown in Figure 20.

In comparison, model projections show that the outcome significantly differs under the six-pillar policy option. In this case, real GDP growth rates will be greater than real interest rates for almost the entire period, thus exerting downward pressure on the debt-GDP ratio. However, the decline in the ratio is moderated by the estimated negative primary balance ratio, which is expected to range from -9.5% in 2020 to +0.7 in 2030. Figure 20 depicts the evolution of the debt-GDP ratio under the six-pillar policy scenarios for both the mild and severe COVID-19 scenarios.

Consequently, our assessment of SA-LNP model results related to the fiscal and debt-GDP sustainability of the six-pillar policy proposal shows the following:

- ① Negative impact of the proposed COVID-19 mitigation measures on the deficit-GDP ratio and debt-GDP ratio will be mainly felt during 2020 and 2021.
- ② Over the next decade, however, government revenue is expected to grow concurrently with the scenario's projected GDP growth trajectory, thereby generating the funds needed to pay for the scenario's expected increase in government expenditure.
- ③ Relative to the BAU policy scenario, the six-pillar policy programme generates significant improvement in economic growth, relatively lower real interest rates and relatively better primary balance rates, thereby gradually lowering the debt-GDP ratio.

Figure 21: Likely Debt-GDP Ratio Trends (2019-2030)



Source: ADRS South Africa Linked National-Provincial Model (SA-LNP).



55. Change in debt-GDP ratio can be formally written as: $\dot{d}_t - d_{t-1} = \frac{r_t - g_t}{1 + g_t} d_{t-1} - pb_t$ where d denotes debt-GDP ratio, r is the real interest rate (nominal interest rate minus GDP deflator), g represents the real GDP growth, and pb is the prime balance relative to GDP. Based on this equation, one can associate the change in debt-GDP ratio to: interest rate ($\frac{r_t - g_t}{1 + g_t} d_{t-1}$), growth ($\frac{g_t}{1 + g_t} d_{t-1}$) and fiscal policy ($-pb_t$).

For the derivation of the above debt accumulation equation, see IMF, 2014.

6.7 Provincial, District and Municipality Future Outlook

The SA-LNP model simulation results include projections of the impact of COVID-19 on SA's nine provinces, 52 districts and 213 municipalities.

Annex 10.1 provides a one-page summary of model projections for the nine provinces. For each province, the summary page covers the SA-LNP model projection for the mild and severe COVID-19 scenarios under the baseline, BAU and six-pillar policy options. The projections cover a wide range of indicators related to growth, employment, government expenditure, poverty and inequality.

Annex 10.2 provides the SA-LNP model projections for the 52 districts in SA. The projections are for the period 2020 to 2030 and cover the mild and severe COVID-19 scenario under the baseline, BAU and six-pillar policy options. The result tables provide the likely performance of three indicators for each district, namely economic growth, employment addition and poverty level.

Annex 10.3 presents the SA-LNP model projections for key indicators for SA's 213 municipalities. The tables cover all municipalities that fall under each of the nine provinces. It includes results for two COVID-19 scenarios (mild and severe scenarios) under the BAU and six-pillar policy options. For each municipalities, the model projections include likely performance of three key indicators: growth rate, unemployment rate and poverty rate.



7

LIMITATIONS & EXPANSIONS



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There are a number of modelling assumptions, limitations and expansions to note regarding this research report:

- ① As suggested by Gillian Tett (2020), it is important to treat economic models, including the one we used in this report, like navigational tools that offer policymakers a sense of direction and orientation. While they are helpful, we also need to maintain our peripheral vision, especially during a pandemic.
 - ② While uncertainty is common in economic forecasting, the currently evolving COVID-19 situation creates much more uncertainty than usual, thereby posing significant challenges in determining the precise economic impact of a global pandemic. To counter these challenges, we have opted for scenario planning in which six COVID-19 scenarios are specified, ranging between mild and severe scenarios in terms of the extent of internal and external shocks to the economy. Our working assumption is that the reality will fall somewhere within the above range.
 - ③ Not surprisingly, the COVID-19 scenarios used in this report are not an exhaustive list of possibilities; there are important scenarios that are not included in this study but deserve consideration. For example, our post-COVID-19 scenario does not include the possibility of the return of COVID-19 as a serious health threat after 2020, even though there is a strong possibility that this may occur.
 - ④ Given that we are in the middle of an evolving pandemic, our assessment of the depth and extent of its disruptive power is limited, including the extent that economies around the world are able to withstand diverse local and international shocks. Consequently, the assumptions made regarding the magnitudes and durations of various shocks are an approximation.
 - ⑤ The six-pillar policy approach does not include specific policy measures aimed to address the pressing issues related to global warming, such as the current high carbon intensity of SA's energy sector that exposes it to excessive climate risk (Steyn, 2020). However, at a minimum, we have acknowledged the need for public investment in greening the economy and have given consideration to the possible partial allocation of the proposed annual increase in the general government and PIC investments for that purpose. Nevertheless, much more work must be carried out in this area, such as using the SA-LNP model to assess possible scenarios related to the greening of the economy, changes in the energy mix, and their industrial, employment and skills demand implications.
 - ⑥ A question that is often raised is whether the public sector in South Africa has the necessary institutional capacity to successfully implement the proposed measures under the six-pillar policy reforms. Notwithstanding the generally agreed notion that expanding the capacity of the state to plan and successfully deliver inclusive growth is a desirable undertaking, the country is not without preparation or advantage in this arena. Key departments and institutions upon which the successful execution of the six-pillar policy programme relies (e.g., Treasury, Reserve Bank, Department of Social Development, Department of Trade and Industry) already have extensive experience and proven success in the implementation of similar measures. The improvement or strengthening of the state's internal capacity does not obviate the existing capacity to carry out these reform measures that are within the bailiwick of the relevant departments and institutions identified in this report.
 - ⑦ Finally, the application of the SA-LNP to Covid-19 demonstrates the utility of the model to design and conduct analysis on the likely impact of the virus, but that the model's capabilities may also be appropriately applied to the planning and preparation for other likely future disasters. The disaster management authorities in South Africa can use the SA-LNP model or other similar models to design and simulate 'What If' scenarios about future extraordinary events, such as drought, flood, earthquakes and other pandemics, to identify and inform institutional and resource allocation measures that will be needed to mitigate their impact.
- “**The proposed alternative six-pillar policy framework has the potential to bridge relief from current health and economic crises.**”



CONCLUSION



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SA was hit by the COVID-19 pandemic at a time when the economy was already in crisis.

Since returning to the pre-coronavirus economic recession is not a desirable option, the country's current policy challenges go beyond short-term COVID-19 mitigation measures. Government policy measures must respond to the immediate COVID-19 crisis while also addressing the country's persistent economic stagnation with high rates of poverty and inequality. In this study, we used an economywide linked macro-micro model of SA to simulate the short-, medium- and long-term impact of six COVID-19 scenarios under a BAU policy option and an alternative six-pillar policy option.

We demonstrated that, with or without COVID-19, the BAU policy option will likely continue to produce low growth with high rates of unemployment, poverty and inequality. Our results also show that the proposed alternative six-pillar policy framework has the potential to bridge relief from current health and economic crises to the generation of inclusive growth. In contrast to the BAU outcome, the six-pillar policy framework shows that, as rising prosperity is obtained, the benefits significantly accrue to poor and working-class families, rather than primarily to the business class. The six-pillar policy framework poses a challenge to the existing economic orthodoxy that underpins the currently pursued BAU policy option with its heavy reliance on microeconomic policy reform proposals.

“ Yet, our findings show that there is a way for the South African Government to effectively overcome the twin crises of COVID-19 and chronic stagnation with high rates of poverty and inequality, but not without boldly charting a new economic policy course. ”



9

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10

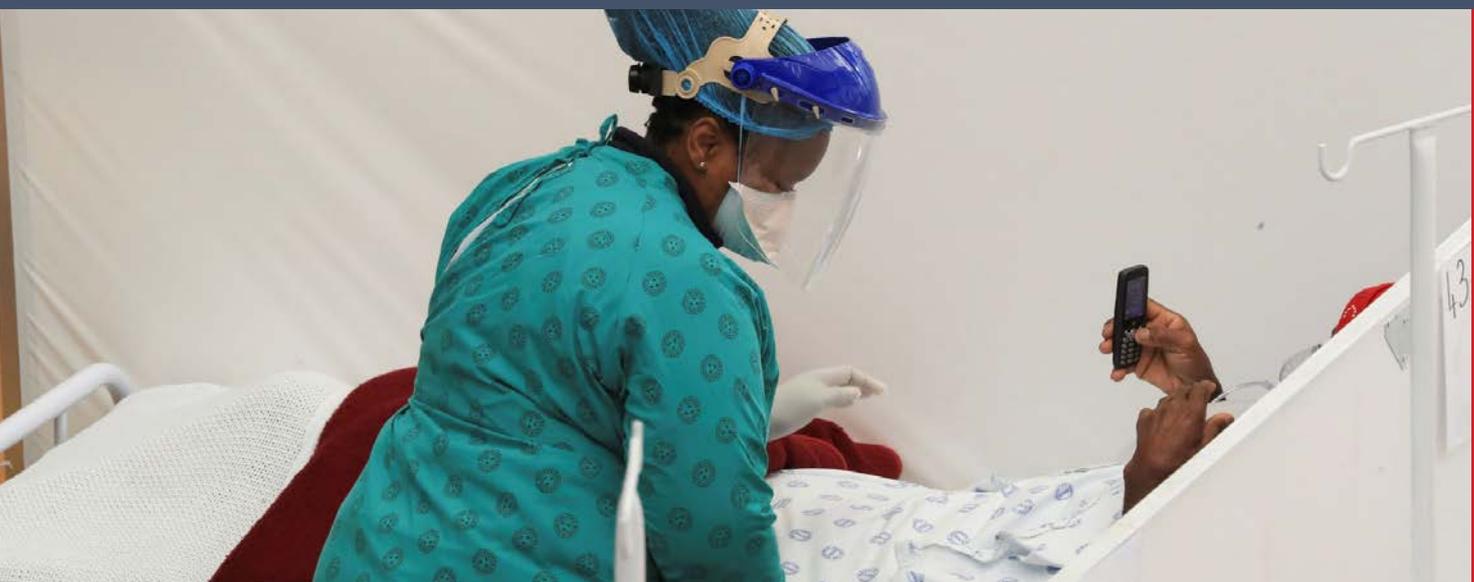
ANNEXES



[CONTENTS PAGE](#)

10.1 Provincial Results

This section provides a one-page summary of model projections for the nine provinces. For each province, the summary page covers the SA-LNP projection for the mild and severe COVID-19 scenarios under the baseline, BAU and six-pillar policy options. The projections cover a wide range of indicators related to growth, employment, government expenditure, poverty and inequality.



10.1.1 Western Cape Growth and Development Outlook (2019–2030)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com
 Note: * The estimations of poverty rate and poverty gap are based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.

10.1.2 Eastern Cape Growth and Development Outlook (2019–2030)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com
 Note: * The estimations of poverty rate and poverty gap are based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.

10.1.3 Northern Cape Growth and Development Outlook (2019–2030)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com
 Note: * The estimations of poverty rate and poverty gap are based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.

10.1.4 Free State Growth and Development Outlook (2019–2030)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com
 Note: * The estimations of poverty rate and poverty gap are based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.

10.1.5 KwaZulu Natal Growth and Development Outlook (2019–2030)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com
 Note: * The estimations of poverty rate and poverty gap are based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.

10.1.6 North West Growth and Development Outlook (2019–2030)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com
 Note: * The estimations of poverty rate and poverty gap are based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.

10.1.7 Gauteng Growth and Development Outlook (2019–2030)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com
 Note: * The estimations of poverty rate and poverty gap are based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.

10.1.8 Mpumalanga Growth and Development Outlook (2019–2030)



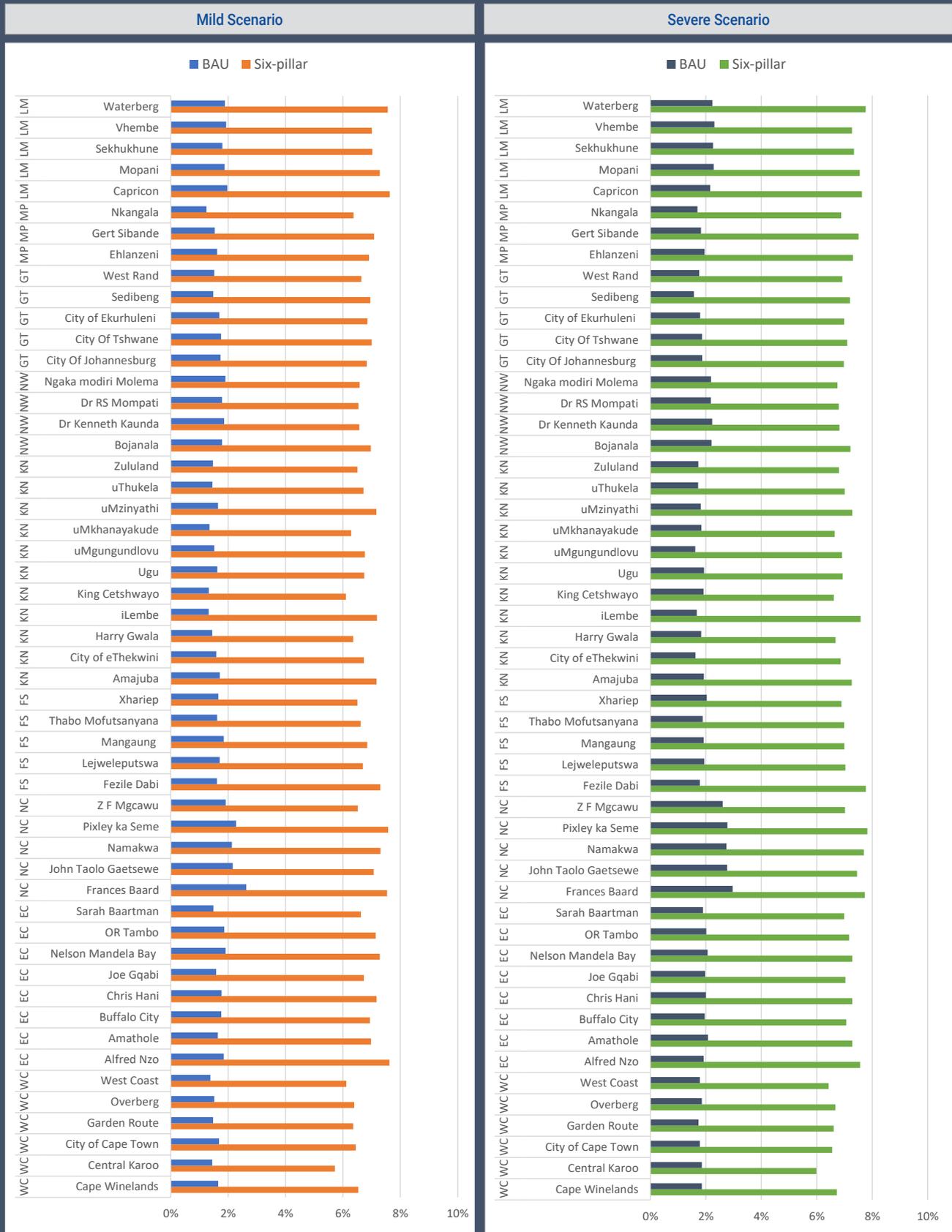
Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com
 Note: * The estimations of poverty rate and poverty gap are based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.

10.1.9 Limpopo Growth and Development Outlook (2019–2030)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com
 Note: * The estimations of poverty rate and poverty gap are based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.

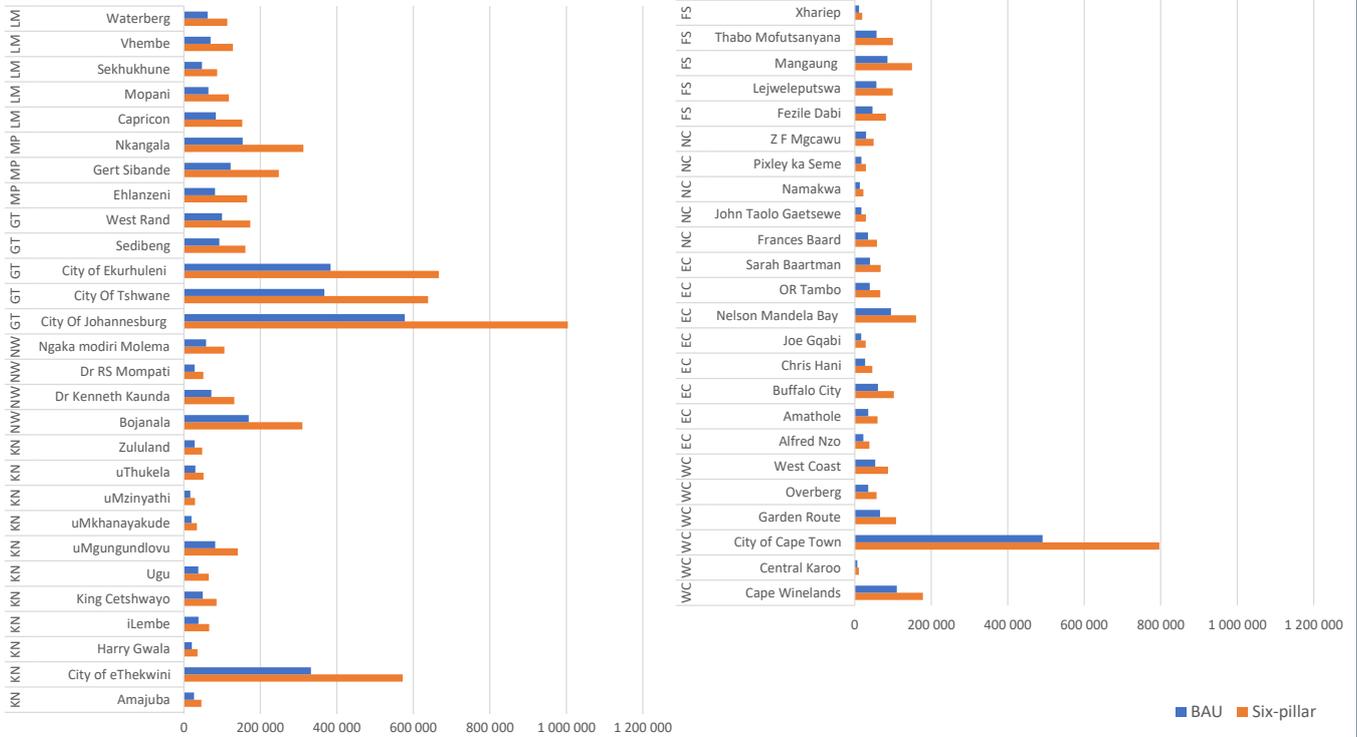
ALL DISTRICTS: ECONOMIC GROWTH (CAGR, 2020-2030)



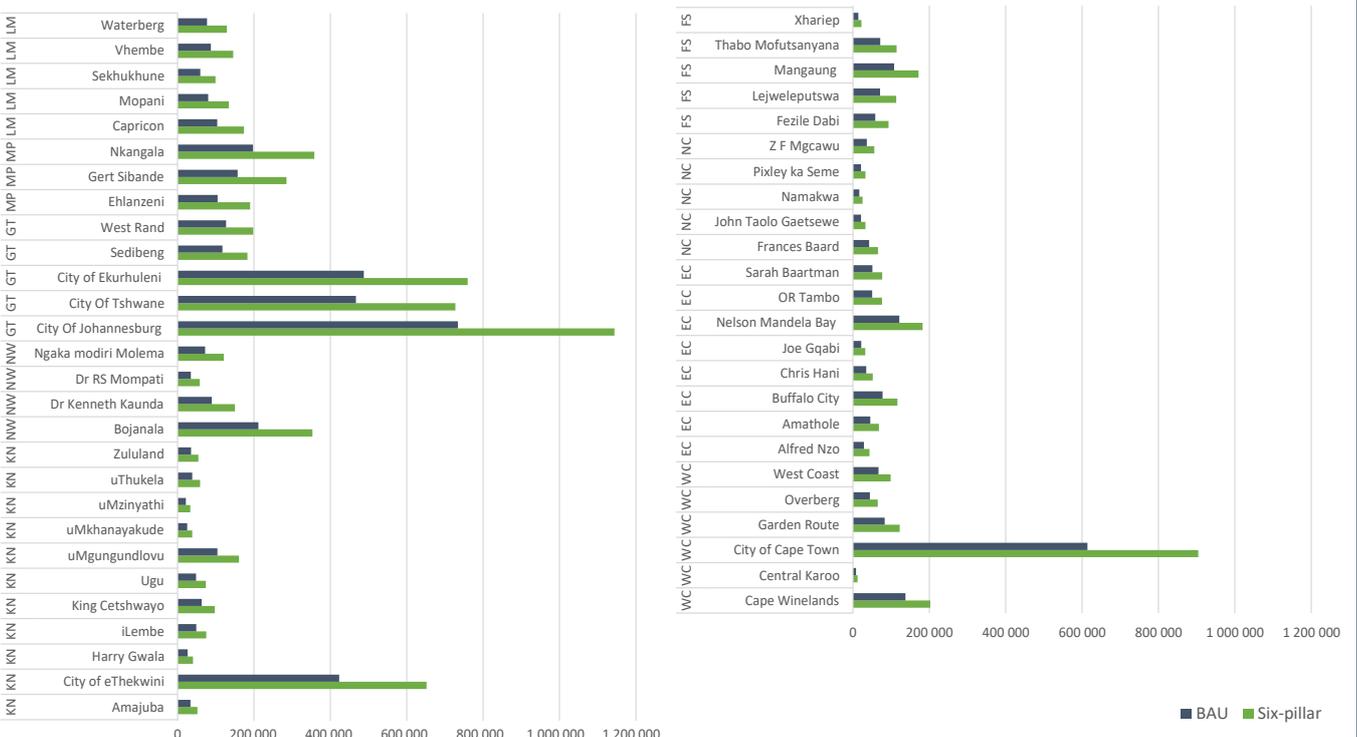
Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com

ALL DISTRICTS: EMPLOYMENT ADDITION (2020-2030)

Mild Scenario



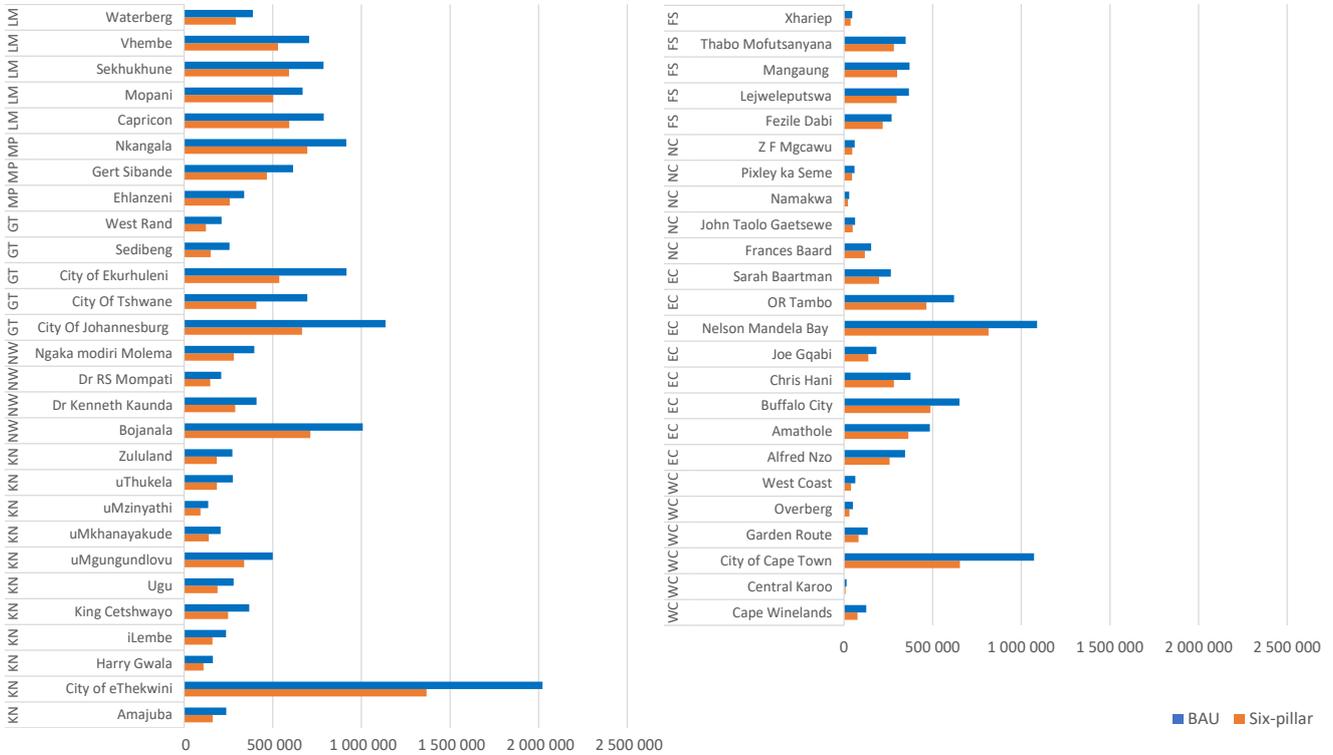
Severe Scenario



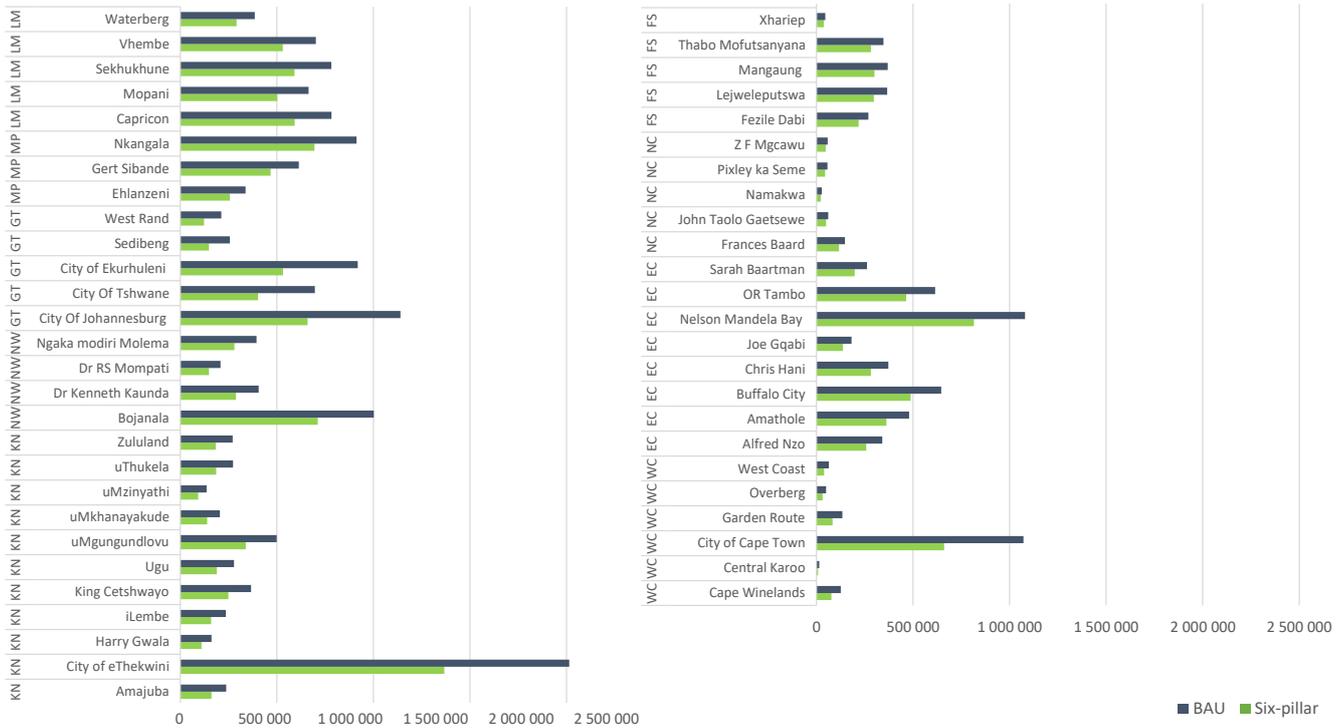
Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com

ALL DISTRICTS: POVERTY LEVEL (2030)

Mild Scenario



Severe Scenario



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com

10.3.1 Growth Rate Projections (2020–2030) for 25 Municipalities of Western Cape

WESTERN CAPE MUNICIPALITIES
GROWTH RATE (CAGR, 2020-2030)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com



10.3.2 Growth Rate Projections (2020–2030) for 33 Municipalities of Eastern Cape

**EASTERN CAPE MUNICIPALITIES
GROWTH RATE (CAGR, 2020-2030)**



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com



10.3.3 Growth Rate Projections (2020–2030) for 26 Municipalities of Northern Cape

**NORTHERN CAPE MUNICIPALITIES
GROWTH RATE (CAGR, 2020-2030)**



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com

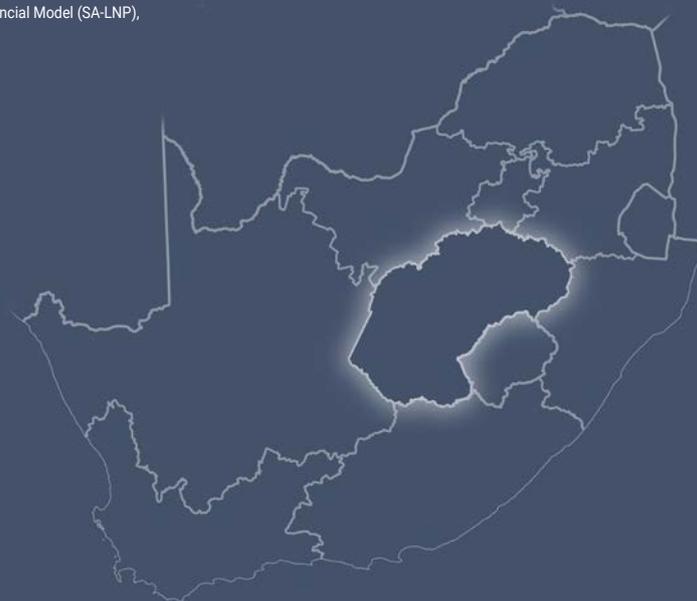


10.3.4 Growth Rate Projections (2020–2030) for 19 Municipalities of Free State

**FREE STATE MUNICIPALITIES
GROWTH RATE (CAGR, 2020-2030)**



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com

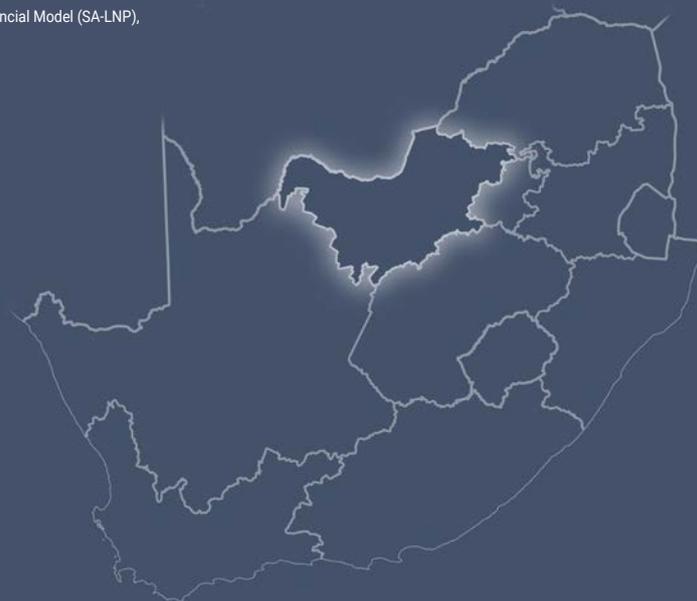


10.3.5 Growth Rate Projections (2020–2030) for 18 Municipalities of North West

**NORTH WEST MUNICIPALITIES
GROWTH RATE (CAGR, 2020-2030)**

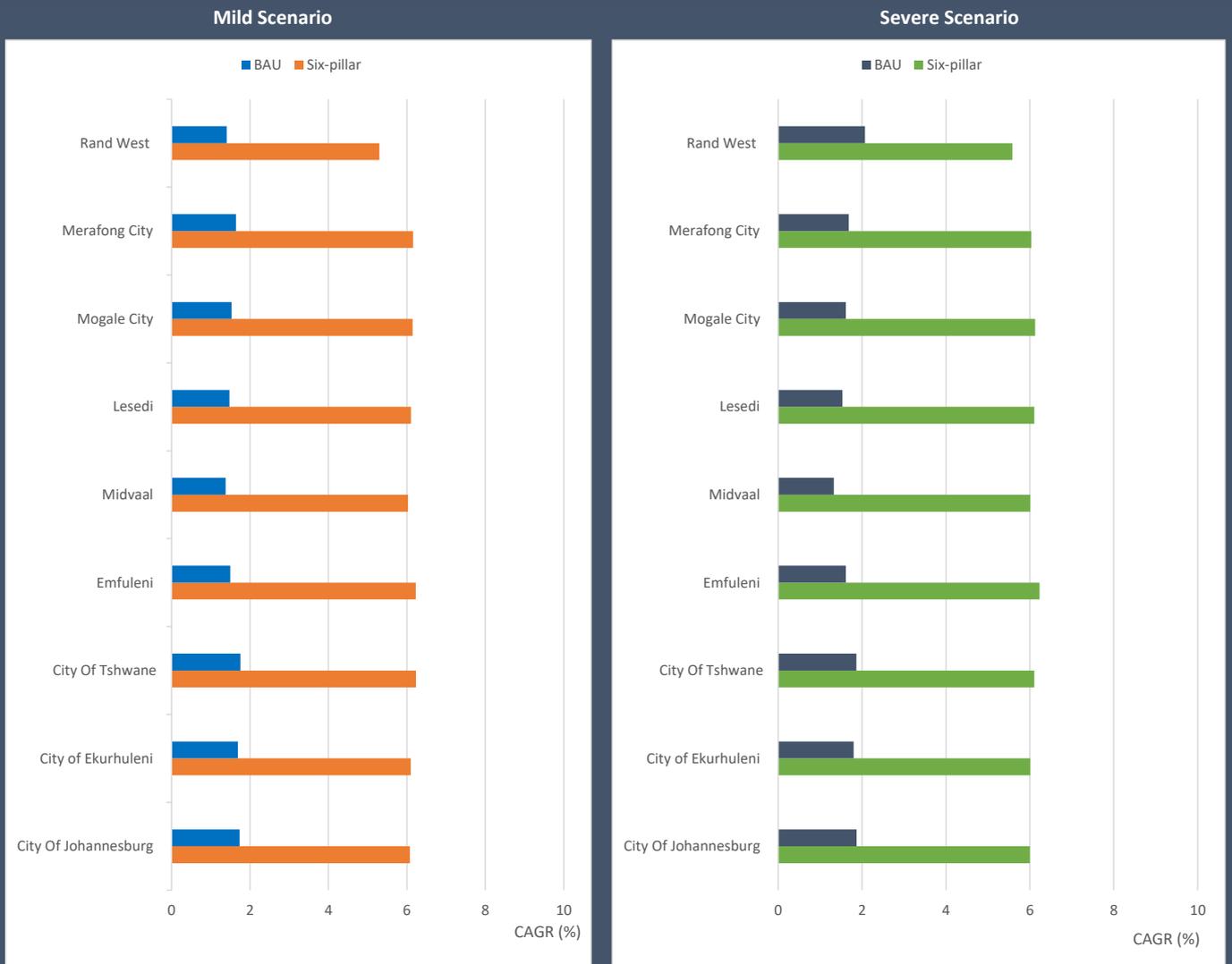


Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com



10.3.6 Growth Rate Projections (2020–2030) for 9 Municipalities of Gauteng

**GAUTENG MUNICIPALITIES
GROWTH RATE (CAGR, 2020-2030)**



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com



10.3.7 Growth Rate Projections (2020–2030) for 44 Municipalities of KwaZulu Natal

**KWAZULU NATAL MUNICIPALITIES
GROWTH RATE (CAGR, 2020-2030)**



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com



10.3.8 Growth Rate Projections (2020–2030) for 17 Municipalities of Mpumalanga

**MPUMALANGA MUNICIPALITIES
GROWTH RATE (CAGR, 2020-2030)**



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com

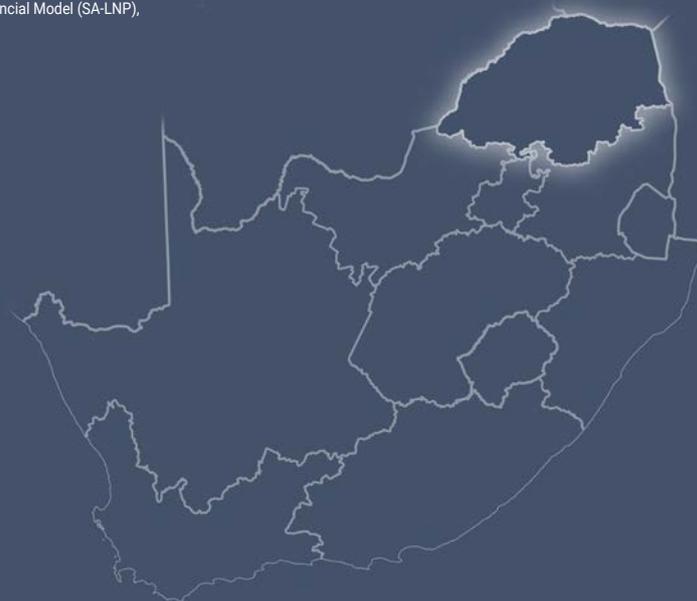


10.3.9 Growth Rate Projections (2020–2030) for 22 Municipalities of Limpopo

LIMPOPO MUNICIPALITIES
GROWTH RATE (CAGR, 2020-2030)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP), www.ADRS-Global.com



10.3.10 Unemployment Rate Projections for 20 Municipalities of Western Cape

WESTERN CAPE MUNICIPALITIES
UNEMPLOYMENT RATE (2020, 2030)

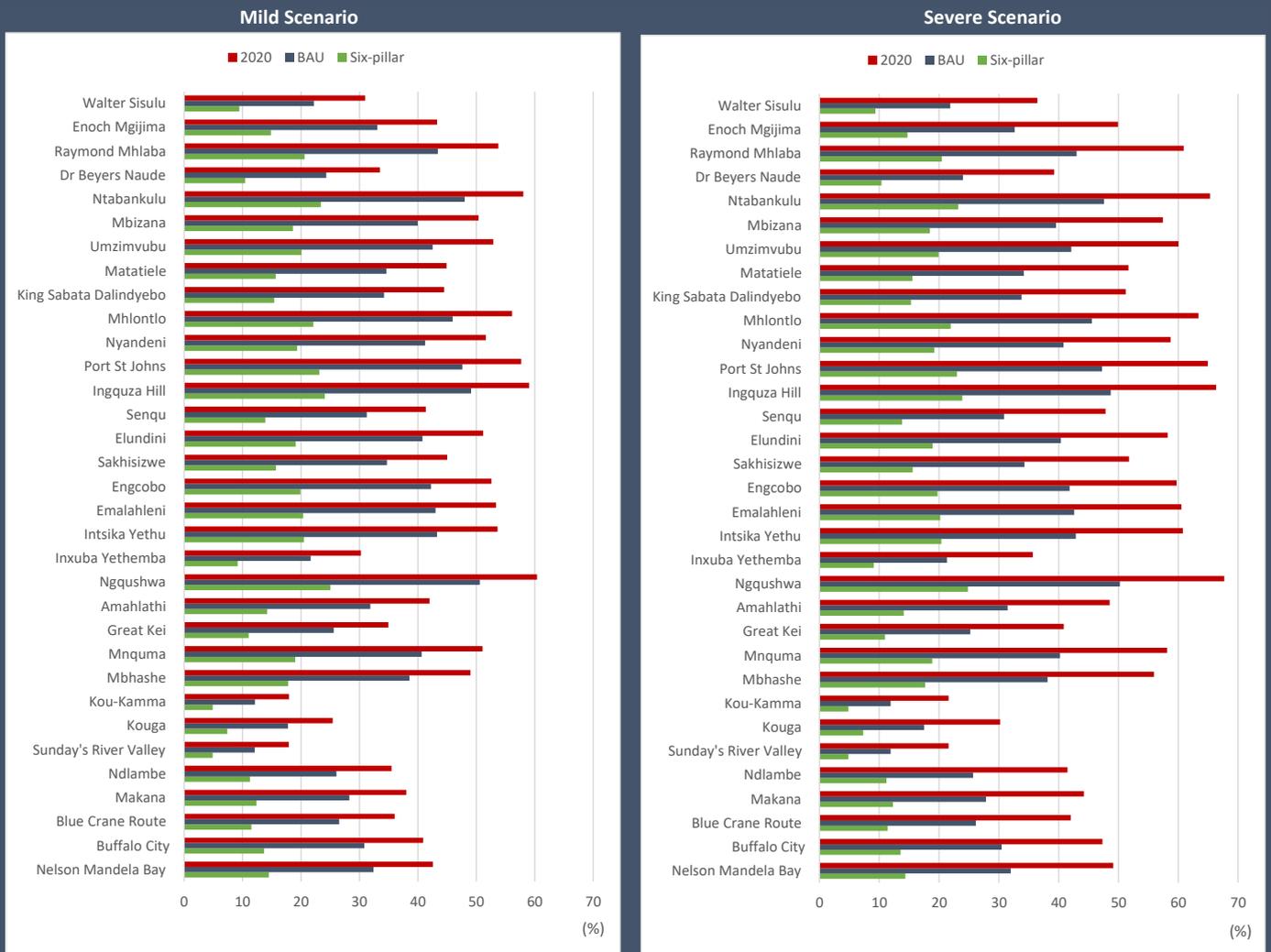


Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)



10.3.11 Unemployment Rate Projections for 33 Municipalities of Eastern Cape

EASTERN CAPE MUNICIPALITIES
UNEMPLOYMENT RATE (2020, 2030)

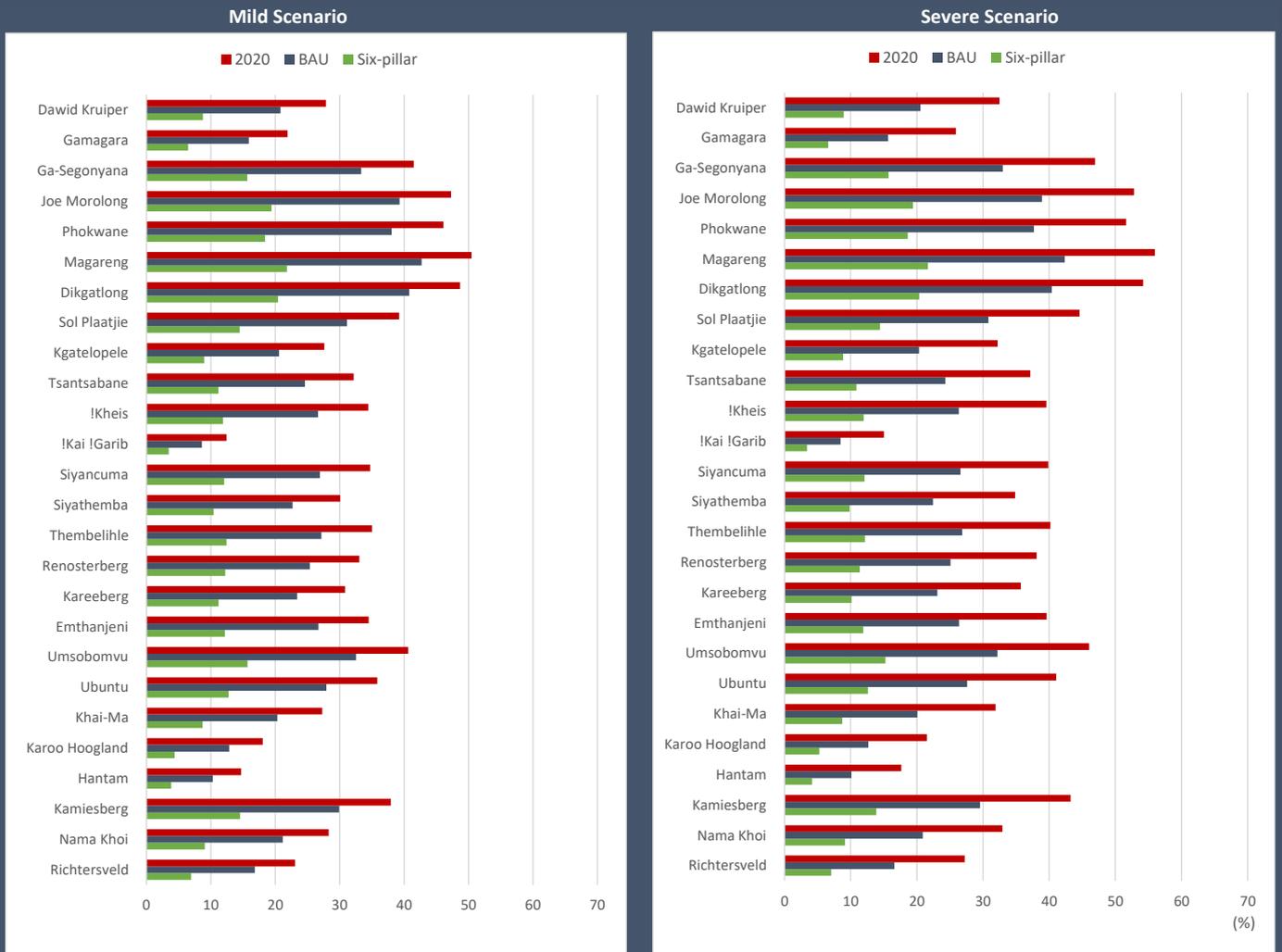


Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)



10.3.12 Unemployment Rate Projections for 26 Municipalities of Northern Cape

NORTHERN CAPE MUNICIPALITIES
UNEMPLOYMENT RATE (2020, 2030)

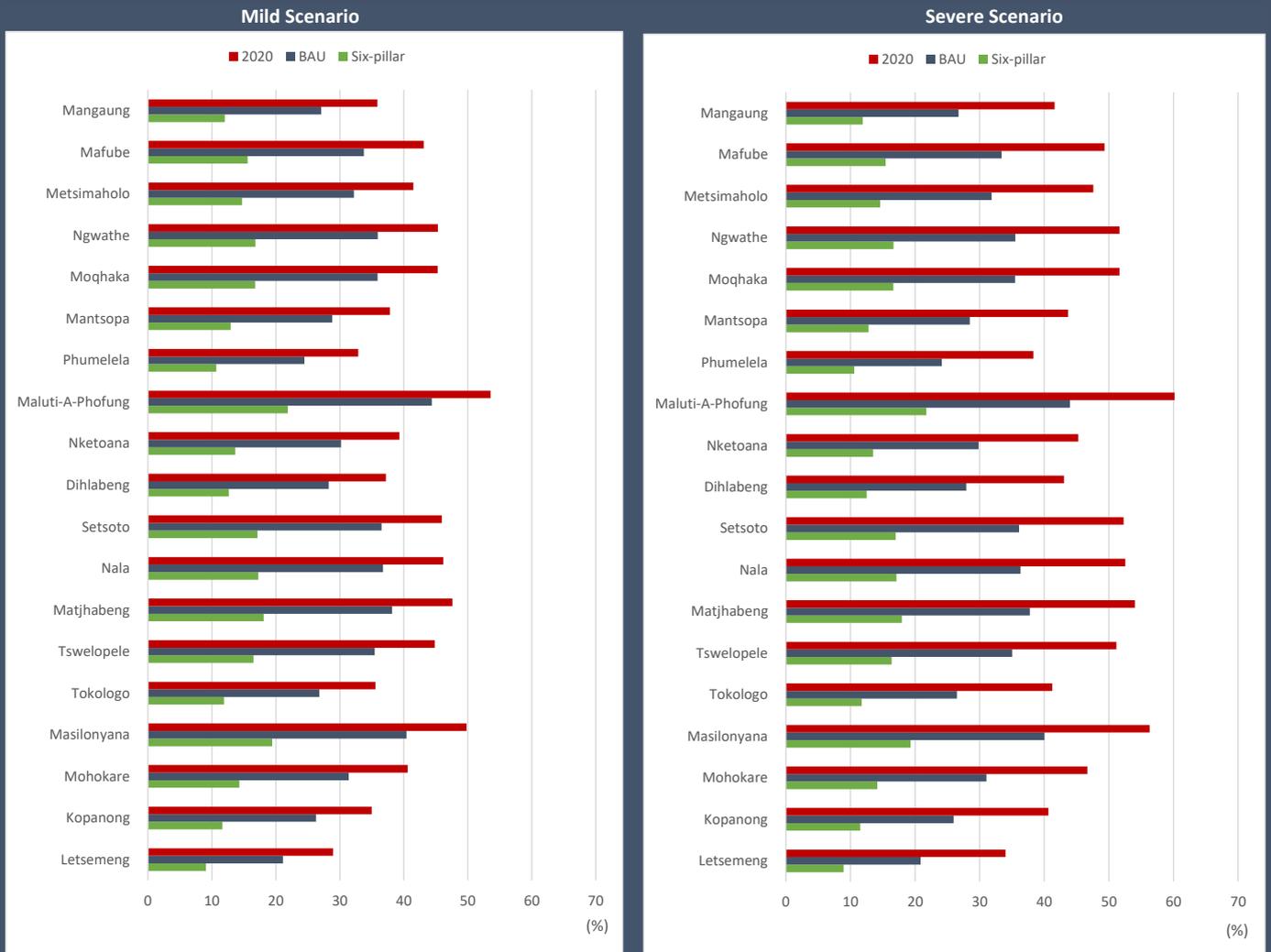


Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)

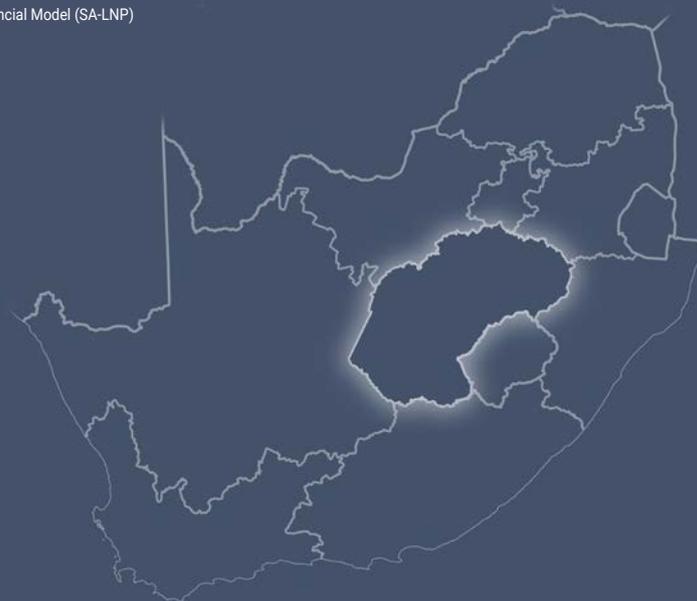


10.3.13 Unemployment Rate Projections for 19 Municipalities of Free State

FREE STATE MUNICIPALITIES
UNEMPLOYMENT RATE (2020, 2030)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)



10.3.14 Unemployment Rate Projections for 44 Municipalities of KwaZulu Natal

**KWAZULU NATAL MUNICIPALITIES
UNEMPLOYMENT RATE (2020, 2030)**



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)

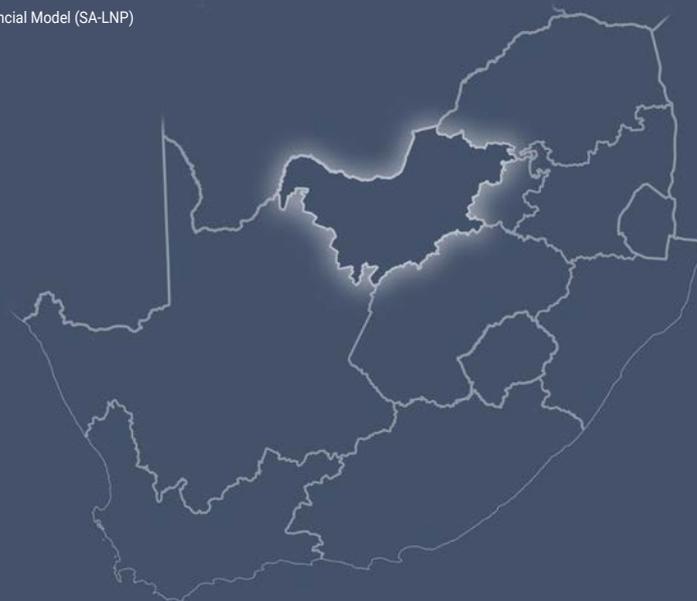


10.3.15 Unemployment Rate Projections for 18 Municipalities of North West

**NORTH WEST MUNICIPALITIES
UNEMPLOYMENT RATE (2020, 2030)**

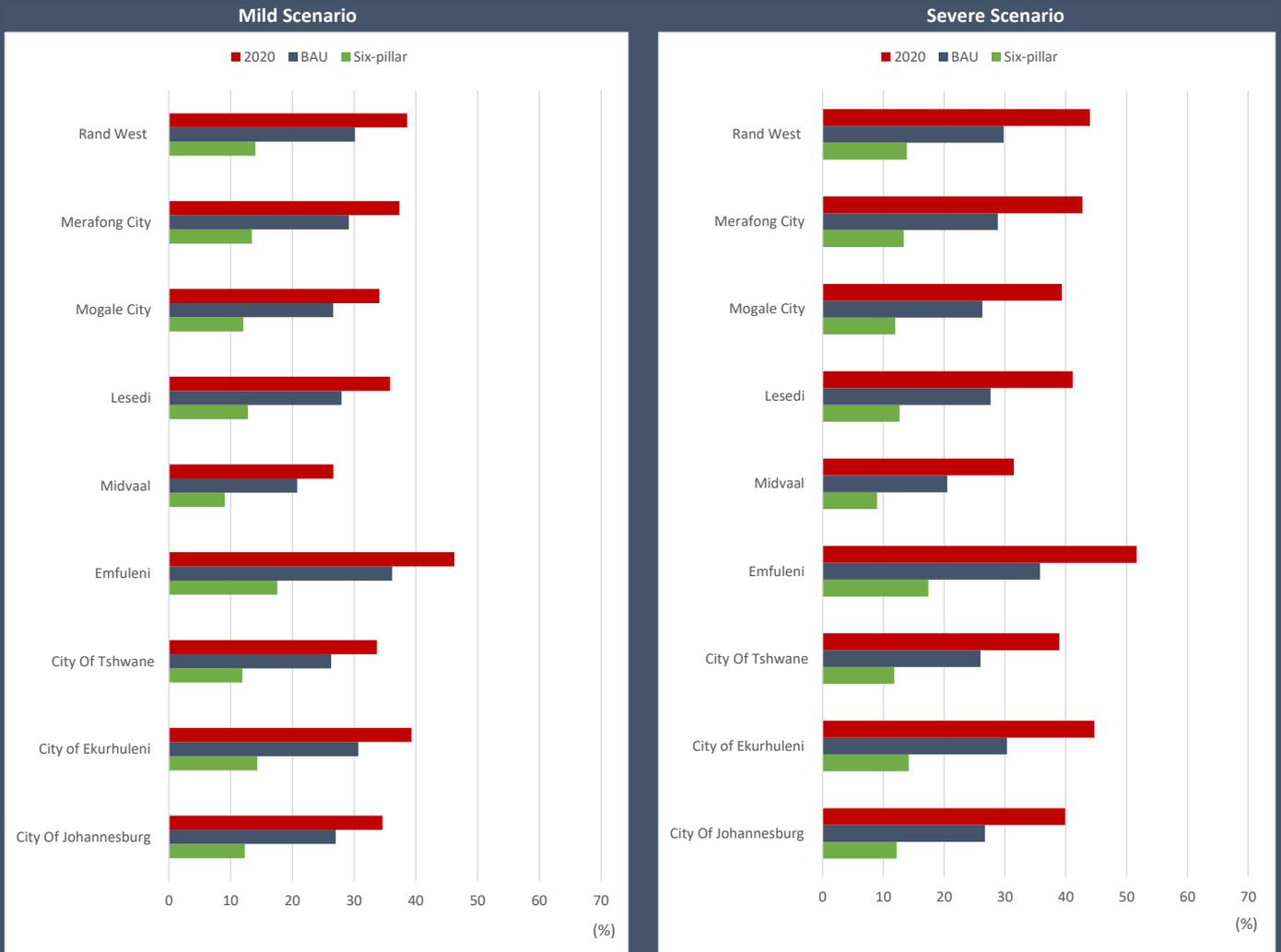


Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)

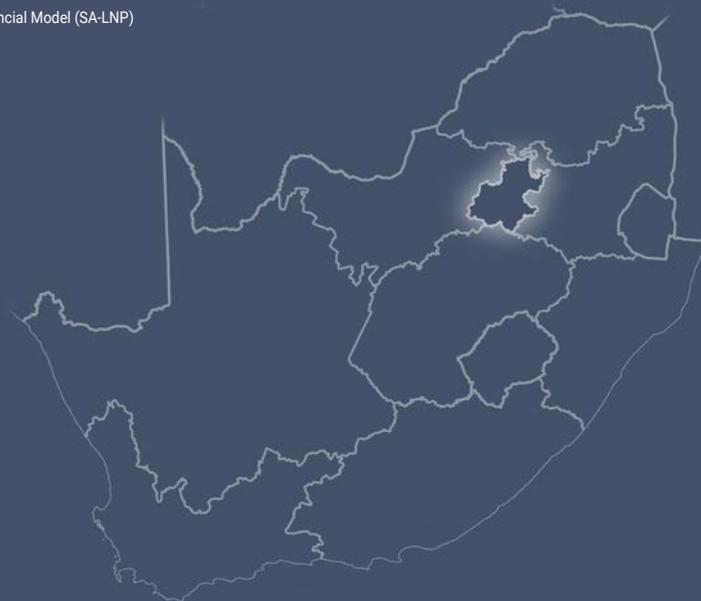


10.3.16 Unemployment Rate Projections for 9 Municipalities of Gauteng

GAUTENG MUNICIPALITIES
UNEMPLOYMENT RATE (2020, 2030)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)

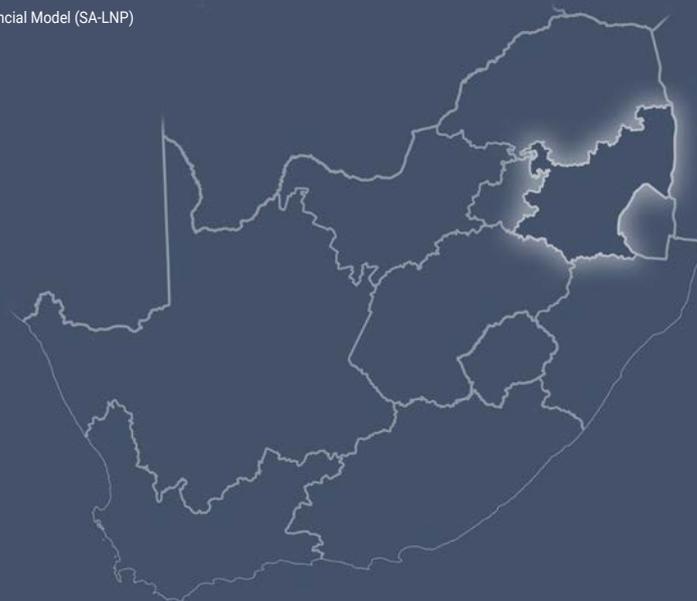


10.3.17 Unemployment Rate Projections for 17 Municipalities of Mpumalanga

MPUMALANGA MUNICIPALITIES
UNEMPLOYMENT RATE (2020, 2030)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)



10.3.18 Unemployment Rate Projections for 22 Municipalities of Limpopo

LIMPOPO MUNICIPALITIES
UNEMPLOYMENT RATE (2020, 2030)

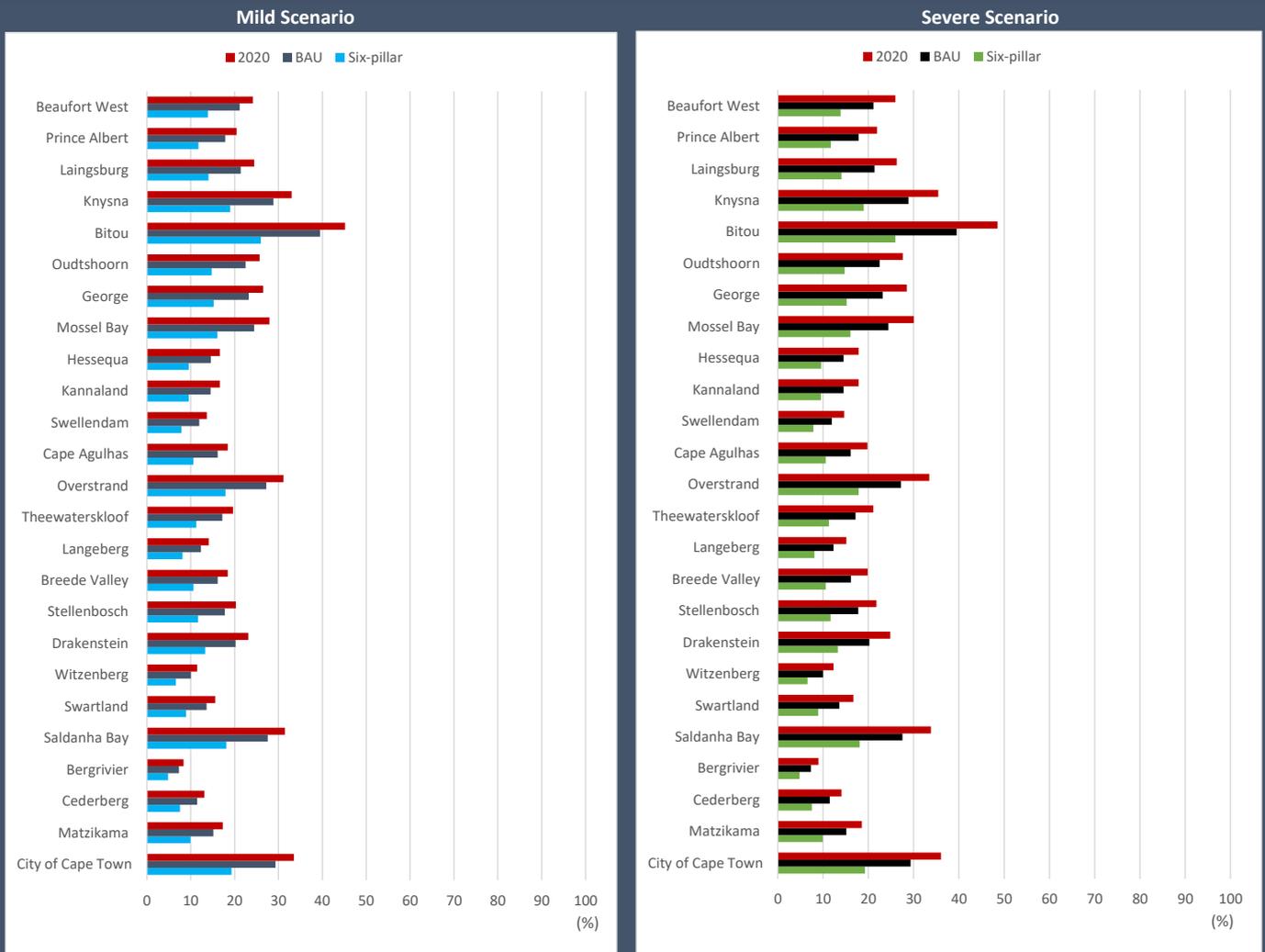


Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)



10.3.19 Poverty Rate Projections for 25 Municipalities of Western Cape

WESTERN CAPE MUNICIPALITIES
POVERTY RATE (LBPL, 2020, 2030)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)
 Note: The estimation of poverty rate is based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.

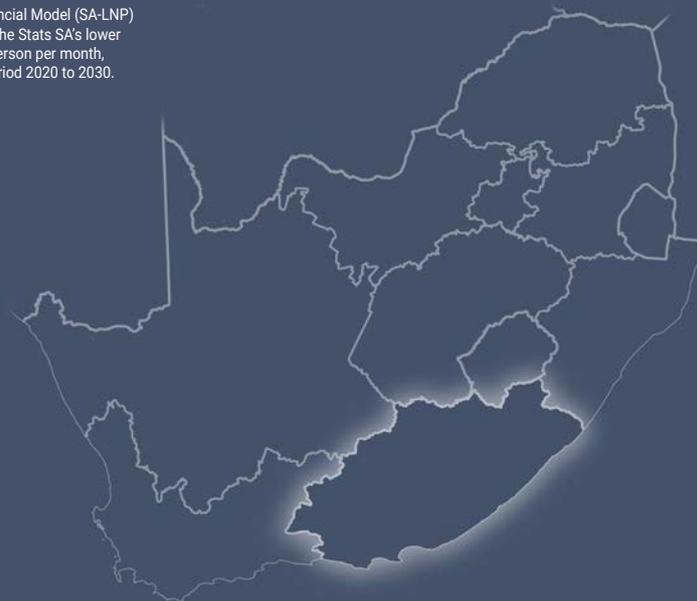


10.3.20 Poverty Rate Projections for 33 Municipalities of Eastern Cape

**EASTERN CAPE MUNICIPALITIES
POVERTY RATE (LBPL, 2020, 2030)**



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)
 Note: The estimation of poverty rate is based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.



10.3.21 Poverty Rate Projections for 26 Municipalities of Northern Cape

**NORTHERN CAPE MUNICIPALITIES
POVERTY RATE (LBPL, 2020, 2030)**

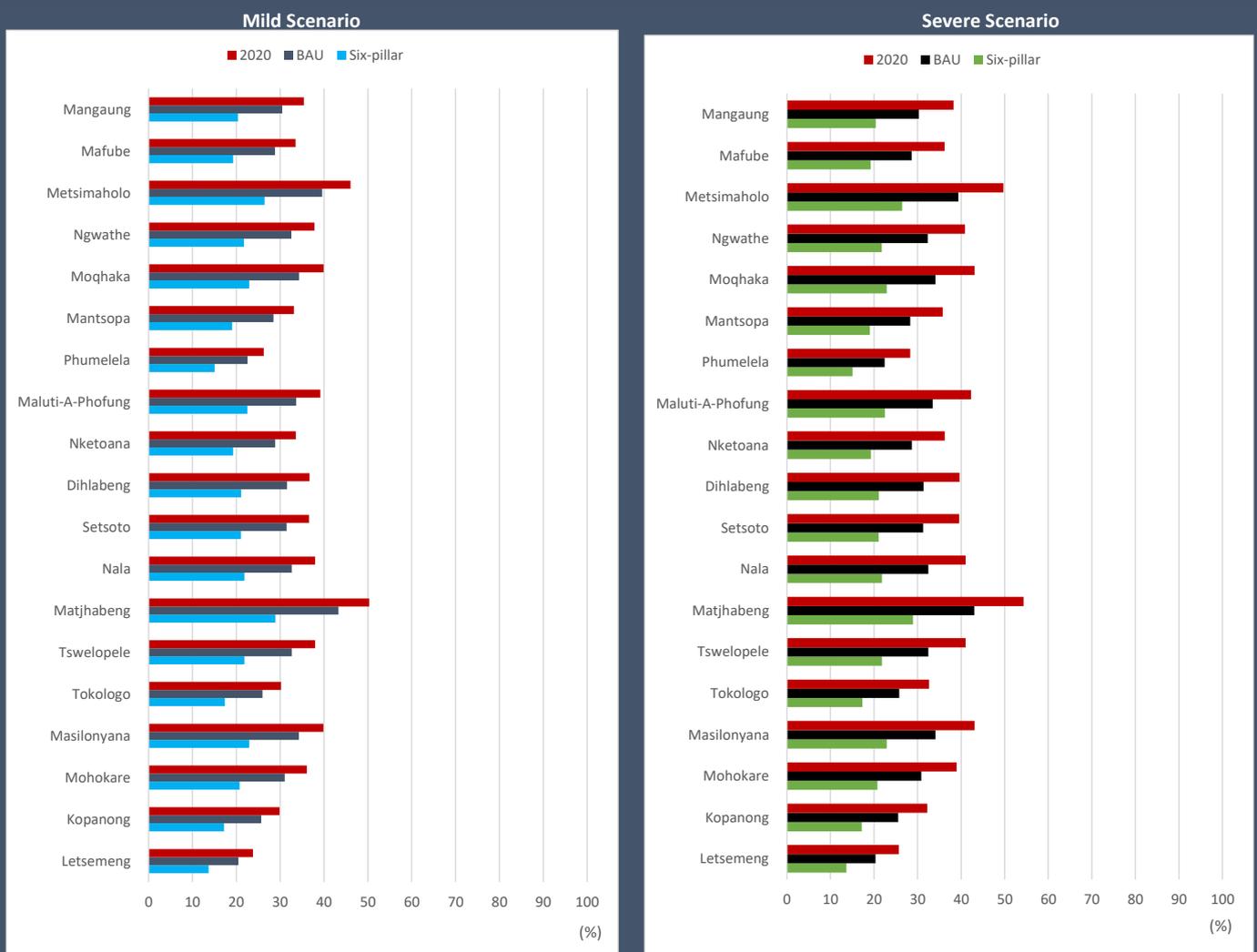


Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)
 Note: The estimation of poverty rate is based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.

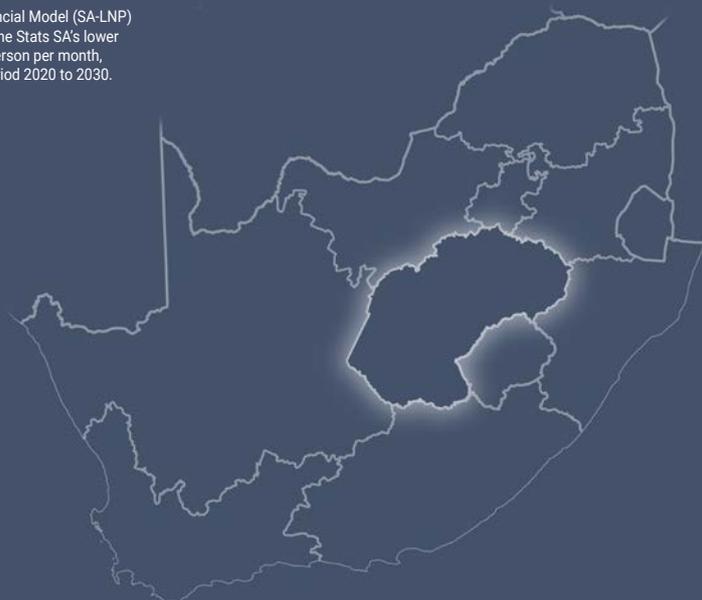


10.3.22 Poverty Rate Projections for 19 Municipalities of Free State

FREE STATE MUNICIPALITIES
POVERTY RATE (LBPL, 2020, 2030)

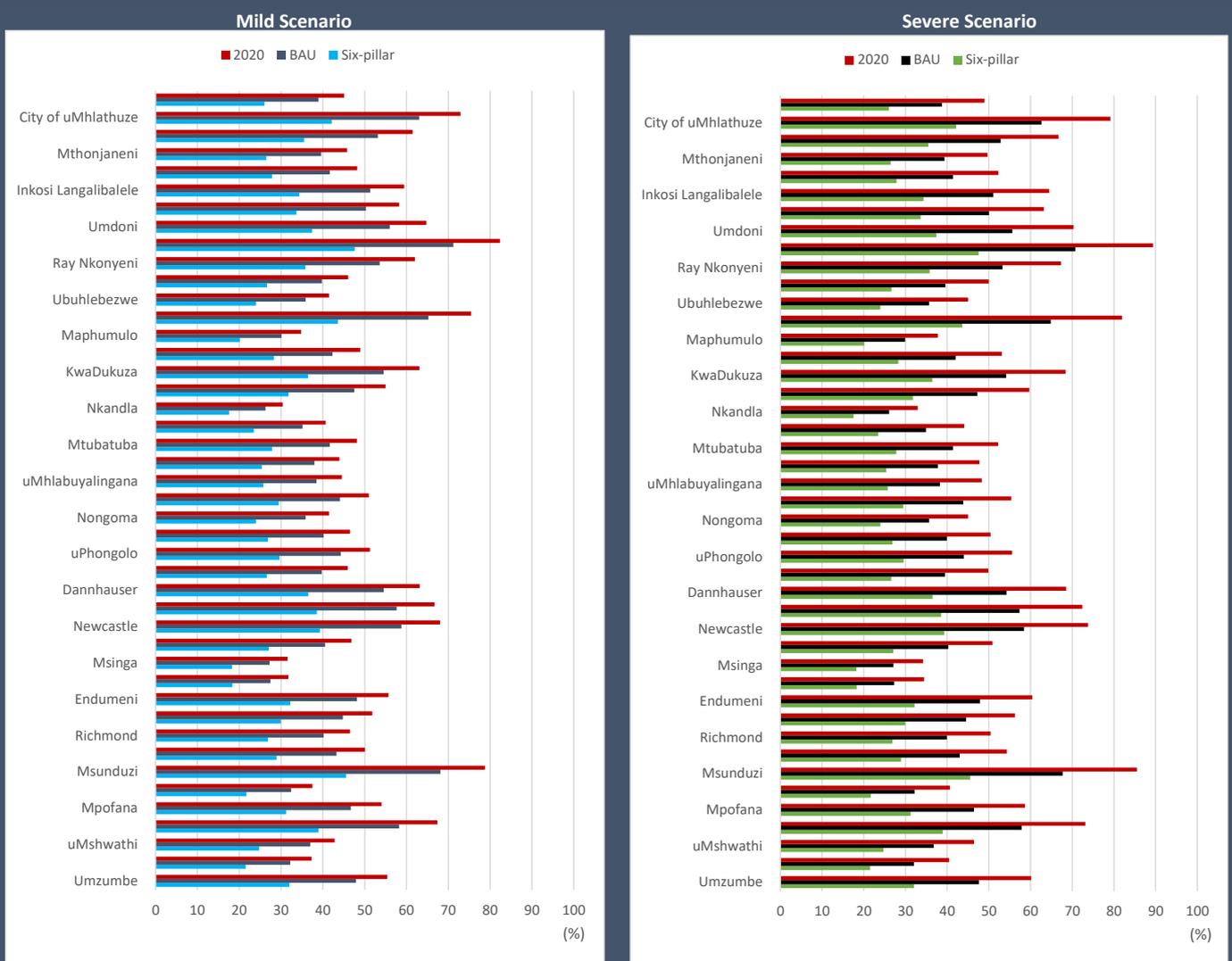


Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)
 Note: The estimation of poverty rate is based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.



10.3.23 Poverty Rate Projections for 44 Municipalities of KwaZulu Natal

**KWAZULU NATAL MUNICIPALITIES
POVERTY RATE (LBPL, 2020, 2030)**



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)
 Note: The estimation of poverty rate is based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.

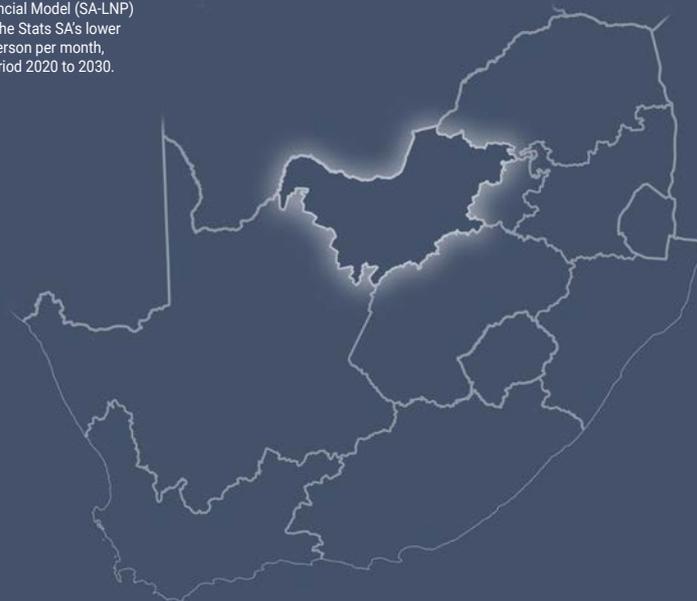


10.3.24 Poverty Rate Projections for 18 Municipalities of North West

**NORTH WEST MUNICIPALITIES
POVERTY RATE (LBPL, 2020, 2030)**



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)
 Note: The estimation of poverty rate is based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.

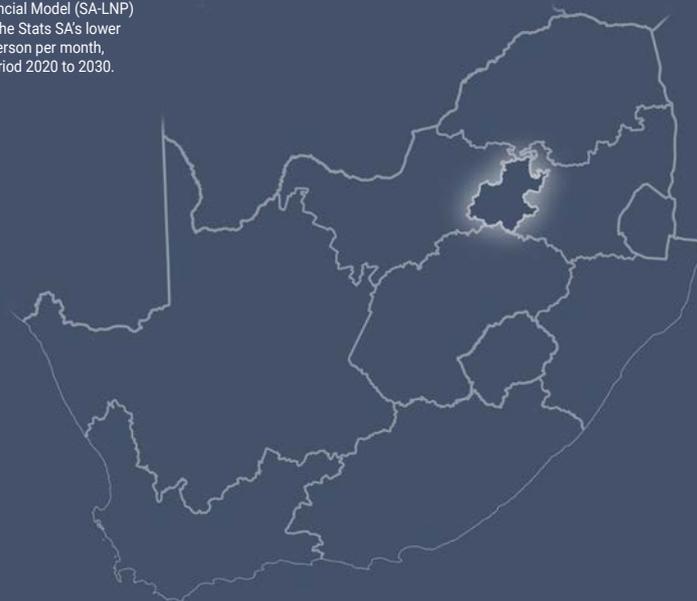


10.3.25 Poverty Rate Projections for 9 Municipalities of Gauteng

GAUTENG MUNICIPALITIES
POVERTY RATE (LBPL, 2020, 2030)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)
 Note: The estimation of poverty rate is based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.

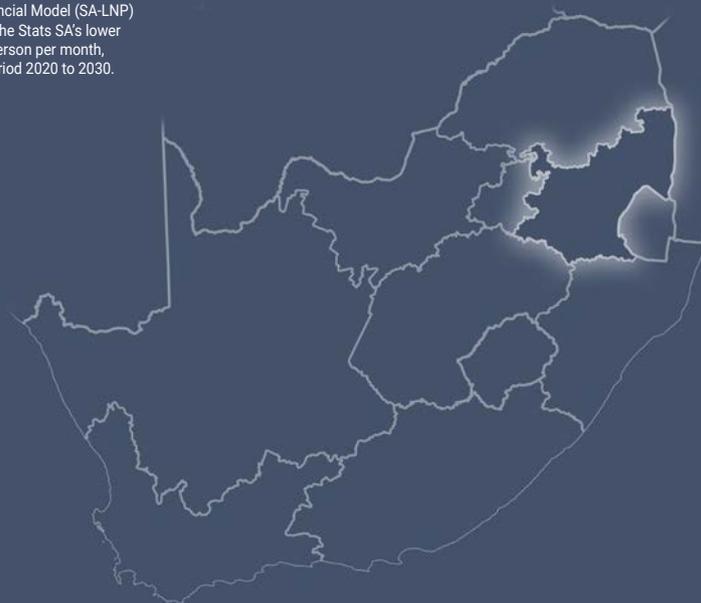


10.3.26 Poverty Rate Projections for 17 Municipalities of Mpumalanga

MPUMALANGA MUNICIPALITIES
POVERTY RATE (LBPL, 2020, 2030)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)
 Note: The estimation of poverty rate is based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.



10.3.27 Poverty Rate Projections for 22 Municipalities of Limpopo

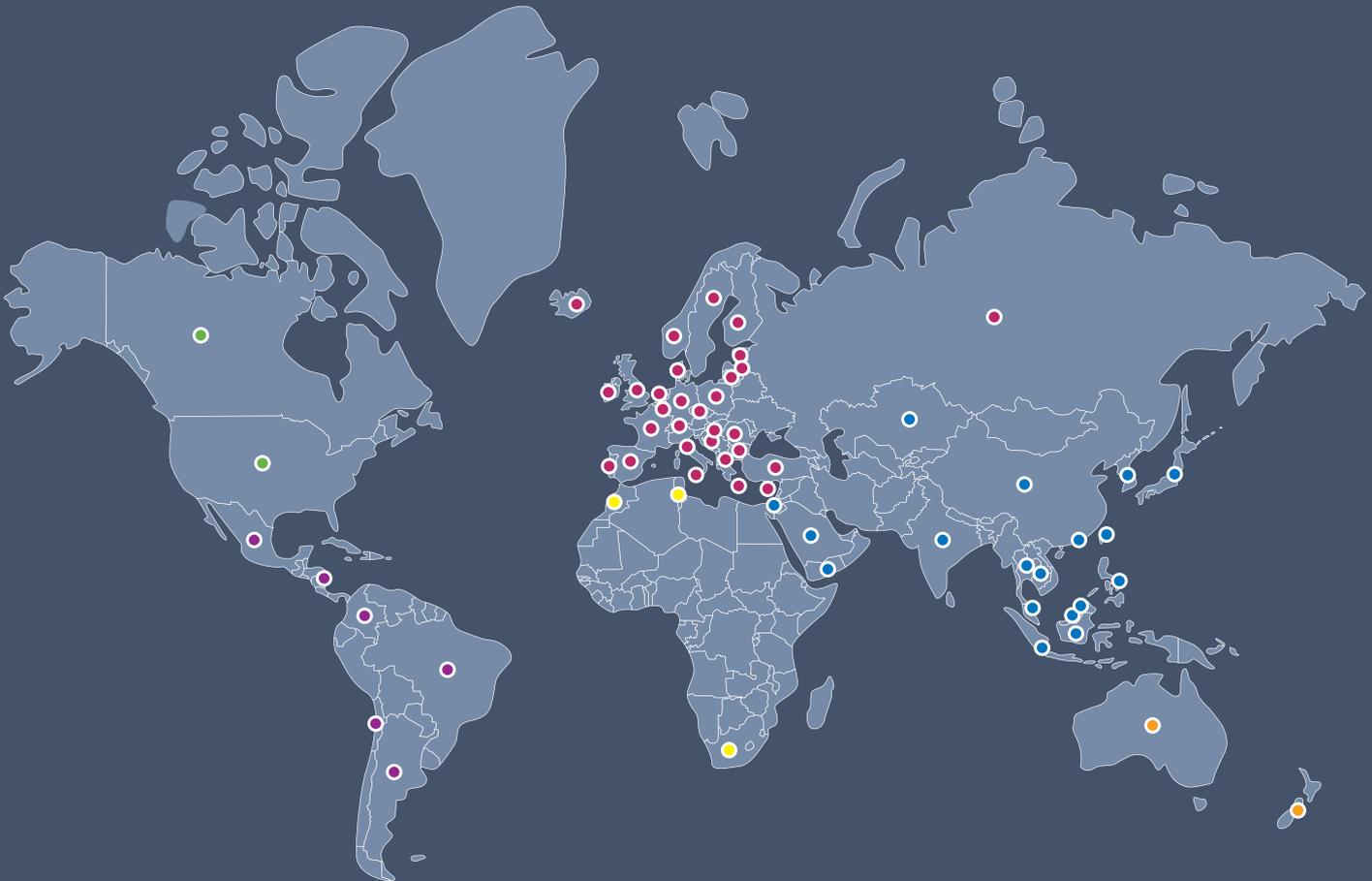
LIMPOPO MUNICIPALITIES
POVERTY RATE (LBPL, 2020, 2030)



Source: ADRS, South Africa Linked National Provincial Model (SA-LNP)
 Note: The estimation of poverty rate is based on the Stats SA's lower bound poverty line (LBPL) of R810 for 2019 per person per month, which has been annually inflated by 6% for the period 2020 to 2030.



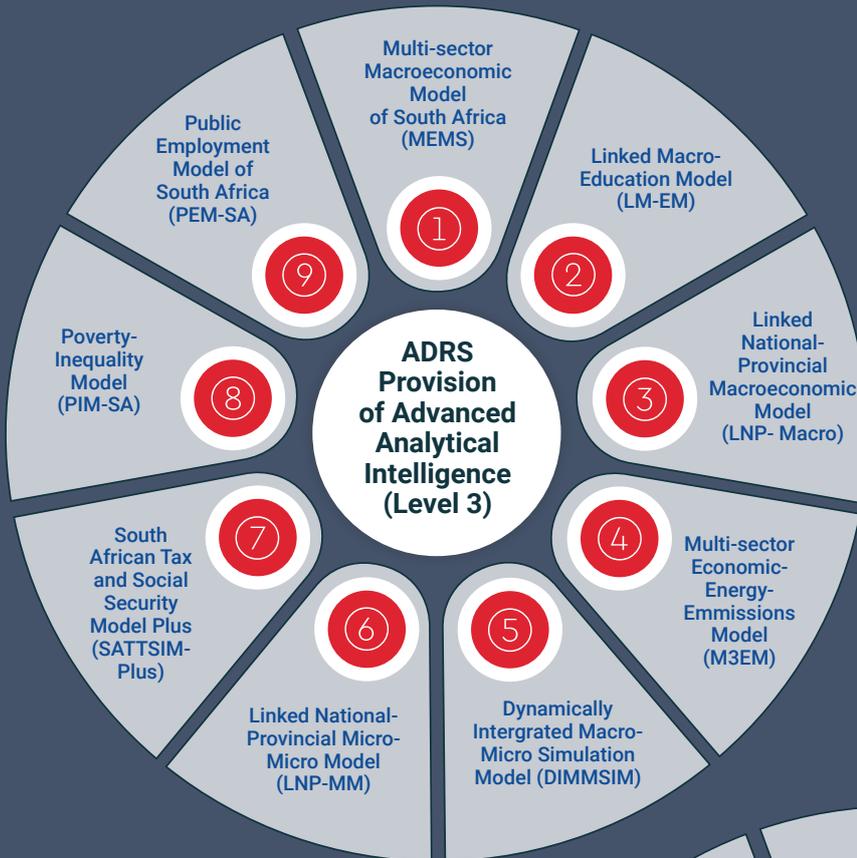
10.4 ADRS Country Models



AFRICA	• MOROCCO • TUNISIA • SOUTH AFRICA (SUITE OF MACRO AND MICRO ECONOMIC MODELS)
ASIA	• BRUNEI • CAMBODIA • CHINA • HONG KONG SPECIAL ADMINISTRATIVE REGION OF CHINA • INDIA • INDONESIA • ISRAEL • JAPAN • KAZAKHSTAN • REPUBLIC OF KOREA • MALAYSIA • PHILIPPINES • SAUDI ARABIA • SINGAPORE • TAIWAN PROVINCE OF CHINA • THAILAND • YEMEN
EUROPE	• AUSTRIA • BELGIUM • BULGARIA • CROATIA • CYPRUS • CZECH REPUBLIC • DENMARK • ESTONIA • FINLAND • FRANCE • GERMANY • GREECE • HUNGARY • ICELAND • IRELAND • ITALY • LATVIA • LITHUANIA • LUXEMBOURG • MACEDONIA • MALTA • NETHERLANDS • NORWAY • POLAND • PORTUGAL • ROMANIA • RUSSIAN FEDERATION • SLOVAKIA • SLOVENIA • SPAIN • SWEDEN • SWITZERLAND • TURKEY • UNITED KINGDOM
NORTH & CENTRAL AMERICA	• CANADA • MEXICO • UNITED STATES OF AMERICA
SOUTH AMERICA	• ARGENTINA • BRAZIL • CHILE • COLOMBIA • COSTA RICA
OCEANIA	• AUSTRALIA • NEW ZEALAND

10.5 ADRS Analytical Intelligence

(A suite of South African Models Based on Stats SA Data)



Stats SA Provision of Basic Analytical Intelligence (Level 1)





COVID-19
AND
SOUTH AFRICA'S
**FUTURE
ECONOMIC
OUTLOOK**

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