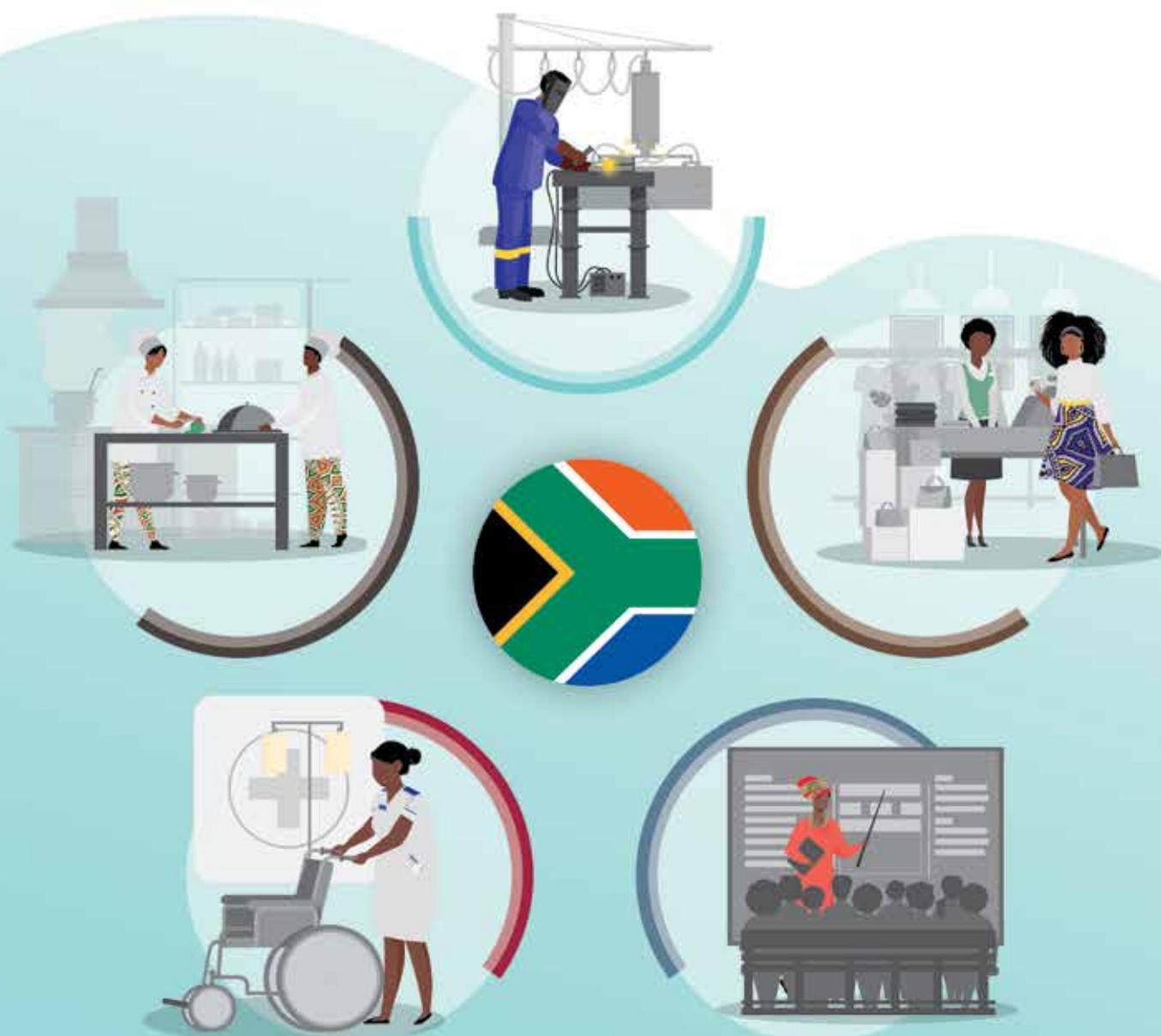


# EXTENSION STUDY TO E4D ANALYSIS IN LIGHT OF COVID-19:

Kenya and South Africa

**REPORT: SOUTH AFRICA**



# Acknowledgements

DNA Economics would like to thank all representatives from GIZ, AUDA-NEPAD, and the AUC who have assisted in the creation of this report. A special thanks should be extended to the E4D team, who have laid the groundwork for the current analysis of data in South Africa, having created a full report on skills mismatches in South Africa prior to the COVID-19 pandemic.

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## Suggested Citation

M Capazario, A Jitsing, L Kaziboni, T Mokoka and F Venter (2020) Extension Study to E4D Analysis in light of COVID-19: Kenya and South Africa. GIZ, AUDA-NEPAD and AUC

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# 1 Introduction

The Skills Initiative for Africa (SIFA) is an initiative of the African Union Commission (AUC) and the African Union Development Agency (AUDA-NEPAD) supported by the German Government and the European Union. SIFA promotes occupation prospects of young Africans through the support of innovative skills development programmes and close cooperation with the private sector as an integral key stakeholder in the creation of jobs.

In line with this last point, GIZ under SIFA has tasked DNA Economics to come up with a methodology to prioritize various sub-sectors across 8 African countries. This is done to assist SIFA, which require information regarding the direction and extent to their investment and financing in prioritized sector, with a specific focus on technical and vocational training for students and graduates across various countries. Moreover, it informs decision making on future skills development initiatives of the respective AU Member states.

This research started prior to COVID-19. Of course, COVID-19 is likely to have a large impact on most, if not all, of the economies across the globe. Accordingly, this pre-COVID methodology was adapted to ensure that a COVID-scenario analysis was completed, looking at the potential recessionary impact of the pandemic across the various sub-sectors within the countries of choice.

**Given this backdrop, the current report is really an addendum to a full report on skills and development, done through the E4D initiative, for South Africa<sup>1</sup>.**

It looks to explain the methodology followed by DNA Economics in order to obtain reasonable forecasts for sub-sectoral employment and GDP trends with very tight data constraints, as well as provide some insight into labour supply constraints in the country. This methodology, although quite naive in some sense, provides an indication of which sub-sectors will be worst affected across countries, without any up-to-date macroeconomic data.

As such, the report first sets out a methodology brief, before providing some context to the economy. This is followed by a forecast analysis and concludes with a ranking of every sub-sector based on the indicators set out in the methodology.

<sup>1</sup>For this full report which looks at skills supply in South Africa, as well as some aspects of sector prioritization, please contact Sabine Klaus ([sabine.klaus@giz.de](mailto:sabine.klaus@giz.de)) or see the second appendix of the current document.

## 2 Methodology brief

As best as possible, this methodology aims to answer the following question:

“Which 3 sub-sectors would benefit most from a skills development intervention aimed at improving labour market prospects for those entering those sub-sectors?”

When defining which sub-sectors would benefit the most, we focused on a handful of indicators:

**Table 1: Indicators Used to Analyse Sectoral Labour Demand**

### Statistical Indicators

Historical employment and real GDP growth per sub-sector

COVID-corrected employment and real GDP growth forecasts per sub-sector

Historical and forecasted contributions of each sub-sector to national GDP and national employment

Employment-GDP elasticities (i.e. by how much does employment change if real GDP in a sector changes)

The length of time before the COVID-19 economic shock dissipates per sub-sector

The gender-equitability of each sector’s employment prospects

### Qualitative/Literature-Based Indicators

A sub-sector’s prevalence in the literature as a government/donor agency priority

A sub-sector’s perceived susceptibility to COVID-19 as found in research

Because some of these indicators were qualitative, and some are statistical in nature, it would have been arbitrary to combine them without using a statistical technique which corrects for:

1. The relationship between each variable (for instance, real GDP and employment are positively related),
2. The relationship between the same variable over time (real GDP growth in a previous year often pushes up real GDP growth in the current year due to inertia), and
3. What each variable is measured as (combining a % growth rate with the number of years it would take to recover, and so forth).

As such, Principal Components Analysis (PCA) appeared to be most suited to the analysis and was used to combine the indicators into an index of prioritization.

While historical indicators were easy enough to calculate, and while qualitative analysis was easy enough to conduct, the forecasting method was perhaps the most difficult. Due to the scarcity of data (only having data available in yearly format for all sub-sectors from between 2008 to 2018/19), the forecast method chosen needed to be able to work well with small samples. In order to do this the technical team chose a truly mixed-method following the methodology below:<sup>2</sup> (please do not forget the note 2 on mixed-methods)

<sup>2</sup>Using quantitative information to inform/mix with qualitative analysis, and/or vice versa, simultaneously.



## Box 1: Brief Summary of Forecast Methodology

1



Use literature (Ehlen 2007, for example) to assess the impact of pandemic influenza on national and sub-sectoral growth



Economic growth is expected to decline by 2% in the best-case scenario, and 6% in the worst-case scenario in the year of the pandemic, before smoothing over time

2



From this, forecast national and sub-sectoral real GDP growth until 2024 using a Structural Vector Autoregression (SVAR)

3



Assess the relationship between changes in real GDP and Employment (Mistra and Suresh 2014) at a national and sub-sectoral level. Use these relationships to forecast employment changes given forecasted changes to national and sub-sectoral GDP in step 2

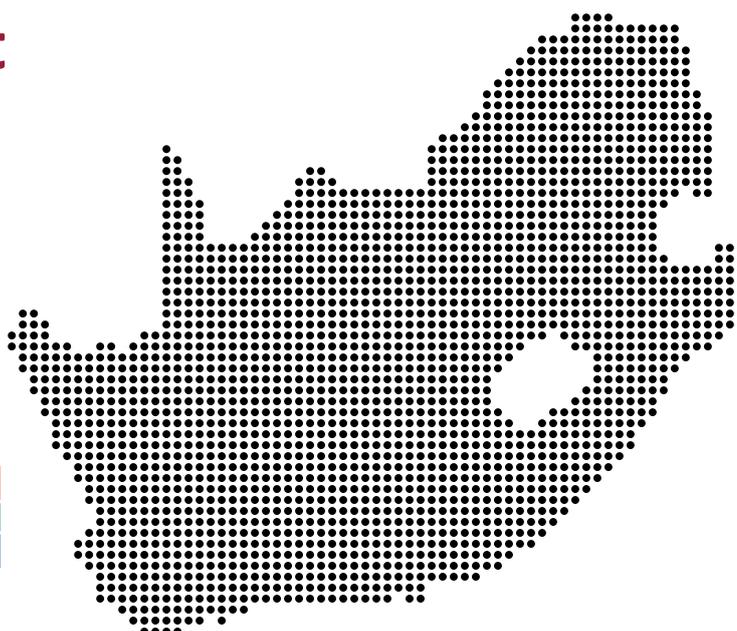
*For more information on this methodology, contact Michele Capazario ([michele.capazario@dnaeconomics.com](mailto:michele.capazario@dnaeconomics.com))*

In short, every scenario of economic decline between 2 and 6% is modelled for at a national level. Using the SVAR, these scenarios are translated into sub-sectoral changes in real GDP, whilst also forecasting how long it would take for each sub-sector to recover to pre-COVID levels. These are then weighted by employment-output elasticities for each sub-sector to understand the extent to which employment in each sub-sector would taper off.

This was followed by a wide stakeholder engagement workshop, which brought together key representatives in South Africa from the TVET and business spaces, as well as focal persons from SIFA offices within the country. These individuals all had vast expertise on elements of labour demand and labour supply within the country and assisted in honing the findings from the quantitative analysis.

## 3 Country context

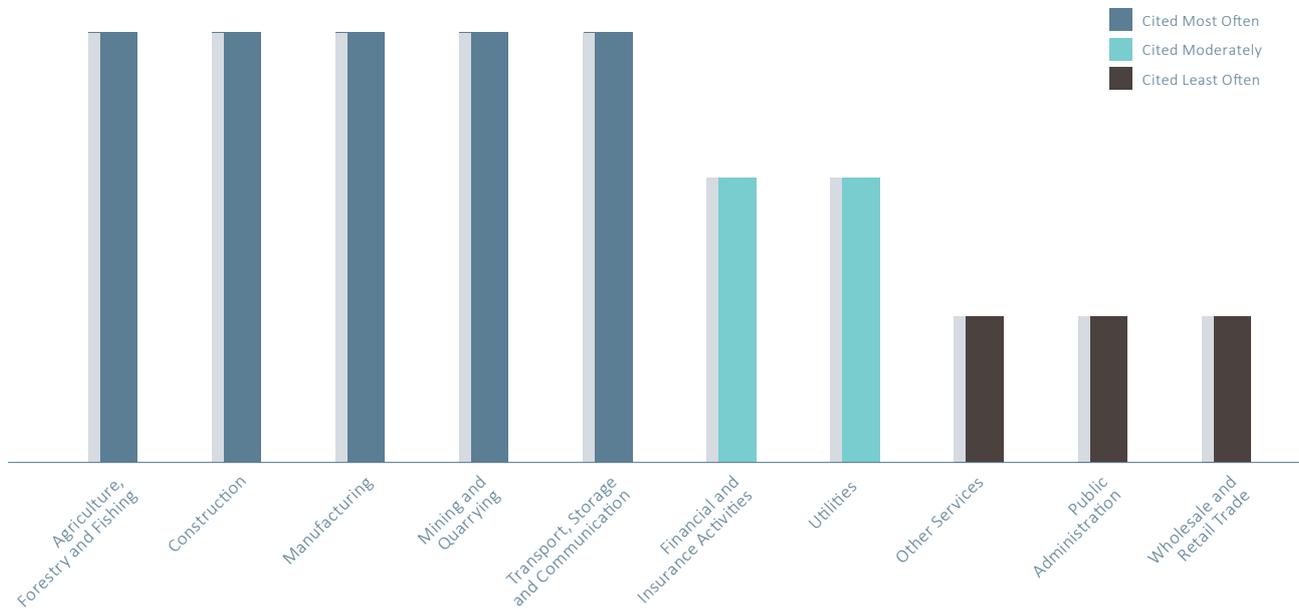
This section serves as a precursor to the macroeconomic analysis undertaken in Section 4. We present a summary of the South African literature, first considering the sub-sectors of strategic importance, and then the potential economic and health impacts of COVID-19 in South Africa.



### 3.1 National Strategic Priority

To understand the developmental path of South Africa, it is imperative to analyse literature. This literature, as analysed below, paints some stylized facts relating to focal sub-sectors regarding state investment and general priority:

**Figure 1: Sub-Sector Priority across Literature Sources**



Sources: (IMF, 2018); (National Planning Commission, 2012); (The Department of Trade and Industry, 2019)

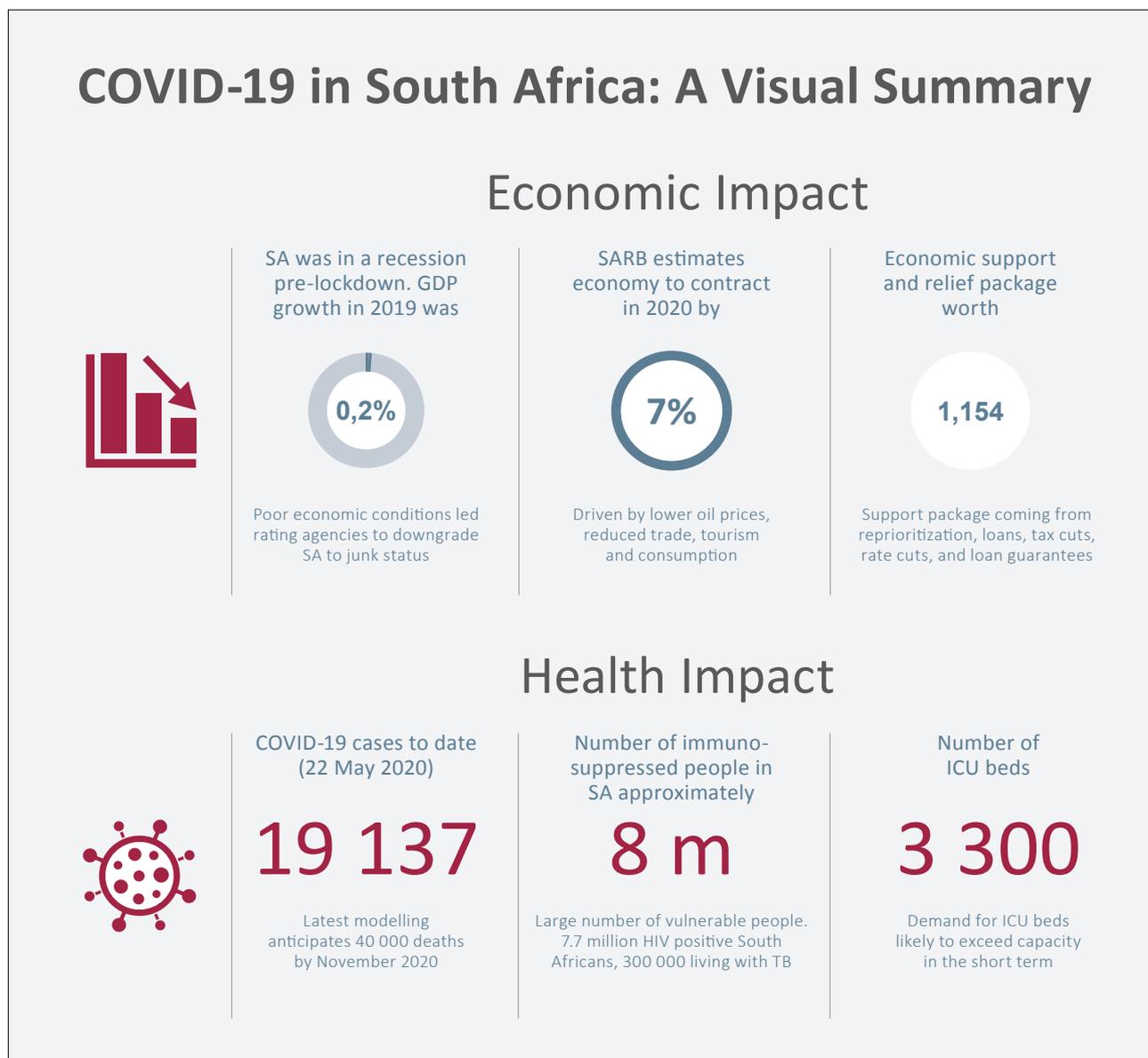
Given the figure, South Africa’s strategic priorities can be summarized as follows:

1. In recognition of pervasive unemployment, the state has clearly articulated its intention to enhance the growth of employment absorbing industries. Agriculture, manufacturing, mining and construction are therefore strategic priorities. The Industrial Policy Action Plan is dedicated to enhancing these sectors, taking its mandate from the National Development Plan.
2. It follows that poverty is another critical challenge for South Africa. Lowering the cost of living is thus another key area of focus. Unreliable transport and expensive logistic and communications services disproportionately affect the poor.
3. South Africa’s intention to be a Financial Centre for Africa aligns with the abovementioned strategic areas. Reducing the cost of living and promoting inclusive growth requires investment in major energy and infrastructure projects, together with integrated regional agricultural and industrial supply chains. Strengthening commercial transport, communications, and utilities are a key precondition for vibrant economic growth.

## 3.2 Potential Impact of COVID-19

Because of the uncertainty surrounding COVID-19 and the extent of its economic (and health) impact, the literature analysis also brings out the potential impact that COVID-19 might have on the South African economy. This is summarized below, and part of this analysis is included in the estimation of results further on:

### Box 2: Summary of the Impact of COVID-19 on South Africa

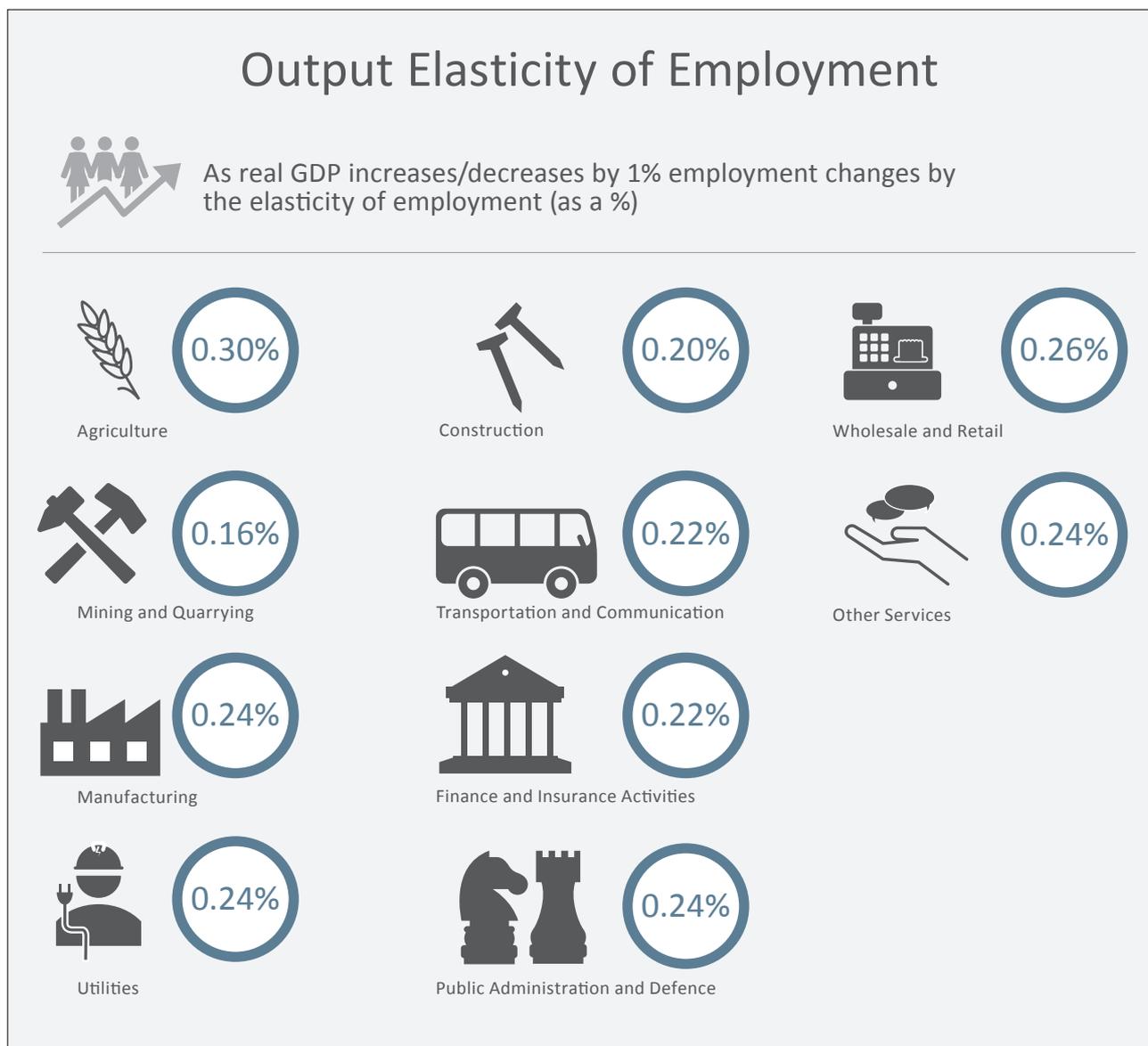


# 4 Macroeconomic analysis

## 4.1 Employment-Output Elasticity

To forecast in light of COVID-19, it is necessary to understand the relationship between real GDP and employment in order to model relatively accurate scenarios. This is best summarized by estimating the employment elasticity for each sector, as seen below:

### Box 3: Output-Employment Elasticity Summary per Economic Sub-Sector in South Africa



Source: Analysis of data from (Quantec, 2020) and (The ILO, 2020)

In normal circumstances, the higher the elasticity of employment, the more likely a sector is to incorporate growth into employment. However, the inverse also holds true- if an elasticity is high, then worsened economic growth theoretically translates to far worse losses in employment than if an elasticity was lower. Because this is the mechanism which assists us in modelling employment further into the report, the sectors with the highest employment elasticities are also those most susceptible to economic shocks, namely:

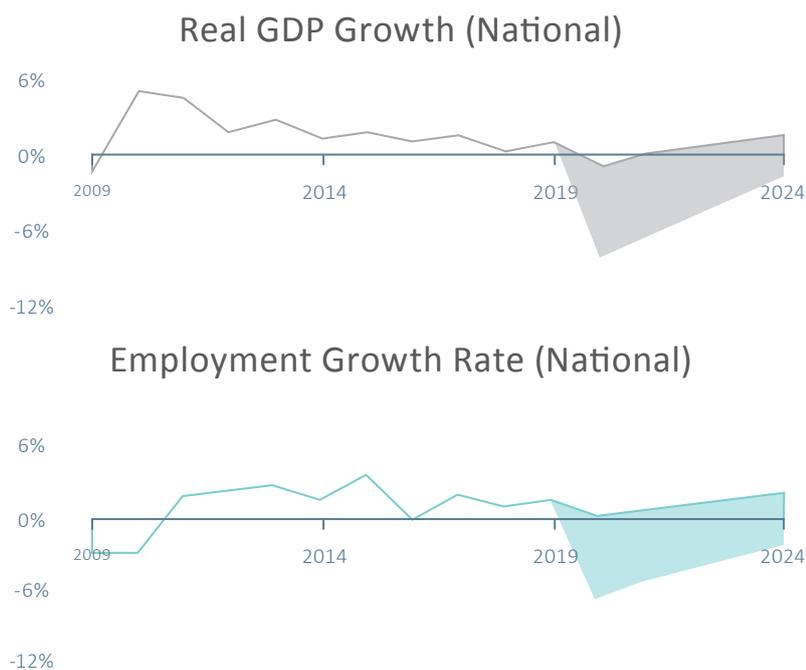
1. The mining and quarrying sub-sector,
2. The transportation and communication sub-sector, and
3. The public administration sub-sector.

On the other hand, the sector which is least susceptible to an economic shock is the construction sub-sector, which has a moderate employment-output elasticity of 12%. If GDP were to decline in this sector by 1%, employment would only drop by 0.12%. It is this relationship which assists in the modelling of forecasts for employment growth and decline in the following sections.

## 4.2 National

South Africa's historical growth has been trending downward. COVID-19 is likely to exacerbate this trend and have non-negligible impacts on various sub-sectors. This impact is first explored nationally.

**Figure 2: National Real GDP and Employment Forecasts for South Africa**



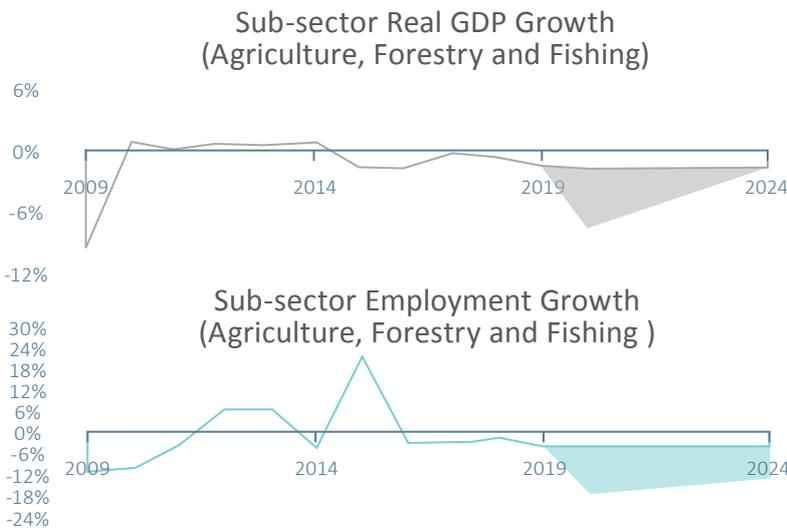
These forecasts show that, relative to real GDP growth in 2019 of around 1% and employment growth of 1.6%:

- Due to COVID-19, the best-case scenario would be for South Africa's national real GDP to **decline by 1% in 2020, whilst recovering to 2019 levels by 2023**
- In the worst-case scenario, South Africa's economy would recover fully by 2024 in real GDP terms. If this is the case, **it is expected that real GDP will contract by up to 8% in 2020, before starting to improve**
- In the worst case, **employment is forecast to decline by up to 6.7% in 2020 with the forecasted recovery time extending beyond 2024**
- In the worst case, this implies a **loss of approximately 1.2 million jobs in 2020, relative to 2019**

Source: Analysis of data from (Quantec, 2020) and (The ILO, 2020)

## 4.3 Primary sector

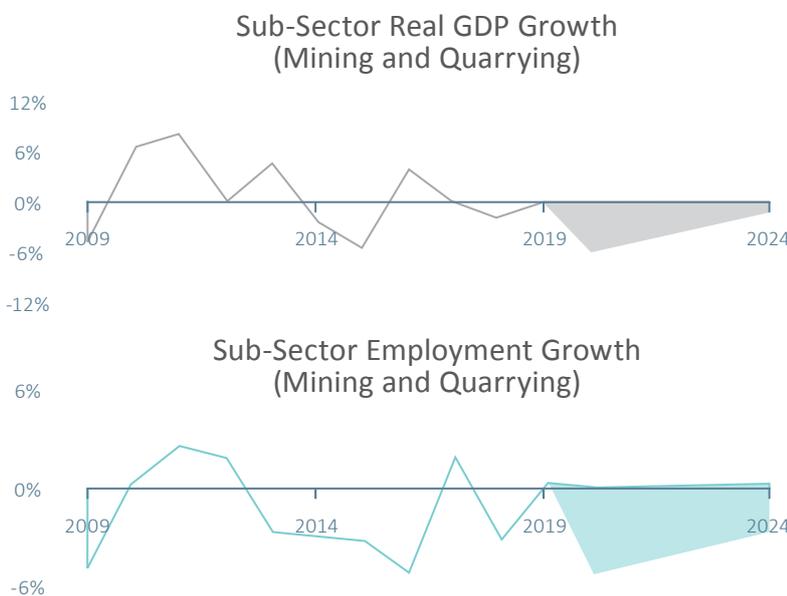
The agriculture sector has been flat historically, contracting in more recent years. Based on the forecast analysis:



- Real GDP is expected to decline by as much as 7.8% in the worst-case scenario for 2020
- This translates to employment declining, at worst, by 18% in 2020, translating to a loss of up to 159 000 jobs
- GDP is forecast to recover by 2024 while employment growth is expected to be impacted beyond 2024

Source: Analysis of data from (Quantec, 2020) and (The ILO, 2020)

Historical economic and employment growth in the mining and quarrying sector has been volatile, with close to zero growth in 2019. The forecast post-COVID-19 suggests that:

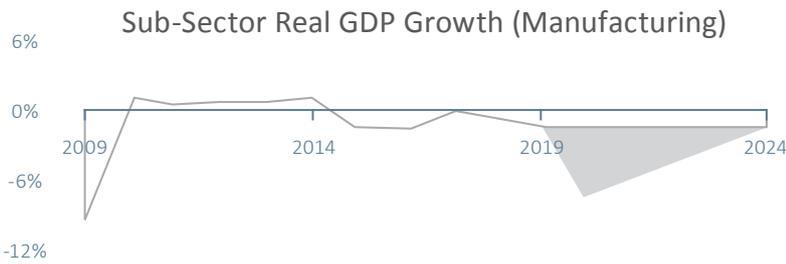


- Real GDP is expected to shrink by up to 5% in 2020 in the worst case
- This translates to employment contracting by as much as 5.2%, equivalent to 23 000 job losses in 2020
- In the worst case, the sector will only return to 2019 estimates after 2024 in GDP and employment growth terms

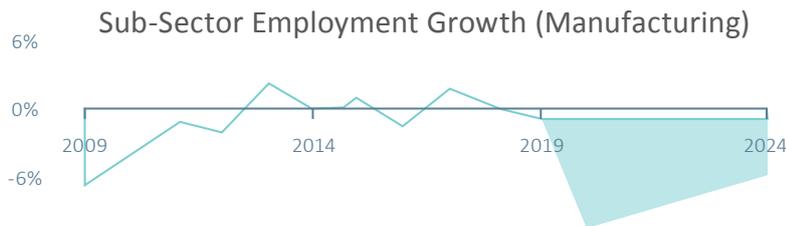
Source: Analysis of data from (Quantec, 2020) and (The ILO, 2020)

## 4.4 Secondary sector

Manufacturing output has been contracting in recent years. Due to COVID-19, this is expected to worsen:

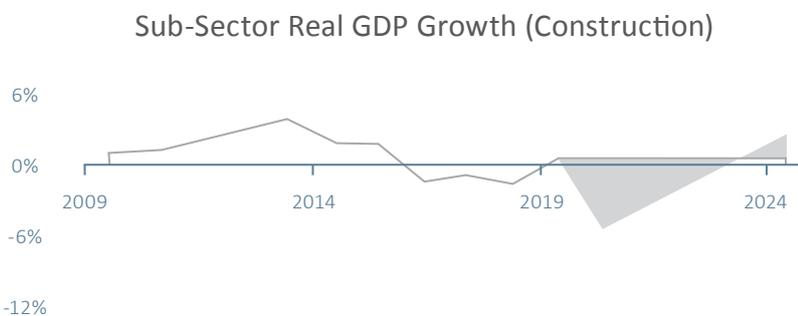


- Real GDP is expected to decline by up to 7.8% in 2020 in the worst case
- Employment, in this context, is expected to decline by as much as 5.5% in 2020, translating to 82 000 jobs losses
- In the worst case, the sector will only recover by 2024, in GDP and employment growth terms

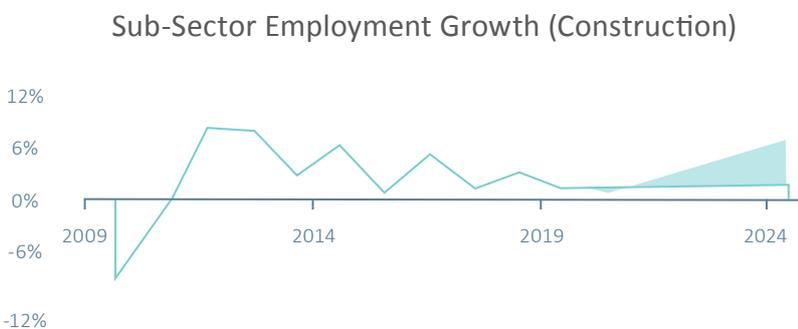


Source: Analysis of data from (Quantec, 2020) and (The ILO, 2020)

Construction real GDP has been contracting in recent years, while employment has seen volatile yet low growth. The construction sector forecast analysis shows the following:

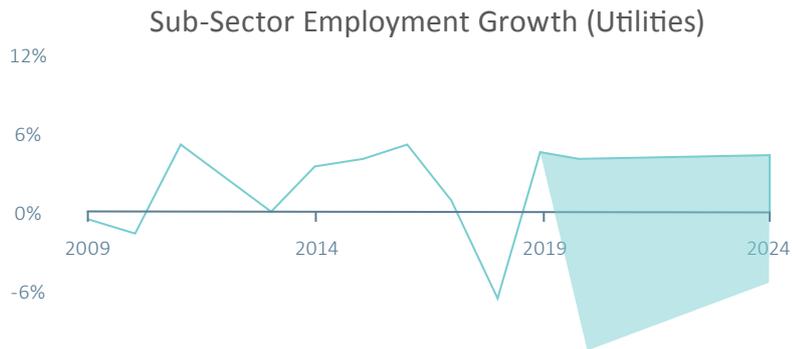
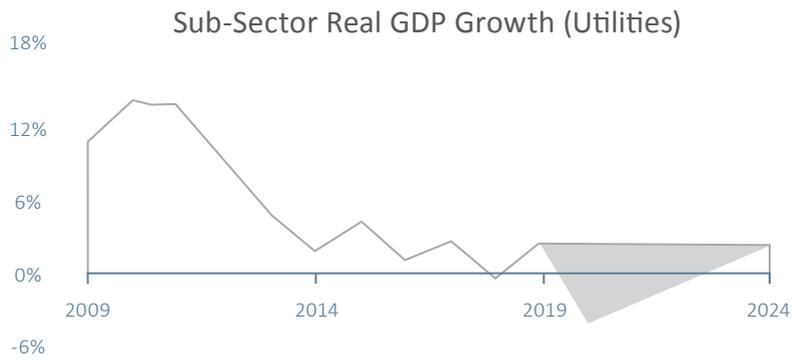


- In the worst case, real GDP will contract by 6% in 2020
- This translates to lower employment growth of 1% in 2020 as opposed to growth closer to 3% historically
- Real GDP is forecast to recover by 2023, while employment is forecast to recover by 2021 to pre-COVID levels of growth



Source: Analysis of data from (Quantec, 2020) and (The ILO, 2020)

Forecasts for the utilities sub-sector show that:

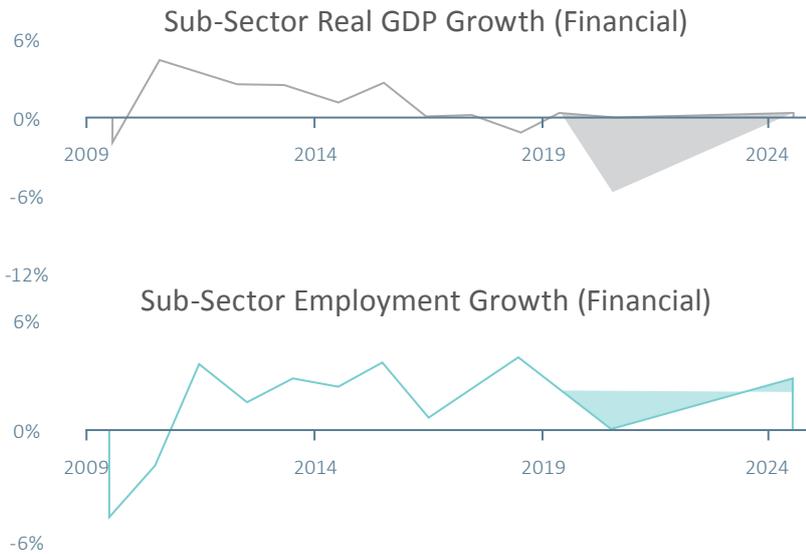


- Real GDP is expected to decline by up to 5.4% in the worst case
- This translates to a decline in employment growth from 2.4% in 2019 to approximately negative 5.6% in 2020, at worst, which implies 9 000 job losses
- GDP growth for sector is forecast to recover to 2019 rates by 2024, while employment should be affected beyond 2024

Source: Analysis of data from (Quantec, 2020) and (The ILO, 2020)

## 4.5 Tertiary sector

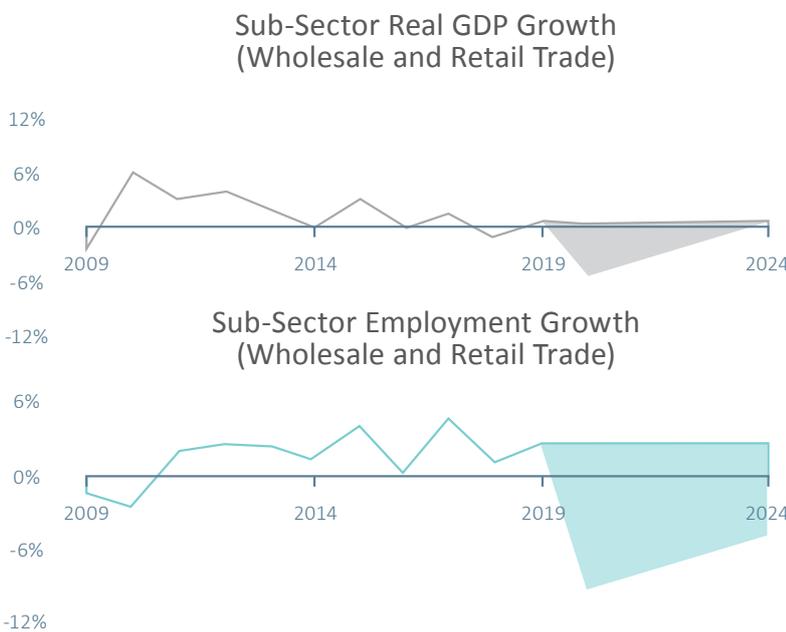
The financial sub-sector has been contracting over the historical period. It is forecast to do the following:



- Real GDP, which began a minor recovery of 0.3% in 2019, is expected to decline by 5.9% in 2020, in the worst case
- Employment growth is expected to decrease from 2.2% in 2019 to 0.2% in 2020 at worst, translating to only 1 000 job gains in 2020
- GDP growth should recover by 2024 and employment growth by 2023

Source: Analysis of data from (Quantec, 2020) and (The ILO, 2020)

The wholesale and retail sector, historically on the decline, is forecast to decline more into the future post COVID-19:



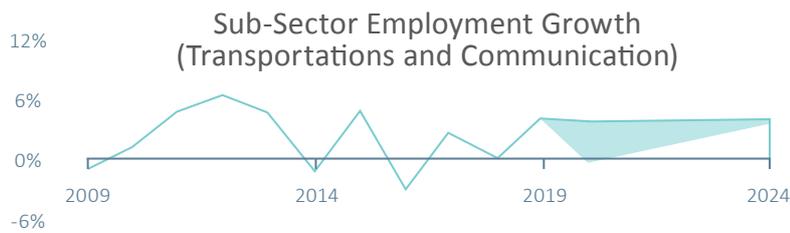
- Real GDP is expected to decline by up to 6% in 2020, as opposed to moderate growth of 0.5% experienced in 2019
- This translates to a decline in the employment growth rate from 2.8% in 2019 to negative 9.5% in 2020, in the worst case
- 261 000 job losses in the worst-case forecast
- GDP growth should recover by 2024, while employment should be affected beyond 2024

Source: Analysis of data from (Quantec, 2020) and (The ILO, 2020)

The transportation and communications sub-sector is forecasted to decline relative to 2019, and **recover in GDP and employment terms by 2024**:

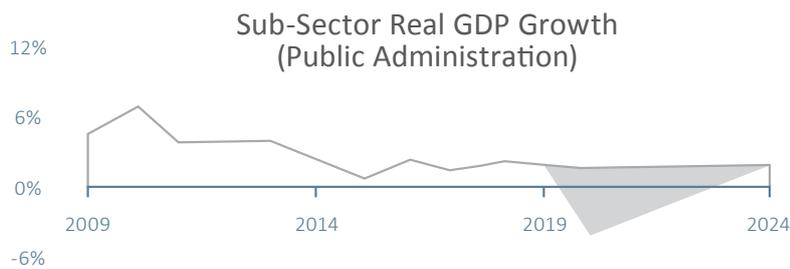


- Real GDP is expected to **decline by up to 16.1% in 2020** for the worst-case scenario
- This translates to **employment declining by, at worst, 0.3% in 2020**
- **4 000 job losses** are anticipated for 2020

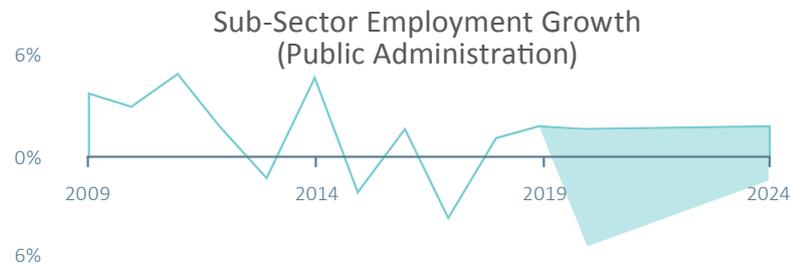


Source: Analysis of data from (Quantec, 2020) and (The ILO, 2020)

In the public administration sector:

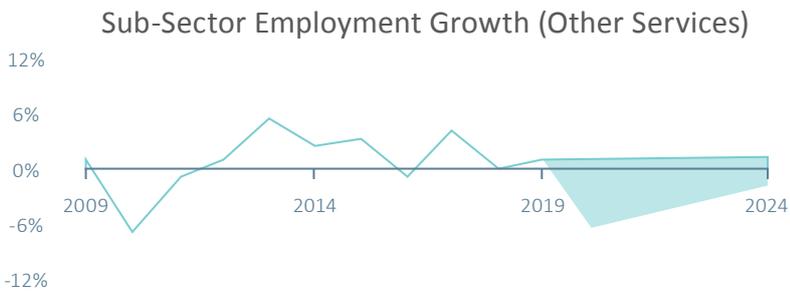
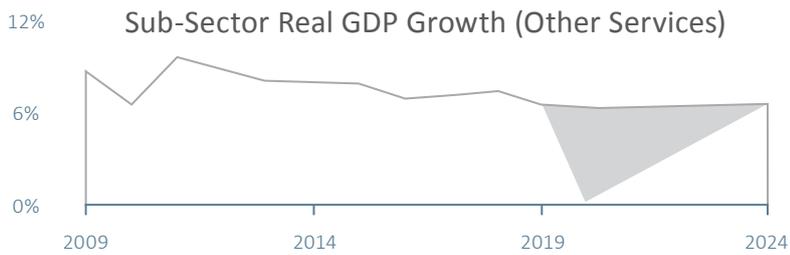


- Real GDP is forecast to **contract by up to 4.4% in 2020** for the worst-case scenario
- This translates to employment being forecast to decline **to 5.4% in the worst case for 2020**, relating to **46 000 job losses**
- Real GDP is expected to recover to 2019 levels by 2024, **while employment should recover only after 2024**



Source: Analysis of data from (Quantec, 2020) and (The ILO, 2020)

The other services sector is forecast to decline substantially in both GDP and employment growth terms:



- Real GDP growth is expected to decline from 6.5% in 2019 to 0.3% in 2020 for the worst case
- In the worst case, employment will contract by 6.4% in 2020 relative to 1.1% growth in 2019. This translates to the health, education and accommodation sub-sectors combined shedding as many as 454 000 jobs in 2020 in the worst case scenario
- In the worst-case, the sub-sector is forecast to recover by 2024 in real GDP growth terms, while employment is expected to recover only after in 2024

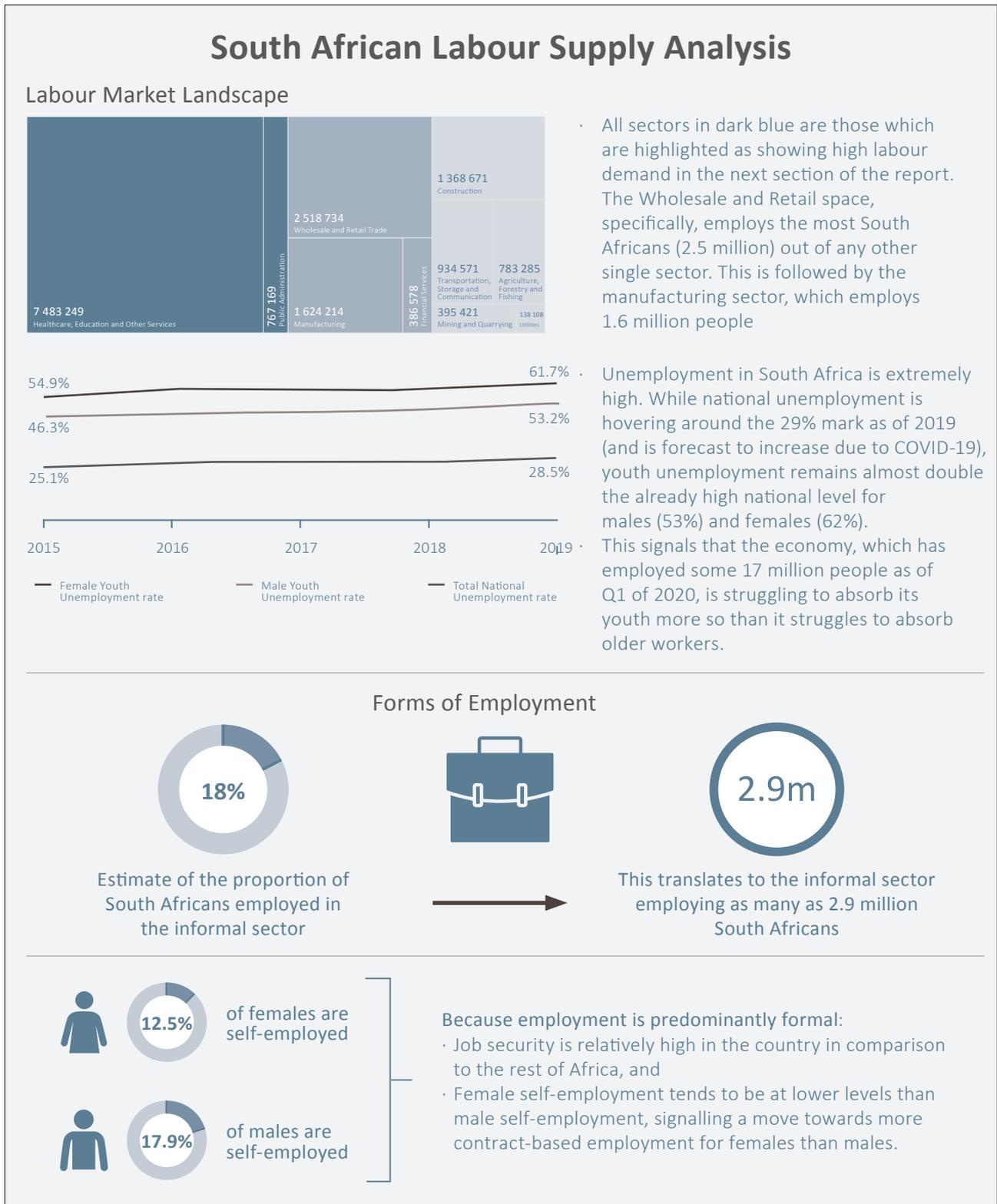
Source: Analysis of data from (Quantec, 2020) and (The ILO, 2020)

# 5 Labour supply analysis

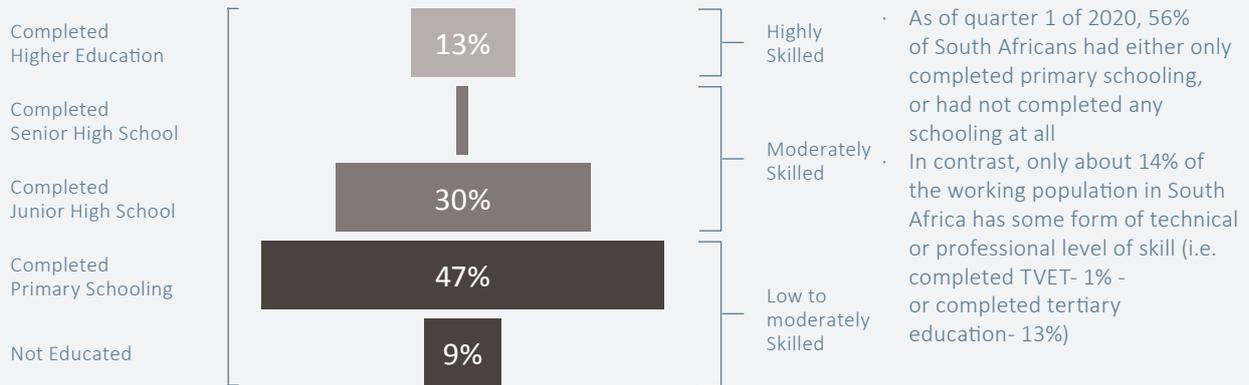
The South African labour market is classified as one of the most evolved across Africa. Despite this, there are still large structural challenges in the country pertaining to education attainment and unemployment which stop the

country's labour market from reaching its full potential. The following infographic provides a snapshot of the South African labour market:

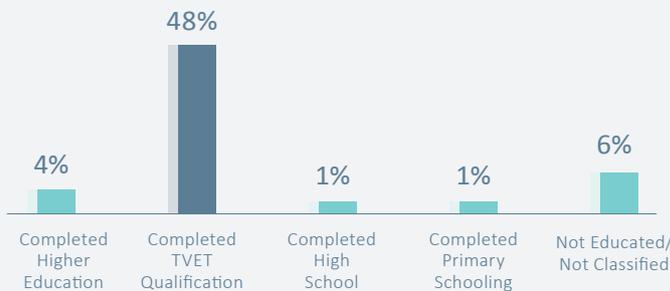
## Box 4: Labour Supply Snapshot for South Africa



## Education and Training Profile



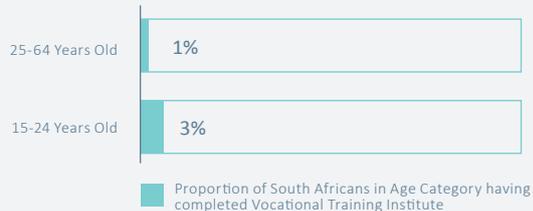
### Proportion of South Africans who are Underemployed per Schooling level



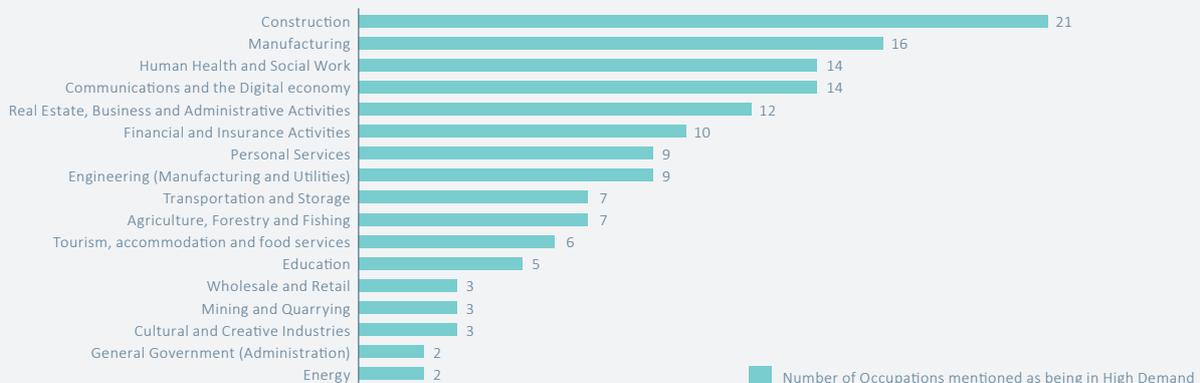
For the most part, underemployment is not an issue in South Africa. Of the population that is employed, 895 000 (or 5%) are underemployed. However, because of the small number of TVET graduates and likely because of the challenges faced in the South African TVET space regarding skills creation and matching, underemployment of TVET graduates is extremely high.

**400 000**

The number of people in South Africa as of 2020 who have completed some form of post-secondary TVET qualification



Out of the countries in Africa, South Africa's labour market information systems are likely some of the most advanced. Bi-annually, the Department of Higher Education and Training produces a list of Occupations in High Demand (OIHD). This list signals which occupations are in shortage or in extremely high demand within the country. Although the 2020 publication is yet to launch, the 2018 OIHD provides insights into the occupations (and the sectors within which those occupations fall) which are experiencing a mismatch between demand and supply. The proportion of occupations appearing on the 2018 OIHD are broken down by sector below:



Source: (The ILO, 2020); (Statistics South Africa, 2020); (World Bank, 2020); (Reddy, Rogan, Mncwango, & Chabane, 2018)

From the infographic, a few things need to be highlighted:

- South Africa is known for its high levels of total and youth unemployment. However, unlike most other African economies, the informal sector's contribution to employment is quite small. This, combined with favourable labour laws and low self-employment rates should ensure that employment is not as vulnerable in South Africa as in other countries. However, because of South Africa's extremely large youth reserve army and a basic education system which is often deemed to be of relatively low quality, employment in the country was shown to be extremely vulnerable in light of the COVID-19 pandemic (where 2.2 million people lost their jobs between March and June of 2020<sup>3</sup>).
- In terms of skill, more than 50% of the country's citizens have either no education, or have completed primary schooling. In contrast, only about 14% of the population can be seen as having high levels of skills by being qualified with a TVET qualification (1%) or a tertiary qualification (13%).
- While underemployment in the country is not a systemic issue, our estimates for underemployment for TVET graduates are extremely high. While these are by no means foolproof, they indicate that TVET graduates in the country are not adequately being absorbed into the labour market, and thus being used ineffectively.

In terms of the demand for skills, the 2018 list of OIHD sheds some light on which occupations experience an undersupply within the economy. While there are roughly 140 occupations described in the OIHD<sup>4</sup>, the majority of occupations relate to construction, manufacturing, human health, communications, and the digital economy (which is transversal across many sectors), real estate, business administration, and finance. Specific occupations which can predominantly be studied at a TVET level in the country and which are in shortage in the country will be discussed after an analysis of which sectors are expected to demand the most labour going forward. This labour demand at a sectoral level is discussed next.

<sup>3</sup>(Statistics South Africa, 2020)

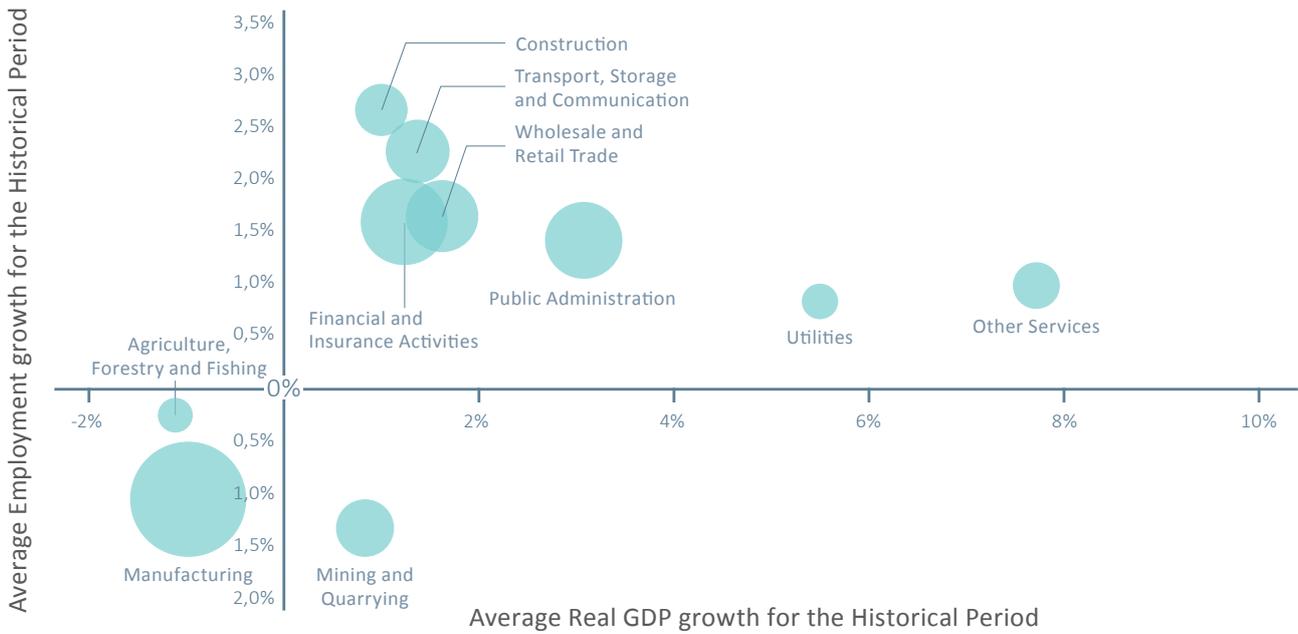
<sup>4</sup>(Technically, the term "occupations" is not correct. South African labour market information relies on an Organising Framework for Occupations (OFO)- a common language to identify and talk about jobs. The full OIHD has closer to 350 occupations, some of which might not be reflected in the discussions on unit groups and occupations hereafter. The 140 quoted is a list of "unit groups", which are similar to occupations in that they have titles like "Economist" or "Nurse". However, an occupation in the OFO takes the description one step further by including a more specific role, like "Labour Market Economist" or "Registered Children's Nurse" to name but two. Nevertheless, the unit group is sufficient for the current analysis. For a full list of OIHD in 2018, see Reddy, Rogan, Mncwango, & Chabane (2018). Some of these unit groups only showed statistical evidence for high demand, but were excluded from the final OIHD in 2018 because their inclusion was not backed up by literature or stakeholder engagement.

# 6 Sub-sectors deep dive

## 6.1 Sub-Sector Choice

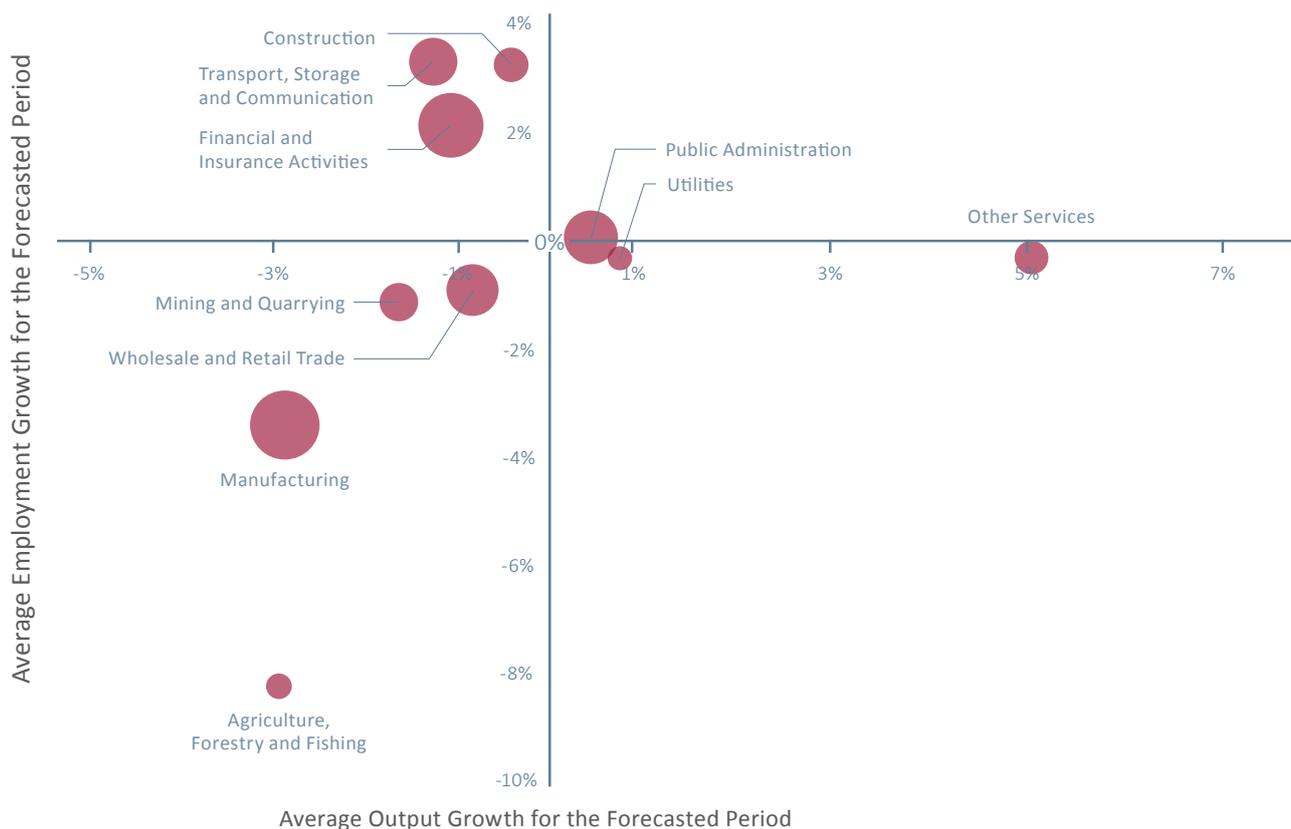
In this section we apply the employment-output growth matrix for both the historical and the forecasted period to understand the relative importance of the different sectors. The size of the bubble relates to the contribution of that sub-sector to employment and real GDP<sup>5</sup>.

Figure 3: GDP and Employment Growth Matrix for all Sub-Sectors in South Africa (Averaged from 2008-2019)



<sup>5</sup>As the bubble gets larger, so too does a sector's contribution to national real GDP within that time period on average.

Figure 4: GDP and Employment Growth Matrix for all Sub-Sectors in South Africa (Averaged from 2020-2024)



Source: Analysis of data from (Quantec, 2020) and (The ILO, 2020)

More than anything these graphics only summarize the analysis done before, and feed into the methodology to obtain priority sectors based on those sectors real GDP trends, employment trends, sizes, gender equitability, and the impact of COVID-19 on those sectors (as outlined briefly in the methodology).

In light of the impact of COVID-19 on the forecasts, the following stylized facts can be pointed out:

- Most sub-sectors are expected to remain relatively the same size as they were historically, although manufacturing is forecast to shrink slightly. The Public Administration and Defence sector is forecast to increase its contribution to national GDP slightly, potentially absorbing some of the manufacturing losses.
- Historically, most sources were growing relatively slowly pre-COVID. Post-COVID, however, forecasts suggest that each sub-sector will now move further towards the bottom left of the matrix, indicating that these sub-sectors are shrinking, both in terms of real GDP, and in terms of employment alike.
- The most severely impacted sector is expected to be the Agriculture sub-sector. This is because the sector was already shrinking historically in terms of GDP growth, and has also faced severe unemployment due to mechanization in the sector.

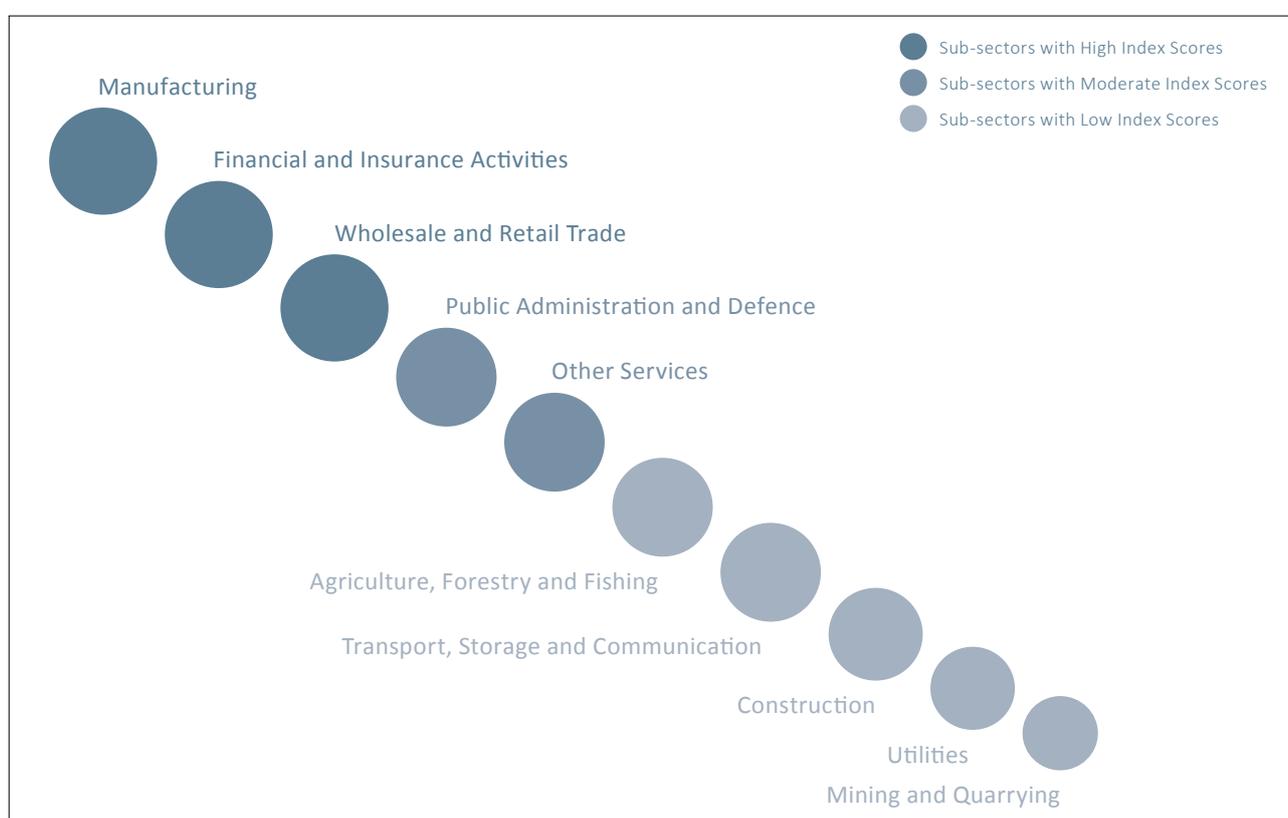
## 6.2 Sub-Sector Ranking

Given all previous evidence, we use Principal Components Analysis (PCA<sup>6</sup>) to rank the sub-sectors. Weighting is based off of the following indicators:

- Historical employment and GDP growth,
- Forecasted employment and GDP growth taking into account the potential impact of COVID-19,
- Employment elasticity of output,
- A sub-sector's prevalence in the literature surrounding government priority,
- A sub-sector's susceptibility to COVID-19 as found in the literature,
- The persistence of an economic shock of the COVID-19 type at a sub-sector level (i.e., how long it takes for a sector to at least slightly recover from an economic shock), and
- Whether the sub-sector is gender-equitable by means of either:
  - An increasing trend of female employment between the historical and forecasted periods, or
  - Employing a female-majority workforce.

Using PCA to assess the relative importance of each sub-sector, inclusive of the expected impact of COVID-19, the figure below summarizes the findings<sup>7</sup>:

**Figure 5: Labour Demand Index Rankings**



Source: Analysis of data from (Quantec, 2020) and (The ILO, 2020)

<sup>6</sup>PCA is a weighting technique which attributes weight based on total variation of a particular indicator across time and across dimensions. It attempts to decompose each indicator, relative to all the others, into its core components. This method corrects for things like the relationships between the indicators which are meant to be weighted (for instance, output and employment are related).

<sup>7</sup>The size of each bubble is directly related to the index score for each sub-sector. Those sub-sectors that are highlighted in the lightest blue fall below the average index score, while those in darker shades of blue fall above the average index score.

Considering all of the evidence, the following sub-sectors are prioritized to be focused on:

1. The Manufacturing sub-sector,
2. The Financial and Insurance sub-sector, and
3. The Wholesale and Retail Trade sub-sector.

These are the sub-sectors which, across dimensions, tend to perform robustly across the various dimensions, and are susceptible to an economic shock due to COVID-19. That is not to say that each sub-sector is best performing across all dimensions. Instead, it is these sub-sectors that simultaneously have:

- Relatively strong economic prospects,
- Relatively Gender-equitable employment prospects,
- A place in the literature as a strategic priority, and
- A relative susceptibility to COVID-19 and its prospective economic impact.

The Manufacturing and Finance sectors are a priority according to the National Development Plan, which justifies their inclusion. More importantly, these two sectors, and the Wholesale and Retail trade sector cumulatively contribute more than 50% of GDP, both historically and forecasted. As such, the methodology used assesses this relative importance to the economy, and combined with the large contraction in forecasted real GDP and employment, prioritises these sectors. Other sectors are indeed important, but on balance, the evidence suggests that the Manufacturing, Finance and Insurance, and Wholesale and Retail sectors are of most concern.

# 7 Labour Demand And Labour Supply Conclusions

South Africa is often seen as one of the most well-developed countries on the continent of Africa. However, in the midst of being seen as one of Africa's most well-developed nations, many structural issues related to the economy's performance hinder the prospects of South Africa. Part of these structural economic issues lie directly in labour market mismatches between what employers demand and what employees are able to offer in terms of skills and proficiencies.

Thus far, this report has aimed to unpack labour supply and demand in the country at a sectoral level. From the perspective of labour demand, 3 major economic sectors were highlighted from the analysis which were expected to demand labour post-COVID. These sub-sectors are:

1. The Manufacturing sub-sector,
2. The Financial and Insurance sub-sector, and
3. The Wholesale and Retail Trade sub-sector.

According to the 2018 OIHD, these sectors (as well as the remaining sectors) all require various key occupations to function. Some of these occupations were shown to be in high demand (in undersupply) in the country in 2018. The skills gaps associated with these mismatches between employer needs and employee capacities can sometimes be plugged over time almost automatically, with more people gravitating towards various professions which are in shortage in order to gain a labour market advantage. However, the majority of these undersupply issues are able to be corrected only with strong and targeted labour market initiatives which attempt to plug those skills gaps pre-emptively or retrospectively. Because TVET adoption in South Africa seems low relative to the rest of Africa, it is clear that the demand for some occupations can be met by matching candidates to suitable TVET studies.

Some of these occupations which are able to be studied at TVET level in South Africa are broken down at a sectoral level here:

## Box 5: Summary of Occupations in High Demand in South Africa in 2018

### Sectors showing low to moderate labour demand signals



- Draughtspersons
- Interior designers & decorators
- Electrical mechanics & fitters
- Carpenters & joiners



- Agricultural & forestry production
- Agricultural technicians
- Field crop & vegetable growers



- Environmental & occupational health inspectors and associates
- Heavy truck and lorry drivers
- Transport clerks



- Chefs
- Hotel managers
- Travel attendants & travel stewards



- Medical & pathology laboratory technicians
- Social work & counselling professionals
- Home-based personal care workers



- Early childhood educators
- Primary school or foundational phase teachers
- Secondary or intermediate & senior education teachers



- Software & applications developers
- Information & communications technicians
- Computer network & systems technicians



- Power production plant operators
- Electronics engineering technicians



- Conference & event planners
- Payroll clerks
- Typists & word processing operators



- Shotfirers & blasters
- Mining & metallurgical technicians



- Physical & engineering science technicians
- Mechanical engineering technicians
- Electrical engineering technicians



- Graphic and multimedia designers
- Visual arts

### Sectors showing high labour demand signals



- Upholsters & related workers
- Shoemaking & related machine operators
- Weaving & knitting machine operators
- Cement, stone & other mineral products machine operators
- Garment & related patternmakers & cutters
- Glass makers, cutters, grinders & finishers
- Jewellery & precious metal workers
- Sheet metal workers



- Finance managers
- Trade brokers
- Insurance representatives
- Financial analysts
- Financial & investment advisors
- Business services & administration
- Human resource managers



- Buyers
- Retail & wholesale trade managers
- Sales & marketing managers

Source: Own analysis of unit groups found in 2018 OIHD quantitative analysis (Reddy, Rogan, Mncwango, & Chabane, 2018)

All sectors have been represented in the infographic, but of particular interest to this report are the sectors which showed high labour demand signals (highlighted in red).

From the perspective of manufacturing, it is clear that machine operation skills are in short supply in the country. While some courses at TVET level can provide a theoretical understanding of the occupations highlighted, true appreciation of the various roles in machine operation and production can only be trained for on the job. While there are many learnerships and occupational qualifications offered in South Africa, there is a sense that the connection between TVET and business is quite weak. Therefore, interventions aimed at improving access to various TVET courses in machine operation and production techniques form part of a solution, with the remainder being to strengthen the linkages between TVET and business.

In terms of finance and insurance, there is a common misconception that occupations in the sector can only be studied for at university level. While that is true for some occupations, this is not the case for all occupations in the field. With diploma qualifications and experience, trade brokers and insurance representatives are able to move through a corporate space. Providing access to TVET courses in basic insurance, human resources, stock trading, business services and administration would provide a useful way to bridge the growing gap in technically skilled professionals within the finance space. Occupations in the finance field are also able to attract the youth, providing an open window into the finance and insurance world for newly matriculated students.

Finally, from the wholesale and retail standpoint, only 3 occupations came up as being in high demand on the 2018 OIHD. These occupations relate to the strategic purchase of materials and their resale, some of which can be studied at TVET institutions in the country through courses in wholesale and retail operations. However, what

is clear due to COVID-19 is the need for a more “off-location” wholesale and retail business model. Therefore, complementary courses for individuals in e-commerce (i.e., the buying and selling of goods online), application development and logistics management<sup>8</sup> would expand capacity in the wholesale and retail space while making it more robust in the event of future economic lockdowns.

It bears mentioning once more that TVET graduates in the country seem to be underemployed by employers quite drastically (DNA estimates that 48% of TVET graduates in the country are underemployed or under-utilised in some way). While this estimation is more a guiding figure, it does suggest that employers might not be able to fully utilise TVET graduates in the country. This might be due to the opinion of employers on TVET qualifications, or due to a lack of practical training offered at TVETs which weakens the applicants that TVETs produce. Therefore, prior to any skills intervention in the TVET space, it is important to unpack possible improvement pathways of TVET qualifications in the country.

Because learnerships offer concrete benefits to those who undergo them by ensuring that candidates are trained “on-the-job”, with the latest technology at their disposal, all TVET-based interventions should have with them some aspect of learnership preparation. With these interventions, it is likely that some skills gaps which have surfaced in the country are able to be plugged, first in small, and then in greater and greater ways.

<sup>8</sup>In some informal settlement areas or townships in South Africa, there has been a growing trend of online shopping on applications developed by members of the community (Andrew Thompson, 2020).

# Appendix 1 Validation Cliff Notes

The following is a summary of the validation workshop minutes and discussions held with South African representatives

## Minutes SIFA Macroeconomic and Labour Market Sector Analysis Study Validation Workshop South Africa

Date: 21 July 2020 | Presentation: Michele Capazario (DNA Economics) | Facilitation: Erick Sile (SIFA)

### Participants in attendance:

1. Mamphokhu Khuluvhe (DHET)
2. Gerda Magnus (DHET)
3. Constance Kehogile (DHET)
4. Sybil Chabane (DHET)
5. Reineth Mgiba (DHET)
6. Heike Buerskens (GIZ)
7. Zini Godden (GIZ)
8. Andrea Rudolph (GIZ)
9. Daniel Rudner (GIZ)
10. Gavin Watson (GIZ)
11. Ernst Hustaedt (SIFA)
12. Unami Mpofo (AUDA-NEPAD)
13. Cheryl James (SIFA)
14. Erick Sile (SIFA)
15. Sabine Klaus (SIFA)
16. Zarina Khan (SIFA)
17. Tiego Legodi (SIFA)
18. Michele Capazario (DNA Economics)

### PURPOSE

Initially planned to take place physically in Johannesburg, this workshop was organized virtually on 21 July 2020, because of the current pandemic which makes physical gatherings impossible. To finalize the draft reports shared with stakeholders, this workshop sought to gather the following information for the finalization of the report:

1. Validation of assumptions made by Researchers;
2. The report's meaning and usefulness in relation to the National Development Plan and what is seen in the field;
3. Likelihood of the priority sectors highlighted in the report to enhance employability in a post COVID-19 environment;
4. Skills needed at country level in the identified priority sectors.

### PRESENTATION

The consultant presented the methodology used to rank the sub-sectors. The projection of GDP growth and employment growth relied on economic data over the last 10 years, up to 2018. This data, obtained mostly from the National Bureau of Statistics and other international organizations such as ILO and The World Bank, went

through an initial validation process at country level.

The economic model utilised to rank the sub-sectors used a weighting system relying on the following indicators:

- Historical employment and GDP growth;
- Forecasted employment and GDP growth taking into account the potential impact of COVID-19;
- Employment elasticity of output;
- A sub-sector's prevalence in the literature with regards to government priorities;
- A sub-sector's susceptibility to COVID-19 as found in the literature,
- The persistence of an economic shock of the COVID-19 type at a sub-sector level (i.e. how long it takes for a sector to at least slightly recover from an economic shock), and
- Whether the sub-sector is gender-equitable by means of either:
  - An increasing trend of female employment between the historical and forecasted periods, or
  - Employing a female-majority workforce.
- According to the forecasting model, the following three sub-sectors are likely to benefit most from interventions aimed at improving labour market prospects for those entering the labour market:
  1. Manufacturing;
  2. Financial and Insurance Services;
  3. Wholesale and Retail Trade.

# Discussions

Given that agriculture is still somewhat labour intensive in South Africa, expectations were to have the sub-sector considered as one of the priority sub-sectors. Likewise, given the number of infrastructure projects pre-COVID-19, it is a surprise to some participants in the workshop that the construction sub-sector is not a priority. For agriculture, one explanation was that the sector was already losing jobs because of increased mechanisation, so even more job losses are expected after the COVID-19 pandemic. From an infrastructure perspective, although a government priority, infrastructure spending is decreasing due to the need to fund government debt burden. Moreover, infrastructure projects take years before coming to fruition. Since the findings of the report are only for the next 4 years, infrastructure was not considered a priority area.

It is unclear from the report what proportion of the 11 million jobs needed in South Africa would be absorbed by the 3 priority sub-sectors. A projection of skills available per sector is not available at the moment. This would have helped to provide some possible answers to this question. However, it was noted that the upcoming skills forecast commissioned by the Department of Higher Education and Training will shed more light on the supply side of the labour market. Moreover, an upcoming study is looking at updating the labour supply discussions to include the Occupations in High Demand (2018) list, the List of Priority Occupations and the Critical Skills List (2020). These lists will be used to update potential skill gaps.

## Way forward

1. Skills forecast to be undertaken by DHET, if released on time, will provide additional information to update this report with additional supply side information;
2. A sector deep-dive analysis into the key priority sectors will reveal specific occupations in demand, providing recommendations on training required to meet existing demand in the private sector;
3. Final report including more supply side information and recommendations to bridge the skills gap will be shared with all stakeholders.

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This publication was produced with the financial support of the European Union and the German Federal Ministry for Economic Cooperation and Development. Its contents are the sole responsibility of GIZ and do not necessarily reflect the views of the EU or the Federal Ministry for Economic Cooperation and Development.

This project is co-funded by the European Union  
and the Federal Ministry for Economic Cooperation and Development



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