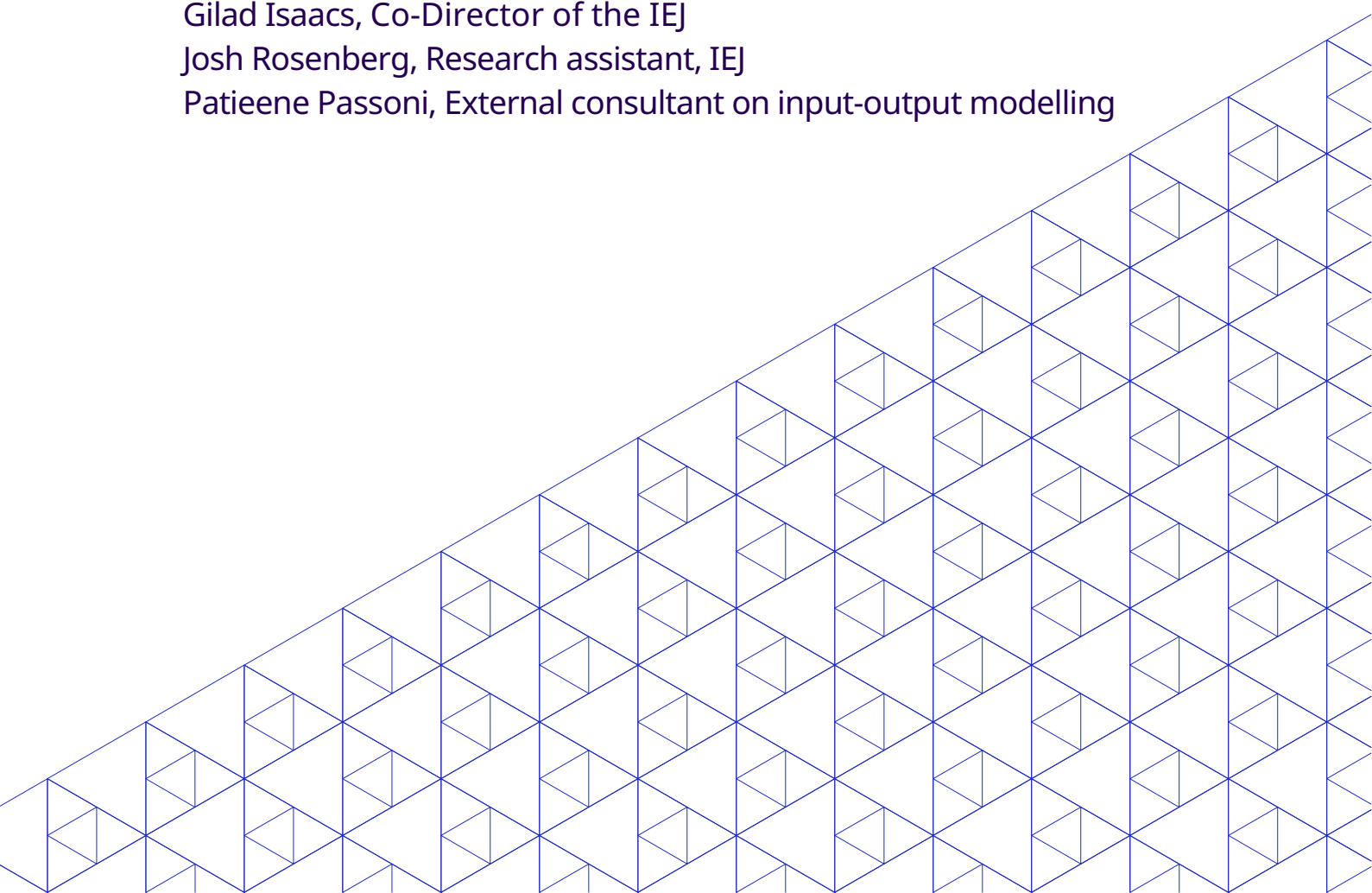




▶ **Rapid Country Assessment: South Africa**

The impacts from a COVID-19 shock to South Africa's economy and labour market.

Authors / Ilan Strauss, External consultant
Gilad Isaacs, Co-Director of the IEJ
Josh Rosenberg, Research assistant, IEJ
Patieene Passoni, External consultant on input-output modelling





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Preface

The objective of the rapid country assessments launched by the Employment, Labour Markets and Youth Branch (EMPLAB) of the ILO around the world is to provide constituents and other stakeholders with a practical tool for the real-time diagnosis of the employment impacts of the COVID-19 pandemic to inform policy responses. The assessments examine the dramatic effects of the pandemic on economic growth and employment and how it has exacerbated labour market vulnerabilities and inequalities. They also show the importance of a prompt and targeted policy response and the value of social dialogue.

Given the large number of jobs lost in the wake of the 2008 global financial crisis (GFC), and the larger size of the COVID-19 crisis, via health and economic channels, we can expect at least as many job losses, if not more. South Africa has been the hardest-hit African country; globally, it has the 5th highest number of Covid-19 cases, despite some of the strictest lockdown regulations. Compounding this situation, the pandemic has come at a difficult time for South Africa. Last year the economy was already slowing, leading to increasing unemployment. As a result, the Covid-19 crisis has led to a fall in formal employment and 9 out of 10 South African businesses have reported losses in turnover.

This assessment investigates the short-term impact of the COVID-19 crisis on the South African economy and labour market, as well as exploring the effectiveness of measures related to the containment and reopening stages of the crisis. The results present a somber picture on employment outcomes, revealing that groups, who were already disadvantaged before the crisis, have been disproportionately affected.

The response to the COVID-19 pandemic needs a combination and sequencing of measures related to the containment, reopening and eventual recovery once the global pandemic has been brought under control. The four pillars of the ILO Covid-19 policy framework highlight the importance of maintaining stimulus, continuing support to enterprises, jobs and incomes, protecting workers in the workplace, especially for those at the frontline and using social dialogue to arrive at more effective policy solutions.

Over the longer term, policymakers around the world need to address the persistent inequalities that have been exacerbated by the COVID-19 crisis and work towards building a better future of work and a more resilient labour market.

Sukti Dasgupta
Chief
Employment, Labour Markets and Youth
Branch

1. Overview

As GDP collapsed over the first half of 2020, the COVID-19 crisis has evolved into the worse economic downturn since the Great Depression, severely impacting labour markets around the world, including in South Africa.¹ The expected contraction of GDP in South Africa will, according to the South African Reserve Bank (SARB), be worse than during the Great Depression in 1930.² The OECD's June 2020 forecast is for unemployment rates to nearly double in OECD economies as a whole.³ In a "single-hit" scenario, the OECD forecast is that South Africa's narrow unemployment rate will increase from 29.7 per cent in Q4 2019 to 34.5 per cent by Q4 2020.⁴

By limiting both consumers' ability and confidence to spend and that of producers to provide goods and services, COVID-19 severely impairs the maintenance of production and employment levels. Governments have responded by attempting to sustain incomes, as consumption collapses, through transfer payments and increased unemployment benefits, and by maintaining employer-employee working relations through furlough schemes. In advanced economies with meaningful rescue packages, such schemes have attempted to be proportionate to the estimated incomes lost because of temporary and other job losses. Developing economies, although facing more limited fiscal space, are trying to raise external financing in an attempt to implement similar support measures. A higher number of informal sector workers, precarious workers and already unemployed workers means that such interventions are being designed differently in developing economies.

The pandemic has come at a difficult time for South Africa's highly unequal economy. South Africa was already in recession prior to the arrival of COVID-19, having experienced three quarters of continuous contractions to its GDP between Q3 2019 and Q1 2020.⁵ South Africa's level of unemployment is already among the highest in the world, at 30.1 per cent as of Q1 2020. Large proportions of the working population earn below various measures of poverty. Of those employed,⁶ 60.5 per cent earn below the working poverty line of R5 086 (\$300) per month, while 13 per cent earn below the Upper Bound Poverty Line (UBPL) of R1 183 (\$70) per month; employment (including waged and self-employment) is a crucial means of tackling poverty. As a result, the virus risks exacerbating the already incredibly high levels of inequality and working poverty in South Africa's labour market. In addition, a fall in tax revenue from a contracting economy, together with limited COVID-19 spending, is putting added strain on government finances, with regard to which the debt-to-GDP ratio is projected to increase rapidly, from 63.5 per cent in early 2020 to 81.8 per cent by year end,⁷ with a budget deficit of up to 16 per cent of GDP in 2020.

This rapid assessment investigates the short-term impact of the COVID-19 crisis on the South African economy and the specific features of its labour market. It assesses the immediate impact of three possible contractions in final demand of 5 per cent, 10 per cent, and 15 per cent, on South Africa's gross output, value-added, wages, and employment, focusing on the impact on employment by industry, gender, level of skill, formality, and wage earning level. This in turn allows us to assess the extent to which current policies are able to stem or ameliorate the impacts of the pandemic on the South African labour market. As a short-run model, it assumes fixed prices and technology. As a result, we do not comment on the long-run impact of these shocks; for example, how long it will take the South African economy to regain the lost jobs.⁸

¹ See latest blog by IMF Chief Economist Gita Gopinath. Available at: <https://blogs.imf.org/2020/06/24/reopening-from-the-great-lockdown-uneven-and-uncertain-recovery/>

² Lesetja Kganyago. Lecture. "The coronavirus shock, and 'the age of magic money'". Wits School of Governance Johannesburg 18 June 2020. The South African Reserve Bank. Available at: <https://www.resbank.co.za/Lists/Speeches/Attachments/563/The%20SARB%20the%20coronavirus%20shock%20and%20the%20age%20of%20magic%20money.pdf>

³ OECD, 2020. Economic Outlook, June 2020. Available at: <http://www.oecd.org/economic-outlook/june-2020/>

⁴ Unless otherwise stated, the broad unemployment rate is used throughout the rest of the paper.

⁵ 0.8 per cent in Q3 2019, 1.4 per cent in Q4 2019 and 2 per cent in Q1 2020. In Q1 2019 the economy contracted by 3.2 per cent. These are quarter-on-quarter contractions.

⁶ Persons in employment are defined as all those of working age who, during a short reference period, were engaged in any activity (even for only one hour) to produce goods or provide services for pay or profit. It thus includes wage or salaried work, own-account work, and self-employment, as well as informal employment across all sectors of the economy.

⁷ South African National Treasury, 2020. Supplementary Budget Review 2020.

⁸ This paper uses a short-run model and does not assess how the economy adjusts to the initial shock over time; in other words, how and what sort of equilibrium it returns to

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South Africa recorded its first COVID-19 case on 5 March 2020, just over three months after the outbreak was reported to the regional World Health Organization (WHO) office in Wuhan. At the time, Italy's death toll was nearing 80, with global cases rapidly approaching 100 000. On 15 March 2020, South African President Cyril Ramaphosa declared a National State of Disaster, with measures, including the closure of schools and travel restrictions, commencing just three days later. A 21-day national lockdown of all but essential workers began on 26 March 2020 with around 400 cases, although testing was sparse. The lockdown was extended for a further 14 days beyond its expected end, with minor business emergency relief measures announced. On 21 April 2020, a R500 billion emergency rescue package – including additional health and related spending, wage support, expanded social security, business loans and tax deferments – was announced, amounting to around 10 per cent of GDP. Much of this has not been effectively implemented, however, and the subsequent budget consists largely of resources reallocated from other pre-existing, already committed expenditure (discussed further below). A slight easing of restrictions began on 1 May 2020, with a further easing starting at the beginning of June. As of 9 July 2020, South Africa's case numbers were reported as 238 339, an increase of 79 006 from the start of the month, with the highest proportion of cases (34.2 per cent) in Gauteng province. The number of tests administered amounts to a little over 2 million, with the public (46 per cent) and private (54 per cent) sectors' contribution to these tests nearly equal. There had been 3 720 deaths as of 9 July 2020, with a mortality rate of 1.6 per cent; an increase of 35 per cent since the start of July 2020.⁹

Given the large number of jobs lost in the wake of the 2008 global financial crisis (GFC), and the larger size of the COVID-19 shock to GDP, job losses are expected to be greater in 2020. Following the GFC, South Africa experienced three continuous quarters of economic contraction,¹⁰ equal to approximately –2 per cent of GDP, before recovering quickly due to a strong recovery in commodity prices. During that crisis, used for illustrative purposes as South Africa's most recent acute economic crisis, it took 24 months for employment to bottom, during which time a total of 1.12 million jobs were lost.¹¹ In the wake of the crisis it took almost five years for South Africa's labour market to surpass its previous absolute jobs peak in Q4 2008.¹² In contrast, the current shock to South Africa's GDP from COVID-19 is forecast to be several times larger than the GFC shock, while the recovery in South Africa is expected to be extremely gradual, according to both the IMF and the OECD,¹³ as commodity prices and global demand (including tourism) remain muted. Based on these current projections it is highly unlikely that job losses will be less than those experienced in the wake of the 2008 global financial crisis, and indeed they are expected to be far greater.

The economic contraction resulting from COVID-19 differs from previous economic crises. For example, consumption spending has been reduced in an unusual manner. While it is not possible to estimate what would have happened without lockdown, this has occurred, in part, due to a deliberate decision to slow the spread of the virus through various forms of lockdown and containment measures. The distribution of its impact across sectors will therefore be uneven. In particular, consumer-facing service sectors have, and will continue to be, hard hit due to restrictions on consumers' movements; regulations limiting non-essential retail, entertainment, cultural events and so on; and falling disposable incomes. This is taken into account in the modelling used here.

The estimates of jobs at risk presented here are conservative in several respects. This conservatism is highlighted by the estimates here being below the recently published outcomes of the NIDS-CRAM survey. The survey revealed an 18 per cent decline in employment between February and April 2020, meaning that 3 million fewer people were employed in April compared with February. In addition, one in three income earners did not earn in April 2020.¹⁴ These results are almost double the jobs at risk shown here. Although many workers report permanent job loss, it is likely that the

⁹ All data and statistics are from the South African COVID-19 Online Resource & News Portal. Available at: www.sacoronavirus.co.za

¹⁰ Statistics South Africa. Measuring South Africa's Economic Growth. Available at: https://www.statssa.gov.za/economic_growth/15%20Measuring%20GDP.pdf

¹¹ Based on QLFS data, total employment (formal and informal) declined from a peak of 14.768 million jobs in Q4 2008 to a trough of 13.647 million in Q3 2010.

¹² South Africa surpassed its Q4 2008 total employment peak only in Q3 2013 (QLFS).

¹³ "[A]nd the recovery is projected to be more gradual than previously forecast", See IMF. World Economic Outlook. June 2020 Update. Available at: <https://www.imf.org/en/Publications/WEO/Issues/2020/06/24/WEOUpdateJune2020> .; and for South Africa in particular see: OECD South Africa June 2020 forecast note. Available at: <https://www.oecd-ilibrary.org/sites/0d1d1e2e-en/1/3/3/41/index.html?itemId=/content/publication/0d1d1e2e-en&csp=bfaa0426ac4b641531f10226ccc9a886&itemIGO=oe&itemContentId=#>

¹⁴ Spaul et al., 2020. NIDS-CRAM Wave 1 Synthesis Report: Overview and Findings. Available at: <https://cramsurvey.org/wp-content/uploads/2020/07/Spaul-et-al.-NIDS-CRAM-Wave-1-Synthesis-Report-Overview-and-Findings-1.pdf>

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severity of the lockdown showed a significant short-term skewing upwards of the number of unemployed. Our findings refer to a longer time period than covered by the NIDS-CRAM survey. However, these may be conservative in the medium term also because: (i) we do not take into account second-round effects – the large induced falls in employment that would follow from how the fall in total output will further reduce consumption and investment spending. In this respect, our results only account for the initial annualized fall in consumption, investment spending, and exports from a one-off contraction of final demand (rather than how shrinking total output may feed back into even lower final demand). (ii) We also modify our headline figure of jobs at risk to focus on immediate jobs at risk. This assumes that all skilled workers in the economy are unable to lose their jobs in 2020 and instead experience adjustments through, for example, working hours or pay. (iii) We assume that the Government will act such that its spending increases in 2020 in absolute terms relative to its 2019 level (leading to a percentage increase in its fiscal expansion).¹⁵ This works to support employment in the economy.

We primarily use the term “jobs at risk” because jobs may not be “lost” permanently when an economic shock hits an economy. Moreover the labour market will adjust through other mechanisms in addition to outright job losses, such as furloughs, reduced hours, pay cuts, and so on. The term “jobs lost” is also used because technically that is what the model is showing.

Based on a 10 per cent initial one-off shock to final demand¹⁶ 1.77 million jobs are at risk of being lost over the next 24 months or so. This would result in a fall of total wage income of 7.6 per cent, amounting to R185 billion in lost wages, which the Government would need to attempt to offset through direct household transfers, government employment schemes, and furlough subsidies. This loss occurs in response to an induced fall in “gross” (total) output (that is, including intermediate production) of 16.3 per cent and in value added of 9.6 per cent.¹⁷

Looking at immediate jobs at risk (over the next 12 months or so), we remove skilled workers from headline job loss estimates (although, for model consistency, retain them when disaggregating – see below). This assumes relatively fixed labour contracts and the ability to work remotely for these workers. This includes a large portion of government workers with strong union contracts. Based on a median shock to final demand of 10 per cent we find 1.485 million jobs at immediate risk (with 1.77 million jobs at longer-term risk, including skilled workers). If lost, this would be 50 per cent more job losses than from the total GFC contraction and amounts to 9.1 per cent of the 16.42 million jobs (formal and informal) in the South African economy in Q4 2019. This risks raising South Africa's narrow unemployment numbers to 36.47 per cent, thereby undoing all job growth since 2008.

Jobs at risk are concentrated in the formal private tertiary sectors of the South African economy. The service sector, along with agriculture, is experiencing large contractions because they are most driven by consumption spending. Under a 10 per cent shock to final demand, the eight hardest-hit sub-sectors are wholesale and retail trade (–409,405 jobs, –12.8 per cent of this sector's jobs), followed by other community, social, and personal services (–289,364, –14.1 per cent); business activities (–187,072, –12.9 per cent); agriculture (–131,661, –13.5 per cent; construction (–120,808, –12.9 per cent); professional business services (–124,471, –12.5 per cent); transport and storage (–83,075, –13 per cent); and catering and accommodation (–75,551, –13.6 per cent). These sectors account for 80 per cent of all jobs at risk.

¹⁵ Because government is not well “connected” to (or integrated with) the rest of the economy in the Quantec tables used, expansionary government fiscal policy leads to government employment increasing by 91 287 jobs in our mid-range (10 per cent) scenario, although in practice these jobs will be more widespread throughout the economy. If government linkages were better articulated in the Quantec input-output tables then the number of jobs saved and expanded through government fiscal policy would also be greater.

¹⁶ Final demand consists of exports, investment spending, and consumption spending. GDP is equal to final demand plus imports. Assuming that final imports contract by a similar amount to imports then the initial contraction of final demand will be roughly similar to the contraction in GDP. This is broadly in line with OECD forecasts, which see final demand in South Africa falling by –7.5 per cent in 2020 and GDP falling by 8.2 per cent because it projects export demand for South African-produced items to shrink more than South Africa's import demand. See OECD, June 2020. South Africa Country Note. Available at: https://www.oecd-ilibrary.org/sites/0d1d1e2e-en/1/3/3/41/index.html?itemId=/content/publication/0d1d1e2e-en&csp_bfaa0426ac4b641531f10226ccc9a886&itemIGO=oecd&itemContentType=#

¹⁷ Equal to the sum of wages, profits, and government taxes. Government taxes = government net indirect taxes on production + government net indirect taxes on products.

The majority of immediate jobs at risk are lower skilled. Based on a 10 per cent shock to final demand, 83.7 per cent of all jobs at risk are less-skilled employment (only 16.3 per cent of jobs at risk are highly skilled, before these are deducted), while 51.4 per cent of jobs at risk are in the lowest and the "basic" skill categories (which comprises all informal sector work) – see Appendix for definitions. These skill levels tend to include the lowest paying jobs, and are found more frequently in the informal sector. As a result, 510 852 informal-sector jobs are at risk, although our estimates of informal employment are highly uncertain given the uncertainty with which the data source forces us to define informal sector employment.¹⁸ Informal-sector workers are hit hard because value chains with a high concentration of informal workers tend to be in subsectors driven by consumption-heavy areas of the economy, such as retail, catering and accommodation, transport and storage, and business activities.

Men and women are impacted largely equally in terms of their relative proportions of employment. Women, who represent 44 per cent of total employment, risk shedding 707 518 jobs, equivalent to 9.8 per cent of the total number of employed women, representing 40 per cent of job losses under a 10 per cent shock. Men risk losing 1 066 514 jobs, or 11.6 per cent of all men employed at the end of Q4 2019. However, this is against a backdrop of a pre-existing higher broad unemployment rate for women of 39.9 per cent (34.2 per cent for men) as of Q4 2019. The largest number of jobs are at risk for both women and men in the trade sector, at 178 277 (25 per cent of all jobs at risk for women) and 231 129 (22 per cent of all jobs at risk for men) jobs at risk, respectively. Other community, social, and personal services – which includes domestic work – have a considerably higher potential loss of jobs for women than for men, and are also the second highest source of job losses for women (–163 707), accounting for roughly one-quarter of all female job losses. This is not surprising, given that this sector includes domestic work and other social care functions. For men, job losses are concentrated in wholesale and retail trade; other community, social, and personal services; business activities; agriculture; and construction. These sectors account for 62 per cent of all male job losses.

Those in poverty have been impacted most by the COVID-19 shock. Assuming a 10 per cent contraction of final demand, 11.6 per cent of those in working poverty (earning below R5 086 per month) are at risk of job losses, compared with 9.8 per cent of workers earning above the working poverty line. Those in working poverty also comprise 64.6 per cent of total job losses. Some 15 per cent of all workers impacted are earning below the UBPL of R1,183 per month, even though they only represent 13 per cent of total workers. Around 35 per cent of job losses for those earning below the UBPL are in the other community, social and personal services sub-sector, most likely as domestic workers, gardeners, cooks or other similarly low-wage precarious workers. These workers require targeting for specific relief, given their precariousness.

This rapid assessment expands and analyses the key findings laid out above. Section 2 provides a brief look at the current state of the South African economy and estimates how the wider economy will be impacted by COVID-19. Section 3 provides estimates on the impact on labour of a COVID-19 shock to final demand, beginning by presenting existing estimates for employment losses on the South African economy from COVID-19, before proceeding to the modelling used here. Section 4 looks at the policy implications of our findings in light of the current orientation of South Africa's rescue package for the economy, with some suggested interventions by government. Section 5 concludes. A separate Appendix contains graphs relevant to the rapid assessment, as well as a more detailed overview of our input-output model, and variable and data definitions.

► 2. The South African economy

COVID-19 has hit South Africa at the time of a considerable build-up in economic vulnerabilities, making its economy less resilient to external shocks. South Africa was in a technical recession in 2019, before the COVID-19 crisis. GDP growth peaked at 3.19 per cent in 2008 before consistently falling to below 3 per cent since 2012, and below 2 per cent since 2014.¹⁹ Meanwhile, GDP per capita growth

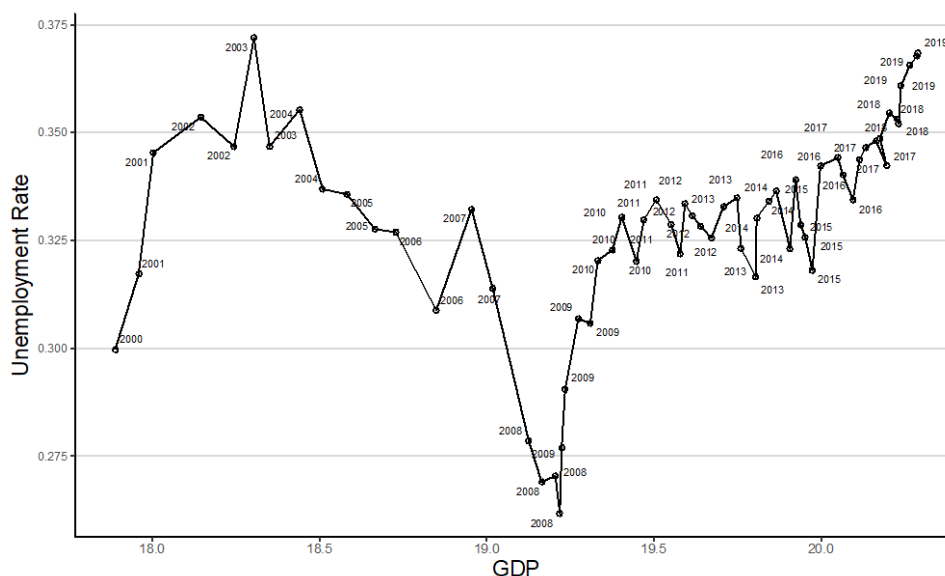
¹⁸ The Quantec input-output tables used draw from two employment surveys, QES and QLFS, and give a different number for informal-sector employment than is typically the case in academic and policy research that uses only the QLFS – see Appendix for further details.

¹⁹ World Bank Group, 2020. World Development Indicators [dataset]. Available at: <https://databank.worldbank.org/source/world-development-indicators/>

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has been less than 1 per cent, or negative, since 2012.²⁰ GDP contracted by 0.8 per cent in the third quarter of 2019, followed by 1.4 per cent in the fourth quarter of 2019, and 2 per cent in Q1 2020 (all quarter-on-quarter contractions).²¹ Slowing (and now negative) GDP growth has in turn fed into South Africa's broad unemployment rate, rising rapidly since 2018, after increasing at a growing rate since the fall in commodity prices and global demand from 2014. These trends in unemployment are shown in Figure 1.

Figure 1. Broad unemployment rate relative to log of GDP (2000-2019)



Note: Unemployment rate is highly cyclical in South Africa, increasing and then declining during the commodity boom from 2003, before increasing steadily from 2014.

Source: South African Reserve Bank (GDP) and QLFS for employment. Broad unemployment includes discouraged workers and the informal sector.

South Africa's macroeconomic problems are structural in nature, related to an over-reliance on commodity exports, an unequal and "cheap" labour structure, and slow growth rates in both public and private fixed capital investment, including in education, health care, essential infrastructure, R&D, and software and hardware. Export growth has slowed since 2014, while human capital investment remains weak (see, for example, the World Bank's Human Capital Index). South Africa's economy is – classically – constrained by a lack of technological sophistication in its production structure from driving higher rates of employment-absorbing economic growth. This causes a balance of payments constraint that potentially hampers attempts to stimulate domestic employment. This is evident in South Africa's ranking seventh out of 219 countries for imports per capita in 2018.²² Since 2000 the complexity of South Africa's export structure has constantly declined, exacerbated perhaps by higher commodity prices.²³ Since the drop in commodity prices, South African export growth in goods and services has fallen to less than 4 per cent per annum since 2011, becoming negative in 2017.

Slow growth since 2014, a reduced tax intake exacerbated by tax cuts, growing government employment expenditures, and state-owned enterprise expenditures (and contingent liabilities) have put strain on the budget. The pre-COVID-19 2020 National Budget projected the fiscal deficit to widen from –4.2 per cent of GDP in 2018 to –6.8 per cent in 2020. High borrowing costs play a major role, with Moody's recent downgrading of South African local-currency sovereign credit rating, and the country's subsequent loss of membership in the World Government Bond Index, potentially adding additional pressure. This has resulted in a rising debt trajectory, with the pre-COVID-19 2020 National Budget projecting government debt to increase from 56.7 per cent of GDP in 2018 to 69.1 per cent of GDP in 2021, with the cost of borrowing relatively high. The 2020 National Budget provided minimal impetus for advancing inclusive growth and structural transformation, with expenditure growing at a negative rate in real terms. This is visible in Table 1, in which planned medium-term expenditure is

²⁰ This reverses the trend of positive growth in GDP per capita between 1995 and 2007.

²¹ Statistics South Africa, 2020. GDP in the fourth quarter of 2019 decreased by 1.4%. Press Statement. Available at: <http://www.statssa.gov.za/?p=13065>

²² MIT Observatory for Economic Complexity. Available at: <https://oec.world/en/profile/country/zaf/>

²³ Relative to countries with a similar GDP, South Africa's export structure compares poorly. But compared with countries with a similar GDP per capita it compares well, although it remains less complex than a country such as Brazil.

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negative. Leaving aside borrowing, non-interest government expenditure is significantly lower.

Table 1. Trends in government expenditure for COVID-19

R billion	2019/20	2020/21	2021-22	2022/23	Real average growth
	Revised estimate		Medium-term estimates		
Revenue	1,517.0	1,583.9	1,682.8	1,791.3	-0.0031%
% of GDP	29.4%	29.2%	29.2%	29.2%	
Expenditure	1,843.5	1,954.4	2,040.3	2,141.0	-0.0141%
% of GDP	35.7%	36.0%	35.4%	34.9%	
Budget balance	-326.6	-370.5	-357.5	-349.7	-0.0641%
% of GDP	-6.3%	-6.8%	-6.2%	-5.7%	
Real GDP growth	0.3%	0.9%	1.3%	1.6%	

Note: Expenditure is expressed in Rands in nominal terms. Real average growth in real terms (adjusted for inflation projections)
Source: FFC Briefing to the Standing Committee on Appropriations 26/05/2020, slideshow.

The expected COVID-19-induced economic contraction means rising debt and deficit levels. The IMF projects that the fiscal deficit will widen from -4.2 per cent of GDP in 2018 to -13.3 per cent in 2020. Similarly, government debt is projected to increase from 56.7 per cent of GDP in 2018 to 85.6 per cent of GDP in 2021.

Any shock to South Africa’s economy will be transmitted to a highly precarious, unequal, and segmented domestic labour market. South Africa’s labour market is characterized by very high pre-existing levels of unemployment: the “narrow” definition of the unemployment rate was 29.1 per cent at the end of Q4 2019, while the “broad” definition, including discouraged job seekers and the informal sector, neared 37 per cent.²⁴ There is a high skills wage premium,²⁵ a large number of seasonal workers in agriculture, and notable levels of informality. Informal sector workers are concentrated in the retail and wholesale trade sub-sector, with community and social services, construction, transport, finance, and manufacturing also featuring prominently.²⁶ Women are overrepresented in the informal sector, earn less than men for most informal (and formal) jobs, and have higher poverty risk across the spectrum of informal employment types.²⁷ As such, jobs at risk in the informal sector are most likely to impact women disproportionately. Other important characteristics are growing public sector employment share, youth (15–24 years of age) unemployment of 58 per cent as of Q4 2019,²⁸ and increasing precariousness through flexible contracts and labour-brokered employment.²⁹ Wage earnings of employees are low, with only 39.5 per cent earning above the working poverty line of R5,086 per month in 2018, while 13 per cent of employees earn below the upper bound poverty line of R1,183 per month.

The Appendix contains further details on key labour market trends for South Africa, which we plot using the PALMS dataset (QLFS linked dataset). A few key findings stand out:

- GDP growth generates employment growth: there is no “jobless growth” in the South African economy.
- The labour force has grown more quickly than total employment growth since 2017, leading to a growing unemployment rate (all our unemployment rates are “broad”).

²⁴ Statistics South Africa, 2020. *Quarterly Labour Force Survey, Quarter 1: 2020*.

²⁵ Bhorat, Goga, Stanwix, 2014. *Skills-biased labour demand and the pursuit of inclusive growth in South Africa*. UN-WIDER Working Paper 2014/130

²⁶ Statistics South Africa, 2019. *Quarterly Labour Force Survey, Quarter 4: 2019*.

²⁷ Michael Rogan and Laura Alfes, 2019. *Gendered inequalities in the South African informal economy*. Agenda: Empowering women for gender equity. Volume 33 (4).

²⁸ This is the narrow unemployment rate for those aged 15–24. The Quarterly Labour Force Survey data for Q4 2019 do not allow for the calculation of the broad rate.

²⁹ Haroon Bhorat et al., June 2016. *Demographic, employment, and wage trends in South Africa*. Online: <https://www.brookings.edu/wp-content/uploads/2016/07/06-demographic-employment-wage-trends-south-africa.pdf>

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- The broad unemployment rate in Q4 2019 was 36.8 per cent, approaching the high in Q1 2003 of 37.2 per cent (though the data are not directly comparable).
- Weak job growth for young people compared with older workers has been a strong feature of the South African labour market since the 2008 global financial crisis.
- The composition of South Africa's employment has changed as its output structure has changed: the primary sector has shrunk in relative terms, largely resulting in a relative increase in tertiary sector output (constant 2010 prices). Manufacturing output has declined somewhat, too. Relative employment shifts largely mirror these trends. Movements in relative wage shares between the three sectors are much more modest, however, with a large clear absolute loss in wage income away from manufacturing and towards services.

The distribution of employment in our model is detailed in Table 2. Mining and hard commodities are no longer major sectors of employment for the South African economy, even though they continue to generate a large share of foreign exchange earnings. Instead, employment in South Africa now largely resides in tertiary subsectors: wholesale and retail trade; other community, social, and personal services; business activities; transport and storage; catering and accommodation; health and social work (private); and finance and insurance. The other major employer is government: national and provincial government, and local government. Finally, agriculture remains a major sector of employment.

Table 2. Largest sectors of employment in the South African economy, in accordance with our model

Sector	Employment	Final output	Output per worker
Wholesale and retail trade [QSIC 61-63]	3,208,227	565,359	0.18
Other community, social and personal services [QSIC 94-96, 99]	2,051,155	153,454	0.07
National and provincial government [QSIC 911]	1,645,024	839,245	0.51
Business activities n.e.c. [QSIC 889]	1,447,513	88,551	0.06
Professional business services [QSIC 831-883]	993,524	334,761	0.34
Agriculture [QSIC 11]	972,838	136,074	0.14
Construction [QSIC 5]	935,352	421,698	0.45
Transport and storage [QSIC 71-74]	637,281	374,492	0.59
Catering and accommodation services [QSIC 64]	555,467	68,213	0.12
Health and social work (Private) [QSIC 93]	469,309	156,966	0.33
Finance and insurance [QSIC 81-82]	410,315	275,940	0.67
Local government [QSIC 913]	338,005	274,988	0.81

Note: Final output in millions of Rands; Output per worker: Final output per person employed

Source: Model based on Quantec data. See appendix for further details.

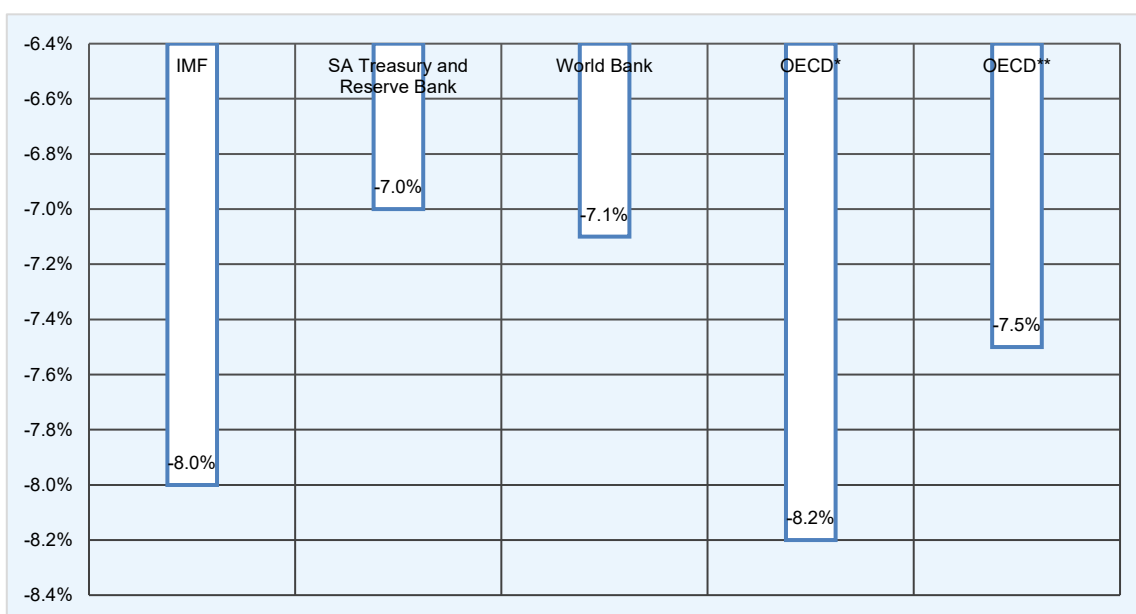
3. Estimating the impact of COVID-19 on South African economy and labour market.

3.1 Exiting estimates

Estimating the economic impact of COVID-19, and the measures taken to stem its spread, is not easy, given the novel and fast-changing environment. Current forecasts for South Africa’s 2020 GDP are constantly changing (usually downwards). Recent forecasts, shown in Figure 2, are for a contraction of between 7 and 8.2 per cent of GDP. This equates to a roughly similar percentage contraction of final demand (assuming that final export demand and final import demand contract by a similar amount).

In South Africa’s case the expected contraction of GDP will, according to the SARB, be worse than during the Great Depression in 1930.³⁰

Figure 1. Association between share of temporary employment and growth of registered unemployment by economic activity



Source: June 2020 Forecasts. OECD* is for a single-hit scenario, and OECD** is for a double-hit scenario (where the virus returns for a second wave of high infections in 2020).

Global forecasts for South Africa’s GDP and employment losses tend to be higher than South African government forecasts. IMF June 2020 forecasts for GDP contractions for advanced economies and sub-Saharan Africa indicate that employment losses will be the worst since the 1929 Great Depression, and since at least 1970 for many Sub-Saharan African economies, especially those reliant on tourism. According to current OECD forecasts, France, Italy, and the United Kingdom will all experience GDP contractions in excess of 10 per cent and approaching 15 per cent. The second wave of July infections hitting the United States, several months before winter season begins, means that global demand will already be far weaker than many forecasts. The OECD’s June 2020 forecast is for unemployment rates to nearly double for OECD economies as a whole.³¹ In a “single-hit” scenario, the OECD forecasts that South Africa’s unemployment rate will increase from 29.7 per cent in Q4 2019 to 34.5 per cent by 2020 Q4, leading to over a million job losses in 2020 alone. (For the OECD this is driven by a contraction in fixed capital investment spending, while in our model all components play a role in the contraction, but especially a loss of consumer spending.)

³⁰ Lesetja Kganyago. Lecture. “The coronavirus shock, and ‘the age of magic money’”. Wits School of Governance Johannesburg 18 June 2020. The South African Reserve Bank. Available at: <https://www.resbank.co.za/Lists/Speeches/Attachments/563/The%20SARB%20the%20coronavirus%20shock%20and%20the%20age%20of%20magic%20money.pdf>

³¹ OECD, 2020. Economic Outlook, June 2020. Available at: <http://www.oecd.org/economic-outlook/june-2020/>

In contrast to projections by global multilaterals, forecasts by South African state institutions tend to project much lower job losses. Key estimates are that job losses will be about as severe as during the 2008 global financial crisis, even though the annualized contraction of South Africa's GDP from COVID-19 is expected to be at least five times larger in 2020 alone. The National Treasury has forecast job losses of between 690,000 and 1.79 million for 2020, a downward revision from its original 3 to 7 million job-loss projections because it is now using a full-time equivalent measure and adjusting for furloughs and other measures to mitigate the impact on jobs.³²

The generally accepted relationship between GDP growth and unemployment growth helps in the assessment of existing forecasts of employment loss in South Africa. In existing forecasts, employment projections are out of sync with corresponding GDP forecasts, even though we observe, over time, a clear relationship between GDP and employment in the case of South Africa (see Appendix) and for other economies during COVID-19. In advanced economies, COVID-19-related trends and forecasts show that this relationship is clearly present, with observed movement in changes in GDP and employment several orders of magnitude larger than during the global financial crisis. The United States Congressional Budget Office forecasts that it will take until 2029 for the United States to reach its previously projected level of GDP for 2021. In sync with this, by April 2020 the United States had lost all gains to employment since 2000, with a 13.8 per cent contraction in reported total employment from December 2019 to April 2020 alone.³³ Available evidence from the United States and the European Union indicates that the employment impact of COVID-19 is likely to be larger than other shocks because of the particular impact on employment-intensive sectors (such as retail, hospitality, and close-quarters production and consumption processes). This is because they are at the highest risk of spreading the virus.

"Real time" data of the kind available for the United States are not available for South Africa. But in the aftermath of the global financial crisis, South Africa's real GDP contracted by -0.7 per cent during Q4 2008 and by -1.8 per cent during 2009.³⁴ This contraction lasted only three quarters (Q4 2008-Q2 2009), partly because of a recovery in commodity prices and relatively strong export demand.³⁵ Despite some bounce-back in GDP during this period (a V-shaped recovery relatively speaking), around 1.1 million jobs were lost (see Appendix). Given that forecast annualized GDP contractions for South Africa in 2020 are expected to be several orders of magnitude worse (with the IMF forecasting, as of June 2020, an 8 per cent contraction for South Africa) the immediate employment shock should be expected to be much worse, too.

3.2 Our 2019 input-output model

The basics

The estimates provided in this rapid assessment are based on a model built using Quantec's 2019 input-output tables of the South African economy,³⁶ which we supplement with additional 2018 QLFS household survey data (see Appendix for a lengthier discussion). These supplemental matrices allow us to model how employment impacts vary by worker type. The input-output model allows us to estimate employment and wage impacts for the South African economy by sector arising from an exogenous COVID-19 "shock". This in turn tells us how total output changes as final demand contracts. Based on changes in total output we can assess how employment changes, using calculated employment coefficients for each sector.

³² Lameez Omarjee, 2020. *Treasury now estimates nearly 1.8 million job losses*. News24. Available at: <https://www.fin24.com/Economy/treasury-now-estimates-nearly-18-million-job-losses-20200601-2>

³³ The exact impact on employment is more ambiguous than this suggests. Changing labour force participation rates, as job search patterns change and the inability to search increases, play an important role not captured in these statistics. A large share of workers who have lost their jobs will very likely not be actively looking for work and so will not be counted in the official unemployment rate. The unemployment rate would be higher if all the people who lost their jobs had actually remained in the labour force. Furthermore, the Bureau of Labor Statistics has warned that many workers they would otherwise have counted as unemployed will be reported as "employed but not at work". If we count these workers as unemployed, along with those who have left the labour force, the unemployment rate would have been 23.5 per cent in April 2020. The composition of hourly wages is also changing. Aggregate weekly work hours – which captures both the job losses plus the drop in hours worked – fell off a cliff in April 2020, dropping 14.9 per cent in just one month.

³⁴ South African Reserve Bank, 2010. *Quarterly Bulletin: March 2010: No. 255*. Available at: <https://www.resbank.co.za/Lists/News%20and%20Publications/Attachments/3638/Full%20Quarterly%20Bulletin.pdf>

³⁵ South African Reserve Bank, 2009. *Quarterly Bulletin: December 2009 No. 254*. Available at: <https://www.resbank.co.za/Lists/News%20and%20Publications/Attachments/4041/Full%20Quarterly%20Bulletin.pdf>

³⁶ A number of potential inconsistencies surround these tables, but they are the best available resource.

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We assume that **under a COVID-19 shock** certain components of final demand will contract by more than others, and in particular consumption spending contracts the most, both absolutely and in relative terms. Three scenarios are modelled based on different expected contractions in expenditure on goods and services in South Africa:

- Scenario 1: final demand contracts by 5 per cent.
- Scenario 2: final demand contracts by 10 per cent.
- Scenario 3: final demand contracts by 15 per cent.

This is approximately equal to the equivalent percentage contraction in GDP in each scenario.³⁷ They draw from the expected economic contractions outlined above and represent low, middle, and high possibilities.

In line with these final demand projections, we focus on Scenario 2 in our discussion, which assumes an exogenous annual contraction of 10 per cent in final demand in 2020. Final demand consists of consumption spending, government spending, fixed capital investment spending, and gross exports $f = C + I + G + X$.³⁸ (Further details on the model and nature of the shock are given in the Appendix.) A roughly 10 per cent contraction of final demand is now seen as a likely scenario for the South African economy in 2020.

Designing the shock: model assumptions

Final demand will not fall evenly across all sectors from a COVID-19 shock. Unfortunately, the distribution of the contraction across sectors based on previous crises provides only limited guidance. COVID-19 is unique because it has been accompanied by a deliberate and often targeted closure of the economy by sector. Because of this, some researchers have made choices about the distribution of the economic shock based on the past or present lockdown regulations and how these impact particular sectors. However, these regulations are constantly changing and so the choices of which sectors are to contract, and exactly by how much, become somewhat arbitrary.

Our modelling assumes that under COVID-19, at least for 2020, consumption spending contracts by more than the other components of final demand (Table 3).³⁹ This assumption is premised on a review of available contraction estimates elsewhere in the world. This is part of our rules-based approach to determining which subsectors are impacted the most by COVID-19 and by how much. This approach also ensures that the initial shock to all sectors adds up to the assumed overall contraction.⁴⁰ It means that those subsectors that are more reliant on consumption spending for final demand are more adversely impacted. As it happens, these are often the sectors with greater human-to-human contact and so more at risk of contraction. This is because consumption spending tends to drive employment in low productivity, consumer-facing, service sub-sectors. It is also important to note that the shock results in changes to the number of people employed, rather than changes to workers' wages, working hours, or via furloughs. This is acknowledged as a limitation. The scenarios all assume that the government enacts fairly expansionary fiscal policy; because of data-source limitations this leads to an expansion of government employment, rather than a distribution of benefits across the economy.⁴¹

There is no precise way to know the time period over which our model's employment and wage losses are likely to occur. Based on historical trends, large shocks to an economy tend to take several years to fully work their way through. This should encourage policymakers to exercise caution when tempted to

³⁷ GDP is, by definition, a *domestic* concept and it adjusts for the fact that some final demand expenditure will go towards imports. But if final imports contract by a similar amount to final exports then the relative percentage fall in final demand can be assumed to be roughly equal to the percentage fall in GDP (even if the absolute magnitudes differs). We cannot model a contraction in GDP precisely as we do not have a matrix of final *import* demand components by sector.

³⁸ We undertake an empirical adjustment by removing a balancing item and inventory adjustments. This amounts to less than 0.01 per cent of total final demand. It allows us to specify our shock more precisely.

³⁹ Consumption contracts by 55 per cent, investment by 20 per cent, exports by 35 per cent, and government spending increases by 10 per cent. See Appendix for further details.

⁴⁰ Amounting to a contraction of GDP of around 8–13 per cent.

⁴¹ Note that because government is not well "connected" to (or integrated in) the rest of the economy in the Quantec tables, expansionary government fiscal policy leads to government employment increasing by 91,288 jobs, although in practice these jobs will be more widespread throughout the economy. If government linkages were better articulated in the Quantec input-output data then the number of jobs saved and expanded through government fiscal policy would also be greater. Similarly, a contraction of gross fixed capital formation (GFCF) or "I" (investment spending) for the short term has fewer total knock-on effects with regard to output because investment spending as a source of demand for output in the South African economy is not strong. This reflects data limitations and also the importation of capital goods from abroad.

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look only at present conditions as a barometer of the health of the economy. The collapse in fixed capital investment spending by firms which has followed the contraction in consumption spending during the COVID-19 lockdown will also lead to a drop in the long-term employment generating capacity of every economy, including South Africa's. Unless more factories are built and new technologies are introduced into production through investment spending, employment and wage growth will be severely constrained. This model does not address these longer-term dynamic impacts on employment from COVID-19 and instead focuses on the short-term, more immediate, impacts on the economy from a reduction in final expenditure. It also does not look at the induced impact on employment from how changes in output lead to the second-round effects of changes in consumption and in turn employment (a so-called "endogenous" household sector model).

3.3. Our findings

The assumed contraction in final demand leads to an estimated fall in employment, wages, output and value added from our model (summarized in Table 3). Except for the second estimate of employment losses – where this is explicitly stated – the other estimates include all workers.

Table 3. Model assumptions and key impacts, 2019 South African economy (Rand million)

	S1	S2	S3
The shock			
Final demand**	-5%	-10%	-15%
Consumption*	-6.5%	-13.0%	-19.4%
GFCF*	-6.6%	-13.2%	-19.8%
Government*	2.7%	5.3%	8.0%
Exports*	-5.7%	-11.4%	-17.0%
The impact			
Gross output (%)	-5.3%	-10.6%	-15.9%
Gross output	-516,479	-1,032,958	-1,549,437
Value-added (%)	-4.8%	-9.7%	-14.5%
Value-added	-218,539	-437,078	-655,617
Employment (%)	-5.4%	-10.8%	-16.2%
Employment	-887,016	-1,774,032	-2,661,048
Employment (%) excl. skilled losses	-4.5%	-9.1%	-13.6%
Employment excl. skilled losses	-742,538	-1,485,075	-2,227,613
Wages (%)	-3.8%	-7.7%	-11.5%
Wages (R millions)	-92,731	-185,462	-278,193

Note: Starred items (*) are assumed by the researcher (that is, not a model result), while non-starred items are results of the model. All starred items (*) are components of final demand (**).

Source: Input-output model results based on 2019 Quantec and QLFS data.

The results of Table 3 are discussed below.

Aggregate job losses

For a contraction of 10 per cent of final demand, approximately 1.77 million jobs are at risk over the next 24 months or so, amounting to 10.8 per cent of total employment.

The number of jobs immediately at risk is slightly lower: 1.485 million are at risk, or 9.1 per cent of total employment. This figure assumes that workers in skilled jobs ("skilled workers"), under strong union contracts, characterized by structural power in the economy, and a higher likelihood of working from home, are much less likely to be at risk during 2020 and so are removed from the original total of

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1.77 million jobs or 10.8 per cent of all jobs. A portion of this (reduced) total of at-risk jobs in 2020 may be subject to adjustments in wages or hours, or job furlough schemes, instead of retrenchments. This would further reduce the total, although it is difficult to say, at present, by what magnitude.

These estimates are consistent with the data we have available in South Africa. A StatsSA survey conducted in early May 2020⁴² reported that 8.1 per cent of respondents had already lost their jobs or had to close their businesses. The estimates are also consistent with actual job loss numbers released by advanced economies. For example, in the United States, 13.8 per cent of all jobs were lost between December 2019 to April 2020 alone (arguably labour market flexibility is much higher in the United States, especially in state employment). These estimates are larger than jobs lost as a result of the last crisis, the global financial crisis, in which around a million jobs were lost and job growth was driven almost exclusively by growth in the public sector in the years after 2008.⁴³ As noted, the contraction of GDP is likely to be five times larger in the COVID-19 crisis (-1.8 vs 8-10 per cent), although the nature of the shocks are different. Our estimates are approximately 1.8 times larger than after the global financial crisis because the model does not account for the second-round impact of reduced output, lowering final demand components even further (than the initial shock), and in turn spending and employment.

Impact on wages

Although the proportion of jobs lost is high, assuming a 10 per cent reduction in final demand, "only" 7.7 per cent of total wage income in the economy is lost, amounting to -R185 billion or around 3.6 per cent of 2019 GDP. This may appear lower than expected, for two main reasons: value added declines by -9.7 per cent (from which new incomes are generated) and 44 per cent of incomes go to profits in our model ("gross operating surplus"), followed by 2.2 per cent to government through net indirect taxes on production and products. The concentration of job losses among low-income workers likely accentuates this.

Fall in output and value added

Assuming a -10 per cent "shock" to final demand, "gross" (total) output, inclusive of intermediate production, contracts by -10.6 per cent. This highlights the multiplied impact on production of an initial shock to the economy, as a contraction of demand triggers a ripple effect, impacting sectors that supply inputs to other sectors, leading to a reversal in the circular flow of income through the production sectors of the economy.

At -9.7 per cent, value added (the sum of wages and profits, and government net indirect taxes on production) contracts by less than total output, such that total incomes in the economy shrink by around 7.7 per cent. This is less than the initial -10 per cent contraction of final demand spending, partly because some of the burden of lost incomes will be borne by overseas workers whose intermediate imports South Africa demands. Around 6 per cent of gross (total) output in the South African economy comes from intermediate imports.

Impact by sector

Certain types of service sector jobs have been hit particularly hard by the COVID-19 shock, along with agricultural jobs. The service sector, along with agriculture, has experienced major contractions because they are most driven by consumption spending. They are also sectors with close human-to-human contact and so susceptible to closure with the spread of the virus. Under a 10 per cent shock to final demand, the eight hardest hit sub-sectors are wholesale and retail trade (-409,405 jobs), followed by other community, social, and personal services (-289,364), business activities (-187,072); agriculture (-131,661); construction (-120,808); professional business services (-124,471); transport and storage (-83,075); and catering and accommodation (-75,551). These sectors account for 80 per cent of all jobs at risk. These sectors are the major employers in the economy and might be expected to bear the brunt of the job losses. This also reflects the fact that consumption spending is a major source of demand for these sectors (rather than investment spending or exports), and it is consumption spending that contracts the most in our model.

Note that business activities is a fairly heterogeneous subsector, consisting of packaging activities, debt collection, security, employment and recruitment activities, photographic work, cleaning activities for buildings and industrial plants, and quite prominently outsourcing activities via labour brokers.

⁴² Stats SA. 2020. *Results from Wave 2 survey on the impact of the COVID-19 pandemic on employment and income in South Africa*. Available at: <http://www.statssa.gov.za/publications/Report-00-80-03/Report-00-80-03May2020.pdf>

⁴³ South African Reserve Bank, 2010. *Quarterly Bulletin: December 2010 No. 258*. Available at: <https://www.resbank.co.za/Lists/News%20and%20Publications/Attachments/3641/Full%20Quarterly%20Bulletin.pdf>

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The percentage of jobs at risk in each sector is shown in Table 4, with sectors listed from least impacted to most impacted. Sectors are impacted differently across the economy based on their relative weight, the inter-sectoral relationships captured in the input-output tables, and the assumptions made.

Table 4. Immediate impact of a shock to final demand by sectoral employment (without skilled workers)

Sub-Sector	% of all jobs at risk All Shocks	% of total jobs			% loss per sector			Absolute Change		
		5%	10%	15%	5%	10%	15%	5%	10%	15%
Gold Q SIC 23	0.58%	-0.03%	-0.06%	-0.09%	-5.1%	-10.1%	-15.2%	-5,153	-10,306	-15,459
Radio television and communication apparatus Q SIC 371 373	0.05%	0.00%	-0.01%	-0.01%	-5.4%	-10.9%	-16.3%	-426	-852	-1,277
Communication Q SIC 75	0.76%	-0.04%	-0.08%	-0.12%	-5.7%	-11.3%	-17.0%	-6,777	-13,553	-20,330
Non ferrous metal products Q SIC 352	0.12%	-0.01%	-0.01%	-0.02%	-5.7%	-11.4%	-17.0%	-1,046	-2,093	-3,139
Machinery and equipment Q SIC 356 359	0.93%	-0.05%	-0.10%	-0.15%	-5.7%	-11.4%	-17.1%	-8,286	-16,571	-24,857
Forestry Q SIC 12	0.89%	-0.05%	-0.10%	-0.15%	-6.8%	-13.5%	-20.3%	-7,919	-15,838	-23,757
Wearing apparel Q SIC 313 314	0.43%	-0.02%	-0.05%	-0.07%	-6.8%	-13.6%	-20.4%	-3,787	-7,575	-11,362
Furniture Q SIC 391	0.33%	-0.02%	-0.04%	-0.05%	-6.8%	-13.6%	-20.4%	-2,927	-5,855	-8,782
Finance and insurance Q SIC 81 82	3.16%	-0.17%	-0.34%	-0.51%	-6.8%	-13.7%	-20.5%	-28,011	-56,023	-84,034
Beverages and tobacco Q SIC 305 306	0.36%	-0.02%	-0.04%	-0.06%	-7.0%	-14.1%	-21.1%	-3,158	-6,315	-9,473
Education Private Q SIC 92	1.70%	-0.09%	-0.18%	-0.28%	-7.0%	-14.1%	-21.1%	-15,101	-30,202	-45,302
Food Q SIC 301 304	2.13%	-0.12%	-0.23%	-0.35%	-7.2%	-14.4%	-21.5%	-18,919	-37,838	-56,757
Fishing Q SIC 13	0.51%	-0.03%	-0.06%	-0.08%	-7.4%	-14.7%	-22.1%	-4,523	-9,046	-13,568
Catering and accommodation services Q SIC 64	4.26%	-0.23%	-0.46%	-0.69%	-6.8%	-13.6%	-20.4%	-37,776	-75,551	-113,327
Transport and storage Q SIC 71 74	4.68%	-0.25%	-0.51%	-0.76%	-6.5%	-13.0%	-19.6%	-41,538	-83,075	-124,613
Construction Q SIC 5	6.81%	-0.37%	-0.74%	-1.11%	-6.5%	-12.9%	-19.4%	-60,404	-120,808	-181,212
Professional business services Q SIC 831 883	7.02%	-0.38%	-0.76%	-1.14%	-6.3%	-12.5%	-18.8%	-62,236	-124,471	-186,707
Agriculture Q SIC 11	7.42%	-0.40%	-0.80%	-1.21%	-6.8%	-13.5%	-20.3%	-65,831	-131,661	-197,492
Business activities n e c Q SIC 889	10.55%	-0.57%	-1.14%	-1.71%	-6.5%	-12.9%	-19.4%	-93,536	-187,072	-280,608
Other community social and personal services Q SIC 94 96 99	16.31%	-0.88%	-1.77%	-2.65%	-7.1%	-14.1%	-21.2%	-144,682	-289,364	-434,045
Wholesale and retail trade Q SIC 61 63	23.08%	-1.25%	-2.50%	-3.75%	-6.4%	-12.8%	-19.1%	-204,703	-409,405	-614,108
TOTAL		-5.4%	-10.8%	-16.2%				-887,016	-1,774,032	-2,661,048
TOTAL excl Skilled Losses		-4.5%	-9.1%	-13.6%				-742,538	-1,485,075	-2,227,613

Notes: Green: sub-sectors with the lowest proportion of job losses within their sector; pink: those with the highest proportion of job losses within their sector; yellow, orange, and red: the sectors that have the most jobs at risk in absolute terms. Totals are economy-wide, full table in Appendix.

Source: Based on Quantec 2019 Input-output Tables.

As can be seen from the table, jobs at risk are concentrated in the formal, private, non-government sectors of the economy. Assuming a shock of 10 per cent, 66 per cent of total job losses would be in the formal sector. As already noted, many of these jobs might not be "lost", even immediately, because in practice there are other labour market adjustment mechanisms, including reductions in wages, working hours, work practices and processes, and slips into informality, as well as other precarious forms of income generation.

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Jobs at risk are also concentrated in the tertiary sector of the economy. Some 69.7 per cent of job losses are in the tertiary sector, followed by 12 per cent in the primary sector, and 18.3 per cent in the secondary sector. In contrast, the tertiary sector accounts for 74 per cent of total employment, the secondary sector 15 per cent, and the primary sector 10 per cent. This reflects the fact that the production structure of the South African economy has changed over time, as employment and production have shifted towards the service sector (see Appendix) in line with global trends in value added, demand, and innovation.⁴⁴ It also highlights the unique nature of this shock compared with previous shocks, as services-based consumption spending is hit particularly hard.

Jobs at risk are higher than expected in agriculture. To a large extent this is due to the large number of workers employed in agriculture, almost double that of coal, gold, metals, and “other mining and quarrying” combined, as agricultural production has grown and mechanization remains much lower than in the hard commodity sector. The primary sector and the service sector are also experiencing large contractions because they are most driven by consumption spending, which accounts for a larger portion of final demand in these sectors. This also corresponds to the fact that primary subsectors have high levels of human-to-human work. Significant gold production, for example, has already been halted in 2020 because of the rapid spread of infection between miners. This also accords with experiences in other economies; in the United States, for example, meat production has been difficult to maintain.

Impact by skill level, gender, formality, and poverty status

Given the distribution of impact the most at-risk jobs are those of lower-skilled workers, often in lower-earning jobs, on flexible work contracts, or in the informal sector. These jobs also have weaker protection and a higher possibility of substitution of their employment with home production or mechanization. As shown in Table 5, 86.2 per cent of jobs at risk are in unskilled, low-skilled, and semi-skilled occupations (“basic work” is informal employment). Only 13.8 per cent of jobs at risk are skilled jobs. 28.8 per cent of jobs at risk are “basic”, 22.6 per cent are low-skilled, and 34.8 per cent are semi-skilled. Apart from the trade sector, the subsector with the highest number of jobs at risk is “other community, social and personal services” (QSIK codes 94-96, 99), which consists of domestic workers, cooks, gardeners, laundries, and hair services, along with cinemas, artists, and live entertainment, among other low-skilled workers and sub-sectors.

Table 5. Impact on employment of a 10 per cent shock to final demand by skill level

	Skilled	Semi-skilled	Low-skilled	Basic
Absolute	-244,669	-616,799	-401,713	-510,851
(% of total job losses)	13.8%	34.8%	22.6%	28.8%
% Contraction	-1.50%	-3.79%	-2.47%	-3.14%

Note: See Appendix for details of the nature of the COVID-19 shock.

Source: Based on Quantec 2019 Input-output Tables, assuming a 10 per cent contraction of final demand.

Informal sector jobs are at risk, although estimates are uncertain (see Table 6). Although South Africa’s informal sector is smaller than in many developing countries,⁴⁵ a large number of informal sector workers are at risk of losing their earning ability: between 255,426 and 766,277 informal sector jobs as a result of a 5–15 per cent shock to final demand.⁴⁶ We assume this loss is through job losses but again, it may instead be due to increasing levels of precarity in employment type, working hours, and pay.

⁴⁴ Services became the major sector of employment around 1995. Government, business services, trade, and community, social, and personal services emerge as drivers of this trend. Previous estimates show that services tend to have significantly higher employment multipliers than manufacturing. Catering and accommodation (services) and food (manufacturing) have particularly high employment multipliers, along with wearing apparel. A portion of this reflects outsourcing: <https://onlinelibrary.wiley.com/doi/full/10.1111/j.1813-6982.2008.00189.x>

⁴⁵ Informal sector jobs are calculated as a residual so these results in particular are subject to a high degree of uncertainty.

⁴⁶ As noted earlier, the total number of informal sector workers in the Quantec data do not match exactly the number usually cited in the policy and academic literature.

Table 6. Impact on employment of a 10 per cent shock to final demand, by formality and gender (without skilled workers)

	Formal	Informal	Men	Women
Absolute	-1,263,181	-510,851	-1,066,514	-707,518
Percentage of total job losses	7.7%	3.1%	60.1%	39.9%
Percentage contraction of employment type	10.22%	13.09%	11.2%	10.5%
As percentage of 2019Q4 employment for each column	11.1%	17.5%	11.6%	9.8%

Note: Excludes skilled workers.

Source: Based on Quantec 2019 Input-output Tables, assuming a 10 per cent contraction of final demand, as well as for percentage of 2019 Q4 employment: Department of Statistics South Africa (2020): Quarterly labour force survey (QLFS), 4th Quarter 2019.

As also shown in Table 6, in our model women and men are similarly impacted by the COVID-19 shock. Women account for 39.9 per cent of potential job losses (and 41.4 per cent of total employment in the economy), while men account for 60.1 per cent of potential job losses (and 58.6 per cent of employment in the economy). Potential job losses for men and women tend to be concentrated in the same sectors, with some notable exceptions. Wholesale and retail trade is the largest source of job losses for women (-178,277), even though men account for more absolute job losses than women in this sub-sector. Other community, social, and personal services sees considerably more loss of jobs for women than for men (-163,707 total losses), accounting for roughly one-quarter of all potential female job losses. This sector includes a sizable number of domestic workers, overwhelmingly female. Among major sources of employment, catering and accommodation also has more job losses for women than men (-40,229). Other notable job losses for women that outnumber men are also expected in health and social work (-46,147), wearing apparel (-6,317), and private education (-19,652). In wearing apparel, the gender gap is particularly large, with women accounting for 6,317 job losses and men only 1,258. For men, job losses are concentrated in wholesale and retail trade, other community, social, and personal services, business activities, agriculture, and construction, which account for 62 per cent of all job losses.

Beyond the expected employment losses, it should be noted that women represent a much higher proportion of workers in the health and social work sector (78.3 per cent of all workers in the sector⁴⁷) and are, therefore, at the frontline in the battle against the virus. In addition, as seen around the world, **women have been impacted more by unequal distribution of the care burden**, which has been exacerbated by the COVID-19 crisis.

Those in working poverty are disproportionately impacted. As shown in Table 7, 11.6 per cent of those in working poverty (earning below R5,086 per month) are at risk of job loss compared with 9.8 per cent of workers earning above the working-poverty line. Those in working poverty also comprise 65 per cent of total job losses. Some 15 per cent of all workers impacted are earning below the Statistics South Africa 2018 upper-bound poverty line (UBPL) of R1,183 per month, even though they only represent 13 per cent of total workers. Around 35 per cent of job losses for those earning below the UBPL are in the other community, social and personal services subsector, mainly as domestic workers, gardeners, or cooks. These workers require targeting for specific relief, given their precariousness.

Table 7. Impact of a shock to final demand on employment, by worker earnings above (>) or below (<) the poverty line and working poverty lines

	> R1,183 (UBPL)	< R1,183 (UBPL)	> R5,085	< R5,085
% of sector jobs at risk	-10.67%	-12.55%	-9.78%	-11.65%
Absolute	-1,508,049	-265,983	-627,522	-1,146,510

Note: R1,183 is Statistics South Africa's upper bound poverty line (UBPL), while R5,085.78 is the 2018 recommended NIDS working poverty line. This excludes skilled workers. We assume that all skilled workers earn above the poverty line.

Source: Based on Quantec 2019 Input-output Tables, assuming a 10 per cent [contraction of final demand; and 2018 QLFS.

⁴⁷ Source: South Africa Quarterly Labour Force Survey extracted from ILOSTAT.

► The impacts from a COVID-19 shock to South Africa's economy and labour market.

Table 8 takes a deeper dive into the profile of the eight sectors with the largest number of jobs at risk. We see here that the percentage of youth employment in all but one of these sectors is higher than the economy-wide average. Similarly, in all but one of the sectors, the median income is at or below the economy average. We see that these sectors also have a higher percentage of informal workers and of workers who work excessive hours (46 or more hours per week) than across the economy. Notably, all sectors fall below the economy-wide average for union membership, and most for the presence of a written contract, indicating significant vulnerabilities, especially to dismissal without due process. Crucially, four of the sectors have a low level of registration with the Unemployment Insurance Fund (UIF), indicating that alternative income support measures are particularly important.

Table 8. Profile of most at risk sectors (includes all workers)

	% Youth	% Women	Mean income	Median income	% Working poor	% Below UBPL	% Rural	% UIF deductions	% Informal	% Excessive hours	% Union membership	% Written contract
Agriculture QSIC 11	43.32	32.88	4004.31	2870	88.94	12.87	71.56	61.59	36.67	68.15	4.99	67.77
Construction QSIC 5	31.12	10.31	7666.98	3800	63.73	16.24	27.75	50.64	51.39	43.31	14.09	64.76
Trade QSIC 61 63	44.91	44.35	8241.53	3500	66.75	9.83	22.91	78.27	43.43	59.62	23.58	84.78
Catering and Accommodation QSIC 64	49.16	59.5	7659.48	3500	79.73	8.72	19.29	71.2	34.84	57.22	12.65	78.97
Transport and Storage 71 74	36.99	16.89	9074.16	4000	58.44	11.9	20.07	58.97	43.38	57.35	30.32	66.77
Professional Business Services QSIC 831 883	39.09	38.79	18311.19	8042	38.76	7.97	4.86	84.94	20	30.5	18.2	95.43
Business Activities QSIC 889	39.86	40.02	6724.04	3600	72.72	9.44	16.73	81.05	16.29	59.05	26.94	92.11
Other Community, Social, Personal Services QSIC 96 94 99	41.17	56.04	5873.26	2400	72.72	38.88	26.43	46.56	36.83	34.39	15.59	84.18
All industry average	38.9	41.24	9568.31	4000	60.59	12.83	23.3	66.53	28.15	45.47	31.66	85.9

Notes: Includes skilled workers. "Young people" includes those aged 15–34. The working poverty line is set at R5,058.78 per month; the upper bound poverty line is set at R1,183 per month. Excessive hours are set at 46 or more per week. Highlighted cells are for those sectors that are more precarious relative to the average of all sectors.

Source: 2018 Quarterly Labour Force Survey.

Some job losses are likely to take longer to materialize than others. At the outset, the model assumes full flexibility in labour markets and that the labour market adjusts through changes in quantities (rather than prices). In reality, workers do not immediately lose their jobs when their sector's output contracts. Adjustments in work hours or wages are other mechanisms that companies can use to minimize wage costs as output contracts. Moreover, more skilled workers have contracts and government workers have strong unions to protect them from a downturn, at least temporarily. Informal-sector and low-skilled workers are thus even more at-risk than our estimates show, while projected formal sector job losses in our model are more likely to be spread over the period 2020–2021.

► 4. Policy implications and recommendations.

The risks noted above require that the South Africa Government take extraordinary steps to mitigate job losses and address lost wage income, while targeting the sectors and demographics that are most at risk. Such measures should also lay the foundation for a more just and equitable economy. This includes, for example, expanded public services, new work opportunities in environmentally-sustainable sectors, and a fairer distribution of care work. Immediate steps can be taken to advance this, for example in education.

The ILO proposes a four-pillar policy framework to arrest economic decline and protect workers and communities, ensuring a human-centred response.⁴⁸ We evaluate South Africa's policy response within this framework and propose additional action.

⁴⁸ International Labour Organization, 2020. *A policy framework for tackling the economic and social impact of the COVID-19 crisis*.

4.1 Pillar 1: Stimulating the economy and employment

The first pillar proposes a two-step process to stimulate the economy and employment. First, a stimulus package to strengthen the health sector and mitigate the impact on economies and labour markets through the provision of financial relief for enterprises – particularly micro- and small enterprises, and the hardest hit sectors – and income support for workers. Second, following the containment of the virus and the gradual resumption of normal activity, a demand-led employment strategy for a medium- to longer-term recovery of jobs and incomes. This requires active fiscal policy, accommodating monetary policy, and lending and financial support to specific sectors, including the health sector. Rescue packages worldwide have broadly operated along these lines.

On 21 April 2020, almost a month after lockdown began, the South African Government announced a R500 billion rescue package. The measures most relevant to this rapid assessment are:

- R100 billion for “job protection and creation”;
- R40 billion for wage support via the Temporary Employer/Employee Relief Scheme (TERS);
- R50 billion in additional social security, creating a new grant and topping up existing grants;
- R270 billion in business support measures via tax relief (R70 billion) and a credit guarantee scheme (R200 billion).

The package falls short on two fronts: insufficient funding and poor implementation. Furthermore, it is unlikely to exert the positive benefits required to mitigate the potential job losses indicated above.

In the Supplementary Budget tabled to give effect to the rescue package the net increase in non-interest spending in the current year amounts to only R36 billion.⁴⁹ This is because, of the R145 billion targeted at COVID-19-related expenditure, R109 billion is funded through the suspension of baseline allocations and reprioritizations. For example, only the R2.9 billion and R11 billion of health and municipal funding, respectively, are net new funds. In addition, the R50 billion allocated to social grants is reduced to R41 billion.⁵⁰

The primary “pillar 1” stimulus mechanism would be through the R100 billion allocated for “job protection and creation”. Unfortunately, only 6 per cent of this has been allocated in 2020/21, and it appears to fund existing national priorities rather than context-relevant interventions. Similarly, monetary policy interventions have been limited, with interest rates falling by 250 basis points since March and a modest purchase of government debt in secondary markets.⁵¹ In addition to the R500 billion rescue package, targeted sectoral policies, as advised by the ILO, have been implemented. However, these remain insufficient and poorly implemented (see below).

Our analysis offers guidance on necessary additional sectoral support measures. In particular, low-skilled, informal, and service sector workers appear to be most at risk, including in domestic employment for female workers, and for agricultural workers in the primary sector. Targeting should not be to the detriment of workers, businesses, or the state, not to mention non-targeted sectors.

⁴⁹ National Treasury, 2020. *Supplementary Budget Review*. Available at: <http://www.treasury.gov.za/documents/National%20Budget/2020S/review/FullSBR.pdf>

⁵⁰ Institute for Economic Justice, 2020. *South Africa's COVID-19 Rescue Package Scorecard*. Available at: <https://iej.org.za/wp-content/uploads/2020/06/IEJ-COVID-19-emergency-rescue-scorecard-final-min.pdf> and Institute for Economic Justice, 2020. *Supplementary Budget Analysis – 1 July 2020*. Available at: <https://iej.org.za/wp-content/uploads/2020/07/IEJ-COVID-19-supplementary-budget-analysis-1.pdf>

⁵¹ South African Reserve Bank, 2020. *QA on Amendments to Money Market Liquidity Strategy of the SARB*. Available at: <https://www.resbank.co.za/Lists/News%20and%20Publications/Attachments/9810/QA%20on%20Amendments%20to%20Money%20Market%20Liquidity%20Strategy%20of%20the%20SARB.pdf>

Policy considerations: stimulus

- 1. A stimulus package of at least R500 billion (approximately 10 per cent of GDP) in net new expenditure is required.** The current stimulus package amounts to a net increase in expenditure of under 2 per cent of GDP, followed by a planned reduction in spending over the next two years.
- 2. Greater protection is needed for the primary sector, which is likely to suffer employment losses disproportionate to its share of employment.** Examples of critical agricultural initiatives include:
 - **Scaling up the agricultural disaster support fund.** This was initially allocated R1.2 billion to support smallholder and communal farmers in April 2020. Less than one-third of applicants have been approved and less than half of the funds have been spent. The fund should be reopened to new applicants and active assistance given to previously rejected applications.
 - **Government purchases of any excess stock** from – in particular small-scale – food producers, and use it in their food parcel schemes.⁵²
 - **Reduce restrictions on small scale producers.** For example, allow small-scale fisheries to sell directly to communities.⁵³
 - Provide a “restart fund” of financial and in-kind support (seeds, fertilizer and so on) for any producer who has lost part of the current harvest.
- 3. Support the tertiary sectors of wholesale and retail trade, tourism, business activities, and community, social, and personal services.** Because these losses are the result of a fall in consumption spending, their recovery needs to be supported by a range of tools, including TERS, business support measures, and methods of increasing demand (through maintaining incomes in general) and ensuring safe access to their goods and services (through additional health measures). Business support was attempted, for example, through the Tourism Relief Fund. However, only a minority in the sector have access to this.⁵⁴ This should be reopened, with higher expenditure, for a recurring three-month period under monthly review, with relaxed eligibility criteria and a streamlined application and payment process. Direct government employment in tourist-supporting activities is another avenue. One example is public work schemes aimed at rehabilitating natural landscapes, as this has long-term economic and environmental benefits, while providing safe outdoor employment in the short term.⁵⁵ Targeted easing of restrictions, for example, allowing for limited leisure travel under strict conditions, would also help. These examples highlight, as the OECD notes, the importance of coordinated action *across* the sector.⁵⁶
- 4. The SMME Debt Relief Scheme fund should be reopened, punitive terms removed, the maximum moratorium period increased, and closer coordination undertaken with TERS to support wages.** This scheme provided R513 million in support for 1,497 successful applications. An estimated additional R4.4 billion is needed to support the remaining 12,954 complete applications received.⁵⁷ Thousands of other businesses did not apply but require such support. The scheme would support the sectors identified above, in particular tourism, manufacturing, retail and wholesale trade, personal services, and agriculture. The criterion of 100 per cent South African ownership should be re-assessed to include a larger portion of businesses.
- 5. The informal sector is at great risk and needs to be supported more inclusively.** Because of the disproportionate impact of COVID-19 on informal workers and businesses, universal baseline support should be offered across the sector.⁵⁸ This includes, for example, relaxing qualifying

⁵² Land Network National Engagement Strategy for South Africa, 2020. *Food Security in the Context of COVID-19 in South Africa: a Civil Society Perspective*. Available at: <https://landnnes.org/wp-content/uploads/2020/04/LandNNES-Discussion-Documents-Food-Security-in-the-time-of-COVID-19-CSO-Perspectives-1.pdf>

⁵³ C19 People's Coalition, 2020. *Proposals on Food Producers: Small-scale farmers, fishers, & farm workers*. Available at: <https://c19peoplescoalition.org.za/wp-content/uploads/2020/04/food-producers.pdf>

⁵⁴ Department of Tourism, April 2020. *Tourism Industry Survey of South Africa: COVID-19. Impact, Mitigation and the Future*.

⁵⁵ The Australia Institute, 2020. *Design Principles for Fiscal Policy in a Pandemic: How to create jobs in the short term and lasting benefits in the long term*.

⁵⁶ OECD, 2020. *Tourism Policy Responses to the coronavirus (COVID-19)*. Available at: <https://www.oecd.org/coronavirus/policy-responses/tourism-policy-responses-to-the-coronavirus-covid-19-6466aa20/>

⁵⁷ Department of Small Business Development, 22 May 2020. *The Department of Small Business Development announces the closure of window-1 of the SMME Debt Relief Financing Scheme*.

⁵⁸ International Labour Organization, 2020. *COVID-19 crisis and the informal economy: Immediate responses and policy challenges*.

criteria for support from the Department of Small Business Development (DSDB). In addition, better targeting is required for sector-support programmes. Specific cognisance of the needs within retail trade, catering and accommodation, transport and storage, and business activities – in which the highest proportion of informal sector workers are employed and most at risk – is needed. The current DSDB programme targets small-scale bakeries, clothing and textile businesses and automotive aftermarkets. Support for trade is particularly important and is being undertaken through the Spaza Support Scheme, whereby locally-owned spaza shops operating in townships and villages are supported through bulk-buying opportunities, credit facilities, and business skills support. The criteria for this – which currently include legal compliance with SARS and the UIF – need to be relaxed. Within the first month of the programme only 88 out of at least 130,000 traders were approved.⁵⁹ Stringent legal requirements and attempts to formalize these shops in the midst of the crisis have hamstrung the scheme. The exclusion of foreign-national owned shops is also problematic and potentially unconstitutional.

4.2. Pillar 2: Supporting enterprises, jobs, and incomes

The second ILO pillar contains rapid and well-designed policy measures to support enterprises, jobs, and incomes, which is essential to contain the economic and social fallout of the pandemic. This can be achieved by implementing employment retention measures, providing financial/tax and other relief for enterprises, and extending social protection. Such measures – adopted across the world – need to take account of country specificities, including the varying threats facing different sections of the population and industry.

There is a dire need for such support. An April 2020 StatsSA survey found that 30.6 per cent of employers indicated that they would not be able survive more than a month without cash flow, which has long passed, and 54 per cent stated that they could survive between one and three months.⁶⁰ A follow-up survey conducted in early May 2020⁶¹ reported that only 5.4 per cent of small business-owning respondents had received financial relief from the government. Furthermore, 8.1 per cent of respondents had lost their jobs or had to close their businesses, and 70 per cent of those who had lost their jobs reported that it was because their place of work had closed or lack of customers. By the sixth week of lockdown, 15.4 per cent of respondents reported no income, up from 5.2 per cent before the lockdown. Additionally, 25.8 per cent of respondents reported decreases in incomes, a portion far higher than those currently accessing TERS.

4.2.1. Employment retention: wage support

The Temporary Employer/Employee Relief Scheme (TERS), funded and administered via the Unemployment Insurance Fund (UIF), is the primary wage support mechanism, helping employees to continue to pay wages where COVID-19 restrictions directly impacted businesses' operating capacity. Payments are made via the UIF to employers (10 employees or above) or workers (below 10 employees), on a sliding scale from 38 per cent of normal wages for high income workers (maximum wage of R17,712) to 60 per cent for low-income workers, with a floor of a R3,500 pay-out per month, for a maximum of three months. The application process requires the submission of various documents to the UIF, which is then supposed to pay within ten days. The scheme has been allocated R40 billion.

As of mid-June 2020, 60 per cent of initial funds (R23.8 billion) had been spent,⁶² covering 36 per cent of the registered, formal, non-agricultural workforce (22 per cent of the total workforce), although there is some uncertainty about these figures. As of 13 July 2020, the UIF website indicated that around 400,000 employers had been paid from the TERS facility. This compares with approximately 2.4 million employers, while some of those listed may be the same company paid in more than one month. Challenges to the efficient implementation of TERS include long turnaround times between application submission and payment, opacity as to the amounts to be received, non-specific rejection of applications, and initial exclusion of non-registered workers and individuals.

⁵⁹ Makhosandile Zulu, 28 April 2020. *Spaza shops to get R7k capital investment, revolving credit from Covid-19 relief funds*. The Citizen. Available at: <https://citizen.co.za/news/covid-19/2275977/spaza-shops-to-get-r7k-capital-investment-revolving-credit-from-covid-19-relief-funds/>

⁶⁰ Stats SA, 2020. *Business impact survey of the COVID-19 pandemic in South Africa*. Available at: <http://www.statssa.gov.za/publications/Report-00-80-01/Report-00-80-01April2020.pdf>

⁶¹ Stats SA, 2020. *Results from Wave 2 survey on the impact of the COVID-19 pandemic on employment and income in South Africa*. Available at: <http://www.statssa.gov.za/publications/Report-00-80-03/Report-00-80-03May2020.pdf>

⁶² Department of Employment and Labour, 19 June 2020. *UIF pays close to R6-billion in May relief payments alone while claims for Compensation grow steadily*. Media statements.

Policy considerations: wage support

1. **The fiscal allocation to TERS should be increased.** Existing funding is provided through surpluses within the UIF, which stood at least R101.5 billion as of 2019. In light of the current volume of workers being supported, and the 1.48 to 1.77 million jobs at high risk, support needs to be expanded.
2. **The three-month claim period must be critically assessed** in light of revised projections of the duration of the business impact of COVID-19, as well as an estimated 1.77 million jobs at risk, with an extension being the best suggestion, under monthly review.
3. **Application process should be simplified and streamlined.** Rather than cumbersome administrative processes guided by various conditionalities, payment should be available to businesses automatically, based on previous income tax submissions. The South African Revenue Service infrastructure should be used as a channel of distribution, given the strained administrative capacity of the UIF, long delays, and the extra burden of increased regular unemployment claims.
4. **The minimum benefits should be set at the national minimum wage (R4,045 per month for a 45-hour workweek) and low-income wages should be covered up to 80 per cent.** With the majority of workers at risk (64 per cent) living in working poverty, those who retain employment will face reduced hours or wages, an increase in household dependants, increased food-price inflation, and a larger basket of necessary goods.
5. **Greater transparency is required concerning the formula used to apply the TERS sliding scale.** We currently do not have sufficient information on the method used to determine what percentage of salary will be covered at each point on the sliding scale.
6. **Given the vulnerability of atypically-employed workers noted above, TERS needs to incorporate these groups more effectively.** Currently, 61 per cent of the total workforce is registered with the UIF.⁶³ TERS access was expanded in late May 2020 to include a larger portion of the informal and unregistered working population,⁶⁴ and the success of this must be tracked.
 - **Women stand to experience a high level of job losses if community, social, and personal services do not recover as quickly and safely as is desirable.** These losses will probably threaten 163,707 female workers and account for a quarter of expected job losses for women.
 - **Registration with the UIF of those in agriculture, construction, transport and storage, and community, social and personal service sectors is poor.** With these sectors below the national average of UIF registration, they are insufficiently covered by TERS and more likely to be rejected when applying for UIF benefits. Workers in these sectors are among those at the highest risk of retrenchment and increased precarity, and should be supported accordingly.
 - **The informal sector is not well accommodated by TERS and has a disproportionate volume of jobs at risk.** With 29 per cent of total jobs at risk, and a potential 13.09 per cent sectoral contraction in employment (estimates uncertain), informal-sector workers require greater accommodation by TERS, which previously excluded the sector for seven weeks. This is particularly relevant to construction, transport and storage, and trade, which have high levels of informality.
 - **Greater outreach by TERS to informal workers and businesses may further be utilized as an incentivizing tool to increase formalization rates in the economy.**
7. **Undocumented foreign nationals must not be discriminated against and should be eligible for the same benefits as nationals.**

⁶³ Institute for Economic Justice, 2020. *An Emergency Rescue Package for South Africa in Response to COVID-19*.

⁶⁴ Ministry of Employment and Labour, 2020. *Amended COVID-19 Temporary Employee/Employer Relief Scheme Benefit (C19 TERS), Direction 2020*. Regulations and Notices. Available at: [http://www.labour.gov.za/DocumentCenter/Regulations%20and%20Notices/Notices/Unemployment%20Insurance%20Fund/Amended%20Employee%20Employer%20relief%20scheme%20beef%20\(C19TERS\)%20Direction%202020.pdf](http://www.labour.gov.za/DocumentCenter/Regulations%20and%20Notices/Notices/Unemployment%20Insurance%20Fund/Amended%20Employee%20Employer%20relief%20scheme%20beef%20(C19TERS)%20Direction%202020.pdf); Casual Workers Advice Office, 2020. *Press Release: Important victory as UIF C19 TERS Benefit is extended to non-registered workers after legal action by worker advice organizations*. Available : <http://www.cwao.org.za/Press-release-TERS-benefit-extended.html>

8. **The criterion of a two-year employment period prior to qualification for pay-outs must be reduced** to include those who have contributed for shorter periods but are currently excluded from receiving benefits.
9. **Industries and workers are affected differently, and TERS should provide supplementary benefits for workers and businesses in sectors less able to continue income-generating activities.** Specifically, agriculture, wholesale and retail trade, business activities, and community, social work, and personal services, are likely to be affected more harshly or for longer, and provisions should be made accordingly.

4.2.2. Income support

Model estimates show that government policies should expect to try to offset at least R185 billion in lost wage income (putting aside lost profit income for now), or 1.77 million jobs, over the next 24 months or so.

The increases in social assistance expenditure of R41 billion (down from the R50 billion originally allocated) is significant, although insufficient to cover the projected wage losses and inefficiently administered. Increases to grant allocations have been criticized for not going far enough. For instance, it is very worrying that the increases in child support grants are per care-giver rather than per child. A special COVID-19 social relief of distress grant was introduced to support those with no income or alternative social assistance. Applications neared 3.5 million within the first nine days.⁶⁵ As of 1 June, of the 13 million applications filed, 6.3 million were deemed valid. SASSA reports that they had made payments of R350 to 3,019,102 people as of 6 July,⁶⁶ with a further 1.4 million approved, but needing to provide bank details for payment. The applications are overwhelmingly from men (63 per cent), which is problematic considering the higher unemployment rate of women (39.9 per cent as opposed to 34.2 per cent for men). No data are available showing the gender breakdown of approved applications.

Social grants are an important way of bolstering demand and consumption, helping both to mitigate job losses and maintain household living standards. As has been shown, those in poverty and working poverty are disproportionately affected by job losses and should be supported by supplementary incomes.

Policy considerations: social protection

1. **A time-limited universal basic income grant should be provided** rather than the more administratively cumbersome special COVID-19 grants. Given the inefficient disbursement of the COVID-19 grant, and the various exclusions and administrative errors thus far, this is the best way to provide a baseline level of support to those who have not received any or only inadequate support thus far. The available data show that this would bring much needed support to the informal sector, women, those below the upper bound poverty line, those in working poverty, and current grant recipients. This should be set at a considerably higher level than the R350 social relief of distress grant.
2. **The child support grant should be increased per child not per care-giver.**
3. **The administrative capacity of SASSA should be bolstered** as the existing distribution channels have been slow and inefficient.
4. **Through the National Minimum Wage Commission – composed of the social partners – and in coordination with NEDLAC, the national minimum wage could be revisited and increased to support those still in employment.** This would be particularly advisable given the below-inflation increase in 2020, which reduced the real income of minimum-wage workers. This could be considered in the context of the rise in the number of dependants for minimum wage workers as a result of increased retrenchments and wage reductions, and the increased costs of living. The latter include additional requirements such as hygiene, cleaning, and personal protection equipment necessary to protect household members from contracting COVID-19. Those earning at these levels also have low or no savings and little access to formal credit facilities. In addition,

⁶⁵ Cyril Ramaphosa, 2020. *Statement by President Cyril Ramaphosa on South Africa's Response to the Coronavirus Pandemic*. Press Releases and Notices. Available at: <https://sacoronavirus.co.za/2020/05/13/statement-by-president-cyril-ramaphosa-on-south-africas-response-to-the-coronavirus-pandemic-13-may-2020/>

⁶⁶ IOL, 2020. *Over 4 million R350 Covid-19 social relief grants paid out, says Social Development Department*. Available at: <https://www.iol.co.za/news/politics/over-4-million-r350-covid-19-social-relief-grants-paid-out-says-social-development-department-50689254>

a timetable should be developed for further increases for domestic workers, farm workers and expanded public works workers, who currently earn below the national minimum wage.

5. **Rapidly extend coverage of unemployment insurance to informal wage workers.** For example, only 20 per cent of domestic workers (part of the highly vulnerable other community, social, and personal services sector) are registered with the UIF, which suggests that such workers face systemic problems in accessing the UIF system. The change in the TERS system, whereby employers do not have to be previously registered and employees can apply directly, is positive for informal workers. Efforts must be made, however, not only to publicize these changes but to ensure the system is genuinely accessible.
6. **Women perform the bulk of at-home (predominately unpaid) care work,** and thus bear a double burden as during the pandemic children have to stay at home and others in the family lose their employment. Additional business and state support are needed for care work. An active government-supported campaign should also encourage male household members to share household work and caring responsibilities.⁶⁷

4.2.3. Other business support measures

In addition to the above measures, the Government has made available R70 billion in various tax deferrals. This includes a four-month holiday from skills development levy contributions, fast-tracking VAT refunds, a three-month delay for filing and the first payment of carbon tax, an increased range of businesses eligible for tax deferrals, and an increase in PAYE deferral to 35 per cent. These measures are available to businesses with a turnover of under R100 million per year. For larger companies (those with turnover larger than R100 million a year), these measures are available on a case-by-case basis, provided proof is given of material negative impact due to COVID-19. The Youth Wage Subsidy is also paid monthly, not twice a year.

Unfortunately, there are no recent estimates of uptake. However, Stats SA reports in an April survey that only 4.25 per cent of business-owning respondents had made use of the various tax deferral programmes.⁶⁸ The mechanisms for using these measures are vague, and smaller businesses, precisely those needing the help, lack dedicated tax and finance departments and are struggling to apply. Businesses are also reluctant or unable to take on additional leverage. These mechanisms are also inaccessible to the informal sector, identified here as being at risk.

The R200 billion credit guarantee scheme seems well designed, but no evidence is available on uptake, as well as its effectiveness in supporting worker livelihoods, employment, and wages. Reports vary, but Finance Minister Tito Mboweni indicated disbursement of R10 billion in its first month.⁶⁹ The minister also indicated that scheme will have a business restart function in order to get businesses operational after a period of closure. This is a welcome amendment, especially for the primary sector, which faces difficulties in restarting operations after closure.

Most worrying are the 21.1 per cent of firms reporting that they have no plans for financial assistance, probably because they lack access or fall foul of disqualifying criteria. Employers are unaware of the support measures available to them and how to access them in good time, criteria are too stringent, and the application process is too onerous. It is crucial that these be expanded and made more accessible in order to mitigate avoidable retrenchments, wage reductions, and operating constraints.

⁶⁷ Institute for Economic Justice, 2020. *Bold action required in South Africa in the face of COVID-19 economic fallout*. Research Note: Number 2. Available at: <https://iej.org.za/wp-content/uploads/2020/05/Bold-Action-Required-in-South-Africa-in-the-face-of-COVID-19-Economic-Fallout.pdf>

⁶⁸ Bhorat, Kohler, Oosthuizen, Stanwix, Steenkamp, Thornton, 2020. *The Economics of Covid-19 in South Africa: Early Impressions*. DPRU Working Paper 202004.

⁶⁹ Tito Mboweni, 2020. *Minister Tito Mboweni: 2020 Supplementary Budget Speech*.

Policy considerations: additional business support

1. **Tax relief measures should be made more accessible to small and informal businesses.** These businesses often lack the operational capacity to make use of these schemes, and thus miss out.
2. **The punitive measures imposed on both businesses and banks making use of and facilitating the credit relief scheme must be relaxed to encourage uptake.** Harsh penalties on the "misuse" of funding deters resort to the facility also by parties acting in good faith.
3. **Application procedures must be simplified in order to increase the use of the credit guarantee scheme and other measures.** This is particularly relevant to smaller businesses that may not have all the required documentation.
4. **Extend tax relief to households.** This is a more direct way of decreasing worker precarity and also a good way of stimulating the consumption expenditure that supports businesses. This should target lower-income households and include foreign nationals.

4.3. Pillar 3: Protecting workers in the workplace

The third pillar is protecting workers in the workplace through: enhanced operational health and safety measures; altered work arrangements (for example, working from home); prevention of discrimination and exclusion; provision of health access for all; and expansion of access to paid leave. Safe return to the workplace is a shared priority to enable the economy to recover, and mitigate job losses and wage reductions. However, this should not put workers' health and lives at risk. Health, human well-being, and economic recovery should be seen as complementary, not competing objectives. Increasing economic opportunities should be done in a manner that minimizes the risk of contagion, which would threaten lives and only result in further lockdowns.

South Africa is facing exponential increases in COVID-19 cases, despite its relatively strict lockdown measures. In May, the National COVID-19 Modelling Consortium estimated between 34,015 and 49,774 cumulative deaths by November.⁷⁰ As of 12 July 2020, however, only around 28,000 hospital beds were available in both public and private healthcare facilities.⁷¹ This is against a backdrop of an expected need for at least 35,000 to 150,000 hospital beds in August alone (depending on the scenario). In addition, spatial inequalities will further exclude portions of the population from healthcare access.

Policy considerations: protecting workers in the workplace

1. **Additional resources are required for the health response.** In May, the Government was advised to budget for a R26 billion to R32 billion spend, with a range of exclusions from that list.⁷² Thus far, R21 billion has been allocated.
2. **Ensure stringent enforcement of health and safety protocols in the workplace,** including through the scaling up of inspections, the imposition of criminal sanctions for failure to comply, and government support for implementation by smaller businesses as needed.
3. **All workers and communities need to be provided with the necessary PPE and follow well-designed health and safety procedures.** Specific challenges face sectors identified here as at particular risk of job losses. For example, better provision of PPE to informal sector workers is urgently required. In addition, there should be more general provision of PPE to densely populated, rural, and low-income areas.

⁷⁰ South African COVID-19 Modelling Consortium, 2020. *Estimating cases for COVID-19 in South Africa: Long-term national projections*. Available at: http://www.sacema.org/uploads/SACovidModellingReport_NationalLongTermProjections_Final.pdf

⁷¹ Cyril Ramaphosa, 2020. *Statement by President Cyril Ramaphosa on progress in the national effort to contain the COVID-19 pandemic, Union Buildings, Tshwane*. Available at: <http://www.thepresidency.gov.za/speeches/statement-president-cyril-ramaphosa-progress-national-effort-contain-covid-19-pandemic%2C-union-buildings%2C-tshwane>

⁷² South African COVID-19 Modelling Consortium, 2020. *Estimating cases for COVID-19 in South Africa: Long-term national projections*.

4. **Public transport needs to be managed to minimize health risks.** This includes limiting the number of passengers in minibus taxis, ensuring disinfection, and ramping up bus and train services.
5. **Ensure adequate provision of leave.** Employers need to identify workers with health risks and prioritize their safety. It is preferable that these workers be put on fully paid leave. Elderly and other vulnerable people within communities should receive targeted and sufficient income, food and healthcare services. Quarantined workers should receive cash allowances and extended paid leave.
6. **The costs and burdens of returning to work should be shared more equally.** This includes: reducing wages for management and executives before implementing retrenchments and income losses for staff; wages lost from short-time working should be covered by the state; frontline workers should be paid a wage premium of at least 50 per cent of their wages; costs incurred by workers requiring COVID-19 testing in private health facilities should be covered.

4.4 Pillar 4: Relying on social dialogue for solutions

Pillar 4 stresses that all of the above rely on social dialogue for effective design and implementation. It therefore suggests that we need to strengthen the capacity and resilience of employers' and workers' organizations; strengthen the capacity of governments; and strengthen social dialogue, collective bargaining and labour relations institutions and processes. In addition, the social partners bear different responsibilities during this crisis.

Social dialogue has already played an important role in South Africa's response to COVID-19. The emergency rescue package was discussed within NEDLAC, and significant expert input was considered by the Presidency. Other issues, including the health response and workplace safety, have also been discussed between the social partners. This is an important development both vis-à-vis the immediate COVID-19 response and in working towards a "post COVID" recovery. The latter poses significant challenges and will require compromises from all concerned. South Africa should avoid locking itself in to a particular policy trajectory – including through attaching policy promises to loan agreements – before there has been a broad, transparent, and diverse engagement on roads to recovery.

Policy considerations: the roles of the social partners and social dialogue

1. **Broaden and strengthen social dialogue institutions.** South Africa has well-established social dialogue institutions, most notably the National Employment and Development Labour Council (NEDLAC). However, a number of labour and civil society groupings are not represented. The crisis has increased the imperative to broaden participation.
2. **The transparency of government communication and decision-making should be enhanced.** Opaque rationales for the design of policy and regulations have caused unnecessary friction between the Government and other social partners, which have been unable to plan ahead with regard to regulations, adversely affecting businesses and workers.
3. **As workers face the greatest risk, the return to work needs to be democratized.** This includes: actively involving workers and workers' representatives in health and safety protocols and the appointment of the mandated COVID-19 compliance officer(s); strengthening workers' rights to refuse to work if health and safety standards are not being respected by business; and better funding and expanded capacity for the Commission for Conciliation, Mediation and Arbitration to adjudicate disputes. Existing efforts by trade unions, which have been important in achieving the policies currently in place, should be supported and strengthened.
4. **Begin the process of forging consensus on a "post COVID" recovery plan.**

► Section 5. Conclusions.

The findings presented here provide a bleak picture for the South African labour market, if the expected fall in final demand (and GDP) materializes. Our modelling estimates that between 887,016 and 2.66 million jobs are at risk over the next 24 months or so, with a concentration of job losses in lower-wage, more precarious, lower-skilled sectors located in the agricultural primary sub-sector and service sectors of the economy, such as domestic work, retail, and hospitality. This is also where informal sector workers appear to be predominantly employed. The COVID-19 shock, therefore, unfortunately tends to hit the most vulnerable workers in the South African economy hardest. This follows from South Africa's production structure, combined with the definition of a COVID-19 shock.

The South African Government still has a window of opportunity during which it can work to partially or fully mitigate the looming job and income losses by supporting workers and businesses at risk. Swift and expansive action is required in a manner that does not hamper administration but also targets the sectors and demographics identified here as most at risk. If such labour market support continues to be delayed or remains insufficient, the income losses will grow as the knock-on effects of additional rounds on consumption and, in turn, employment are magnified. In this way, R100 of lost wage income today, if not offset by a similar compensating amount made available by government, will require a much larger offset further down the road, as the cascading effects of lost employment and income succeed one another.

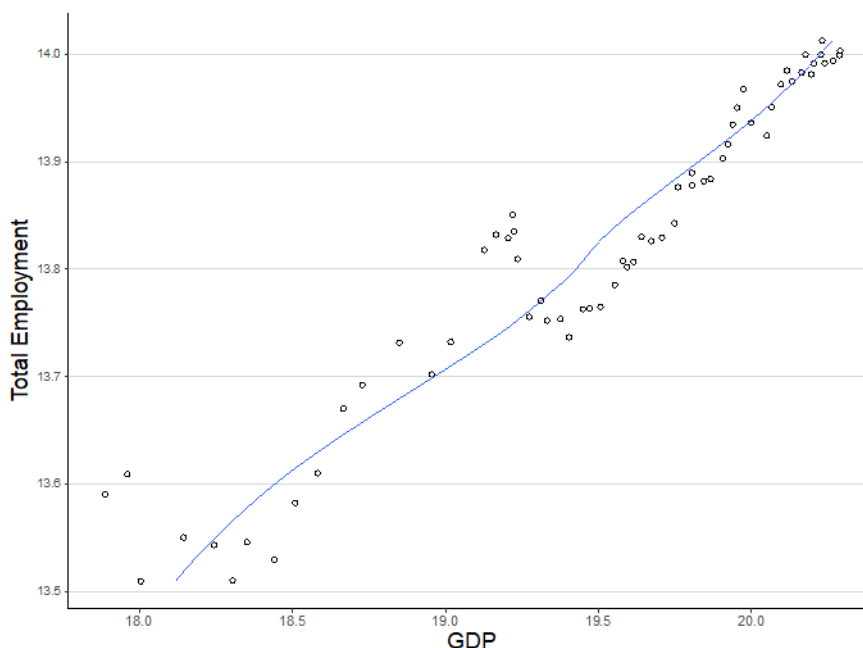
In a country whose levels of poverty, inequality, and unemployment are already high, the additional initial job losses projected here, while conservative in certain respects, would be devastating, setting the labour market back by at least a decade. If implemented wisely, the necessary support measures could help stem this, and also help to lay the foundation for a fairer and more equitable economy.

► Data and Methodology Appendix

1. Employment and GDP data

In the rapid review the authors note that there is a relatively stable relationship between changes in employment and GDP. This allows them to make the observation that modelling which predicts large falls in GDP together with modest job losses are inconsistent with the historic trends within the economy. This relationship – following “Okun’s Law” – is shown in Figure 1 for 2000 to 2019. In general, South Africa shows a positive relative between GDP growth and employment growth.

Figure 1. Okun’s law: Total employment relative to GDP. 2000-2019. (Log scale)

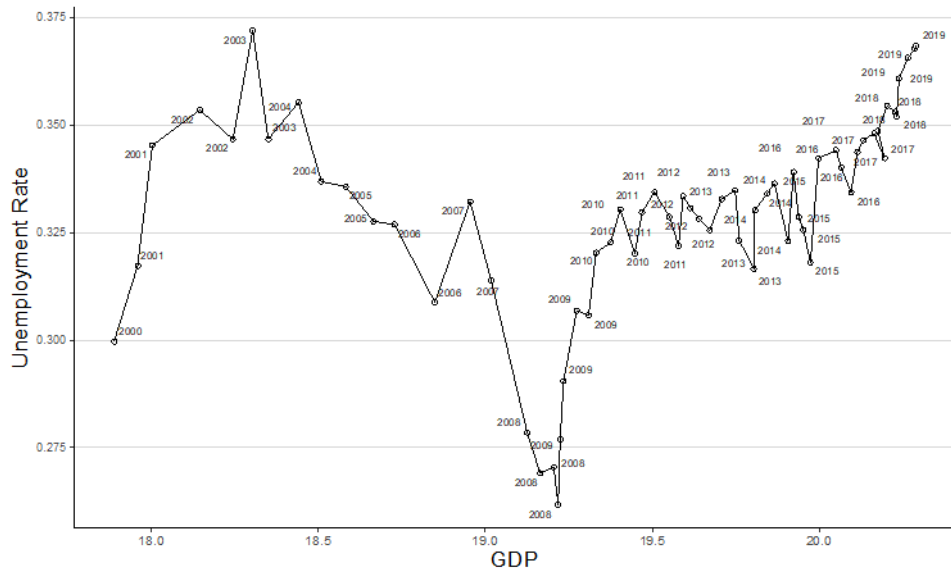


Note: Fitted LOESS line in blue. Shift in the intercept in employment growth relative to GDP growth after the 2008 global financial crisis. As Okun’s Law shows the relationship between GDP growth and growth in the unemployment rate, we plot something similar to growth rates by using logs, but instead of the unemployment rate use total employment.
Source: South African Reserve Bank (GDP) and QLFS for employment.

A number of other observations are made referring to the historic trend in employment in the South African economy. These are shown in Figures 2 through 7. Figure 2 shows unemployment relative to GDP which highlights that, in addition to a high degree of structural unemployment, unemployment is also cyclical, increasing and then declining during the commodity boom from 2003, before increasing steadily from 2014. Figure 3 shows formal vs. informal employment, indicating the relatively small informal sector in comparison to other developing countries, particularly in Africa. Figure 4 shows total employment along with number of discouraged workers (log scale). Employment growth has been fairly consistent, falling after the 2008 GFC and slowing down considerably since 2017. Discouraged workers increases more recently as employment growth slows. Figure 5 and Figure 6 and provide employment figures by male /female and young /old, respectively. Figure 5 highlights strong employment growth for both sexes, but with greater volatility for women, showing more job shedding after the 2008 GFC in particular. Figure 6 shows how youth employment has stagnated since 2008 GFC as they were the group who has borne the majority of the brunt of slowing demand since then. This also may reflect the older profile of public sector workers. Figure 7 shows employment growth relative to labour force growth, with a 45 degree line with a slope of 1 in dotted red. From 2018 the slope of the relationship between the two variables falls below one, indicating that a 1 unit change in the labour force is associated with a less than 1 unit change in total employment leading to a growing unemployment rate. While between 2005-2008 the slope goes above one (>1), indicating that employment grows by more than 1 unit for a 1 unit change in the labour force, leading to a decline in the unemployment rate. Figure 8, using a linear scale, shows the absolute fall in employment over time relative to GDP, and in particular the loss of jobs between Q4 2008 and Q3 2010 as a result of the 2008 global financial crisis. 1.12 million jobs were lost despite the contraction to GDP covering only 3 quarters and the recovery being relatively quick owing to the sharp bounce-back in commodity prices.

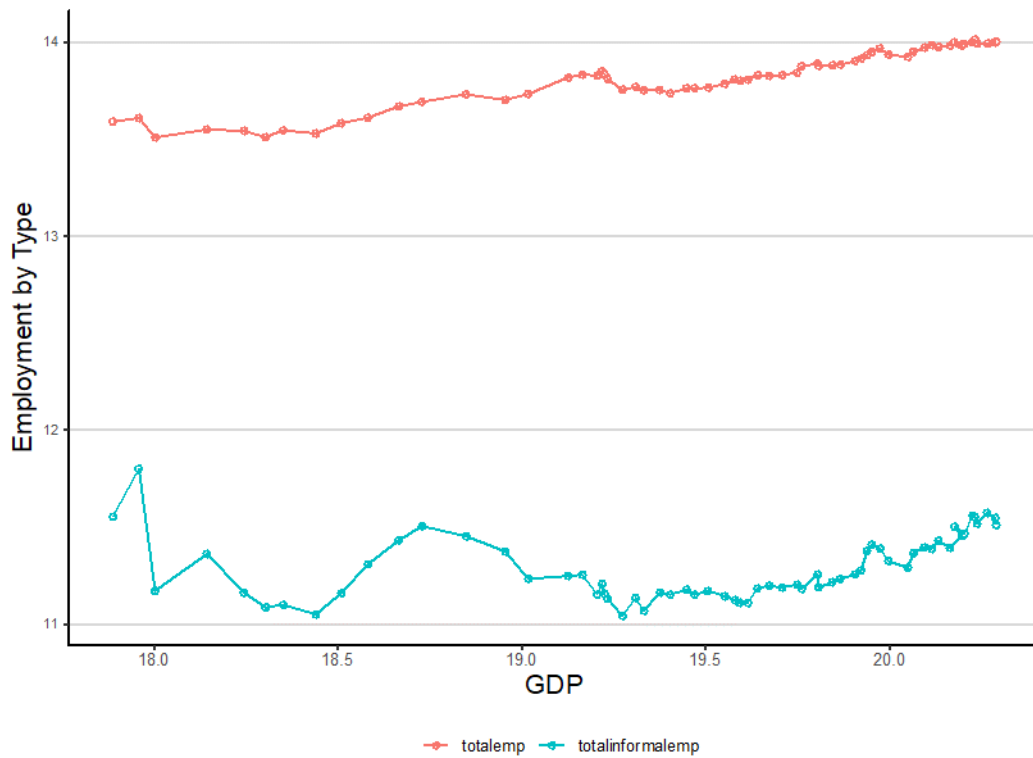
► The impacts from a COVID-19 shock to South Africa's economy and labour market.

Figure 2. Unemployment rate relative to log of GDP (2000-2019)



Note: Unemployment rate is highly cyclical in South Africa, increasing and then declining during the commodity boom from 2003. Before increasing steadily from 2014.
 Source: South African Reserve Bank (GDP) and QLFS for employment.

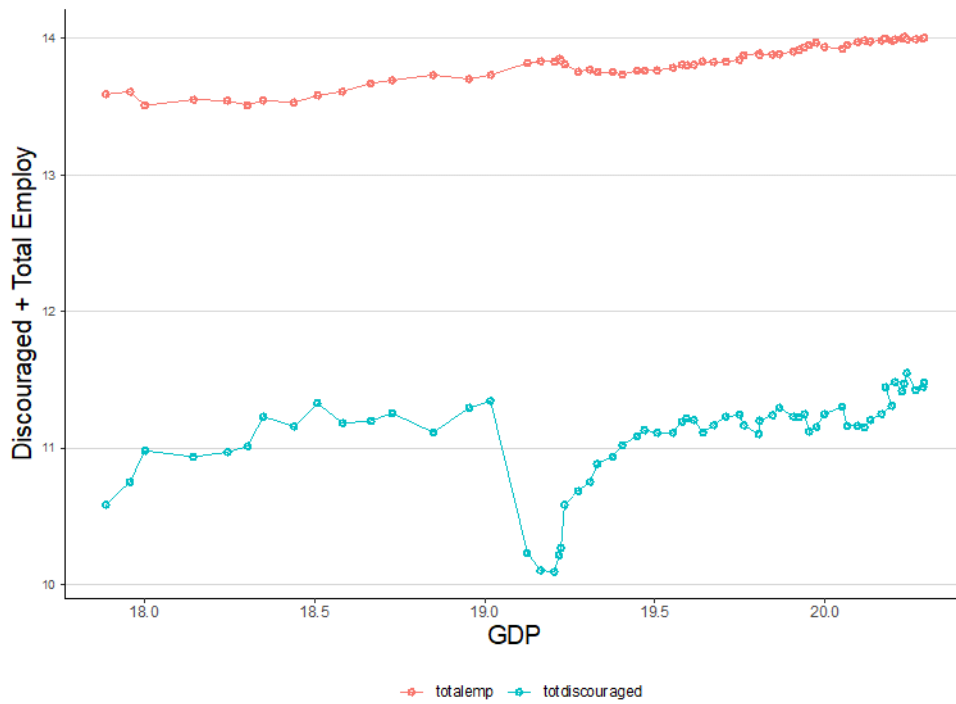
Figure 3. Employment by formal vs. informal (log scale) (2000-2019)



Source: South African Reserve Bank (GDP) and QLFS for employment.

► The impacts from a COVID-19 shock to South Africa's economy and labour market.

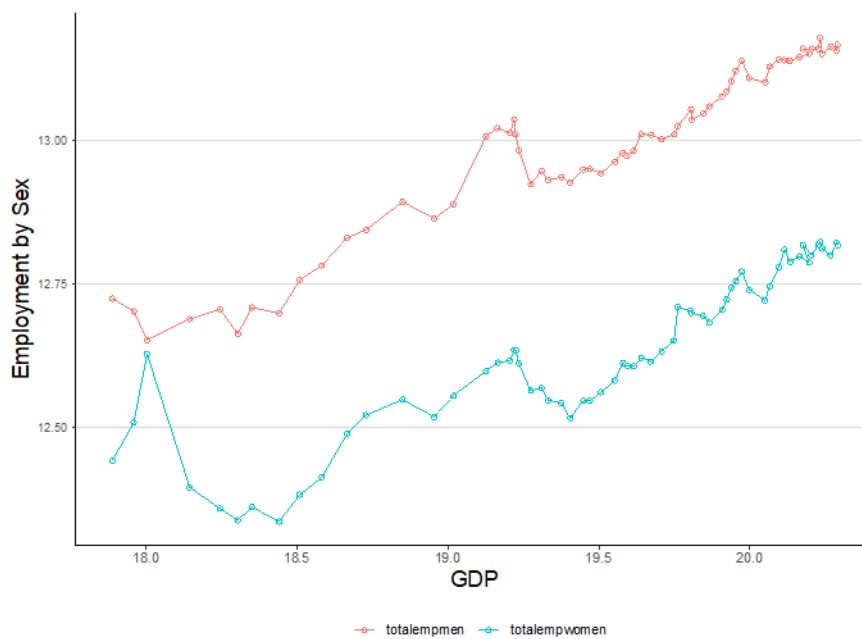
Figure 4. Employment by broad definition ("totalemp") and total discouraged workers. 2000-2019. (Log scale)



Note: Total employed workers include workers in formal and informal sector. Discouraged workers are workers who have stopped looking for work.

Source: South African Reserve Bank (GDP) and QLFS for employment.

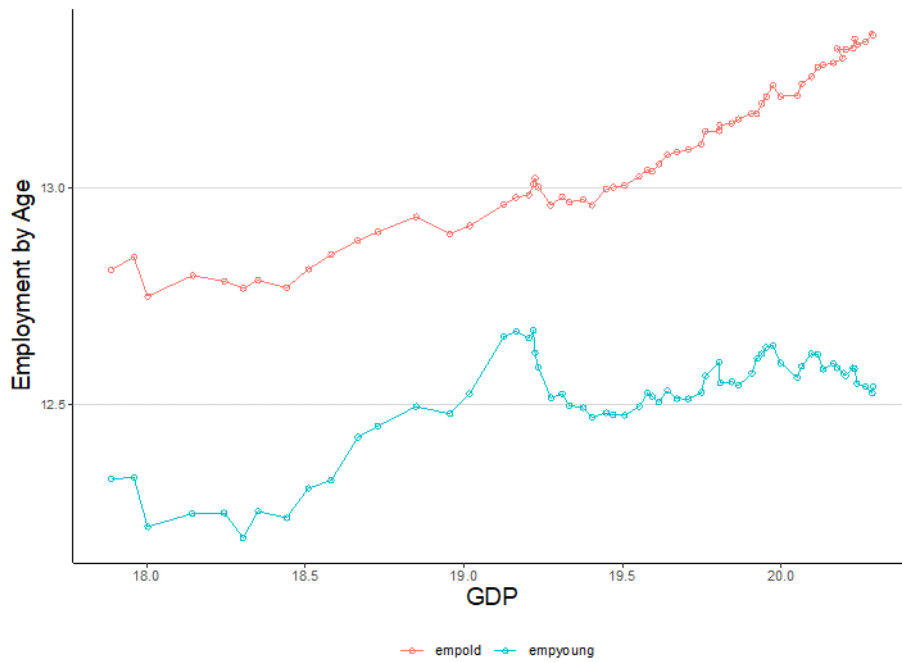
Figure 5. Employment by men vs. women (log scale) (2000-2019)



Source: South African Reserve Bank (GDP) and QLFS for employment.

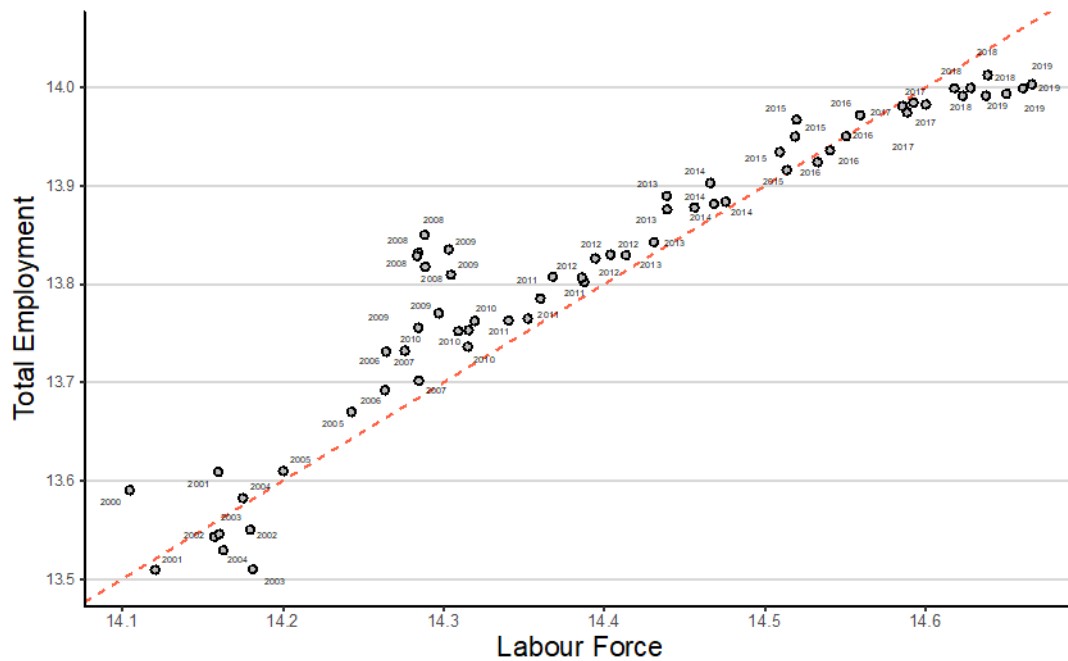
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Figure 6. Employment by age (log scale) (2000-2019)



Source: South African Reserve Bank (GDP) and QLFS for employment.

Figure 7. Employment growth relative to labour force growth (log scale) (2000-2019)

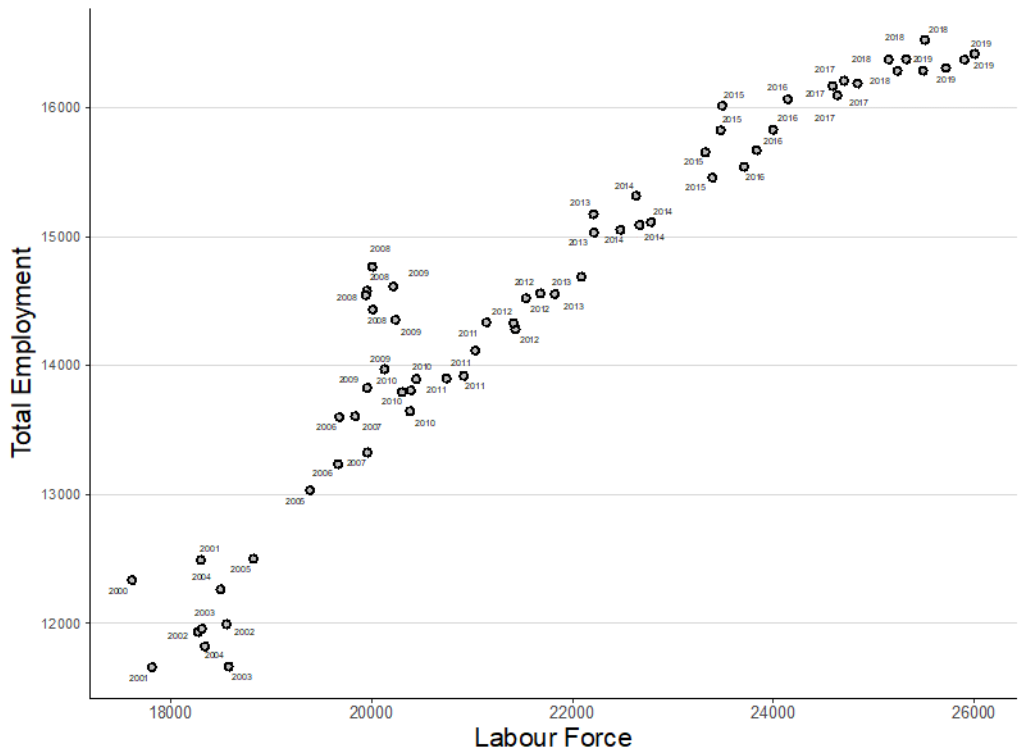


Note: 45 degree line with a slope of 1 is in dotted red. From 2018 the slope goes below one (i.e. a 1 unit change in the labour force is associated with a less than 1 unit change in total employment leading to a growing unemployment rate), while between 2005-2008 the slope goes above one (>1), indicating that employment grows by more than 1 unit for a 1 unit change in the labour force, leading to a decline in the unemployment rate.

Source: South African Reserve Bank (GDP) and QLFS for employment.

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Figure 8. Employment growth relative to labour force growth (linear scale, 1000s) (2000-2019)



Note: Total employment (formal and informal) declines from a peak of 14,768 million in Q4 2008 to a trough of 13,647 million in Q3 2010. It took almost 24 months for employment to bottom, contracting by 1.12 million jobs. While GDP contracted for 3 straight quarters before returning to growth quickly as commodity prices recovered.⁷³

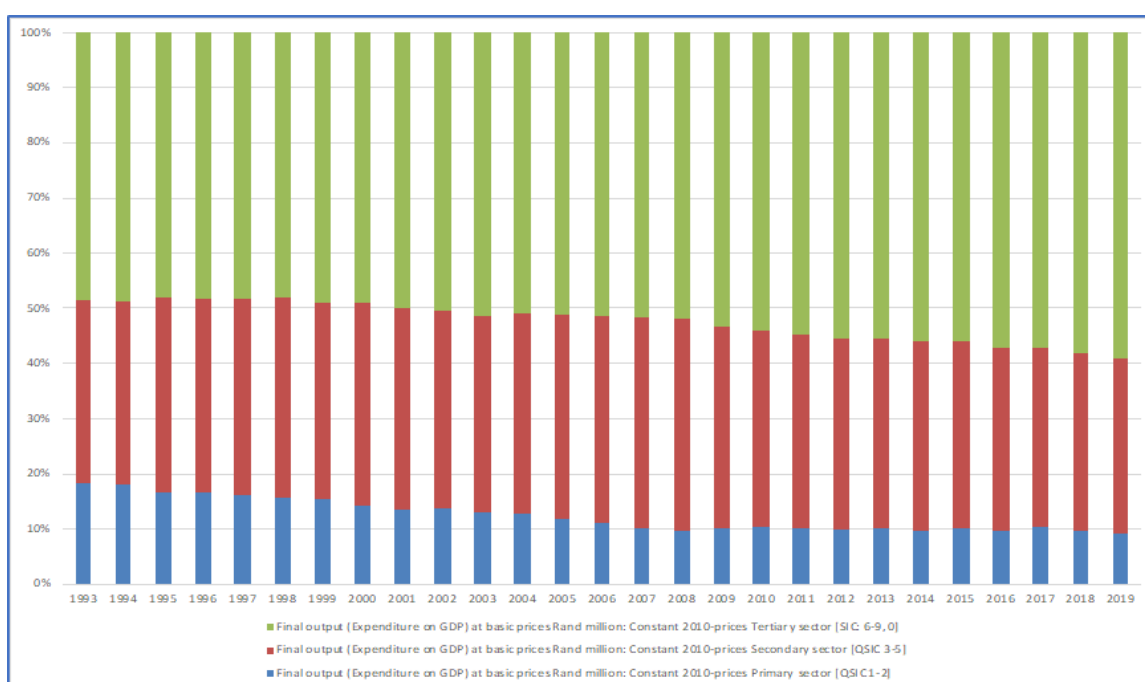
Source: South African Reserve Bank (GDP) and QLFS for employment.

⁷³ For overview see: https://www.investec.com/en_za/focus/investing/10-years-on-the-global-financial-crisis.html

2. Sectoral shares in output and employment

In the rapid review the authors decide to use constant 2010 prices. The figures below show the growing shift in output and employment towards the services sector. The relative shift in GDP depends to a large extent on which prices are used, real/constant (deflated prices) or current prices (unadjusted for inflation). This is due to differences in the relative magnitude of price deflators between sectors and the wider economy in South Africa.⁷⁴ Figure 9 shows the composition of output in SA at constant 2010 prices, this highlights a decline in primary sector output and an expansion in services while the secondary sector remains relatively constant. The constant-priced fall in primary sector share of GDP is reflected in a similar fall in the employment share of this sector. By contrast, Figure 10, at current prices, shows the primary sector share of output relatively stable while service sector increases marginally at expense of secondary sector. We use constant prices in-line with best practice. However, both series (current and constant prices) should be kept in mind for research.

Figure 9. Composition of output in South Africa at constant 2010 prices

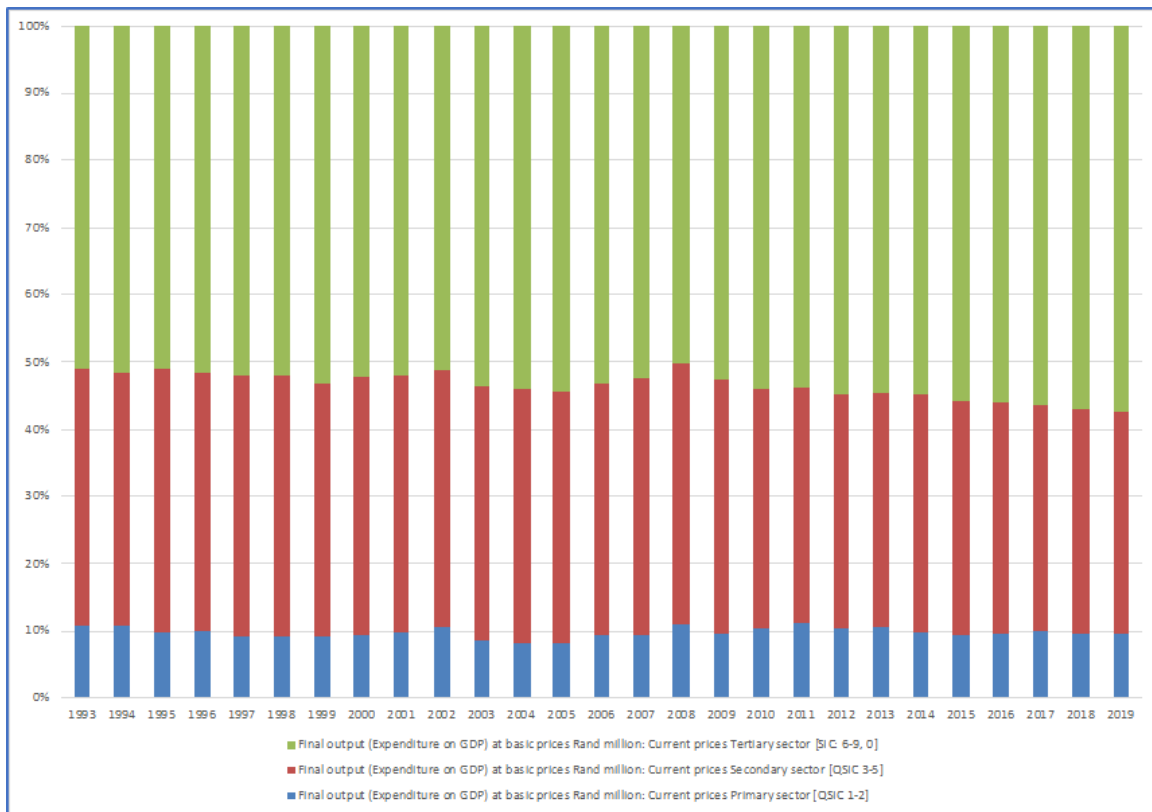


Source: Quantec, accessed May 29 2020.

⁷⁴ See: <http://www.zaeconomist.com/sa-economy/how-important-is-mining-to-the-sa-economy-it-depends-on-how-you-measure-it/>

► The impacts from a COVID-19 shock to South Africa's economy and labour market.

Figure 10. Composition of output in South Africa at current ZAR prices

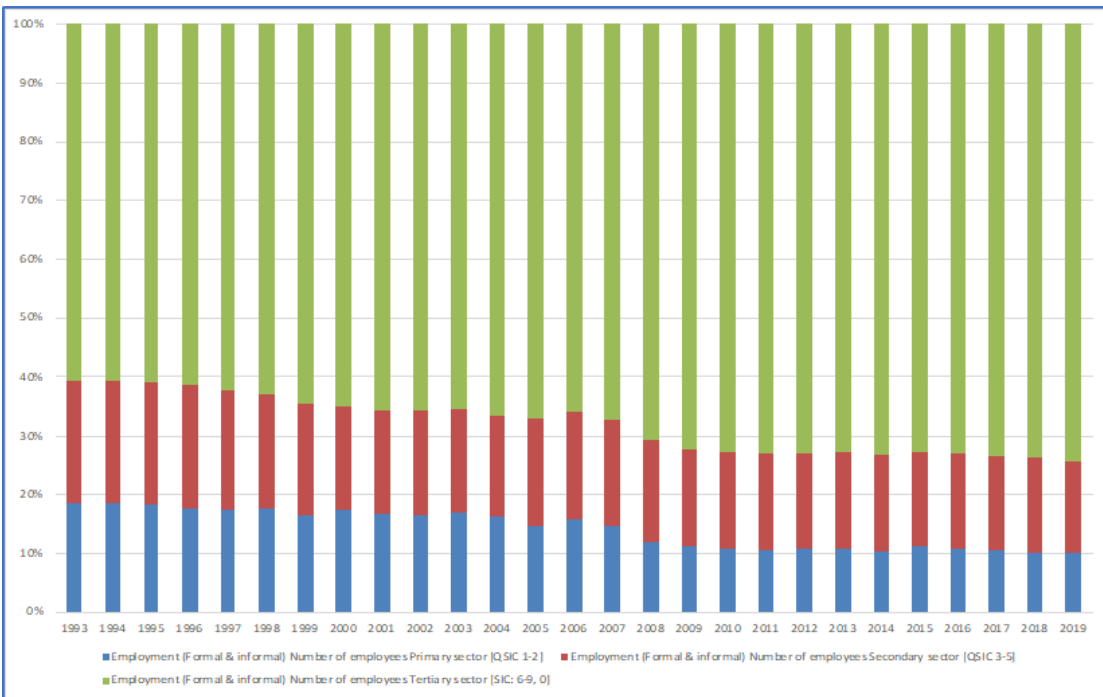


Source: Quantec, accessed May 29 2020.

► The impacts from a COVID-19 shock to South Africa's economy and labour market.

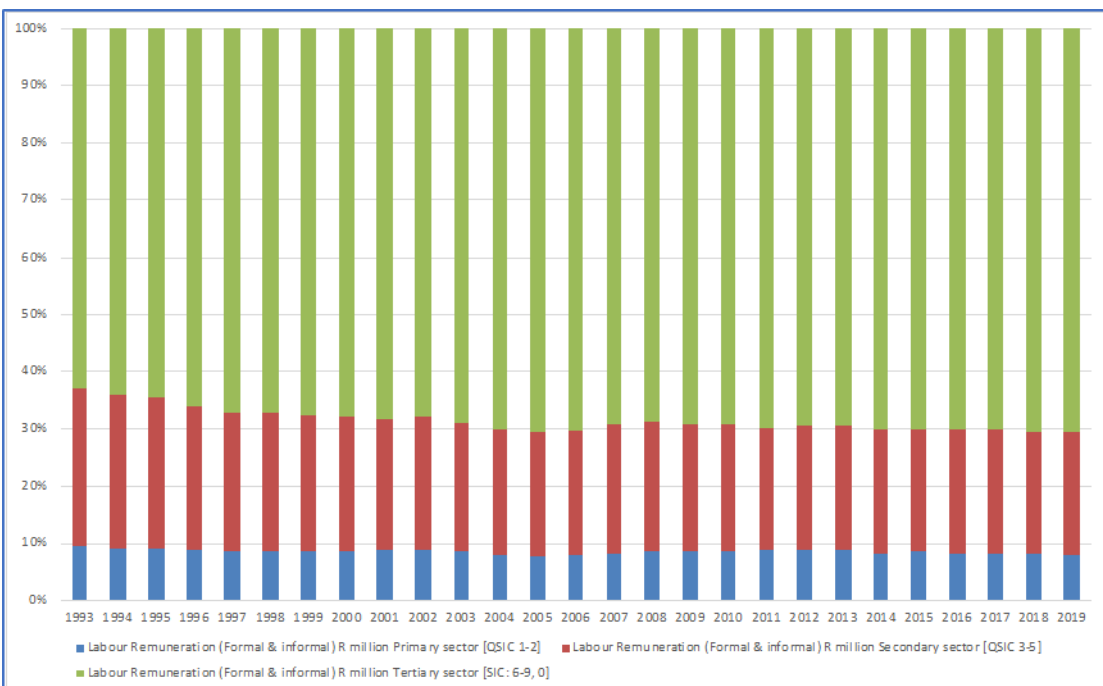
In Figure 11 we see that the relative share of employment has shifted strongly out of primary sector – and to a less extent out of secondary sector – and towards the tertiary sector. The corresponding movements in income, see in Figure 12, is much less stark, indicating changing use of technologies and employment types within each sector. Higher wage jobs have entered the primary sector, for example, as it has mechanised, even as its relative employment share declined. The decline in manufacturing has been matched by an increase in the service sector, and a modest decline in the primary sector.

Figure 11. Composition of employment in South Africa by sector prices, 2019



Source: Quantec, accessed May 29 2020.

Figure 12. Composition of wage income in South Africa (ZAR millions) by sector, 2019

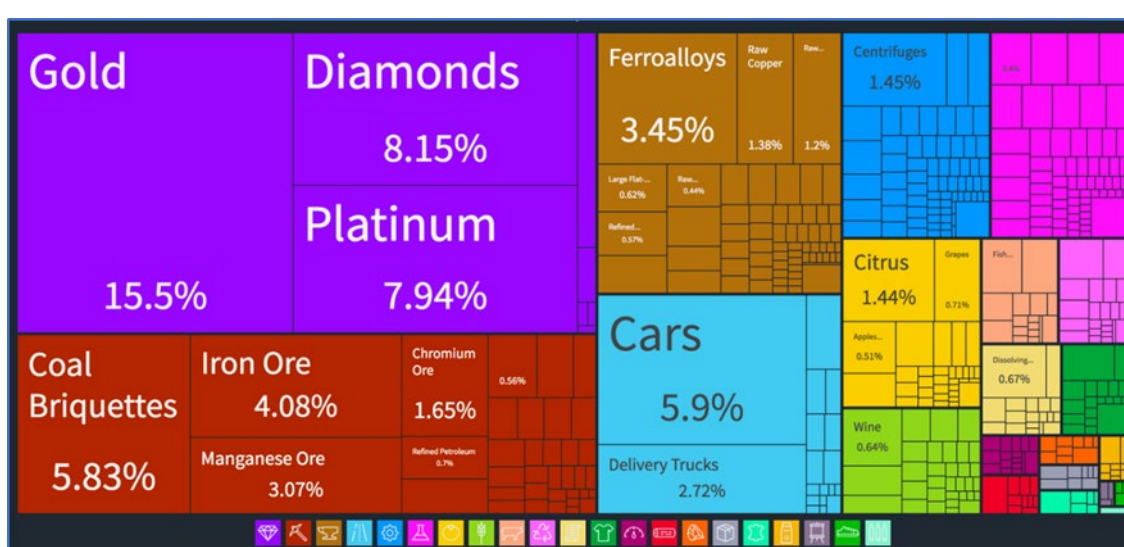


Source: Quantec, accessed May 29 2020.

3. Export composition

The rapid review models the impact on the South Africa economy through a contraction in final demand. Final demand consists of consumption spending, government spending, fixed capital investment spending, gross exports and a balancing item, i.e. $f = C + I + G + X + \text{balancing item}$. The composition of South Africa's exports is therefore relevant to understanding the impact of COVID-19 – a global economic shock – on the South African economy. South Africa's export composition is given in Figure 13 which shows what portions of global demand South Africa's exports are reliant on. Exports to the United States of cars and car parts are reliant on free trade agreements such as AGOA. While its exports of raw minerals are reliant on strong demand from China and other parts of the world. To the extent that demand from China for commodities recovers quickly South Africa could be spared a long-term depression to the value of its exports. At the same time, open markets to the U.S. and Europe are vital to ensure continued export revenue, a recovery in foreign demand will therefore play an important role in South Africa's economic recovery.

Figure 13. South Africa exports (HS4 level) (2018)



Source: MIT Observatory for Economic Complexity, online:
https://pro.oec.world/en/visualize/tree_map/hs92/export/zaf/all/show/2018/

4. Input-Output Model

Data Overview and Preparation

The model used in the rapid review makes use of the Quantec 2019 Input-Output data and its data on employment and remuneration. This includes informal sector workers (which are calculated as a residual between QES and QLFS employment – see further details below). Quantec's data is supplemented with 2018 QLFS data for labour market indicators on proportion of workers in working poverty, under a specified poverty line, and proportion of male and female workers, all by sector.

We remove inventory adjustments and the residual balancing item which Quantec use in their input-output data to balance final demand. This is a minor empirical adjustment, because shocking them has no economic meaning, and they represent a small part of total final demand (together they represent only 0.06% of total final demand.)

Modelling Strategy

The basic strategy is to:

1. Decide on an exogenous COVID-19 related shock which contracts domestic final demand (f). f consists of $C + I + G + X$ where C is consumption spending, I is fixed capital investment spending, G is government spending, and X are exports, i.e. f is GDP plus imports.

2. Calculate the Leontief matrix (L), which tells us how much total output (direct + indirect) changes when final demand changes by one unit, such that $(\partial x_i)/(\partial f_j) = L_{ij}$, where i are rows and j are columns and represents the number of sectors (both going from 1 to 50) showing the destination of the production of sectors i that is consumed by sectors j.
3. Multiply L by f to calculate how much total output changes in response to the COVID-19 shock to final demand.
4. Multiply this result of total output x by employment coefficients shows employment per unit of output demanded for each sector. Furthermore, we can then multiply this by different P matrixes which tell us information on employment and wages for each sector, such as the proportion of workers employed across each sector by skill level, formality vs. informality, etc. This allows us to assess the employment impact by type of worker of the total change in output.

We describe each of these steps in more detail below. We have 50 industries such that $n=50$. Our model follows the basic input-output model described in Miller and Blair (2009).⁷⁵

Basic Model

Our model assumes all components of final demand are exogenous to the model (that is, determined outside the model and adjusted by the researcher). Endogenous households models have the benefit of assessing induced changes in income and consumption from changes in total intermediate output. But this fixes household consumption in the model, whereas we want to change it as part of our COVID-19 shock. As such it makes more sense to treat final demand as exogenous.

Start with constructing a matrix of fixed technical coefficients **A** (also known as the input-output coefficient or direct input coefficient) and is n by n in dimensions, where

$$A = Z \hat{x}^{-1}$$

Z is an i by j matrix showing inter-industry transactions from industry i for industry j . x is a vector showing total output for each industry j . \hat{x} becomes a diagonal square matrix with x along the diagonals while \hat{x}^{-1} becomes the inverse matrix, such that the **Z** matrix is 'divided' by total industry outputs when multiplied by \hat{x}^{-1} . A matrix of technical coefficients expresses this ratio.

Total output x is then equal to intermediate output based on the matrix of technical coefficients, which express intermediate industry demand Ax , and total final demand f which is equal to $C + I + G + X$ (plus a balancing item in Quantec):

$$x = Ax + f$$

where f is a vector of the final demand by sector.

To calculate the Leontief matrix **L**, one creates an identity matrix **I**, which is n by n , where x is a set of n unknowns in n linear equations:

$$(I - A)x = f.$$

If the inverse matrix $(I - A)^{-1}$ exists then a solution exists. Multiplying both sides by this inverse matrix we solve for total output x .

$$x = (I - A)^{-1}f = Lf$$

The Leontief matrix $L = (I - A)^{-1}$ is also known as the total requirements matrix. For our impact assessment we change f and observe how x changes. To work out the employment impact of this change in output x for a given exogenous shock to f we multiply x by employment coefficients showing the employment per unit of output in each sector:

$$\varepsilon = \hat{e}' L f^1,$$

where e' is a vector of coefficients showing total employment for each industry divided by total output. This is transformed into a diagonal square matrix with \hat{e}' and multiplied by f^1 the new sectoral exogenous final demand associated with COVID-19 and the Leontief matrix **L**. Together this yields out

⁷⁵ Miller and Blair. 2009. *Input-Output Analysis: Foundations and Extensions*. 2nd edition Cambridge University Press.

new output from the new COVID-19 external final demand vector: $x^1 = \hat{e}'f^1$.

To assess how this impacts different workers differently we multiply this result by **P**, an occupation by industry matrix, where P_{kj} is the proportion of sector j 's employment that is in occupation k .⁷⁶ We use five different **P** matrixes covering the following:

- The proportion of workers by 4 different skill levels.
- The proportion of workers by formal vs. informal sector.
- The proportion of workers who are men or women.
- The proportion of workers above or below the working poverty line.
- The proportion of workers above or below the Stats SA upper bound poverty line.

Constructing a COVID-19 final demand shock to the South African economy

Our shock to exogenous final demand column vector f^1 is calculated by reducing final demand by 10% in scenario 1, 15% in scenario 2, and 20% in scenario 3. We then assess the impact this has on total output (direct and indirect) and in turn employment. The shock is weighted towards consumption.

We assume a COVID-19 shock leads to a contraction in final demand of 10%, 15%, or 20%, for each of the three scenarios. But we weight the impact differently by each component of final demand. In particular, a COVID-19 shock we define as impacting the consumption component of final demand more than the other components, both absolutely (as it is the largest component of GDP) and in terms of its % contraction.

Table 1. Contraction in final demand by component for each modelled scenario

	Scenario	C	GFCF	G	Ex
S1	10% Contraction	-15.0%	-13.2%	5.3%	-11.4%
S2	15% Contraction	-22.5%	-19.9%	8.0%	-17.0%
S3	20% Contraction	-30.0%	-26.5%	10.6%	-22.7%

Note: C is consumption by households, GFCF is gross fixed capital formation excluding inventory adjustments, G is government spending, and Ex is exports.

Source: Authors.

The amount of contraction of each final demand is distributed to the sectors considering their share in the total final demand. This means that sectors which have a large reliance on consumption are likely to contract more than others, since consumption is the most affected.

This draws on international evidence and research which shows that consumption has contracted first, and more rapidly, than the other components of GDP. This is due to an increase in savings, a decrease in expenditure as households lose jobs, working hours, and income, an increase in consumer uncertainty, and an inability to engage in expenditure as large parts of the economy are shut-down.

We assume government spending increases moderately in each scenario. This leads to an increase in employment which in the input-output model, due to insufficient data on the links between government output links to the rest of the economy, is manifested in our model largely as an increase in government employment, even though it should be thought of as distributed throughout the economy.

5. Quantec definitions and data sources

Employment, informal employment: Quantec derives its employment data from the two main official sources of labour data in South African – the Quarterly Employment Statistics (QES) and the Quarterly Labour Force Survey (QLFS) – published by Statistics South Africa. The QES data is collected from a sample of non-agricultural enterprises and provides a formal employment figure. This figure excludes domestic workers. The QLFS is a household-based survey and provides figures for total formal and informal employment as well as the official unemployment figure. To bridge the discrepancy between the formal employment figures from these datasets, Quantec uses the QES formal figure, to which it

⁷⁶ Miller and Blair, 2009. Pg.25

adds formal agricultural and domestic workers. Using the total employment from the QLFS, informal employment is calculated as a residual. This residual is higher than the figure given in the QLFS due to the inclusion of SMMEs which are not accounted for in the QES.

Skill levels: The skill levels are defined according to the QLFS breakdown and include the following occupations:

Skilled

- Professional, semi-professional, and technical occupations
- Managerial, executive, and administrative occupations
- Certain transport occupations, e.g. pilot navigator

Semi-skilled

- Clerical occupations
- Sales occupations
- Transport, delivery, and communications occupations
- Services occupations
- Farmer, farm manager
- Artisan, apprentice, and relate occupations
- Production foreman, production supervisor

Low-skilled

- Elementary workers
- Domestic workers
- All occupations not elsewhere classified

Basic (our addition, i.e. not undertaken by Quantec)

- Informal sector workers

6. Data on working poverty and employment by sex

Data on working poverty, poverty, and employment levels by sex comes from the Quarterly Labour Force Surveys of 2018. All calculations weighted using QLFS 2018 weights. The dataset used is the Labour Market Dynamics South Africa, an aggregation of the four 2018 QLFS datasets. It is cleaned as outlined by Finn.⁷⁷

Working poverty line is defined as earning R5085.78 per month. As per Finn,⁷⁸ this figure is arrived at by estimating the wage required for an average worker to lift them and their dependents out of poverty. It uses the Budlender et al. (2015)⁷⁹ poverty line and dependency ratios from NIDS. The poverty line is deflated using food expenditure and non-food expenditure as a proportion.⁸⁰ The original full-time equivalency working-hour restrictions in Finn (2015) is dropped in this paper.

The Upper Bound Poverty Line of R1183 per month is used as per the 2018 National Poverty Lines of 2018 released by Stats SA.⁸¹

⁷⁷ Arden Finn, .2015. *A National Minimum Wage in the Context of the South African Labour Market*. Working Paper Series No. 1. National Minimum Wage Research Initiative.

⁷⁸ Ibid.

⁷⁹ Budlender, J., Leibbrandt, M., Woolard, I., 2015. *South African poverty lines: A review and two new money-metric thresholds* (Working Paper Series No. 151). Southern Africa Labour and Development Research Unit, University of Cape Town.

⁸⁰ Stata .do file available on request.

⁸¹ Stats SA, *National Poverty Lines 2018*. Statistical Release P0310.1. Statistics South Africa (2018).