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Failing to Pull Together: South Africa's Troubled Response to COVID-19

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DISCUSSION PAPER SERIES

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Troubled Response to COVID-19**

Wim Naudé
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AUGUST 2020

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ABSTRACT

Failing to Pull Together: South Africa's Troubled Response to COVID-19

When South Africa implemented its non-pharmaceutical interventions (NPIs) (its “lockdown”) to stem the COVID-19 pandemic in March 2020, it was hailed as exemplary. By June 2020 however, the lockdown was in disarray: the number of confirmed infections continued to grow exponentially, placing the country amongst the ten most affected countries in the world, and on average eight public protest actions took place daily. Moreover, the business sector launched a campaign, supported by more than 50,000 businesses, to have government end the lockdown altogether. In this paper we argue that both government and the business sector's responses are problematic, and that this “failing to pull together” will be costly. We provide arguments that a smart and flexible lockdown, based on data, testing, decentralization, demographics and appropriate economic support measures, including export support, can save lives, improve trust in government, limit economic damages and moreover improve long-term recovery prospects.

JEL Classification: H12, I15, I18, O55

Keywords: COVID-19, coronavirus, South Africa, development, lockdown, health economics

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1 Introduction

If pandemic management was a course, South Africa’s government and business sectors have both flunked it. The government has mismanaged the implementation of non-pharmaceutical interventions (NPIs) - henceforth “lockdown” - which it imposed after the country recorded its first SARS-CoV-2 virus infection (which causes the COVID-19 disease) at the beginning of March. And the organized (big) business sector has reacted to the government’s mismanagement of the lockdown by calling for it to be lifted – not just relaxed or made more flexible – but to be ended.¹ In other words, the country finds itself in a situation where the government’s mismanagement of the lockdown has resulted in growing division on the way forward and a backlash from its business sector. This backlash is unprecedented, as “For the first time since 1994, South African business has, in a public and dramatic manner, broken with government” (Katzenellenbogen, 2020).

The backlash against the lockdown comes at a time when the country does not yet have COVID-19 under control. In fact, at the time of writing, South Africa is one of the worst affected countries in terms of confirmed COVID-19 cases. By 30th August 2020, there had been 622,551 confirmed cases and 13,961 deaths.² The number of cases places South Africa in the ten most affected countries in the world, in 6th position after the USA, Brazil, India, Russia, and Peru - see Appendix A for more detail.

This situation does not bode well for either the health or economic prospects of its citizens, as the COVID-19 pandemic broke out when the South African economy had not yet even fully recovered from the shock of the 2009/2010 global financial crisis. Between 2009 and 2019, average GDP growth was a paltry 1,4%. By 2019 GDP per capita was at US\$ 7345, actually lower than it was in 2008. In March 2020, just as the first COVID-19 cases were diagnosed in the country, it also lost its investment-grade credit rating. The expectation is that in 2020 the South African economy will contract by -7,2%, if not more. The OECD (2020) considers a scenario where the contraction could be around -8,2%.

The country has in effect, lost a first battle against COVID-19. Can it still win the war and put itself on a more secure footing for a post-COVID-19 recovery? In this paper, we argue that both government and the business sector’s responses are problematic, and that this

¹See: <https://www.endlockdown.co.za>

²This is likely an under-count. The South African Medical Research Council (SAMRC) indicated that excess deaths in the country reached 59% in the second week of July, see <https://tinyurl.com/y32mmxuy>. According to *The Economist Excess Deaths Tracker*, excess deaths in South Africa were 65% by the third week of July. See Appendix C for more detail.

“failing to pull together” will be costly. The poor management of the lockdown is not a reason to scrap it altogether – the government should get it right, and business should understand that there is no dichotomy between health and economics. We provide arguments that a smart and flexible lockdown, based on data, testing, decentralization, demographics and appropriate economic support measures, including export support and a greater emphasis on demand-side stimulation, can save lives, as well as improve trust in government, limit monetary damages and reduce long-term costs. The South African government implemented the lockdown in March 2020 without having an exit strategy ready. A smart and flexible lockdown is one that aims and works towards its own appropriate termination.

The rest of the paper is structured as follows. In section 2, we dissect the South African government’s response to the pandemic, noting how it was first praised for an exemplary start and later criticized for a descent into incoherence. In section 3, we dissect the business sector’s response, noting how its campaign against the lockdown is based on a misunderstanding and under-appreciation of the need for and value of a lockdown. In section 4, we provide a short and basic outline for a smart lockdown, in particular for minimizing the long-term damage to both human health and the economy. Section 5 provides some thoughts on a demand-led (export-driven) recovery, while section 6 concludes.

2 From Praise to Protest

The South African government’s response to the pandemic started seemingly well. After the first confirmed case on 5 March 2020, and with only 2 deaths, the country instituted a stringent lockdown on 26th March, overseen by a *National Command Council* (NCC) (Mukandavire et al., 2020; Nordling, 2020; Vandome, 2020). It also started testing for COVID-19 infections: by mid-August 2020, almost 3,5 million tests were carried out. The health sector is collaborating with the Jenner Institute at Oxford University on the development of a vaccine: human trials have already started (Oliver, 2020a). Furthermore, a ZAR 500 billion (US\$ 26 billion) fiscal emergency response, which included a Social Relief of Distress Grant³ was made available in April to limit the economic fallout (DNT, 2020b). This fiscal response amounts to 6,5% of GDP and is one of the most substantial fiscal response packages amongst developing countries (Bhorat et al., 2020).

By April 2020, the government’s response was hailed as more efficient than that of “many

³For a discussion of the budgetary response package and its coverage, see Bhorat et al. (2020).

other countries in the world” (Harding, 2020) and that the country is “a lesson to the world” (Vandome, 2020). And in May 2020 Oliver (2020a) writing in the *New Humanitarian* declared that “South Africa seems to have done better than most” and that “the country is experiencing a tentative feel-good bloom over its ability to pull together.”

Three months later, the “feel-good bloom” is well and truly over, and the country is failing to pull together. Two reasons are first the government’s mismanagement of the lockdown, and two, the economic collapse in the country. The government’s mismanagement was evident in several problems. These include failure to prevent massive corruption in the allocation of COVID-19 relief funding (Myburgh, 2020). At the time of writing, around 600 corruption cases involving the COVID-19 relief grant is being investigated, and the government has prioritized addressing the issue (Oliver, 2020b). The country is now perhaps the only one in the world with a *COVID-19 Tender Tracker*⁴ to trace who is making money from the pandemic.

The government’s mismanagement was also evident in the brutality with which the South African Police enforced the lockdown – for instance, over 230,000 people were arrested for violating lockdown measures, including being jailed for “smoking a cigarette without a slip to prove historic purchase” (Haffajee, 2020b).

It was furthermore evident in the degeneration of lockdown policies into often downright irrational, illogical policies – such as “whether people could buy closed or open-toe shoes” (Haffajee, 2020a), a blanket ban on alcohol and tobacco sales, and in the discriminatory allocation of emergency funds.⁵

Bizarrely, and perhaps uniquely in the world, Ebrahim Patel, the Minister of Trade and Industry, supported bans on e-commerce activities, arguing that if this were not done, it would “be unfair to brick and mortar retailers” (Bateman, 2020). Elsewhere in the world, the economic impacts of lockdowns were mitigated by an expansion of e-commerce. Moreover, it will be the case that the pandemic will accelerate the digitization of business and trade (Bloom et al., 2020; Schrage, 2020). Patel’s hampering of e-commerce, thus not only limits mitigation over the short-term but is potentially also constraining South Africa’s longer-term recovery in a more digital, e-commerce world post-COVID-19.

The government also then prematurely relaxed the lockdown somewhat in June, in the face of infections continuing to grow exponentially during June and July – see Figure 1. In

⁴See : <https://mg.co.za/news/2020-08-24-whos-making-money-from-covid-19/>

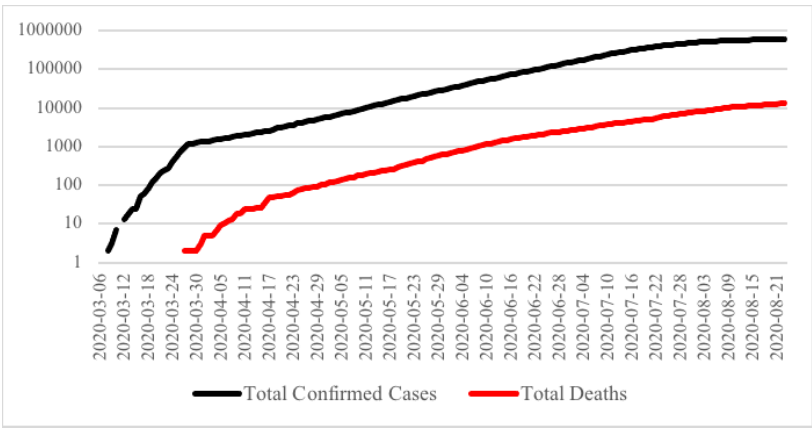
⁵See: <https://tinyurl.com/y2ao29u3>

Appendix C, the stringency of the lockdown together with the percentage of excess deaths are plotted, showing that while total deaths were below the long-term average for the period just after the imposition of the lockdown, it subsequently increased to excess deaths 65% higher than expected, following somewhat the relaxation of the lockdown beginning June.

Let us however, be clear that the problems that characterized the government’s handling of the lockdown mentioned above should not cast a shadow on efforts and commitments of the country’s health sector and healthcare workers generally. The health sector has, despite resource constraints and the irrational measures imposed by the government in a top-down fashion, put in a heroic effort. This is evident already, as mentioned in the relatively large number of tests performed and the participation in international vaccine trails. Especially noteworthy are the achievements of community health workers, who had by June already screened more than 11 million people for COVID-19, going house-to-house in high-risk communities (Karim, 2020).

The shortcomings though are that the health sector is negatively impacted, by amongst others the mismanagement of its anti-COVID-19 funding (see above), governments’ procurement policies for personal protective equipment (PPE) which favors international suppliers and price, not quality (Curren, 2020); as well as the fact that large proportions of the population still lack access to health services due to the absence of universal health coverage (van den Heever, 2020).

Figure 1: *Growth in confirmed COVID-19 cases and deaths (logarithmic scale) in South Africa, 6 March 2020 - 23 August 2020*



Data source: Authors’ compilation based on Our World in Data COVID-19 dataset.

The problems characterizing the government’s response had however, one predictable result: massive erosion of trust in government, which before the crisis was already precarious

(Zolfaghari, 2020). One immediate consequence has been the sharp rise in public protest actions (Lancaster and Mulaudzi, 2020). In July, 232 protest actions took place, an average of eight a day, significantly more than the daily average of one protest per day in 2018 and 2,5 in 2019. As the Institute for Security Studies notes, the single most important reason for these protests is against the brutal handling of the lockdown by the police (Lancaster and Mulaudzi, 2020). Protests are also often sparked by “a specific betrayal”, such as promised food parcels that are not delivered (Anciano et al., 2020). Only a small proportion of protests (2%) are against rising unemployment.

3 From Lukewarm to Backlash

Big business was initially at most lukewarm about the lockdown, declaring its support for the government and pledging adherence to the measures as a signal of solidarity. Each successive easing of the lockdown was greeted with applause (Cohen, 2020). By May, however, the big business sector had become antagonistic towards the country’s lockdown. As put by Katzenellenbogen (2020) “For the first time since 1994, South African business has, in a public and dramatic manner, broken with government. Business is saying that it has had enough of a lockdown approach that is laying waste to the economy”.

Subsequent to the break with the government, a “Business for Ending Lockdown” campaign was launched⁶ demanding the lockdown to be completely lifted – not eased or adjusted, but removed. To date, the campaign claims to have received the endorsement of almost 54,000 businesses and 3,500 individuals. The campaign declares the lockdown to be “a humanitarian disaster and a grave threat to lives and livelihoods. The harms will far exceed even the most pessimistic Covid-19 scenarios [...]forced and sustained lockdowns have fast become one of the biggest threats to the future of the country”.

What this statement fails to reflect is that it is COVID-19 that is a “threat to the future of the country” and not as such the lockdown measures. Lockdown measures, or non-pharmaceutical interventions (NPIs) in more formal terminology, is the recommended scientific approach to contain a pandemic (Ferguson et al., 2020). As Anderson et al. (2020, p.932) stress, in the absence of a vaccine, “what is left[...] is voluntary plus mandated quarantine, stopping mass gatherings, closure of educational institutes or places of work where infection has been identified, and isolation of households, towns, or cities.” Several recent scientific

⁶See: <https://www.endlockdown.co.za>

studies confirm the efficiency of lockdowns to reduce the spread of the SARS-CoV-2 virus (Iacobucci, 2020; Hou et al., 2020; Vinceti et al., 2020). According to Salim Abdool Karim, Chair of the scientific advisory committee to the South African Department of Health, the lockdown measures that were taken in South Africa extended the time that it takes virus infections to double, from 2 to 15 days (Nordling, 2020; Karim, 2020). Bhorat et al. (2020) also concludes that after the imposition of the lockdown, the transmission of the disease slowed down. This is reflected in Figure 1 in the rate of growth in infections slowing down: the slope of the logarithmic plot is less steep after the end of March. It may also be reflected in Appendix C (Figure 7) in the excess death rate turning negative in April.

Furthermore, Russel Lamberti, one of the all-male panel of advisors to the “Business for Ending Lockdown” claims⁷ that “few people in the world have been locked down longer and harder by their government than the people of South Africa” and that it is “the lockdown and its numerous restrictions which directly created this economic depression.” But both of these statements are misguided, as we will argue below.

While South Africa’s lockdown has been problematic, as was shown above, the lockdown has not been longer and harder in South Africa than in most countries. According to Oxford University’s *Stringency Index*,⁸ at least 77 countries had lockdowns that were more stringent than that of South Africa. South Africa’s lockdown is not even the strictest in Africa: countries such as Angola, Kenya, Congo, Rwanda, Madagascar, Seychelles, Tunisia, Morocco, Uganda all have had lockdowns more stringent at times. South Africa even prematurely eased its lockdown in June 2020, with the number of cases growing exponentially (see Fig. 1), the reproduction number (R_0) at 2,95 still far above 1 (Mukandavire et al., 2020), and the percentage of excess deaths rising (see Appendix C). Amongst the ten most affected countries in the world, South Africa’s lockdown is, while strict, not the most severe, neither in terms of the stringency of the lockdown as measured by Oxford University’s Stringency Index, nor by the decline in the mobility of its population as measured by Google Mobility Trends: See Appendix B for more details.

And the lockdown *per se* is not to be blamed for the “economic depression.” Indeed, the lockdown comes with an economic cost. It was already mentioned that the expectation is that in 2020 the South African economy will contract by at -7,2%, if not more. According to the OECD it could even be around -8,2% (OECD, 2020). The hard reality of this cost is clearly felt and is the primary reason for the hardening stance of the business sector. For

⁷See : <https://www.endlockdown.co.za>

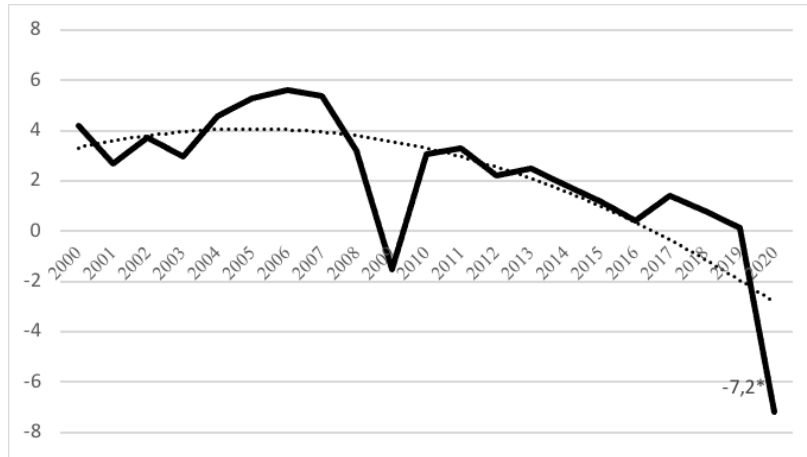
⁸See : <https://tinyurl.com/yavdx8jf>

instance, employment in South Africa declined by 18% between February and April 2020 from 17 million to 14 million – thus, 3 million people lost their jobs in a short space of time (Spaull and et al., 2020). And by the end of July 2020, the government had to apply to the IMF for emergency financial assistance of US\$ 4,28 billion. Consumers and government are essential sources of demand for the products and services of businesses, and with wage income and government fiscal space rapidly declining, it is no wonder that business confidence levels have fallen to its lowest level in 45 years (Naidoo, 2020).

These economic impacts are horrendous. But business is not correct in ascribing the lockdown as the sole reason for the disaster. Even if there would have been no lockdown in South Africa, the country would simply still be in its worst recession in living memory for the simple fact that the global economy is in its worst recession in living memory. South Africa is a very open economy. It has an economic structure that makes it more susceptible to the kind of shock that COVID-19 has brought; and the economy was in troubled waters even before the pandemic broke out. The IMF's most recent estimate is that the world economy will shrink by 4,9 percent in 2020 (IMF, 2020). The OECD estimates a 6 percent shrinkage (Boone, 2020). The economies of virtually all of South Africa's trading partners have shrunk dramatically – the Euro Area GDP will likely contract by -9,1% in 2020 (World Bank, 2020).

In the 2009/2010 global financial crisis, which was not caused by South Africa, the country still suffered a significant decline in economic growth – as Figure 2 shows – from which it had barely started to recover from. Moreover, by 2019 GDP per capita was at US\$ 7345, actually lower than it was in 2008. So, the country has to face a global crisis much worse than anything that has come before (World Bank, 2020) with a battered economy. Given these circumstances, it is inconceivable that the COVID-19 pandemic would not have a terrible impact on South Africa's economy.

Figure 2: *Terminal decline? Annual GDP growth (%) in South Africa, 2000 – 2020*



Data source: Authors' compilation based on the data from the World Bank Development Indicators Online and projection for 2020 from the DNT (2020b).

Will ending the lockdown however, reduce the extent of the unavoidable recession? Perhaps somewhat, although the lifting of the lockdown will have longer-term costs, as we will argue below, which may exceed those of a strict but limited lockdown. What increases the uncertainty of the “value” of totally ending the lockdown is that the experience worldwide so far shows that the strictness of lockdowns does not correlate well with their degree of economic hardship. Many countries with lighter lockdown measures than South Africa are expected to end up with much sharper declines in GDP growth in 2020, such as Greece (-9.0%), Spain (-10,9%), Portugal (-9,8%), and Slovakia (-9,0%) - amongst others.

A study comparing Sweden and Denmark found that, whereas Sweden had a light lockdown, and Denmark a very stringent lockdown, aggregate consumption declined by about the same amount (25 to 27%) in both countries (Andersen et al., 2020). Another study found that people will tend to voluntarily self-isolate before governments institute mandatory lockdown measures (Chen et al., 2020). Chen et al. (2020, p.7) studying data from the USA and Europe concludes that avoiding or ending a lockdown “may not fully shield an economy from the COVID-19 shock and that the depression of economic activity may persist even after mandatory lockdown measures are lifted if people continue to voluntarily limit their mobility” – as they indeed found was the case in the USA and EU. Similarly, in the case of South Korea, it was found that “COVID-19 doesn’t need lockdowns to destroy jobs” (Aum et al., 2020, p.1). The implication is that even if lockdown measures are lifted, people will avoid risk if they now the virus is out there, and they will reduce consumption to raise precautionary savings. Knowing that this is how their consumers think and behave,

businesses would freeze their investment plans, new business creation would stagnate, and the economy would fall into a low-growth trap. This was what, in fact, prolonged the Great Depression in the 1930s (Shiller, 2020). In South Africa’s case, further consideration is that a smart lockdown, supported by a fiscal safety net, offers protection in particular to low-income households, who are more exposed in their jobs to being infected, and who have less possibility than high-income households to work from home or work in conditions that observe social distancing rules.

Thus, any claims by big business that South Africans have burdened under the longest and hardest lockdown in the world, and that it is the lockdown that is the main destroyer of the economy, do not rest on solid foundations. In fact, for a campaign instigated and led by the business sector, it shows remarkably little business foresight.⁹ Unless South Africa gets the COVID-19 pandemic under control, it would suffer long-term structural economic challenges that would depress growth and delay economic recovery. This is because COVID-19 is a highly contagious, global pandemic. The world is hardly likely to stand by silently and allow South Africa to be a hot-spot for uncontrolled incubation and spread of the virus. The case of New Zealand may be indicative: after the country got COVID-19 relatively efficiently under control (through a lockdown that was much stricter than South Africa’s), it suffered a second outbreak. The possibility is being investigated that it was imported on cold storage packaging after China reported detecting the virus on packaging of imported frozen seafood (Lewis, 2020; Menon, 2020). According to the WHO¹⁰ the virus can survive up to 72 hours on plastic and stainless steel.

Whether or not the New Zealand new outbreak was imported or not, countries would be justified in terms of the WTO regulations to block South African goods and citizens in the interest of keeping the virus out. And South Africa can forget about any tourists flocking back as long as the country does not have the pandemic under control. Countries such as the United Kingdom has even formally introduced a red list of countries judged to be unsafe for travel due to the coronavirus and requiring a 14-day quarantine period. South Africa, along with amongst others the USA, is on the red list.¹¹

The upshot is, a well-managed lockdown can bring the pandemic under control, save lives, signal government competence, build trust, allow the country to resume its international

⁹We suspect that the “infodemic” that has accompanied the COVID-19 outbreak is muddling the waters somewhat in South Africa through spreading misinformation and disinformation. Brennen et al. (2020, p.1) describes the extent of this infodemic globally, highlighting the spread of misinformation about COVID-19 through practices where “true information is spun, twisted, recontextualised, or reworked.”

¹⁰See: <https://tinyurl.com/y34ahbdm>

¹¹See: <https://tinyurl.com/yy8lzppe>

business sooner rather than later. In contrast the net benefits of altogether ending the lockdown are subject to great uncertainty. The importance here is that it is a well-managed lockdown: the fact that the government mismanaged the lockdown so far is no argument to scrap it. When the South African government imposed the lockdown in March 2020, it did so without any exit strategy. A “smart” lockdown, in contrast, is a lockdown with a “Goldilocks” exit: from which a country or region can exit not too soon, but neither too late.

4 A Goldilocks Lockdown?

The South African government has a moral responsibility to its citizens, and those of the world, to protect life against the pandemic. The pandemic is more rapidly spreading and more complex than was thought, and more virulent than the common flu. Data from China indicated that at the outbreak of the disease, the reproduction ratio (R_0) was around 2,5 (Anderson et al., 2020). More recent calculations from China estimate R_0 to have been 5,7 (Sanche et al., 2020). For South Africa, R_0 has been estimated at 2,95 (Mukandavire et al., 2020). It is thus highly contagious – the common flu has a reproduction ratio of between 1,1 and 1,5.

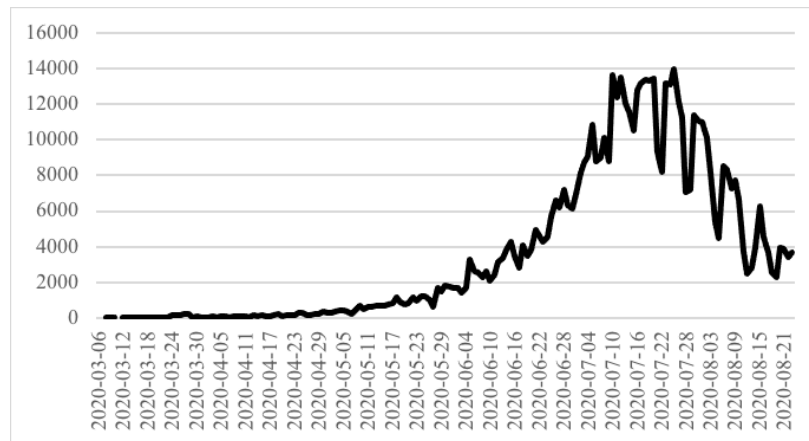
COVID-19 is also more deadly than the common flu: a Columbia University study found the Infection Fatality Risk (IFR) during the New York outbreak in March to be 1,45% for all people but 6,1% for 65-74 year-olds and as high as 17,0% for people older than 75 years (Yang et al., 2020). A study using seroprevalence data from Switzerland found an IFR of 0,6% for the total population, and an IFR of 5,6% for people older than 65 (Perez-Saez et al., 2020). According to estimates the IFR in South Africa has been put at either 0,4% (Walker et al., 2020) or 0,70% (Ghisolfi et al., 2020). The common flu has an IFR of between 0,1% and 0,2%. COVID-19 furthermore causes 1/16000 infected persons to require intensive care - in contrast to only 1/154000 who require intensive care in the case of influenza (Petersen et al., 2020).

Given its virulence and fatality, unless the virus is contained, it can impose a high health cost while the world waits for a vaccine to be developed (Amanat and Krammer, 2020), and to be made available in developing economies (Callaway, 2020). A smart lockdown, while coming with a price, can still over time also be the best economic response – but for this a number of conditions need to be met. Not all lockdowns are equal. South Africa’s lockdown has certainly been sub-optimal. It is not however a reason to end the lockdown but to make

it smarter. As was mentioned, and this needs stressing, the South African government (like many other governments around the world) imposed its lockdown without having an exit strategy in place. A smart lockdown is a lockdown that is oriented towards an exit at the right time. What would such a smart lockdown for South Africa look like?

First, it needs to be realized that, as Ornelas (2020, p.1) in a survey of lockdowns across the world concludes that “there is no ‘health vs. economics’ dichotomy. Rather, some degree of lockdown is typically optimal in a crisis like this, balancing its economic costs against its health benefits. Moreover, the optimal lockdown is dynamic, changes over time.” The aim is to save as many lives as possible and to shield the healthcare system from collapsing under the strain of large numbers of infected patients, and then to make an exit possible as soon as possible. The WHO has identified six categories of measures that a government needs to have in place before it can start to ease on lockdown measures.¹² In terms of these, South Africa does have some scope for a flexible lockdown, in particular regionally - it can be made more or less stringent at different locations as the situation indicates. Since the start of August 2020, the transmission of the virus in South Africa had been slowing down as measured by new infections (see Figure 3,) but this is not such that complacency can be afforded.

Figure 3: *Flattening or postponing the curve? Number of new daily COVID-19 cases in South Africa, 6 March - 23 Aug 2020*



Data source: Authors’ compilation based on Our World in Data COVID-19 dataset).

Second, decentralization of decision-making over lockdowns to lower levels of government is superior to a centralized response (Aubrecht et al., 2020), but under the condition that sub-national governments collaborate effectively - see the discussion of the Italian experience

¹²See: <https://tinyurl.com/y63knbls>

in Carinci (2020). A decentralized approach takes better into account the typical spatial heterogeneity of the virus' impacts, allows better coordination and social support where it is most needed, and facilitates learning and experimentation – important given the uncertainty surrounding many aspects of the disease (Collier, 2020). More pertinently, decentralization would be better than the current top-down approach dictated by the National Command Council. Bhorat et al. (2020) compiles a *Physical Interaction Index* (PX) for South Africa. It shows that the “degree of physical interaction,” which could reflect the possibility of transmission, differs across the nine provinces. It is lowest in more rural provinces such as the Northern Cape and Free State. This does not preclude however, that it can spread to rural areas. Lockdown measures therefore will have the best impact with a decentralised, spatial focus.

Third, given its demographic profile, it is not advisable for the country to follow a blanket Western-style lockdown. The mortality risk of COVID-19 has been established to be much higher for those older than 80 years (Dowd et al., 2020). In South Africa, the population is overwhelmingly young – the median age of the population is only 27,3 years. The proportion of the population that are thus at the highest risk – those older than 70 years is only 3 percent. For South Africa, an “age-specific lockdown policy” (see Alon et al. (2020)) is *de riguer*.

Fourth, special support needs to be tailored to get young people into jobs or entrepreneurship. Young people who are affected by an epidemic have been found to have subsequently much less trust in governments, political leaders, and in elections (Aksoy et al., 2020). Because trust is an important requirement for government policies to be effective to curb the spread of the virus (Fukuyama, 2020) and the fact the lockdown in its current form is strongly re-distributive from the young to the old (Glover et al., 2020), suggest that the fuse on the political time-bomb of millions of disgruntled, unemployed and unemployable youth has just been shortened significantly. The youth needs to be the major beneficiary of the emergency financial support package.

Fifth, smart lockdowns are based on data-driven decision-making. Accurate real-time data can help pinpoint who and how many are infected, and support identification, isolation, and contact-tracing¹³. The key in this respect is testing (Dewatripont et al., 2020). Testing will allow identifying who is infected and who is immune, allowing people who are not a risk to resume their normal economic activities (Eichenbaum et al., 2020). It does not have to be universal random testing, which may not be feasible, but rather the more affordable approach

¹³Data analytics can also help gauge the extent to which various sectors and businesses can institute remote working or can continue activities without workers coming in close physical proximity. See, for instance, the Physical Proximity Index (PX) for South Africa estimated by Bhorat et al. (2020).

of stratified periodic testing (Cleevely et al., 2020). With more than 3,5 million tests already carried out, the country has proven that it does have some capacity in this regard. It needs to ensure that it keeps having access to test kits, and if necessary, lobby internationally, e.g. through the Africa Centre for Disease Control and Prevention or WHO to ensure supplies (Akinwotu, 2020). Given also that testing in the country currently costs around an estimated ZAR 1200 (US\$60) per test, it would be helpful to encourage innovations to bring down this cost. In Senegal for instance, a 1 US\$ test has been reported to be in development (Yeung, 2020).

Finally, the smart lockdown needs to be underpinned by an appropriate economic recovery plan and strategy – one that looks beyond the short-term towards the strengthening of the resilience of the economy to future pandemics, which given climate change and land-use patterns, are likely to continue posing risks. Because this is such a vital element of any lockdown exit-strategy, we will devote the next section to argue for a stronger focus on demand-side and export-led recovery measures.

5 An Export-Led Economic Recovery?

The economic contraction due to COVID-19 would have been less if South Africa had better provision of social security and health insurance, broader, better and more equal access to digital infrastructure to work and school from home, better-equipped hospitals, a more diversified economy and better governance to limit corruption. Putting these in place will take time - but are necessary given the likelihood of a future pandemic or similar global economic shock.

Over the shorter term, however, recovery will depend on what happens to aggregate demand. For the foreseeable future, neither the government nor South African households should be counted on as sources of demand growth. The government’s debt levels and hence lack of fiscal space (Bhorat et al., 2020) and rising unemployment and uncertainty (Spaull and et al., 2020) precludes this. Getting aggregate demand going is one of the most significant challenges for post-COVID-19 recovery.

Unfortunately, the economic recovery plan that the government has in mind seems to miss this perspective. The National Treasury envisaged “deeper reforms” to get the economy going after the pandemic, and in particular, points to the need for such reforms to increase savings and innovation, raise productivity, lower the cost of doing business, reform

state enterprises, including in electricity¹⁴ provision, and to reduce the skills deficit (DNT, 2020a). The organized business sector seems to have a similar recovery strategy in mind. Representative recent examples include Bernstein (2020) and the essays in Parsons (2020) that emphasize investment in infrastructure, skills development, and maintenance of “free markets.”

These measures, including those more generally set out in the government’s longer-term development strategy,¹⁵ and the emphasis by organized business on infrastructure and skills, are supply-side oriented. Their fundamental basis is in (endogenous) economic growth theory, which is a theory in which demand constraints cannot exist (supply creates its own demand). Essentially, the South African government’s economic recovery plan is based on the implicit view that the COVID-19 crisis reinforces the need for these supply-side policies, as in its interpretation, the crisis has damaged the “productive capacity” of the economy (DNT, 2020a, p.27). While South Africa does need to upgrade its productive capacity and the supply-side measures mentioned have merit, they will be necessary but not sufficient in the context of a COVID and post-COVID economy.

The COVID-19 shock, which started as a supply-shock, rapidly evolved into a demand-side shock (also referred to as a Keynesian Supply-Side shock). As (Naudé, 2020) explains, with rising unemployment, consumption expenditure will decline, households and firms will increase savings to rebuild depreciated assets, and government investment spending will be diverted to more short-term needs. The significance of the demand-side shock is, in the case of South Africa, particularly evident from the continuous decline in the country’s imports - reflecting the drop in domestic demand. Whereas in January 2020 the country showed a 2.1% increase in imports compared to January of 2019, by June 2020 the comparative value of imports have declined by -33.4%, with -22.0% in May and -17.7% in April.¹⁶ While the nominal effective exchange rate (NEER) did weaken, we find that the correlation between

¹⁴Bhorat et al. (2020, p.17) are correct to point out that “the supply issues at the country’s power utility, Eskom, remain a massive constraint to investment and productivity. As such, there is much potential for this crisis to act as a catalyst for dealing with a number of pressing structural issues hindering long-run growth in South Africa”.

¹⁵See: Economic Transformation, Inclusive Growth, and Competitiveness: Towards an Economic Strategy for South Africa.

¹⁶Hall et al. (2020, p.1) asks the following terrible question: “What is the maximum amount of consumption that a utilitarian welfare function would be willing to trade-off to avoid the deaths associated with the pandemic?” The answer depends on the Infection Fatality Rate (IFR). They calculate that with an IFR of 0,44%, close to that of 0,40% estimated for South Africa by Walker et al. (2020), that it would be a 28% drop in consumption in a year - a number which seems close to the drop in consumption implied by the decline in South African imports. If the South African IFR however, is 0,70% as estimated by Ghisolfi et al. (2020) then the country ought to be willing to trade-off a much more considerable amount of consumption in order to save lives than it has so far.

changes in imports and the NEER is too small to explain these large changes.

This demand contraction is likely to exceed the supply-side shock (Eichenbaum et al., 2020; Andersen et al., 2020). With government and households being fiscally constrained, this leaves export growth as one of the few potential channels to stimulate recovery. But how realistic is it, given what has been said about the shrinking of the world economy, for South Africa to export its way out of the recession? A definite answer falls outside the scope of this paper and is left for a future study to provide. For present purposes though, we wish to argue that there may perhaps be more scope for an export-led recovery than may be commonly imagined.

To motivate this, first note that after the 2009/2010 Global Financial Crisis, export support was one of the most widely used measures to spur on recovery, particularly in emerging economies (Evenett, 2020). Secondly, while the COVID pandemic has played havoc on international transport logistics, especially associated with international air cargo and passenger travel, globally, the trade of goods has continued to flow, albeit with interruptions, delays, and in some cases, no access.

Not surprisingly, this had a noticeable impact on South Africa's reported exports for April 2020. However, by May 2020, export values were back to 2019 value levels and even up compared to the preceding four years for the month of June,¹⁷ as Figure 4 shows.

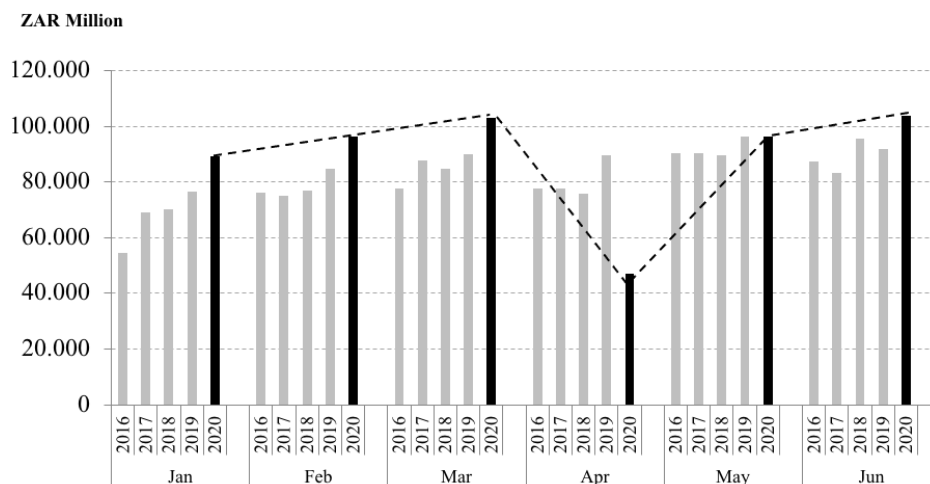
Thirdly, the promotion of exports of products will sit relatively easy (-ier) with lockdown requirements, given the finding of Bhorat et al. (2020) that it is easier to limit proximity and keep distancing in industries such as agriculture and manufacturing than in services. According to Bhorat et al. (2020, p.51) the industries in South Africa where workers are least at risk from transmission and who can thus be the "first to be phased back to work" include "the entire primary sector – Agriculture, Manufacturing, and Mining", which constitutes "around 35 percent of total employment". These are also the main sectors of exports from the country.

Fourthly, supporting export growth and diversification more vigorously as a COVID-19 recovery strategy would be consistent with proposals for local import-substitution manufacturing support (as exporting will allow economies of scale to be achieved in production, increase much-needed forex earnings, and supporting price competitiveness), and for raising aggregate savings needed for investment. The diversification of exports would reduce the

¹⁷Note however that South Africa's exchange rate movements over this period also influenced the reported export values.

vulnerability of the economy to future global shocks.

Figure 4: *Total exports from South Africa compared by month (2016 – 2020)*



Data source: Authors’ calculations based on South African Revenue Services (SARS), Department of Customs and Excise – Trade Statistics, July 2020.

Finally, an export-led recovery strategy would benefit from a smart lockdown strategy, as it would reassure the country’s global partners that the country is safe to trade with and eventually visit.

6 Concluding Remarks

South Africa has lost the first battle against COVID-19. After a promising start, the government has mismanaged the lockdown aimed at containment, and the business sector has reacted in knee-jerk fashion, campaigning for the lockdown to be altogether lifted. At the same time, the economy has, as could have been expected, contracted significantly. Having lost a battle, the question is whether the country can win the war against the pandemic, and ultimately economic against decline?

In this paper, we argued that there is no health vs economy (or life vs livelihoods) dichotomy. A lockdown, if well-managed, can save lives, reduce pressure on healthcare facilities, and moreover, limit economic damages and position the economy on a path of a more certain long-term recovery. The economy will not rebound by as much as it potentially can because

the threat of a second or third wave with its potential associated health costs is possible (López and Rodó, 2020) - as have recently been observed in countries such as New Zealand, Australia, and France. The global community will not look kindly on South Africa as a potential reservoir for the incubation and spread of COVID-19 to the rest of the world. Not getting the disease under control risk making South Africa globally isolated – which will entail a substantial price.

It should be kept in mind that at the time of writing, there are around 25 million cases of infection and almost one million deaths globally. The prospects of a vaccine, and moreover its availability, is still a long way off. The pandemic is going to dominate the global economic and political scene for the foreseeable future (Shiller, 2020). South Africa cannot, in such a global context, go it alone. Eventually, the country will have to get the disease under control. The global nature of the pandemic was underscored in a joint statement¹⁸ signed in April by 18 African and EU leaders, which recognized that “No region can win the battle against Covid-19 alone. If it is not beaten in Africa, it will return to haunt us all.”

It is wishful to think that abandoning all lockdown measures while the disease is still spreading, as the “Business for Ending the Lockdown” campaign and others are demanding, will end the economic challenges the country is facing. Abandoning the lockdown prematurely is risky not only from a health perspective but from an economic perspective. There is no certainty that lifting the lockdown will come with substantial net benefits over the foreseeable horizon. Quite the opposite could be the case. Breaking with government and creating the impression, wrongly or not, to want to abolish any form of lockdown and thus potentially put millions of poor workers in the front-line of a global pandemic for the sake of uncertain economic benefits, and to merely revert to its mantra that business and the private sector is the only option to create jobs and reduce historical inequalities,¹⁹ may perhaps be the wrong response at the wrong time by big business. At the least, big business should be more sensitive to the point made by Acemoglu and Robinson (2013) and consider the possible “counterproductive political implications to economic policies that improve the standing of

¹⁸See <https://tinyurl.com/y4dq9b2f>

¹⁹Bernstein (2020) who is no spokesperson for big business but whose views largely echo those of many in the sector, argues that for the country to recover from COVID-19, the organized business sector needs to “...make the compelling case for a market-centred, private sector-driven strategy for recovery, growth, and inclusion,” stressing that “our state is weak, corrupt and ineffective.” These statements omit to take into consideration the collaboration between big business and misguided and corrupt politicians in the country’s oppression, from Apartheid to the State Capture Scandal. As Southall (2008, p.281) mildly puts it “... political power holders and established business have forged close connections across the public and private divide which at times have bordered on the criminal.” It is also inconsistent for Bernstein (2020) to diagnose the problem as a “weak, corrupt and ineffective state” and then call for an “expansion of the public works programme” and claim that “publicly funded jobs could play a key role in creating opportunities.”

already dominant groups and interests in society.”

While it cannot be business as usual it also cannot be lockdown as usual. The government has mismanaged the lockdown as reflected in its failure to prevent the looting of emergency funding, in the discriminatory allocation of such funding, in the draconian and brutal actions of the police, and in the many illogical, irrational, and inconsistent measures that characterized the lockdown. The failure of the government’s centralized, top-down approach through its “National Command Council” should be taken as a general lesson also for its “National Democratic Revolution” approach towards economic development, which now, like its lockdown, is in a shambles.

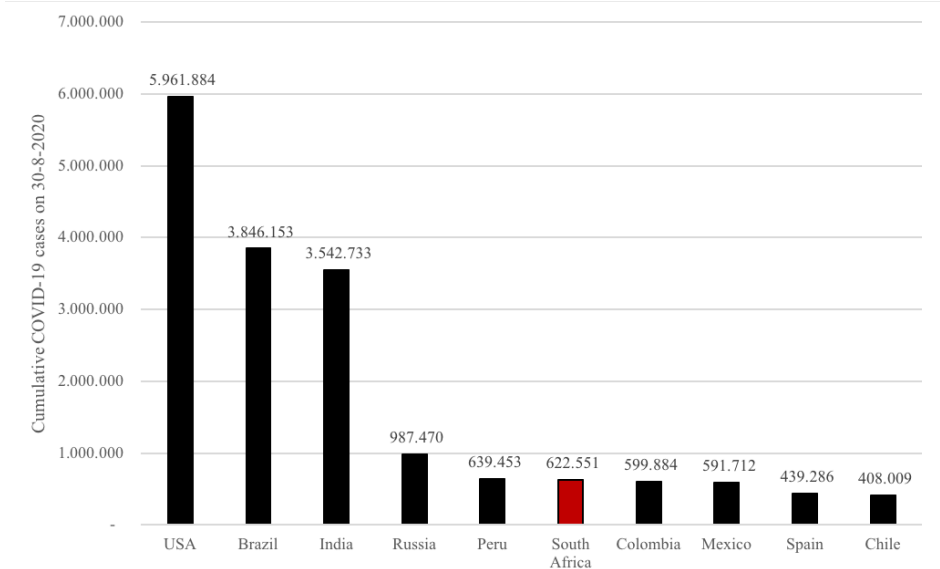
The fact that the government mismanaged the lockdown is however, not a reason to scrap it. Lockdown measures are necessary in case of a virulent pandemic for which there is at the time of writing still no vaccine, and has helped curb the spread of the disease in South Africa and elsewhere. When the South African government implemented the lockdown in March 2020, it had no exit strategy. This should not now take to mean that an abrupt exit is justified. South Africa instead needs a smart lockdown, which is a “Goldilocks” lockdown with an exit strategy not too soon, but not too late either. This paper highlighted six elements of such a Goldilocks lockdown: it should be flexible, based on massive testing, decentralized, age-specific, youth-supporting, and promote a demand (export)-led economic recovery. Regarding the latter, we reported that by May 2020, South Africa’s export values were back to 2019 nominal value levels and even higher than in the preceding four years in June.

With its high levels of inequality, with growth having stagnated for a decade, with the economic pie shrinking, with trust in government gone, and with the business sector in defensive mode, the dominant game in South Africa has become a zero-sum game. In a zero-sum game society, polarization and conflict over the existing economic pie tilt the incentives against investment, innovation, and entrepreneurship, and in favor of non-productive, destructive and rent-seeking behavior (Baumol, 1990; Davidai and Ongis, 2020). Manifesting after the loss of up to ZAR 1,5 trillion (US\$ 70 billion) (three times as much as the COVID-19 relief funding) embezzled during the State Capture Scandal (Merten, 2019; Myburgh, 2017) the pandemic threatens to consign the country to failed state status. The fact that both the government and business sector have responded poorly and are now at loggerheads could hasten this outcome. It is therefore urgent that both parties drastically change direction and pull together on a smart lockdown if the war on the pandemic, and ultimately on poverty and stagnation, is to be won.

Appendices

Appendix A

Figure 5: *Ten most affected countries in terms of total number of COVID-19 cases, 30 August 2020*

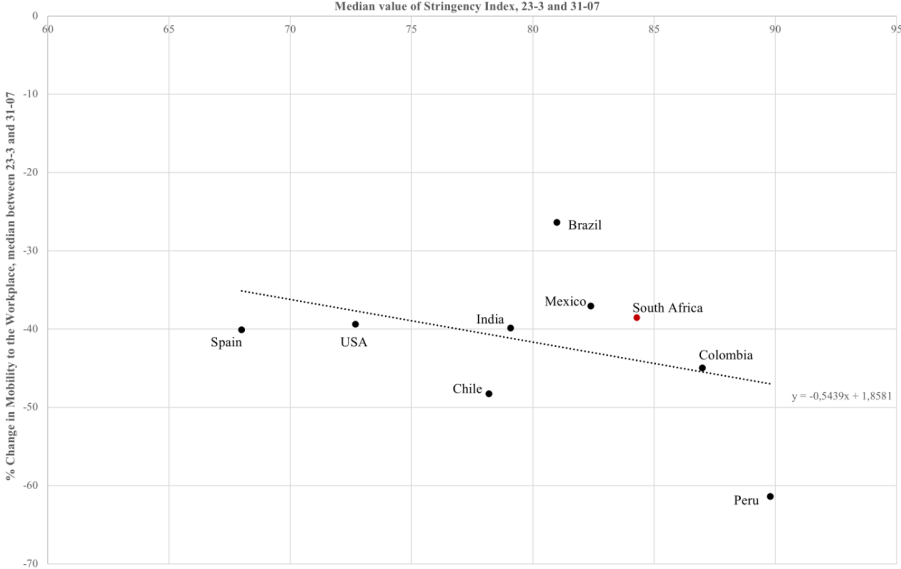


Data source: Authors' compilation based on data from Johns Hopkins University COVID-19 Tracker.

Figure 5 shows that on 30 August 2020 South Africa was the country with the 6th most confirmed COVID-19 cases in the world - 622,551. In terms of cases per 100,000 of the population, the country was similarly at 6th place, with 1,050 cases per 100,000. At this date, the country with the highest number of cases per 100,000 population was Peru, with 1,939 confirmed cases per 100,000. Compared to the other most affected countries in Figure 5, South Africa is in number 8th position in terms of the number (24) of COVID-19 deaths per 100,000. Note however that due to inconsistencies between how countries record deaths, a better indicator of the fatality of COVID-19 may be the rate of excess deaths, see Leon et al. (2020). In Figure 7 (Appendix 7) it is shown that by end of July 2020 there was 65% more deaths in South Africa than was expected based on historical patterns. It is an indication that the reported number of COVID-19 deaths in the country is likely an under-count.

Appendix B

Figure 6: *Stringency Index and % change in workplace mobility, 23 March to 31 July 2020, ten most affected countries*

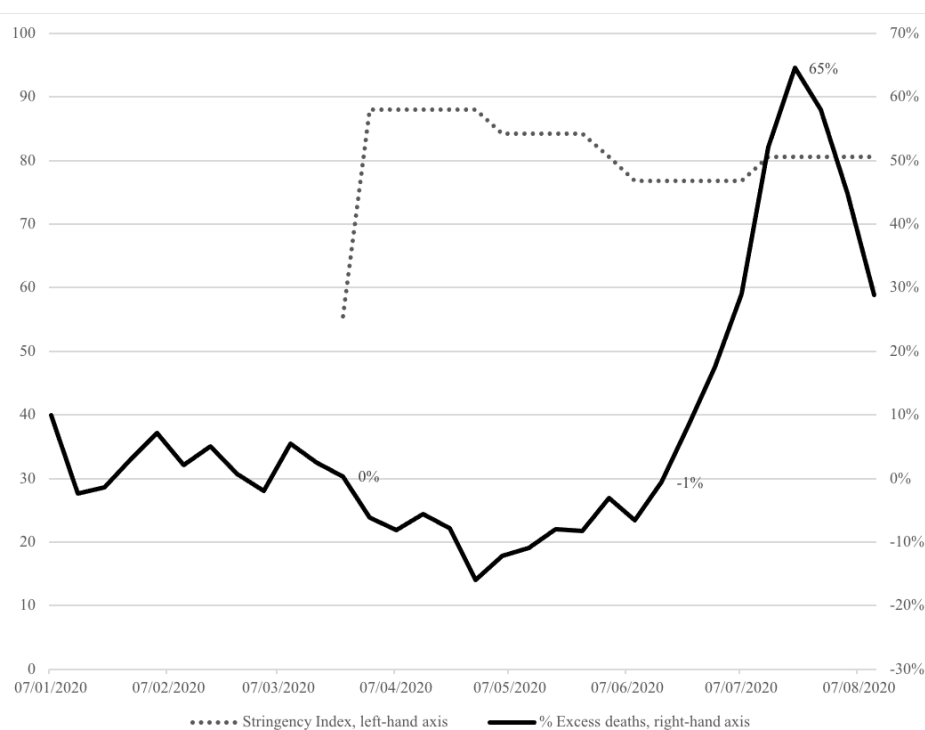


Data source: Authors’ compilation based on data from Our World in Data and the Oxford COVID-19 Government Response Tracker (OxCGRT).

Figure 6 contains a scatterplot of the Stringency Index and the decline in workplace mobility (from Google’s mobility trends, see <https://www.google.com/covid19/mobility/>) as compiled by Our World in Data (see <https://ourworldindata.org/covid-mobility-trends>). The figure suggest, as could be expected, a negative relationship between the stringency of a lockdown, and the disruptions to travel to work. The figure furthermore indicates that South Africa, although having a rather stringent lockdown, did not have the severest lockdown in the world, neither in terms of the Stringency Index nor Google’s Mobility Trends Data.

Appendix C

Figure 7: *South Africa: Excess deaths (%) and lockdown stringency per week, 7 January 2020 to 18 August 2020*



Data source: Authors' compilation based on data from The Economist Excess Death Tracker (available on GitHub) and the Oxford COVID-19 Government Response Tracker (OxCGRT).

Figure 7 plots the level of stringency of South Africa's lockdown together with the percentage of excess deaths over the period 7 January 2020 to 18 August 2020. It shows that when the country's lockdown was first imposed, in the last week of March, that there were no excess deaths. Following the imposition of the strict lockdown, the number of actual deaths was lower than the long-term average. In the week ending 28th April, deaths had fallen to the lowest level below normal (-16%) and the lockdown was subsequently relaxed. However, by the week ending on 23 June, excess deaths were positive and were starting to rise. It would continue to rise steeply as the number of cases of COVID-19 spread exponentially (see Figure 1). By the end of the week of 21 July 2020, excess deaths in South Africa stood at 65%. While the lockdown was made a bit more strict during the previous week, it begs the question whether the lockdown was not perhaps prematurely relaxed in June.

References

- Acemoglu, D. and Robinson, J. (2013). Economics versus Politics: Pitfalls of Policy Advice. *Journal of Economic Perspectives*, 27(2):173 – 192.
- Akinwotu, E. (2020). Experts Sound Alarm over Lack of Covid-19 Test Kits in Africa. *The Guardian*, 26th May.
- Aksoy, C. G., Eichengreen, B., and Saka, O. (2020). The Political Scar of Epidemics. *NBER Working Paper No. 2740*, National Bureau of Economic Research.
- Alon, T., Kim, M., Lagakos, D., and VanVuren, M. (2020). How Should Policy Responses to the COVID-19 Pandemic Differ in the Developing World? *NBER Working Paper No. 27273*, National Bureau of Economic Research.
- Amanat, F. and Krammer, F. (2020). SARS-CoV-2 Vaccines: Status Report. *Immunity*, 52(4):583–589.
- Anciano, F., Cooper-Knock, S., Dube, M., Majola, M., and Papane, B. (2020). “We are still waiting” - Protesting under Lockdown in South Africa. *Open Democracy*, 24th April.
- Andersen, A., Hansen, E., Johannesen, N., and Sheridan, A. (2020). Consumer Responses to the COVID-19 Crisis: Evidence from Bank Account Transaction Data. *CEBI Working Paper Series 18/20*. University of Copenhagen.
- Anderson, R., Heesterbeek, H., Klinkenberg, D., and Hollingsworth, T. (2020). How will country-based mitigation measures influence the course of the COVID-19 epidemic? *The Lancet*, 395:931–934.
- Aubrecht, P., Essink, J., Kovac, M., and Vandenberghe, A. (2020). Centralized and Decentralized Responses to COVID-19 in Federal Systems: US and EU Comparisons. *Law & Economics of Covid-19 Working Paper 04/2020*. Erasmus University Rotterdam and University of Ljubljana.
- Aum, S., Lee, S., and Shin, Y. (2020). COVID-19 Doesn’t Need Lockdowns to Destroy Jobs: The Effect of Local Outbreaks in Korea. *NBER Working Paper No. 27264*, National Bureau of Economic Research.
- Bateman, C. (2020). Business Warns of ‘Economic Ruin’, Via Covid - 19 Lockdown. *BizNews*, 14th May.

- Baumol, W. (1990). Entrepreneurship: Productive, Unproductive and Destructive. *The Journal of Political Economy*, (98):893–921.
- Bernstein, A. (2020). Business must raise its voice and take the lead in SA’s fight for survival. *Business Day*, 19th August.
- Bhorat, H., K’ohler, T., Oosthuizen, M., Stanwix, B., Steenkamp, F., and Thornton, A. (2020). The Economics of Covid-19 in South Africa: Early Impressions. *DPRU Working Paper 202004*, University of Cape Town.
- Bloom, N., Bunn, P., Chen, S., Mizen, P., and Smietanka, P. (2020). The Economic Impact of Coronavirus on UK Businesses: Early Evidence from the Decision Maker Panel. *VOX CEPR Policy Portal*, 27th March.
- Boone, L. (2020). OECD Economic Outlook: The World Economy on a Tightrope. *Paris, OECD*, 11 June.
- Brennen, J., Simon, F., Howard, P., and Nielsen, R. (2020). Types, Sources, and Claims of COVID-19 Misinformation. *Reuters Institute for the Study of Journalism, Oxford Martin Programme on Misinformation, Science and Media. University of Oxford*.
- Callaway, E. (2020). The Unequal Scramble for Coronavirus Vaccines - By The Numbers. *Nature*, 584:506–507.
- Carinci, F. (2020). Covid-19: Preparedness, Decentralisation, and the Hunt for Patient Zero: Lessons from the Italian Outbreak. *British Medical Journal*, 368(bmj.m799).
- Chen, S., Igan, D., Pierri, N., and Presbitero, A. (2020). Tracking the Economic Impact of COVID-19 and Mitigation Policies in Europe and the United States. *IMF Research Special Series on Covid-19*, 6th May.
- Cleavelly, M., Susskind, D., Vines, D., Vines, L., and Wills, S. (2020). Stratified Periodic Testing: A Workable Testing Strategy for Covid-19. *VoxEU CEPR*, 6 May.
- Cohen, M. (2020). Business Cheers Plans to Reopen South Africa’s Economy. *Bloomberg*, 25 May.
- Collier, P. (2020). The Problem of Modelling: Public Policy and the Coronavirus. *TLS*, 24th April.
- Curren, L. (2020). COVID-19 exposes SA’s ‘covert’ crisis in the medical device sector. *Medical Brief*, 29th April.

- Davidai, S. and Ongis, M. (2020). The Politics of Zero-Sum Thinking: The Relationship Between Political Ideology and the Belief that Life is a Zero-Sum Game. *Science Advances*, 5:eaay3761.
- Dewatripont, M., M.Goldman, Muraille, E., and Platteau, J.-P. (2020). Rapidly Identifying Workers who are Immune to COVID-19 and Virus-Free is a Priority for Restarting the Economy. *VOX CEPR Policy Portal*, 23 March.
- DNT (2020a). The COVID-19 shock and the revised economic outlook, Chapter 3. 2020 Supplementary Budget Review. *Pretoria: Department National Treasury, South African Government*.
- DNT (2020b). Supplementary Budget 2020: Building a Bridge to Recovery Beyond COVID-19. *Pretoria: Department National Treasury, South African Government*.
- Dowd, J., Andriano, L., Brazel, D., Rotondi, V., Block, P., Ding, X., Liu, Y., and Mills, M. (2020). Demographic Science Aids in Understanding the Spread and Fatality Rates of COVID-19. *Proceedings of the National Academy of Sciences*, DOI:10.1073/pnas.2004911117.
- Eichenbaum, M., Rebelo, S., and Trabandt, M. (2020). The Macroeconomics of Epidemics. *NBER Working Paper No. 26882, National Bureau of Economic Research*.
- Evenett, S. (2020). What's next for protectionism? Watch out for state largesse, especially export incentives. In Baldwin, R. and Evenett, S.J. eds. *COVID-19 and Trade Policy: Why Turning Inward Won't Work*. London: CEPR.
- Ferguson, N., Laydon, D., Nedjati-Gilani, G., N.Imai, and et al (2020). Report 9: Impact of Non-Pharmaceutical Interventions (NPIs) to Reduce COVID-19 Mortality and Healthcare Demand. *Imperial College London*.
- Fukuyama, F. (2020). The Thing that Determines a Country's Resistance to the Coronavirus. *The Atlantic*, 30 March.
- Ghisolfi, S., Almas, I., Sandefur, J., von Carnap, T., Heitner, J., and Bold, T. (2020). Predicted COVID-19 Fatality Rates Based on Age, Sex, Comorbidities, and Health System Capacity. *Working Paper no. 535, Centre for Global Development*.
- Glover, A., Heathcote, J., Krueger, D., and Rios-Rull, J.-V. (2020). Health versus Wealth: On the Distributional Effects of Controlling a Pandemic. *Covid Economics*, Issue 6(17 April).

- Haffajee, F. (2020a). Fix South Africa or fix the ANC - Ramaphosa can't do both. *The Daily Maverick*, 10 Aug.
- Haffajee, F. (2020b). Ramaphosa calls 11 lockdown deaths and 230,000 arrests an act of 'over-enthusiasm' - really! *The Daily Maverick*, 1 June.
- Hall, R., Jones, C., and Klenow, P. (2020). Trading Off Consumption and COVID-19 Deaths. *NBER Working Paper No. 27340, National Bureau of Economic Research*.
- Harding, A. (2020). South Africa's Ruthlessly Efficient Fight Against Coronavirus. *BBC News*, 3 April(<https://www.bbc.com/news/world-africa-52125713>).
- Hou, C., Chen, J., Zhou, Y., Hua, L., Yuan, J., and et al. (2020). The Effectiveness of Quarantine of Wuhan City Against the Corona Virus Disease 2019 (COVID-19): A Well-Mixed SEIR Model Analysis. *Journal of Medical Virology*, 92:841– 848.
- Iacobucci, G. (2020). Covid-19: Deprived Areas have the Highest Death Rates in England and Wales. *British Medical Journal*, 369(m1810).
- IMF (2020). World Economic Outlook Update, June. *International Monetary Fund. Washington DC*.
- Karim, S. (2020). The South African Response to the Pandemic. *New England Journal of Medicine*, 382(e95).
- Katzenellenbogen, J. (2020). Business Breaks with Government Over Lockdown: Where to Now? *BizNews*, 14 May.
- Lancaster, L. and Mulaudzi, G. (2020). Rising Protests are a Warning Sign for South Africa's Government. *ISS Today, Institute for Security Studies*, 6 August.
- Leon, D., Shkolnikov, V., Smeeth, L., Magnus, P., Pechholdova, M., and Jarvis, C. (2020). COVID-19: A Need for Real-Time Monitoring of Weekly Excess Deaths. *The Lancet*, 395:e81.
- Lewis, D. (2020). 'We felt we had beaten it' : New Zealand's Race to Eliminate the Coronavirus Again. *Nature*, 584(336).
- López, L. and Rodó, X. (2020). The End of Social Confinement and COVID-19 Re-Emergence Risk. *Nature Human Behaviour*, 4:746 – 755.
- Menon, P. (2020). New Zealand considers freight as possible source of new coronavirus cluster. *Reuters*, 12th August.

- Merten, M. (2019). State Capture Wipes out a Third of SA’s R4,9 trillion GDP. *The Daily Maverick*, 1 March.
- Mukandavire, Z., Nyabadza, F., Malunguza, N., Cuadros, D., Shiri, T., and Musuka, G. (2020). Quantifying Early COVID-19 Outbreak Transmission in South Africa and Exploring Vaccine Efficacy Scenarios. *Plos ONE*, 15(7):e0236003.
- Myburgh, P.-L. (2017). *The Republic of Gupta: A Story of State Capture*. London: Penguin.
- Myburgh, P.-L. (2020). Ace Magashule’s sons each bag a Free State Covid-19 contract. *The Daily Maverick*, 31 July.
- Naidoo, P. (2020). South Africa Business Confidence Drops to Record Low on Lockdown. *Bloomberg*, 10th June.
- Naudé, W. (2020). Entrepreneurial Recovery from COVID-19: Decentralization, Democratization, Demand, Distribution, and Demography. *IZA Discussion Paper no. 13436*, Bonn: IZA Institute of Labor Economics.
- Nordling, L. (2020). Our Epidemic Could Exceed a Million Cases: South Africa’s Top Coronavirus Advisor. *Nature*, 583(672).
- OECD (2020). Combatting COVID-19 Disinformation on Online Platforms. *Organization for Economic Development and Cooperation*. Paris.
- Oliver, G. (2020a). Six ways COVID-19 is changing South Africa. *The New Humanitarian*, 28 May.
- Oliver, G. (2020b). South Africa’s COVID Relief Fund Dogged by Delays and Corruption. *The New Humanitarian*, 27th August.
- Ornelas, E. (2020). Lockdown 101: Managing Economic Lockdowns in an Epidemic. *CESifo Working Paper No. 8455*. Munich.
- Parsons, R. (2020). Recession, Recovery, and Reform: South Africa after Covid-19. *Jacuna Media*.
- Perez-Saez, F., Lauer, S., Kaiser, L., and et al. (2020). Serology-informed Estimates of SARS-COV-2 Infection Fatality Risk in Geneva, Switzerland. *OSF Preprints*, June 12.
- Petersen, E., Koopmans, M., Go, U., Hamer, D., Petrosillo, N., Castelli, F., Storgaard, M., Khalili, S., and Simonsen, L. (2020). Comparing SARS-CoV-2 with SARS-CoV and influenza pandemics. *The Lancet*, 20:1 – 7.

- Sanche, S., Lin, Y., Xu, C., Romero-Severson, E., Hengartner, N., and Ke, R. (2020). High Contagiousness and Rapid Spread of Severe Acute Respiratory Syndrome Coronavirus 2. *Emerging Infectious Diseases*, Jul. <https://doi.org/10.3201/eid2607.200282>.
- Schrage, M. (2020). Data, Not Digitalization, Transforms the Post- Pandemic Supply Chain. *MIT Sloan Management Review*, 29th July.
- Shiller, R. (2020). Why We can't Foresee the Pandemic's Long - Term Effects. *The New York Times*, 29th May.
- Southall, R. (2008). The ANC for Sale? Money, Morality & Business in South Africa. *Review of African Political Economy*, 35(116):281–299.
- Spaull, N. and et al. (2020). NIDS - CRAM Wave 1 Synthesis Report: Overview and Findings. <https://cramsurvey.org/reports/>.
- van den Heever, A. (2020). South Africa's universal health coverage reforms in the post - apartheid period. *Health Policy*, 120(12):1420 – 1428.
- Vandome, C. (2020). COVID-19 in South Africa: Leadership, Resilience and Inequality. *Chatham House*, 7 May.
- Vinceti, M., Filippini, T., Rothman, K., Ferrari, F., Goffi, A., Maffei, G., and Orsini, N. (2020). Lockdown timing and efficacy in controlling COVID-19 using mobile phone tracking. *EclinicalMedicine*, July.
- Walker, P. G., Whittaker, C., Watson, O., Baguelin, M., Ainslie, K. E. C., and et al. (2020). The Global Impact of COVID-19 and Strategies for Mitigation and Suppression. *Imperial College COVID-19 Response Team 12*.
- World Bank (2020). COVID-19 to Plunge Global Economy into Worst Recession since World War II. *Press Release, 8th June. Washington DC*.
- Yang, W., Kandula, S., Huynh, M., Greene, G., Wye, G. V., Li, E., Chan, Y., McGibbon, E., Yeung, A., Olson, D., Fine, A., and Shaman, J. (2020). Estimating the Infection Fatality Risk of COVID-19 in New York City, March 1 - May 16, 2020. *medRxiv*.
- Yeung, P. (2020). Cheap and easy \$ 1 coronavirus test to undergo trials in Senegal. *New Scientist*, 13 May.
- Zolfaghari, B. (2020). Why we need to be able to trust our government in a time of crisis. *Mail & Guardian*, 17 April.