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Slowing the population growth is vital for South Africa's economic recovery

An Inclusive Society Institute report

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SLOWING THE POPULATION GROWTH RATE IS VITAL FOR SOUTH AFRICA'S ECONOMIC RECOVERY

Abstract

The South African economy is currently on its knees, with public policymakers seized with finding solutions to bring about economic recovery. In tinkering with the economic architecture, no effort is being spared to promote GDP growth. This report suggests, however, that GDP growth on its own is incapable of placing the economy on a sustainable growth path. Equal importance has to be afforded to reducing the currently too high population growth rate. One without the other will fail to address the most pressing problem confronting the economy – unsustainably high unemployment.

Through analyses, a number of scenarios linking GDP and population growth variations are explored to test the impact of their interconnectivity on reducing the country's critically high levels of unemployment. It finds that unless the country is able to place its population growth rate onto a downward curve, it is highly improbable that sufficient GDP growth can be established to adequately address the country's unemployment crisis.

It recommends that the South African authorities, and indeed broader society, grasp the urgency to start addressing the population growth problem, that they prioritise programmes to give effect thereto, and that they recognise that avoiding the inevitable will come with prolonged suffering and at great cost to the economy.

Introduction

Unemployment has reached an all-time high in South Africa. As at the end of the first quarter of 2020, the official unemployment rate stood at 30,1 percent. Whilst it did decline to 23,3 percent in the second quarter of 2020, this was because of the increase in the expanded unemployment rate, which rose by 2,3 percentage points compared to Q1:2020. This was due to the significant increase in the number of people that were available for work, who are no longer actively looking for work (Stats SA, 2020(a)). In terms of the expanded definition of unemployment, the rate soared from 39,7 percent to 42 percent (Zwane, 2020).

Of particular concern is the extreme unemployment amongst the youth of South Africa. Unemployment in the age group 15-24 for 2020 stood at 55,97 percent (Statista, N.d.).

At the same time, GDP has also been falling. According to Statistics South Africa, the economy, at the time of writing this article, registered three consecutive quarter on quarter declines. GDP (seasonally adjusted and annualised) in the first quarter of 2020, fell by two percent. It contracted by 1,4 percent and 0,8 percent in the fourth and third quarters of 2019, respectively (Stats SA, 2020(b)). Much emphasis has been placed on the need for material GDP growth to arrest the spiralling unemployment. To reduce unemployment to about ten percent, the South African economy will have to register growth of around five to six percent per annum for the next twenty years (Cotterill, 2019). This, whilst average GDP growth over the ten-year period 2009 to 2018 averaged a mere 1,5 percent (CRA, 2020:86).

Mainstream arguments advanced by the South African government as to the root causes for the growing unemployment include the legacy of apartheid and poor education and training, labour demand – supply match, the hangover effect of the 2008/2009 global recession, the role of trade union federations in government, a general lack of interest for entrepreneurship and slow economic growth (RSA, N.d.).

Little mention is made in the general public discourse of the impact that the relatively high population growth has on the economy's ability to generate sufficient numbers of jobs to satisfy the demand. This whilst empirical evidence confirms the link between population growth and the economy's ability to generate sufficient jobs. It furthermore suggests that by reducing population growth in middle income countries, it seems to benefit mainly young workers aged 15 to 19 (Newhouse, 2015), which is of great importance in the South African context of extreme youth unemployment.

Over the nine-year period 2011 to 2019, the South African population grew by an average of 1,65 percent. In hard numbers, the population has over the period 2011-2019 grown by an average of 898,000 per annum (Trading Economics, N.d.). On average, there are 600,000 new entrants into the labour market each year (Altman, N.d.:159). It is evident that should the population grow at a pace greater than the number of new jobs in the economy, unemployment will rise. The average number of jobs created in the economy in the same period averaged about 278,222 (CRA, 2020:246). That means that, on average, new jobs are created for only around half of new entrants into the labour market.

This report examines the relationship between population growth in South Africa and growing unemployment. It, in the first instance, imagines what the state of unemployment would have looked like today, had South Africa been able to since the advent of democracy in 1994 achieve the half a percent population growth rate envisaged as the ideal in the country's National Development Plan (NPC, N.d:29). It will then unpack two sets of scenarios:

- In the first set of scenarios, it will project, over a ten-year period, the South African unemployment rate on the basis of the population growth continuing along its current trajectory. It will consider the outcome based on low, medium and high GDP growth paths.

- In the second set of scenarios it will project, over a ten-year period, the South African unemployment rate on the basis of a reducing population growth rate applied to the same three GDP growth projections.

And finally, it will attempt to reflect the scenarios in projected South African unemployment rates.

It does so, to highlight the need for a greater emphasis to be placed on public policy initiatives aimed at reducing South Africa's population growth rate, as a tool to reduce unemployment.

Literature review

The objective of this investigation is to determine the relationship between GDP growth and population growth on unemployment in South Africa. The review will therefore peruse precedent related to the two concepts: The impact of GDP growth on unemployment and the impact of population growth on unemployment. It will also, in an effort to provide lessons from other jurisdictions, explore what the impact was on economic growth and employment in territories that have managed to contain their population growth. And finally, what public policy interventions can be employed to achieve the objective of curbing population growth.

The relationship between GDP and population growth

According to Mandel and Liebens (2019:18), authors agree "that among all economic variables that have high impact on the unemployment rate, GDP is probably the most important". Most argue that there is a negative correlation between the GDP and the unemployment rate in a country. Whilst there are a number of factors that influence GDP and unemployment, historically, in line with Okun's law (Okun, 1962:89-104), unemployment increases at around double the rate that GDP decreases (Sánchez & Liborio, 2012). However, a 2014 International Monetary Fund study found that, although professional forecasters believe in the basic tenets of Okun's law, which is that unemployment forecasts are revised down when GDP forecasts are revised up (Ball, Jalles & Loungani, 2014:12), many economists now use a dynamic version of Okun's law. This is due to the accuracy of Okun's law being eroded in the past decades. The dynamic version suggests that both past and current output can impact the current level of unemployment. This "would have current and past real output growths, and past changes in the unemployment rate as variables on the...[one] side of the equation", which "would then explain the current change in the unemployment rate on the...[other] side". (Rahman & Mustafa, N.d.:42,48).

That said, it does not always hold true that low population growth spurs GDP growth. There are analysts who believe that although high population growth in low-income countries may slow their development, a low population growth rate can result in high-income countries experiencing relatively slow economic growth. One reason advanced for this is that it requires new adjustments to support the growing burden of dependent elderly (America, N.d.:82). The South African age demographics are, however, heavily skewed towards the youth.

It seems the effects vary with the level of a country's development, the source or nature of the population growth, or other factors that lead to non-uniform impacts (Wesley & Peterson, 2017:1-2). It depends on the institutional, economic, cultural, and demographic setting (America, N.d.:105).

Nevertheless, rapid population growth, in most developing countries today, acts as a brake on development. It has resulted in less progress and lost opportunities for raising living standards, particularly among the large numbers of the world's poor (America, N.d.:79).

The relationship between population growth and unemployment

A growth in population is connected to other economic dynamics, particularly poverty and unemployment. A study into the impact of population growth on poverty and unemployment in India, suggested that population growth gave rise to a growth in unemployment within the labour force of the community which leads the substantial chunk of population (Pethe, in Singh & Kumar, 2014:5919).

In a similar study to test the impact of population growth on unemployment in Nigeria, the authors cited literature which suggested that population growth has a direct relationship with unemployment. This was so, given that when the working population grows, it means an increase in the supply of labour to the labour market, thereby creating an excess supply of labour over its demand, which is what causes persistent unemployment (Maijama'a et al, 2020:81). It found that a population increase of 1 percent causes the rate of unemployment to increase by 2.577 percent (Maijama'a et al, 2020:87). The Maijama'a study thus provides further empirical support for Okun's law, albeit that Okun's law is somewhat more conservative.

On the other side of the dialogue are those who argue, such as the position expressed in South Africa's National Development Plan, that having a large number of young people who are able and willing to work is an advantage – the so-called 'youth dividend' (NPC, N.d.:29). It has been intimated that former US President Bill Clinton, held a similar view. He is reported to have opined that "because most of America's competitors – Russia, Japan, China, and Europe – have low birth rates and aging populations, we will have a younger workforce with a lower old-age dependency ratio", so the growth in the youth population will solve the US' unemployment problems (Kummerow, 2012).

Kummerow, however, maintains that "the notion that population growth cures unemployment is false". He argues that a growing population leads to high unemployment. He asks: "If a young population leads to prosperity, why aren't places like Nigeria, Rwanda, and Uganda thriving? Why has China gotten so much richer since starting its 'one-child policy'?" It's common sense, he says, that should the population continually increase, it would be harder, not easier, for everybody to be employed. "The problem is not too few jobs; it's too many people".

Lessons from territories that have successfully curbed population growth

South Korea is hailed for its miraculous transformation, which it managed to achieve in a mere 60 years. It progressed from being a poor agriculture-based economy in the 1960's to the 10th-largest economy in the world in terms of GDP in 2019 (The Korea Times, 2020).

World Bank data on South Korea's population growth trend reveals a sharp decline in the country's population growth since 1960 to 2018 (World Bank, N.d.). It dropped from 2,9 percent in 1960, to 0,3 percent in 2018. The year-on-year decline is reflected in Figure 1 below:

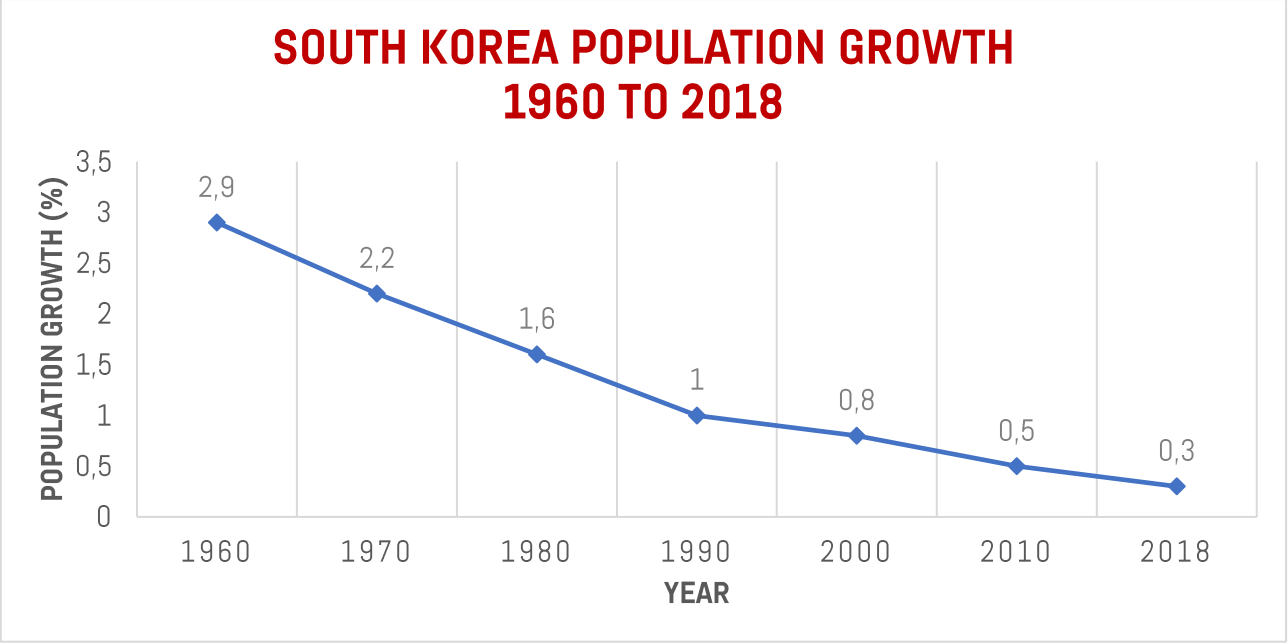

Figure 1: South Korea population growth 1960-2018

Over more or less the same period, that is 1960 to 2020, South Korea's GDP rose at an average of 1,74 percent per annum. It has, apart from brief periods, remained largely in positive growth territory (Trading Economics, N.d.).

The combined effect of the healthy GDP growth and population growth decline resulted in a dramatic decline in unemployment. The non-agriculture unemployment rate reduced from a 16,3 percent high in 1963 to 2,3 percent in 1996. For the aggregate economy, it decreased from 8.1% in 1963 to 2.0% in 1996 (Chang, Nam & Rhee, 2003:2), suggesting that the non-agricultural and agricultural sector were now more closely aligned.

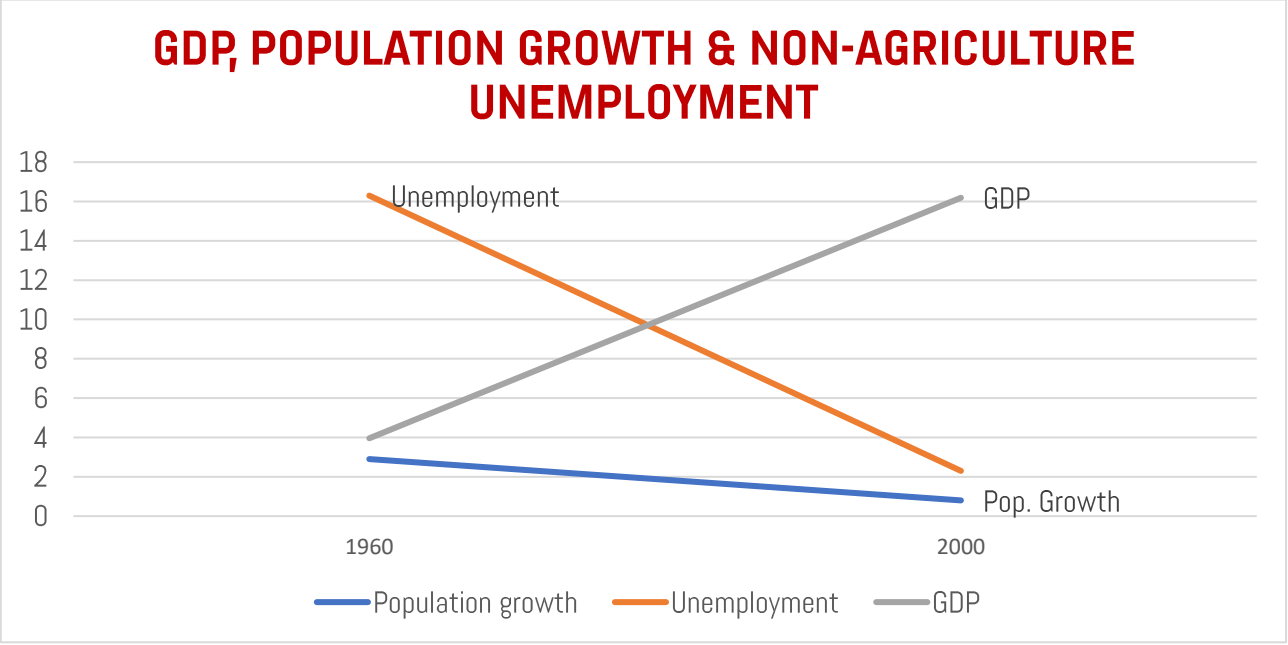

Figure 2: South Korea GDP, population and unemployment interplay 1960-2000

Brazil has a different story to tell. In 1991, Brazil had an unemployment rate of 6,37 percent (Macrotrends, N.d (a)). Despite a dramatic decline in its population growth rate from 2,9 percent in 1990 to 0,8 percent in 2018 (World Bank, N.d.), its unemployment rate rose to 12,08 percent. The differentiating factor has been

its erratic GDP growth, which declined from 10,28 percent in 1960 to 1,14 percent in 2019. Furthermore, it has recorded a series of dramatic dips over the period. A dip from 13,98 per cent to -4,39 percent was recorded over the period 1973 to 1981. Another dip was recorded from 7,53 percent in 2010 to -3,55 percent in 2015 (Macrotrends, N.d.(b)).

The review confirms that a decline in the population growth rate in itself will not reduce unemployment, it needs to happen in tandem with GDP growth.

Tools available to curb population growth

One of the tools, amongst a whole suite of economic structural reforms, that China used to help eradicate poverty, was to address high population growth. China introduced a one-child policy in 1979 with the aim of limiting families to just one child. The programme was initially introduced on a voluntary basis but was, however, made compulsory in 1980. A number of enforcement mechanisms were deployed, including making contraceptives widely available, offering financial incentives and preferential employment opportunities for compliant citizens. The authorities also imposed economic and other sanctions against those that did not comply. At times, even stronger measures such as forced abortions and sterilizations were invoked. By the mid-1990s the fertility rate dropped below two children per woman and China's overall rate of natural population increase declined (Pletcher, 2020).

Within South Africa's constitutional dispensation, the enforced introduction of a one-child policy similar to that of China's will not be judicially permissible. Article 12 (2) (a) of the Bill of Rights in the Constitution of South Africa, for example, guarantees everyone the right to bodily and psychological integrity, which includes the right to make decisions concerning reproduction (RSA, 1996:6). Nevertheless, the advantages of a one or two child family should be actively promoted to coerce citizens into voluntary compliance.

Since the 1960s the implementation of voluntary family-planning programmes have advanced. Contraceptives have been made widely available, often on a subsidised basis. The key reason has been to reduce the number of unwanted pregnancies and abortions. In the developing world, around 74 million unplanned pregnancies occur, half of which end in induced abortion (Bongaarts, 2016:409-412).

Reasons advanced for the unwanted and unplanned pregnancies range from low levels of female education, insufficient knowledge about access to contraception, insufficient distribution services, and cost. Other problematic issues include opposition from spouses and families and traditional customs that desire large families (Bongaarts, 2016:419-512). Many religious beliefs, such as Catholicism and Buddhism, are also opposed to contraception and abortion, as are cultural customs (FPA, 2016).

In the South African context, the impact of the high prevalence of gender-based violence (GBV) will need to be considered. For example, in 2012, a study conducted by Gender Links found that 77 percent of women in Limpopo, 51 percent in Gauteng, 45 percent in the Western Cape and 36 percent in KwaZulu-Natal had experienced some form of GBV. Men were the main perpetrators of this violence. To illustrate, 76 percent of men in Gauteng, 48 percent in Limpopo and 41 percent in KwaZulu-Natal admitted to perpetrating GBV. In a 1999 study by Abrahams et al. surveying 1 306 women in three South African provinces, it was found that 27 percent of the respondents from the Eastern Cape, 28 percent from Mpumalanga and 19 percent from Limpopo, had been physically abused in their lifetime by a current or ex-partner (CSVR, 2016).

These and other obstacles need to be reduced and eliminated. Cross-sectional coordination will be required. It will have to be promoted at an individual, community and public level, also, in an effort to bridge the divide, in consultation with the religious and cultural fraternity. To this end, academics from The Overpopulation Project (TOP) have compiled a list of actions, reflected below, that, amongst others, could help reduce population growth trends.

Actions on the individual level

- Have fewer children! One is good, two is enough
- Consider adoption!
- Read, educate yourself about population issues
- Reduce your personal consumption: go vegan, limit flying, share your household with others, and
- Educate your teenage child(ren) about sex and contraception early, without taboos
- Spread your knowledge and concern among your friends and family, raise awareness about overpopulation on social media
- Donate to family planning programmes in your own or other countries
- Vote for politicians who acknowledge the detrimental impacts of population growth and propose political solutions

Actions on the community level

- Join local environmental groups, encouraging them to "connect the dots" between population and the environment and address population issues
- Write opinion pieces for local newspapers, contact local media sources requesting more reporting on population issues
- Municipalities should set growth management boundaries, discouraging sprawl development on their fringes
- Towns and cities should purchase surrounding lands, or the development rights to such lands, in order to set them aside as nature preserves and open space
- City councils should pass resolutions accepting limits to growth, and directing their national governments to develop policies to stabilize or reduce national populations

Actions on the national level

In high fertility developing countries, governments should …

- Generously fund family planning programs
- Make modern contraception legal, free and available everywhere, even in remote areas
- Improve health care to reduce infant and child mortality
- Restrict child marriage and raise the legal age of marriage (minimum 18 years)
- Introduce obligatory education as long as possible (minimum until the age of 16), and generously fund the necessary infrastructure

In low fertility developed countries, governments should …

- Embrace rather than fight aging and shrinking societies
- Reorganize pensions and other socio-economic systems to accommodate aging societies
- Eliminate baby bonuses, government funding for fertility treatments, and other incentives to raise fertility rates
- Reduce immigration numbers (at least to a level that will stabilize national populations, preferably to one that will lower them)
- Reduce resource consumption and pollution through an effective mix of taxes, incentives and regulations

In every country, governments should …

- Empower women, assuring equal rights, treatment and opportunities for both genders
- Provide information and access to reproductive health care, including all types of low cost, safe, effective contraception
- Make sterilisation free, for men and women, or at least covered under all healthcare plans
- Legalise abortion without restrictions or social stigma
- Integrate family planning and safe motherhood programmes into primary health care systems
- Make population and environmental issues and sex education part of the basic educational curriculum
- Disincentivise third and further children non-coercively, by limiting government support to the first two children*
- Create a national population policy built around an optimal population size, and work to achieve it
- Set aside half the national landscape free from intensive development and dedicated to biodiversity protection

* Disincentivising a third or subsequent children from public benefits such as social grants or subsidies for health or education would be unconstitutional in South Africa, where the right vests in each individual child, not the parent or caregiver (RSA, 1996).

The past practice of focussing exclusively on family planning to reduce rapid population growth is no longer adequate. "Population policy needs to be broadened to include health care, education, and poverty reduction" (Bongaarts, 2016:409-412). Special emphasis should also be placed on including women in the workplace, since there is a high correlation between smaller families in households where women are employed. This is confirmed in a study by Sutanto (2000) delving into working women and family. It found that there is a strong association between women's rising labour force participation and drastically lowered fertility rates.

Methodology

As mentioned in the introduction, in examining the relationship between population growth and growing unemployment in South Africa, three analyses were performed:

- The first analysis took the form of an imagined outcome of what the state of unemployment would have looked like today, had South Africa been able to since the advent of democracy in 1994, achieve the half a percent population growth rate envisaged as the ideal in the country's National Development Plan (NPC, N.d:29).
- The second analysis contained a set of scenarios, in which it projects, over a ten-year period, the South African available jobs to potential labour force (age group 15-64) ratio, based on the population growth rate continuing along its current trajectory; that is a 1,48 percent average population growth rate over the last five years (CRA-SA, 2020:12). It considered the outcome based on low, medium and high GDP growth paths, that is two, three and four percent respectively. A healthy GDP growth rate for middle income countries is between two and three percent (Ngugen, 2019).
- The third analysis also contained a set of scenarios, in which it projects, over a ten-year period, the South African employment scenario based on a reduced population growth rate being applied to the same three GDP growth projections. The population growth rate applied in this scenario was half a percent, as this is the growth rate aspired to in the NDP. The exercise is done with the caveat that in the real world it would not be possible to change the population overnight from the existing 1,48 percent to half a percent. What the exercise does do, is to give an indication as to what the future could have looked like, had the country been able to by 2020 bring its population growth rate down to half a percent.

These three analyses enabled conclusions to be drawn on the combined impact of three GDP growth scenarios and two population growth scenarios on the basis of ratios representing the number of potential workers for each job in the economy. It is not a representation of the unemployment rate. For this, a separate calculation was required, which calculation needed to draw on a combination of source information and the outcome of the three analyses.

These analyses and the unemployment rate calculation enabled conclusions to be made regarding the impact of population growth on unemployment in South Africa. It emphasises the importance that public policymakers should be attaching to the population growth phenomena in the country.

First analysis: Imagining South Africa's employment scenario based on a consistent half a percent population growth rate for the period 1994-2019

In undertaking this analysis, three sets of population data was required. The data was then captured in a five-column table as illustrated in Table 1 below. The first column contained the actual number of employed persons for each of the years 1995-2019. This is an indication of the number of jobs that were available in the country over that period. The second column contained the actual population numbers for the age group 15 and older (the economically active population) as at 1995 (one year into the new democratic dispensation) and 2019. The third column contained year-on-year calculations, in which half a percent was added to the preceding year's number. The first number reflected the actual number of employed in 1995.

This calculation simulated an imagined population growth over the period based on a half a percent population growth rate. Columns four and five reflected the ratio of the number of jobs available to the potential labour force: Column four being the true position, and column five the imagined position based on a half a percent growth in population.

By comparing the two ratios, conclusions could be drawn as to how the employment position could improve by curbing the population growth.

	1	2	3	4	5
YEAR	ACTUAL NUMBER EMPLOYED	ACTUAL POPULATION 15 AND OLDER	15 AND OLDER @ 0,5 p.a.	RATIO 2/1	RATIO 3/1
1995	8 096 000	24 646 000	24 646 000	3,04	3,04
2019	16 313 000	41 875 735	27 779 980	2,57	1,70

Table 1: Calculation method workers to available jobs ratio under actual and 0,5% growth scenarios

Second analysis: Ten-year available jobs to potential labour force ratio based on current population growth trajectory

This analysis required four sets of data. The data was captured in an eight-column table (see Table 2 below). Line one of columns one to three, contained the true number of employed people, representing the number of jobs available as of 2019. Columns one to three were then further populated by adding double the GDP growth rate to the preceding year's available job number. For example, column one represented jobs to be created at a two percent GDP growth rate. In accordance with Okun's law, jobs grow at approximately double the GDP growth rate. Thus, the number of jobs were escalated at four percent per annum. At a 3 percent GDP growth rate (column two) jobs would be escalated at 6 percent, and at a 4 percent GDP growth rate (column three) jobs would be escalated at an 8 percent year-on-year growth rate.

Column four represented the size of the potential labour force. Row one contained the true actual size of the labour force, that is the number of people aged 15 and older as of 2019. Each row (year) thereafter was escalated by 1,48 percent, being the current population growth trajectory.

Columns five to seven represented the respective ratios of potential labour force size over the number of jobs available as reflected in the three GDP growth scenarios.

	1	2	3	4	5	6	7
Year	Jobs @ 2% GDP growth	Jobs @ 3% GDP growth	Jobs @ 4% GDP growth	Labour force @ 1,48% population growth	Ratio 4/1	Ratio 4/2	Ratio 4/3
2019	16 313 000	16 313 000	16 313 000	41 875 735	2,57	2,57	2,57
2020	16 965 520	17 291 780	17 618 040	42 495 496	2,50	2,46	2,41

Table 2: Method for calculating workers to available jobs ratio under 2, 3 & 4% GDP growth scenarios

The analysis was then repeated in line with the dynamic version of Okun's law, that is based on the actual historical GDP and labour growth trends for the 10-year period 2011 to 2019. Historical data suggests that

in the South African environment, employment grows at around 0,43 percent of the Okun's law ratio, that is 1,72 percent for the 2 percent GDP growth rate, 2,58 percent for the 3 percent GDP growth rate and 3,44 percent for the 4 percent growth rate.

The formula below illustrates:

GDP growth rate x 2 (Okun's law) x 0,43 (historical trend in South Africa) = employment growth

2% x 2 x 0,43 = 1,72%

3% x 2 x 0,43 = 2,58%

4% x 2 x 0,43 = 3,44%

The aforementioned analysis allowed conclusions to be drawn as to how the employment scenario can be expected to develop under low, medium and high GDP growth scenarios based on the current population growth trajectory, firstly forecasted in terms of Okun's law and secondly in terms of the dynamic version of Okun's law.

Third analysis: Projected ten-year employment scenario based on a half percent population growth rate

This analysis is a repeat of both versions of the second analysis, with the exception of changing the population growth rate from 1,48 percent to half a percent.

The aforementioned analyses allowed conclusions to be drawn as to how the employment scenario could have expected to develop under low, medium and high GDP growth scenarios based on an aspired to half a percent population growth rate.

Determining impact on the unemployment rate (expanded definition)

The aforementioned analyses do not interpret the impact on the unemployment rate. An attempt is made to make such a determination, based on the calculation set out in Table 3 below.

Calculation of unemployment rate (expanded definition) based on 2% GDP growth and 1,48% population growth
Description
2019 unemployment (expanded definition) (Source: CRA-SA, 2020:283) Total population 15 and older actively employed (Source: CRA-SA, 2020:246) **Total labour force 2019**
Total population 15 and older (Source: CRA-SA, 2020:7) Number 15 and older not part of the active labour force (total population 15+ – total labour force 2019) **Percentage 15 and older not part of the active labour force**
2029 new population added based on 1,48 % average population growth last 5 years (see 2029 in relevant table less total population 2019) Less: Percentage 15 and older not part of the active labour force based on same ratio as 2019 i.e. 36,62% **New labour force added** Add 2019 labour force **Total labour force 2029** Less actively employed 2019 Less: New jobs added @ 2% GDP growth by 2029 (see relevant table) **2029 unemployed (expanded definition)** **Percentage unemployed (expanded definition) 2029**
Calculation of unemployment rate (expanded definition) based on 2% GDP growth and 0,5% population growth
Description
2019 Labour force as calculated above 2029 New population added based on half a percent growth (see relevant table) Less: Percentage 15 and older not part of the active labour force based on same ratio as 2019 i.e. 36,62% **2029 labour force** Less jobs as at 2019 (Source: CRA-SA, 2020:246) Less jobs added @ 2% GDP growth (see relevant table) **2029 unemployed (expanded definition)** **Percentage unemployed (expanded definition) 2029**

Table 3: Method for calculating unemployment rate @ 2% GDP and 1,48% population growth scenario

Limitations

The research is reliant on secondary data, although the base data thereof is the official statistics of Statistics South Africa.

Furthermore, no attempt was made to make actuarial adjustments based on potential changes to South Africa's mortality rate, which may very well, in line with international precedent, improve in tandem with economic recovery. That said, the effect if any, over the ten-year period tested, will, in all likelihood, not be material, given the marginal impact on the unemployment rate and struggling social and health services of the country.

In terms of the available workers to jobs ratio, the workforce includes people over 65, since in the modern world people work beyond the age of 65 and/or get involved with charity/advising activities. The workforce may thus be slightly overstated, but by no more than five percent. Once again, the objective of the study is not to project an exact position, but rather to illustrate realistic trends.

This paper has been written in the midst of the COVID-19 pandemic. The latest full-year statistics available at the time of writing was year-ending 2019. The statistical abnormalities registered in 2020 as a result of the pandemic could not be factored in. Nevertheless, a V-shape recovery is expected once the economy re-opens after the COVID-19 lockdown, enabling the trendline to re-establish itself.

Moreover, the paper essentially holds the structure of the economy and the existing technology constant, and then makes future projections. It does not consider the potential positive impact that an improvement in the quality of the education system holds, nor advances in technology. It takes a 'business as usual – all things being equal approach', and views the problem as one dimensional, whilst in reality the economy is multi-dimensional. It does so, not to predict precisely where the real economy is going, but rather to demonstrate the correlation between the rate of population growth and the rate of unemployment over the next decade.

Whilst recognising that changing the education system and transforming the technological environment will impact employability, composition of the economy takes some time and will thus not be immediately visible in labour absorption. Furthermore, whether the impact of the 4th Industrial Revolution will be a net contributor to jobs or not remains a topic of much debate and research.

Findings

The findings of the three analyses envisaged in the aforementioned methodology section are set out hereunder.

Analysis 1: Imagining South Africa's employment scenario based on a consistent half a percent population growth rate for the period 1994-2019

	1	2	3	4	5
Year	Act. number employed	Act. Population 15 and older	15 and older @ 0,5% p.a.	Ratio 2 / 1	Ratio 3 / 1
1994	7 971 000				
1995	8 069 000	24 646 000	24 646 000	3,05	3,05
1996	7 590 000		24 769 230		
1997	7 548 000		24 893 076		
1998	9 390 000		25 017 542		
1999	10 369 000		25 142 629		
2000	11 880 000		25 268 342		
2001	12 494 000		25 394 684		
2002	11 995 000		25 521 658		
2003	11 666 000		25 649 266		
2004	11 823 000		25 777 512		
2005	12 503 000		25 906 400		
2006	13 237 000		26 035 932		
2007	13 236 000		26 166 111		
2008	14 584 000		26 296 942		
2009	14 357 000		26 428 427		
2010	13 809 000		26 560 569		
2011	13 922 000		26 693 372		
2012	14 330 000		26 826 838		
2013	14 692 000		26 960 973		
2014	15 094 000		27 095 778		
2015	15 657 000		27 231 259		
2016	15 545 000		27 367 413		
2017	16 100 000		27 504 250		
2018	16 288 000		27 641 771		
2019	16 313 000	41 875 735	27 779 980	2,57	1,70

Table 4: Calculation of imagined employment scenario assuming 0,5% population growth since 1994

Analysis 2: Ten-year available jobs to potential labour force ratio based on current population growth trajectory

Table 5 below reflects employment growth projected in line with Okun's law, which is two times GDP growth.

	1	2	3	4	5	6	7
Year	Jobs @ 2% GDP growth	Jobs @ 3% GDP growth	Jobs @ 4% GDP growth	Labour force @ 1,48% population growth	Ratio 4 / 1	Ratio 4 / 2	Ratio 4 / 3
2020	16 965 520	17 291 780	17 618 040	42 495 496	2,50	2,46	2,41
2021	17 644 141	18 329 287	19 027 483	43 124 429	2,44	2,35	2,27
2022	18 349 906	19 429 044	20 549 682	43 762 671	2,38	2,25	2,13
2023	19 083 903	20 594 787	22 193 656	44 410 358	2,33	2,16	2,00
2024	19 847 259	21 830 474	23 969 149	45 067 632	2,27	2,06	1,88
2025	20 641 149	23 140 302	25 886 681	45 734 633	2,22	1,98	1,77
2026	21 466 795	24 528 720	27 957 615	46 411 505	2,16	1,89	1,66
2027	22 325 467	26 000 444	30 194 225	47 098 395	2,11	1,81	1,56
2028	23 218 486	27 560 470	32 609 762	47 795 452	2,06	1,73	1,47
2029	24 147 225	29 214 098	35 218 543	48 502 824	2,01	1,66	1,38

Table 5: Projection of ten-year labour force to jobs ratio scenarios at 2, 3 & 4% GDP growth – based on current population growth trends (using Okun's law)

Table 6 below reflects employment growth projected in line with the dynamic version of Okun's law, calculated as around 43 percent of Okun's law ratio, or, 0.86 times the rate of GDP growth. The average GDP growth over the period 2011 to 2019 was 3,2 per cent, whereas actual jobs over the same period only grew at 1,31 percent per year on average.

	1	2	3	4	5	6	7
Year	Jobs @ 0.86 of 2% GDP growth i.e. 1,72%	Jobs @ 0.86 of 3% GDP growth i.e. 2,58%	Jobs @ 0.86 of 4% GDP growth i.e. 3,44%	Labour force @ 1,48% population growth	Ratio 4 / 1	Ratio 4 / 2	Ratio 4 / 3
2020	16 593 584	16 733 875	16 874 167	42 495 496	2,56	2,54	2,52
2021	16 878 993	17 165 609	17 454 639	43 124 429	2,55	2,51	2,47
2022	17 169 312	17 608 482	18 055 078	43 762 671	2,55	2,49	2,42
2023	17 464 624	18 062 781	18 676 173	44 410 358	2,54	2,46	2,38
2024	17 765 016	18 528 801	19 318 633	45 067 632	2,54	2,43	2,33
2025	18 070 574	19 006 844	19 983 194	45 734 633	2,53	2,41	2,29
2026	18 381 388	19 497 220	20 670 616	46 411 505	2,52	2,38	2,25
2027	18 697 548	20 000 249	21 381 685	47 098 395	2,52	2,35	2,20
2028	19 019 145	20 516 255	22 117 215	47 795 452	2,51	2,33	2,16
2029	19 346 275	21 045 574	22 878 047	48 502 824	2,51	2,30	2,12

Table 6: Projection of ten-year labour force to jobs ratio scenarios at 2, 3 & 4% GDP growth – based on current population growth trends (using dynamic version of Okun's law)

Analysis 3: Ten-year available jobs to potential labour force ratio based on a half percent population growth rate

Table 7 below reflects employment growth projected in line with Okun's law, which is two times GDP growth.

	1	2	3	4	5	6	7
Year	Jobs @ 2% GDP growth	Jobs @ 3% GDP growth	Jobs @ 4% GDP growth	Labour force @ 0,50% population growth	Ratio 4 / 1	Ratio 4 / 2	Ratio 4 / 3
2020	16 965 520	17 291 780	17 618 040	42 085 114	2,48	2,43	2,39
2021	17 644 141	18 329 287	19 027 483	42 295 539	2,40	2,31	2,22
2022	18 349 906	19 429 044	20 549 682	42 507 017	2,32	2,19	2,07
2023	19 083 903	20 594 787	22 193 656	42 719 552	2,24	2,07	1,92
2024	19 847 259	21 830 474	23 969 149	42 933 150	2,16	1,97	1,79
2025	20 641 149	23 140 302	25 886 681	43 147 816	2,09	1,86	1,67
2026	21 466 795	24 528 720	27 957 615	43 363 555	2,02	1,77	1,55
2027	22 325 467	26 000 444	30 194 225	43 580 372	1,95	1,68	1,44
2028	23 218 486	27 560 470	32 609 762	43 798 274	1,89	1,59	1,34
2029	24 147 225	29 214 098	35 218 543	44 017 266	1,82	1,51	1,25

Table 7: Projection of ten-year labour force to jobs ratio scenarios at 2, 3 & 4% GDP growth – based on 0,5% population growth (using Okun's law)

Table 8 below reflects employment growth projected in line with the dynamic version of Okun's law, calculated as around 43 percent of Okun's law ratio, or, 0.86 times the rate of GDP growth. The average GDP growth over the period 2011 to 2019 was 3,2 per cent, whereas actual jobs over the same period only grew at 1,31 percent per year on average.

Year	Jobs @ 0.86 of 2% GDP growth i.e. 1,72%	Jobs @ 0.86 of 3% GDP growth i.e. 2,58%	Jobs @ 0.86 of 4% GDP growth i.e. 3,44%	Labour force @ 0,50% population growth	Ratio 4 / 1	Ratio 4 / 2	Ratio 4 / 3
2020	16 593 584	16 733 875	16 874 167	42 085 114	2,54	2,51	2,49
2021	16 878 993	17 165 609	17 454 639	42 295 539	2,51	2,46	2,42
2022	17 169 312	17 608 482	18 055 078	42 507 017	2,48	2,41	2,35
2023	17 464 624	18 062 781	18 676 173	42 719 552	2,45	2,37	2,29
2024	17 765 016	18 528 801	19 318 633	42 933 150	2,43	2,32	2,22
2025	18 070 574	19 006 844	19 983 194	43 147 816	2,39	2,27	2,16
2026	18 381 388	19 497 220	20 670 616	43 363 555	2,36	2,22	2,10
2027	18 697 548	20 000 249	21 381 685	43 580 372	2,33	2,18	2,04
2028	19 019 145	20 516 255	22 117 215	43 798 274	2,30	2,13	1,98
2029	19 346 275	21 045 574	22 878 047	44 017 266	2,28	2,09	1,92

Table 8: Projection of ten-year labour force to jobs ratio scenarios at 2, 3 & 4% GDP growth – based on 0,5% population growth (using dynamic version of Okun's law)

Unemployment rate (expanded definition): 2029 calculations based on current true population growth trajectory and a simulated half a percent population growth percentage

In the calculation (Table 9) hereunder, unemployment is projected on Okun's law, which is double the GDP percentage of jobs growth.

Calculation of unemployment rate (expanded definition) based on 2% GDP growth and 1,48% population growth	
Description	**Calculation**
2019 unemployment (expanded definition) (Source: CRA-SA, 2020:283)	10 226 000
Total population 15 and older actively employed (Source: CRA-SA, 2020:246)	16 313 000
Total labour force 2019	**26 539 000**
Total population 15 and older (Source: CRA-SA, 2020:7)	41 875 735
Number 15 and older not part of the active labour force (total population 15+ less total labour force 2019)	15 336 735
Percentage 15 and older not part of the active labour force	**36,62%**
2029 new population added at 1,48% avg. population growth last 5 years (see 2029 table 5 less total population 15 and older 2019)	6 627 089
Less: Percentage 15 and older not part of the active labour force based on same ratio as 2019 i.e. 36,62%	- 2 427 131
New labour force added	4 199 958
Add 2019 labour force	26 539 000
Total labour force	**30 738 958**
Less actively employed 2019	- 16 313 000
Less: New jobs added @ 2% GDP growth (see 2029 in table 5 less actively employed 2019)	-7 834 225
2029 unemployed (expanded definition)	**6 591 733**
Percentage unemployed (expanded definition) 2029	**21,44%**

Calculation of unemployment rate (expanded definition) based on 2% GDP growth and 0,5% population growth	
Description	**Calculation**
2019 Labour force as calculated above	26 539 000
2029 New pop. added based on half a percent growth (see 2029 table 7) less total population 15 and older 2019	2 141 531
Less: Percentage 15 and older not part of the active labour force based on same ratio as 2019	-784 323
2029 labour force	27 896 208
Less jobs as at 2019 (Source: CRA-SA, 2020:246)	-16 313 000
Less jobs added @ 2% GDP growth (see 2029 in table 7 less actively employed 2019)	-7 834 225
2029 unemployed (expanded definition)	**3 748 983**
Percentage unemployed (expanded definition) 2029	**13,44%**

Table 9: Projecting 2029 unemployment scenarios based on Okun's law at 2% GDP growth using current (1,48%) and ideal (0,5%) population growth trends

In the calculation tables hereunder, unemployment is projected on the dynamic version of Okun's law, that is using historical date, which equated to jobs escalating at 0,86 percent of the GDP growth rate. For two percent GDP growth, as illustrated below, jobs would grow at 1,72 percent year on year. At three percent GDP growth it would be 2,58 percent and at four percent it would be 3,44 percent.

Calculation of unemployment rate (expanded definition) based on 2% GDP growth and 1,48% population growth (dynamic version)	
Description	**Calculation**
2019 unemployment (expanded definition) (Source: CRA-SA, 2020:283)	10 226 000
Total population 15 and older actively employed (Source: CRA-SA, 2020:246)	16 313 000
Total labour force 2019	**26 539 000**
Total population 15 and older (Source: CRA-SA, 2020:7)	41 875 735
Number 15 and older not part of the active labour force (total population 15+ less total labour force 2019)	15 336 735
Percentage 15 and older not part of the active labour	**36,62%**
2029 new population added at 1.48% average population growth last 5 years (see 2029 in table 6 less total population 15 and older 2019)	6 627 089
Less: Percentage 15 and older not part of the active labour force based on same ratio as 2019 i.e. 36,62%	-2 426 840
New labour force added	4 200 249
Add 2019 labour force	26 539 000
Total labour force	**30 739 249**
Less actively employed 2019	-16 313000
Less: New jobs added @ 2% GDP growth (see 2029 in table 6 less actively employed 2019)	-3 033 275
2029 unemployed (expanded definition)	**11 392 683**
Percentage unemployed (expanded definition) 2029	**37,06%**
Calculation of unemployment rate (expanded definition) based on 2% GDP growth and 0,5% population growth	
Description	**Calculation**
2019 Labour force as calculated above	26 539 000
2029 New population added based on half a percent growth (see 2029 in table 8 less population 15 & older 2019)	2 141 531
Less: Percentage 15 and older not part of the active labour force based on same ratio as 2019 i.e. 36,62%	-784 229
2029 labour force	27 896 302
Less jobs as at 2019 (Source: CRA-SA, 2020:246)	-16 313 000
Less jobs added @ 2% GDP growth (see 2029 in table 8 less actively employed 2019)	-3 033 275
2029 unemployed (expanded definition)	**8 550 027**
Percentage unemployed (expanded definition) 2029	**30,65%**

Table 10: Projecting 2029 unemployment scenarios based on dynamic version of Okun's law at 2% GDP growth using current (1,48%) and ideal (0,5%) population growth trends

Calculation of unemployment rate (expanded definition) based on 3% GDP growth and 1,48% population growth (dynamic version)	
Description	**Calculation**
2019 unemployment (expanded definition) (Source: CRA-SA, 2020:283)	10 226 000
Total population actively employed (Source: CRA-SA, 2020:246)	16 313 000
Total labour force 2019	**26 539 000**
Total population 15 and older (Source: CRA-SA, 2020:7)	41 875 735
Number 15 and older not part of the active labour force (total population 15+ less labour force 2019)	15 336 735
Percentage 15 and older not part of the active labour force	**36,62%**
2029 new population added at 1,48% average population growth last 5 years (see 2029 in table 6 less total population 15 and older 2019)	6 627 089
Less: Percentage 15 and older not part of the active labour force based on same ratio as 2019 i.e. 36,62%	-2 426 840
New labour force added	4 199 958
Add 2019 labour force	26 539 000
Total labour force	**30 739 249**
Less actively employed 2019	-16 313000
Less: New jobs added @ 3% GDP growth (see 2029 in table 6 less actively employed 2019)	-4 732 574
2029 unemployed (expanded definition)	**9 693 675**
Percentage unemployed (expanded definition) 2029	**31,54%**
Calculation of unemployment rate (expanded definition) based on 3% GDP growth and 0,5% population growth (dynamic version)	
Description	**Calculation**
2019 Labour force as calculated above	26 539 000
2029 New population added based on half a percent growth (see 2029 in table 8 less population 15 & older 2019)	2 141 531
Less: Percentage 15 and older not part of the active labour force based on same ratio as 2019	-784 229
2029 labour force	27 896 302
Less jobs as at 2019 (Source: CRA-SA, 2020:246)	-16 313000
Less jobs added @ 3% GDP growth (see 2029 in table 8 less actively employed 2019)	-4 732 574
2029 unemployed (expanded definition)	**6 850 728**
Percentage unemployed (expanded definition) 2029	**24,56%**

Table 11: Projecting 2029 unemployment scenarios based on dynamic version of Okun's law at 3% GDP growth using current (1,48%) and ideal (0,5%) population growth trends

Calculation of unemployment rate (expanded definition) based on 4% GDP growth and 1,48% population growth (dynamic version)	
Description	**Calculation**
2019 unemployment (expanded definition) (Source: CRA-SA, 2020:285)	10 226 000
Total population actively employed (Source: CRA-SA, 2020:246)	16 313 000
Total labour force 2019	**26 539 000**
Total population 15 and older (Source: CRA-SA, 2020:7)	41 875 735
Number 15 and older not part of the active labour force (total population 15+ less total labour force 2019)	15 350 532
Percentage 15 and older not part of the active labour force	**36,62%**
2029 new population added at 1,48% average population growth last 5 years (see 2029 in table 6 Less total population 15 and older 2019)	6 627 089
Less: Percentage 15 and older not part of the active labour force based on same ratio as 2019	-2 427 131
New labour force added	4 199 958
Add 2019 labour force	26 539 000
Total labour force	**30 739 249**
Less actively employed 2019	-16 313000
Less: New jobs added @ 4% GDP growth (see 2029 in table 6 less actively employed 2019)	-6 565 047
2029 unemployed (expanded definition)	**7 861 202**
Percentage unemployed (expanded definition) 2029	**25,57%**

Calculation of unemployment rate (expanded definition) based on 4% GDP growth and 0,5% population growth (dynamic version)	
Description	**Calculation**
2019 Labour force as calculated above	26 539 000
2029 New population added based on half a percent growth (see 2029 in table 8)	2 141 531
Less: Percentage 15 and older not part of the active labour force based on same ratio as 2019 i.e. 36,62%	-784 229
2029 labour force	27 896 302
Less jobs as at 2019 (Source: CRA-SA, 2020:246)	-16 313000
Less jobs added @ 4% GDP growth (see 2029 in table 8 less actively employed 2019)	-6 565 047
2029 unemployed (expanded definition)	**5 018 255**
Percentage unemployed (expanded definition) 2029	**17,99%**

Table 12: Projecting 2029 unemployment scenarios based on dynamic version of Okun's law at 4% GDP growth using current (1,48%) and ideal (0,5%) population growth trends

Discussion and interpretation

The various analyses revealed that South Africa will continue to face a jobs crisis well into the future. At best, over the next decade, it will be able to cut its unemployment rate to about a third of the current position. This is however highly unlikely, as will be elaborated on in this section of the report.

Available jobs in the market

As at the end of 2019, there were jobs for only about one out of every three (2,57) citizens in the age group 15 and older. The actual number of persons employed numbered 16,3 million, whereas the actual number of persons aged 15 and older numbered 41,9 million.

Based on the current population growth trajectory, that is 1,48 percent growth per annum (based on the actual past five-year trend), the position is likely only to improve by around 2,3 percent by 2029 should South Africa be capable of maintaining a constant 2 percent annual GDP growth rate. This is based on the dynamic version of Okun's law. There is no evidence to suggest that the country would miraculously break from the current 10-year historical trend of achieving jobs-growth at around 43 percent of the standard 2 to 1 ratio of Okun's law. It would mean that, by the end of 2029, there would be around 2,51 persons (as opposed to 2,57 in 2019) in the age group 15 and older for every available job.

Even if the country were capable of accelerating its GDP growth rate to a constant 3 or 4 percent over the next decade, the position would only improve marginally. At a GDP growth rate of 3 percent, there would be 2,3 persons (2,57 in 2019) for every available job (a 10,5 percent improvement), and at a 4 percent GDP growth rate there would be 2,12 (2,57 in 2019) persons in the age group for every available job (a 17,4 percent improvement).

As alluded to in the earlier part of this article, the reduction of unemployment requires both an increase in the GDP growth and a decrease in the population growth rate. Given the improbability of maintaining a GDP growth rate in excess of the two to three percent range (the literature review suggests such a range to be healthy in a developing economy), the authorities will have to place renewed emphasis on the second part of the equation, that is to reduce the current unsustainable level of population growth.

To illustrate, had South Africa, since the advent of democracy in 1994, been able to sustain a half a percent population growth rate (as is the ideal reflected in the country's National Development Plan), the unemployment situation in South Africa would have looked completely different as to the actual 2019 reality (2,57). In such instance, there would have only been 1,7 persons in the age group available for every job in the country. It would have cut a third off the current jobs / available workers reality.

Moreover, projections indicate that the persons to job ratio would improve by between nine and ten percent over the next decade should South Africa be able to cut its population growth rate from the current 1,48 percent annual average (based on the last five years) to half a percent.

The aforementioned ratios do not have a bearing on the expanded unemployment rate per se, as it includes all persons in the age group 15 and older. Currently (as at the end of 2019) 36,62 percent of persons in this age group were not seeking employment. These would typically include students, people in retirement or not seeking work, etcetera. It is, however, useful to illustrate the impact of population growth on the likelihood to improve one's ability to find a job. The impact on the unemployment rate is discussed in the section that follows.

Should the 36,62 percent be excluded from the ratio determination, the position in 2029 would be as follows:

	1	2	3	4	5	6	7
Population growth rate	**Total 15 years and & older less 36,62%**	**Available jobs @ 2% GDP**	**Available jobs @ 3% GDP**	**Available jobs @ 4% GDP**	**Ratio column 1: column 2**	**Ratio column 1: column 3**	**Ratio column 1: column 4**
1,48% p.a.	30 741 090 (48 502 824 x 63.38%) (Source: Table 6)	19 346 275	21 045 574	22 878 047	1,59	1,46	1,34
0,5% p.a.	27 898 143 (44 017 266 x 63.38%) (Source: Table 8)	19 346 275	21 045 574	22 878 047	1,44	1,33	1,22

***Note: A cross-check against the unemployment calculations in tables 9-11 revealed a similarity of 99,999%, or a discrepancy of 0,0001% due to rounding.**

On a side note, the same exercise repeated on a one percent per annum GDP growth trajectory reveals an alarming position. On the current population growth path, the unemployment position would worsen from 1,64 workers per available job in 2019 to 1,73 workers per available job in 2029. And, whilst at the half a percent growth rate the position would improve marginally from 1,64 workers per available job in 2019 to 1,57 workers per available job in 2029, it should be borne in mind that this is an illustrative scenario in that it is not possible to reduce the population growth rate from the 1,48 percent to half a percent overnight. What this means is that unless the economy grows at 2 per cent GDP per annum or higher, unemployment is bound to continue to increase.

	1	2	3	4
Population growth rate	**Total 15 years and & older less 36,62%**	**1% GDP**	**Ratio column 1: column 2 (2029)**	**Ratio at 2019***
1,48% p.a.	30 741 090	17 771 475	1,73	1,64
0,5% p.a.	27 898 143	17 771 475	1,57	1,64

***Actual population 2019 x 63,38% / actual number employed (see Table 4)**

Impact on unemployment

Once again, the focus of this discussion will be on the analyses using the ratios attached to the dynamic version of Okun's law, since historical trends point to this version being the more likely outcome of any interventions. Nevertheless, for academic purposes, projections based on Okun's law reveal that the expanded unemployment rate will, based on a 2 percent GDP growth rate and a continuation of the current population growth trend of 1,48 percent year-on-year, reduce from the current 38,5 percent, that is 10,2 million unemployed versus 16,3 million employed (CRA, 2020: 246 & 285) to 21,44 percent by 2029. At half

a percent population growth, unemployment cut dramatically to 13,44 percent by 2029. This is however, given the historical trends over the last decade, an unlikely outcome.

The application of the dynamic version of Okun's law is likely to deliver a more probable outcome. These scenarios paint a bleak picture with regard to the persistence of high unemployment in the country, should GDP growth not be accompanied by a significant reduction in the population growth rate.

At current population growth rate levels, a constant two percent increase in GDP over the next decade, that is to 2029, will see unemployment being cut by an insignificant 1,44 percent, from 38,5 percent (2019) to 37,06 percent (2029). At three percent GDP growth over the same period, unemployment will drop to 31,54 percent, and at 4 percent it will drop to 25,57 percent.

However, a somewhat more encouraging outcome reveals itself when applying half a percent population growth rate to the scenario modelling. Under this scenario, unemployment will be reduced from the current 38,5 percent to 30,65 percent by 2029, and at three and four percent constant GDP growth to 2029, even though still high, more respectable percentages of 24,56 percent and 17,99 percent, respectively. It would signal a significant downward curve in the unemployment rate.

Conclusions

The South African economy is in a precarious position, with the current record high level of unemployment threatening to cripple any significant recovery. For the foreseeable future it is foreseen that the country's GDP rate will not grow significantly above the two percent range (IMF, N.d.). This will, at the current level of population growth, at best stabilise unemployment at its existing unsustainable levels. Even at three to four percent GDP growth, the fortunes will not be significantly reversed. Growth in excess of four percent will be required to turn the unemployment tide. This is highly improbable, as there is no evidence to suggest that South Africa is poised to buck the economic trends normally applicable in developing economies, let alone its own decade-long low growth historical trend.

Similarly, the current levels of population growth serves to exacerbate the economic woes, and will, if unattended to, prolong the pain. Evidence suggests that, were the country able to place population growth onto a lower growth path, its combination with achievable GDP growth goals of between two and four percent, could serve as the catalyst to significantly reduce unemployment.

Changing population reproductive behaviour is a long-term endeavour facing many obstacles, such as cultural and religious hurdles. It will require a concerted national campaign and short-term dividends should not be expected. That said, avoiding the issue will be at the country's peril, in that it will serve only to prolong and deepen the economic defects. If left unaddressed, it could very well push the economy over the proverbial fiscal cliff. Any future economic recovery plan will have to place equal importance on the reduction of the population growth rate, as it does on interventions to spur GDP growth. The two concepts are tied at the umbilical cord.

Recommendations

This report has highlighted the importance, for purposes of economic sustainability, of reducing the population growth rate. Projections contained herein, as they relate the reduced level of half a percent year-on-year population growth, paint an encouraging picture. However, expectations must be tempered, since, as can be learned from the transitions in other societies, a reversal of the current trend will take some time to effect. It will require heightened levels of education and will need to confront cultural and religious dogmas.

Notwithstanding the daunting nature of the task, it is recommended that the South African authorities and broader society, as a matter of urgency, prioritise programmes aimed at reducing the population growth rate as a critical feature of any economic recovery plan. Failure to urgently embrace the need, will simply, and with great economic cost and suffering, prolong the inevitable.

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Notes

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