

# **METHODOLOGY REPORT:**

**YOUTH Progress Index Provinces of South Africa**



**SOCIAL  
PROGRESS  
IMPERATIVE**

## **Methodology Report: YOUTH Progress Index Provinces of South Africa**

### **IQbusiness**

IQbusiness is the leading independent management consulting firm in South Africa, helping clients overcome their business challenges and achieve better results. Since 1998, we have been enabling banks, insurance companies, retailers and others to take their products to market faster, improve customer satisfaction, upskill teams, eliminate waste and strengthen governance and compliance.

Drawing on our core strengths - consulting, research and contracting - we solve clients' problems by providing innovative, faster and more cost-effective services and solutions, backed by teams with real expertise and experience.

Although proudly South African, our perspective is international through the experience of our people, our clients and our business partners. IQbusiness is privately owned and fully empowered with a level 3 B-BBEE certification.

### **Social Progress Imperative**

The Social Progress Imperative's mission is to improve the lives of people around the world, particularly the least well off, by advancing global social progress by: providing a robust, holistic and innovative measurement tool—the Social Progress Index; fostering research and knowledge-sharing on social progress; and equipping leaders and change-makers in business, government and civil society with new tools to guide policies and programs. From the EU to India to Brazil and beyond, the Social Progress Imperative has catalysed the formation of local action networks that bring together governments, businesses, academia, and civil society organizations committed to using the Social Progress Index as a tool to transform societies and improve people's lives.

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## Introduction

IQbusiness was the winner of the Conscious Companies Awards 2018. The award recognises and celebrates the companies, and their leaders, displaying a strong sense of purpose, value, innovation and a shared vision of inclusive growth. In addition, IQbusiness is now part of an elite community of over 2000 Certified B Corps around the world. Our B Corp certification came about thanks to the work we have done, and continue to do, with various not-for-profit entities, such as Partners for Possibility – an education-based social enterprise. The growth of our business was accompanied by the realisation that success lies beyond mere profit-making. As a result, our attention is now focused on making a measurable social impact.

Our quest to understand, document and ultimately contribute to the achievement of measurable social impact led us to the Social Progress Imperative, a non-profit organisation that has developed a tool to accurately measure the real things that matter to real people – *The Social Progress Index (SPI)*.

The SPI formed part of the MORE Growth.co.za report, produced for the IQbusiness Spring Conference in 2018. The report, which has been published on an annual basis by IQbusiness, is a call to action for the private sector to help drive economic growth. The report has for years enumerated the ways that South African business can start growing the South African economy from the inside out by creating daily opportunities within business for growth and investment. In previous years, it has dealt with topics such as improving government agility; redressing the basic issues in education; supporting State Owned Enterprises (SOEs); urging enterprise development by businesses; and calling for better financial inclusion. In 2018, IQbusiness used the report to recommit to the responsibility and role of business to drive South Africa's economic growth. In it, IQbusiness introduced South Africans to the Social Progress Imperative and their revolutionary index. IQbusiness has since partnered with the Social Progress Imperative to construct Africa's first sub-national SPI, a provincial index for South Africa, which was launched in 2019.

### *The decision to focus on the youth*

We believe that unlocking economic and other opportunities for the youth is key to a prosperous future for South Africa, a belief that our partners, the Social Progress Imperative, also share. It is for this reason that they produced the inaugural global Youth Progress Index (YPI) in 2017. The Social Progress Imperative observed that today's youth (over half of the world's population) are facing incredible challenges and threats to their wellbeing. For the first time ever, they are at risk of being worse off than their parents. Globally, young people are at risk of poverty and social exclusion. They are underrepresented in decision-making and too often are prevented from being able to fully access their rights. In many ways, this rings true for the plight of South African youth as well, which is why we made the decision to collaborate with the Social Progress Imperative to conduct a YPI at a sub-national level for South Africa. Simply put, the rationale is that the existence of a sub-national YPI can, amongst other things:

- Help stakeholders understand and diagnose challenges that the youth face at a provincial level, which could result in optimal targeting of interventions.
- Serve as a useful tool to understand and track social progress amongst the youth in a manner that has not been done before (i.e. tracking social progress irrespective of hard economic indicators).
- Serve as a unifying force, bringing together the various stakeholders around a mutual diagnostic tool.

**The YPI is based on the same methodological grounding as the SPI, which is described in the next section, and which therefore explains the methodological basis for the YPI.**

## What is the Social Progress Index?

The Social Progress Index is a composite index which represents the first comprehensive framework for measuring social progress that is independent of traditional economic indicators, but complementary to them. The Index focuses on what matters to societies and people by giving them the tools to better understand and seize opportunities, and building blocks to enhance and sustain the quality of their lives, as well as create the conditions to reach their full potential.

Developed in collaboration with a team of scholars led by Professor Michael E. Porter of Harvard Business School, the Index is being used by national and city leaders across Latin America, Australia, the United Kingdom and by the European Commission's Directorate General for Regional and Urban Policy for agenda setting and supports policymaking, prioritization of resource mobilization and impact measurement.

The Index presents a granular, actionable picture of what matters most to people regardless of their wealth. It creates a common understanding of how well a community performs on the things that matter to all societies, rich or poor. As a complement to traditional measures of economic performance, such as income, the Social Progress Index provides better understanding of the bi-directional relationship between economic gain and social progress. Its unique framework offers a systematic, empirical foundation for governments, businesses, civil society and communities to prioritise social and environmental issues, and benchmark performance against other countries, regions, cities and communities to inform and drive public policies, investments, and business and community decisions.

Guided by a group of academic and policy experts, the Social Progress Index follows a conceptual framework that defines social progress as well as its key elements. In this context, social progress is defined as the **“capacity of a society to meet the basic human needs of its citizens, establish the building blocks that allow citizens and communities to enhance and sustain the quality of their lives, and create the conditions for all individuals to reach their full potential.”**

**The Social Progress Index is built around a framework that comprises three architectural elements: dimensions, components, and indicators.**

- Dimensions represent the broad conceptual categories that define social progress:
  - **Basic Human Needs** considers citizens' ability to survive with adequate nourishment and basic medical care, clean water, sanitation, adequate shelter, and personal safety. These needs are still not met in many disparate countries and are often incomplete in more prosperous countries.
  - **Foundations of Wellbeing** captures whether a society offers building blocks for citizens to improve their lives, such as gaining a basic education, obtaining information, and access communications, benefiting from a modern healthcare system and live in a healthy environment.
  - **Opportunity** captures whether citizens have the freedom and opportunity to make their own choices. Personal rights, personal freedom and choice, tolerance and inclusion, and access to advanced education all contribute to the level of opportunity within a given society.
- Each dimension comprises four components - distinct but related concepts that together make up the Social Progress Index Framework (Figure 1).

**Figure 1: Social Progress Index Framework**

Basic Human Needs	Foundations of Wellbeing	Opportunity
Nutrition and Basic Medical Care	Access to Basic Knowledge	Personal Rights
Water and Sanitation	Access to Information and Communications	Personal Freedom and Choice
Shelter	Health and Wellness	Inclusiveness
Personal safety	Environmental Quality	Access to Advanced Education

Source: Social Progress Imperative (2018)

- Each component is composed of indicators that measure as many valid aspects of the component as possible.

Together, this interrelated set of factors represents the primary elements that combine to produce a given level of Social Progress Index. The methodology allows measurement of each component and each dimension, and yields an overall score and ranking.

The three dimensions and twelve components of the Social Progress Framework provide the backbone of the Social Progress Index. The twelve-component structure provides the guidelines, while the questions below provide a first guide for interpreting each component and help to identify locally relevant data to define it. To help guide this process, the following guiding questions (Figure 2) are used for selecting contextually appropriate indicators for each of the twelve components.

**Figure 2: Social Progress Index Guiding Questions**

Basic Human Needs	Foundations of Wellbeing	Opportunity
<p><b>Nutrition &amp; Basic Medical Care</b></p> <p><i>Do people have enough food to eat and are they receiving basic medical care?</i></p> 	<p><b>Access to Basic Knowledge</b></p> <p><i>Do people have access to an educational foundation?</i></p> 	<p><b>Personal Rights</b></p> <p><i>Are people's rights as individuals protected?</i></p> 
<p><b>Water &amp; Sanitation</b></p> <p><i>Can people drink water and keep themselves clean without getting sick?</i></p> 	<p><b>Access to Information &amp; Communications</b></p> <p><i>Can people freely access ideas and information from anywhere in the world?</i></p> 	<p><b>Personal Freedom &amp; Choice</b></p> <p><i>Are people free to make their own life choices?</i></p> 
<p><b>Shelter</b></p> <p><i>Do people have adequate housing with basic utilities?</i></p> 	<p><b>Health &amp; Wellness</b></p> <p><i>Do people live long and healthy lives?</i></p> 	<p><b>Inclusiveness</b></p> <p><i>Is no one excluded from the opportunity to be a contributing member of society?</i></p> 
<p><b>Personal Safety</b></p> <p><i>Do people feel safe?</i></p> 	<p><b>Environmental Quality</b></p> <p><i>Is this society using its resources so they will be available to future generations?</i></p> 	<p><b>Access to Advanced Education</b></p> <p><i>Do people have the opportunity to access the world's most advanced knowledge?</i></p> 

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PROGRESS  
IMPERATIVE**

Source: Social Progress Imperative (2018)

The Index is explicitly focused on non-economic aspects of performance. Unlike most other measurement efforts, the index treats social progress as distinct though associated with traditional economic measures such as income per capita. In contrast, other indices such as the Human Development Index (UNDP, 2016) or the OECD Better Life Index (OECD, 2015) combine economic and social indicators. The SPI objective is to utilize a clear yet rigorous methodology that isolates the non-economic dimensions of social performance.

The Index applies a set of **unique design principles** that allow an exclusive analysis of social progress and help the Index stand out from other indices:

**Social and environmental indicators only:** While economic development is generally beneficial for social progress, it is not sufficient to fully capture the wellbeing of societies, and certain kinds of economic development can reduce social progress. The relationship is complex: social progress can drive and be driven by economic progress. Consequently, social progress needs to be measured directly, without combining economic performance. Measuring social progress exclusively and directly, rather than utilizing economic proxies or combining economic and social variables is therefore the key principle of any Social Progress Index.

**Outcomes, not inputs:** There are two broad categories of conceptually coherent methodologies for index construction: input indices and outcome indices. Both can help countries to benchmark their progress, but in very different ways. Input indices measure a country's policy choices or investments believed or known to lead to an important outcome. In competitiveness, for example, an input index might measure investments in human capital or basic research. Outcome indices directly measure the outcomes of investments. The Social Progress Index has been designed as an outcome index. The Index measures the lived experience of real people, regardless of effort spent or the capacity to impart change. Given that there are multiple distinct aspects of social progress each measurable in different ways, the Social Progress Index has been designed to aggregate and synthesize multiple outcome measures in a conceptually consistent and transparent way that will also be salient to benchmarking progress for decision-makers.

**Holistic and relevant to all communities:** The Social Progress Index is a multidimensional measure of social progress that encompasses the many inter-related aspects of thriving societies everywhere. It aims to be a practical tool for decision makers in any given country regardless of its level of development. At the national level, the Social Progress Index fulfils this value proposition by deepening our understanding of the relationship between social progress and economic growth and by designing a very relevant tool to highlight strength and weakness at the component and indicator levels, using GDP comparator groups. Nevertheless, what matters at the national level to compare countries among themselves may not be what matters for the policy debate within a given country. For example, tuberculosis is not an issue in the Amazon region, but Malaria is. These examples illustrate how building subnational indices—by preserving the 12-components structure of the Social Progress Index and by customizing the indicators to be monitored and targeted—can increase the capacity of the Social Progress Framework to boost relevant and timely policy-debates in every country at every stage of development.

**Actionable:** The Index aims to be a practical tool with sufficient specificity to help leaders and practitioners in government, business, and civil society to benchmark performance and implement policies and programs that will drive faster social progress. At the national level, the Social Progress Index fulfils this value proposition by focusing on the granularity of the model. Every component supposes an essential area for human wellbeing. And every indicator implies a potential “entry-point” and an “explicit target” for public policy. Building subnational indices with local networks will strength the actionability of the social progress framework, if the process of disaggregating and customizing the index is also supported by strong political buy-in around socially legitimate targets. A practical tool that will help leaders and decision-makers in government, business and civil society to implement policies and programs that will drive faster social progress.

The successes of the Global Social Progress Index have resulted in an increased demand for subnational indices to address the need for greater actionability; the need to make the index relevant for all countries at all levels of development and at any level of geography; and a need to build common languages and to align interventions. As a result local stakeholders around the world have developed innovative initiatives to build relevant and consistent social progress indices at the macro (national), meso (regional, municipal) and micro (community, organizational) levels, to influence the policy decision-making process and move the needle of social progress around the world.

### Youth Progress Index for the Provinces of South Africa

As already mentioned, the Youth Progress Index for the Provinces of South Africa follows the Social Progress Index rationale as well as its key principles and methodology. As such, it adopts the same dimension and component level framework as the global Social Progress Index and an effort has been made to mirror the indicators where possible. However, conducting a sub-national SPI offers the opportunity to customise the indicators beyond what the global index offers, whilst still maintaining the boundaries of the SPI framework. Therefore, locally relevant and appropriate indicators have been included. Wherever possible and appropriate, respondent data from the youth only (i.e. persons aged between 14-35) was used. For instance, *Satisfaction with electricity services* reflects *youth* satisfaction, as opposed to satisfaction data from the entire survey sample. There are some indicators, such as the *Matric pass rate*, which is relevant to the youth irrespective of demographic splits, and was therefore used in its original form.

The resulting Youth Progress Index Framework for SA includes 48 indicators as shown in Figure 3.

**Figure 3: Social Progress Index: Provinces of South Africa**

Basic Human Needs	Foundations of Wellbeing	Opportunity
<b>Nutrition and Basic Medical Care</b>	<b>Access to Basic Knowledge</b>	<b>Personal Rights</b>
School nutrition programme beneficiaries	Matric pass rate	Trust in police
Infant death rate	Children not at school due to disability	Trust in courts
Institutional maternal mortality ratio	Still schooling at 18-29 years of age	Perceived efficacy of police
<b>Water and Sanitation</b>	Adults with no formal schooling	Trust in SABC
Access to piped water	<b>Access to Information and Communications</b>	Perception of improvement in race relations
Schools with pit toilet only	Schools connected to the Internet	<b>Personal Freedom and Choice</b>
Satisfaction with water and sanitation	Households with access to the Internet	Corporal punishment at school
Tap water with no bad smells	Internet access through smartphone	Teenage pregnancy
<b>Shelter</b>	TV in household	Unqualified, fully clean municipal audits
Informal dwelling	<b>Health and Wellness</b>	Employed with paid sick leave
Connected to mains electricity supply	Satisfaction with access to healthcare	Discouraged youth
Satisfaction with electricity services	Deaths: 'Other forms of Heart Disease'	<b>Inclusiveness</b>
<b>Personal Safety</b>	Deaths: 'Disorders involving immune mechanism'	Race-based discrimination
Murder rate	Suicide rate	Age-based discrimination
Feeling safe on the streets in the day	<b>Environmental Quality</b>	Gender-based discrimination
Worry about home being burgled	Satisfaction with refuse removal services	<b>Access to Advanced Education</b>
Worry about being a victim of violent crime	Environmental problems: Water	Not in employment, education or training (NEET)
Sexual offenses	Environmental problems: Air	Grade 12 Bachelor's entry pass
	Environmental problems: Land degradation	Post-matric education (completed)
	Environmental problems: Litter	Post-matric education (enrolled)

Source: Authors

## Geographic and Time Coverage

The Index is calculated for all 9 provinces of South Africa. These provinces are as follows:

- Western Cape
- Eastern Cape
- Northern Cape
- Free State
- KwaZulu-Natal
- North West
- Gauteng
- Mpumalanga
- Limpopo

The YPI is calculated for six recent years – 2013–2018, based on the availability of data for the various indicators. The data presented in the main report are based on the most recent year, 2018. A detailed table with annual data availability for each indicator is presented in Appendix C. IQbusiness plans to update the index on an annual basis.

## Index Calculation

Calculating the Youth Progress Index involves the following multistage process:

- 1) Indicator Selection and Data Collection.
- 2) Dealing with missing values.
- 3) Data Transformation.
- 4) Aggregation and scaling.
- 5) Evaluating the fit.

### 1) *Indicator Selection and Data Collection*

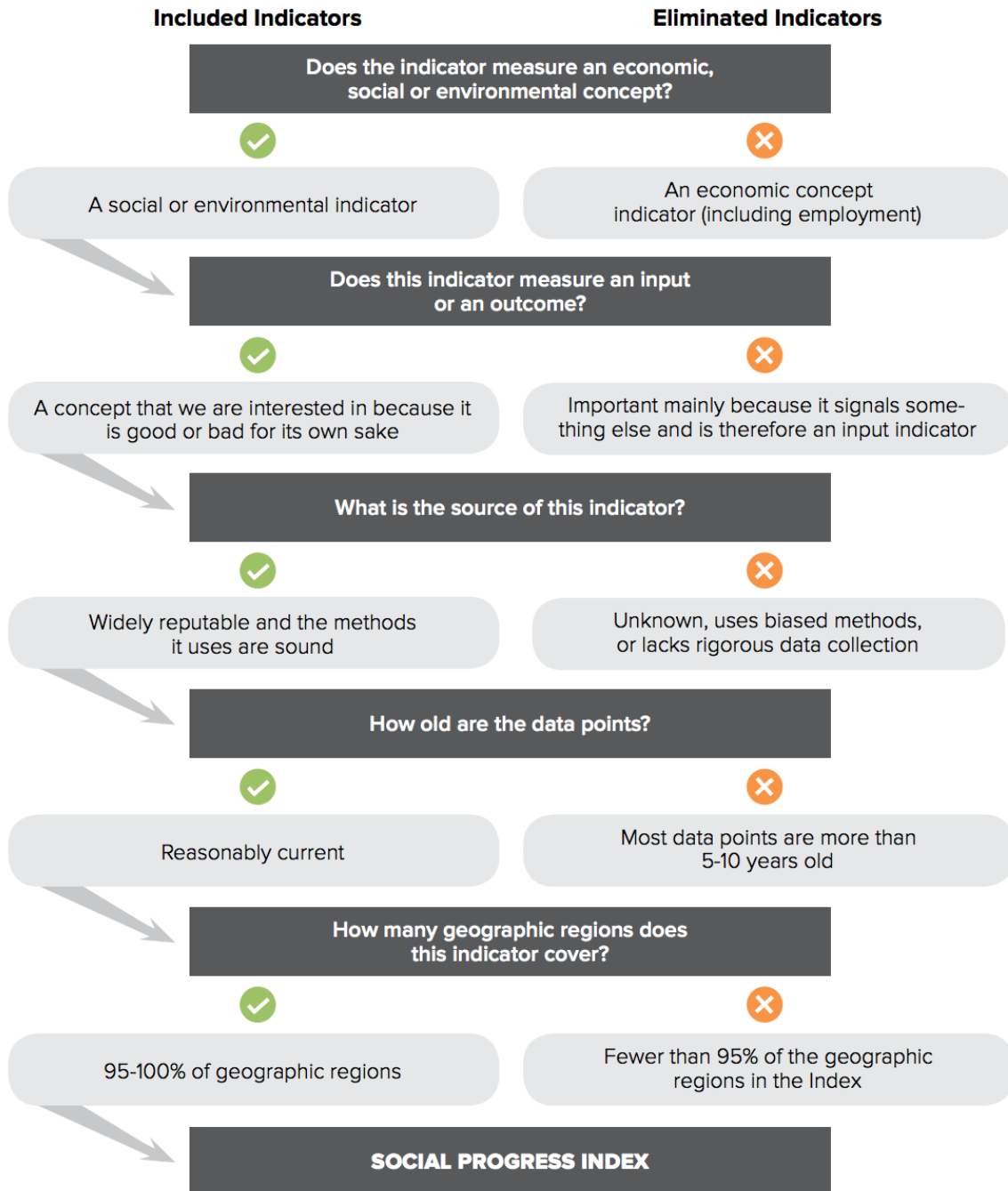
It has been the aim of the researchers to include the most appropriate and relevant indicators reflecting the real lived experience of South African youth, broadly defined as persons aged 14-35 (in line with government's definition).

The Indicators for the YPI were selected following SPI general design principles: non-economic, outcome oriented, relevant to all units of observation and actionable. Furthermore, indicators were reviewed to ensure their timeliness, relevance and technical robustness. The process of indicator selection followed the Social Progress Index indicator selection tree as outlined in Figure 4.

A list of indicators that were taken into consideration but are not included in the final index is presented in Appendix A. Detailed information on individual indicators included in the Index is presented in Appendix B.



**Figure 4: Indicator selection tree**



Source: Social Progress Imperative 2018

All indicators included in the YPI were compiled from government sources, or from other official and reputable sources. Therefore, only credible sources were used.

## 2) *Dealing with Missing Values*

Data for most indicators were available for at least 5 out of the 6 selected years (i.e. 2013-2018). There were, however, some indicators for which data was unavailable for one of the years. To solve for this, the most recent data point was used to fill the missing data gap. While this is not an ideal approach, it was the only feasible one.

**The above-mentioned approach was taken for the following indicators:**

- Deaths: 'Other forms of Heart Disease'
- Deaths: 'Disorders involving immune mechanism'
- Suicide rate
- Perceived efficacy of police
- Schools connected to the Internet

## 3) *Data Transformations*

On account of having outliers that ultimately did not support a normal distribution, one indicator was log transformed in order to address this issue. The indicator in question is Suicide rate.

Secondly, many of the indicators, such as those reported on in Personal Safety, needed to be recorded as a rate per 100 000 population of that province, so that the data is comparable across provinces.

Thirdly, as all the indicators are measured in different units, it is important to **standardize** them so that they become comparable. Otherwise, a variable that has less variation relatively but is measured on a larger scale compared to other variables may appear to have much greater variation than it actually does. Standardization helps solving the problem by making indicators unitless as it rescales them with a mean of zero and standard deviation of one.

## 4) *Aggregation and Scaling*

For the YPI the researchers adopted the arithmetic mean (i.e. simple average) approach to aggregation, which applies the arithmetic mean to aggregate the four components within each dimension into a dimension score and across dimensions into the overall index score.

The Social Progress Index uses the Principal Component Analysis (PCA) for calculating the weights of indicators within a component.<sup>1</sup> A list of weights is presented in Appendix D. There are no indicators with smaller than ideal weights.

The component values are calculated by summing the weighted scores using the following formula:

$$\text{Component}_s = \sum (w_i * \text{indicator})$$

To calculate **component scores** the Index transforms indicator values onto a 0 to 100 scale. This is done by calculating scores using best- and worst-case scenarii which are defined at the indicator level according to desirable or theoretically possible upper and lower bounds. See Appendix E for the worst and best-case scenarii.

This method enhances comparability as well as comprehensiveness across the dataset.

<sup>1</sup> Principal Component Analysis is a multivariate technique which was developed in early 20th century for the purpose of aggregating information. Calculations were done in Stata, using "factor, pcf" command.

The calculation is done using the following formula:

$$\frac{X_j - \text{Worst Case}}{\text{Best Case} - \text{Worst Case}}$$

Where,  $X_j$  represents the raw values.

Each **dimension** score is then taken to be the arithmetic average of its four components. The overall **Index** score is the arithmetic average of the three dimensions.

### 5) Evaluating the Fit

The indicator selection process entails including the indicators that describe the concept of the component in the best possible way and are conceptually linked to each other. The rigor of the Social Progress Index methodology is strengthened by assessing multiple aspects of fit between those. First, exploratory factor analysis is used to test the underlying factors among the set of selected indicators in each component. In this process, the indicators that are statistically incompatible are removed.

Furthermore, the Social Progress Index methodology involves evaluating the fit between the individual indicators by calculating Cronbach's Alpha for each component. Alpha was developed by Lee Cronbach in 1951 to provide a measure of the internal consistency; it is expressed as a number between 0 and 1 (Tavakol & Dennick 2011). Internal consistency describes the extent to which all the items in a test measure the same concept or construct and hence it is connected to the inter-relatedness of the items within the test. An applied practitioner's rule of thumb is that the alpha value should be above 0.7 for any logical grouping of variables (Cortina, 1993). The alpha values are presented in Table 2.

**Table 2: Alpha Values**

	Component	Cronbach's Alpha
Basic Human Needs	Nutrition and Basic Medical Care	0.76
	Water and Sanitation	0.85
	Shelter	0.71
	Personal Safety	0.90
Foundations of Wellbeing	Access to Basic Knowledge	0.89
	Access to Information and Communications	0.84
	Health and Wellness	0.77
	Environmental Quality	0.87
Opportunity	Personal Rights	0.88
	Personal Freedom and Choice	0.88
	Inclusiveness	0.82
	Access to Advanced Education	0.92

Source: Authors

After calculating each component, the goodness of fit is evaluated using the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy. The measure reflects the proportion of variance among variables that might be common variance. The KMO index ranges from 0 to 1, as a rule of thumb, KMO scores should be above 0.5 (Williams, Onsman, & Brown 2010). The results of this analysis are shown in Table 3.

**Table 3: KMO Values**

	Component	Mean KMO
<b>Basic Human Needs</b>	Nutrition and Basic Medical Care	0.54
	Water and Sanitation	0.68
	Shelter	0.65
	Personal Safety	0.79
<b>Foundations of Wellbeing</b>	Access to Basic Knowledge	0.80
	Access to Information and Communications	0.69
	Health and Wellness	0.71
	Environmental Quality	0.77
<b>Opportunity</b>	Personal Rights	0.70
	Personal Freedom and Choice	0.74
	Inclusiveness	0.64
	Access to Advanced Education	0.79

Source: Authors

## Conclusion

Building the Youth Progress Index for South Africa's Provinces was a long-term endeavour lead by the Research team at IQbusiness, supported by the Social Progress Imperative. Throughout the process the team constructed and tested several iterations of the index and consulted many colleagues across the business and the academic environment. Despite numerous challenges, such as the lack of appropriate data, or the fit of indicators, the authors are confident that the presented Youth Progress Index: Provinces of South Africa, is a robust and credible assessment of social progress in the context of the youth.

The Index will provide a benchmark by which provinces can compare themselves to others and can identify priorities that need addressing in order to advance youth progress. The Index is a unifying tool, which brings a common language and understanding of what social progress means to South Africa's public and private actors as well as its residents.

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## Appendix A: Indicators not included in the final framework

Indicator name	Indicator source	Included in the Index? <input type="checkbox"/>	Reasons for rejection
<b>BASIC HUMAN NEEDS</b>			
<i>Nutrition and Basic Medical Care</i>			
Youth with less than adequate food in their household	South African Social Attitudes Survey (SASAS) (HSRC)	No	Poor statistical fit.
How often did you go hungry as there was no food to eat	General Household Survey (Statistics South Africa)	No	Poor statistical fit.
<i>Water and Sanitation</i>			
Safe drinking water	General Household Survey (Statistics South Africa)	No	Other similar indicators has better statistical fit.
Access to flush toilets	General Household Survey (Statistics South Africa)	No	An indicator on flush toilets is being used in the Shelter component
Youth access to piped water in household	South African Social Attitudes Survey (SASAS) (HSRC)	No	The other piped water indicator had better statistical fit.
<i>Shelter</i>			
Houses with compromised walls	General Household Survey (Statistics South Africa)	No	Poor statistical fit.
Informal Dwelling (SASAS)	South African Social Attitudes Survey (SASAS) (HSRC)	No	Poor statistical fit.
Youth with no access to electricity in their household	South African Social Attitudes Survey (SASAS) (HSRC)	No	The other electricity indicator had a better statistical fit
Quality of electricity service	General Household Survey (Statistics South Africa)	No	Poor statistical fit.
Youth access to flush toilet	South African Social Attitudes Survey (SASAS) (HSRC)	No	This is more of a water and sanitation indicator.
Water 200M from yard	Non-financial survey of municipalities	No	Data for the WC seemed like it may be inaccurate.
<i>Personal safety</i>			
Households affected by crime	Victims of Crime Survey (Statistics South Africa)	No	Less than optimal statistical fit.
Robbery with aggravating circumstances	Annual Crime Report (South African Police Service)	No	Less than optimal statistical fit.
Perception of crime and safety as a serious challenge	South African Social Attitudes Survey (SASAS) (HSRC)	No	Less than optimal statistical fit.
Youth satisfaction with Crime reduction	South African Social Attitudes Survey (SASAS) (HSRC)	No	Less than optimal statistical fit.
Youth satisfaction with how safe they feel	South African Social Attitudes Survey (SASAS) (HSRC)	No	Other similar indicators has better conceptual/statistical fit.
Victim of burglary or assault in last 5 years	South African Social Attitudes Survey (SASAS) (HSRC)	No	Less than optimal statistical fit.
Feeling safe	South African Social Attitudes Survey (SASAS) (HSRC)	No	Other similar indicators has better conceptual/statistical fit.
Feeling safe on the streets at night	South African Social Attitudes Survey (SASAS) (HSRC)	No	Other similar indicators has better conceptual/statistical fit.
Perceived neighbourhood crime to have increased	South African Social Attitudes Survey (SASAS) (HSRC)	No	Less than optimal statistical fit.
Malicious damage to property	Annual Crime Report (South African Police Service)	No	Less than optimal statistical fit.
<b>FOUNDATIONS OF WELLBEING</b>			
<i>Access to basic knowledge</i>			
Attending school	General Household Survey (Statistics South Africa)	No	Poor statistical fit.
Bachelors Pass at Grade 12	Education Statistics in South Africa (Dept of Basic Education)	No	Used in Access to Advanced Education Component
<i>Access to information &amp; communications</i>			
Households with no cellular phone or land line	General Household Survey (Statistics South Africa)	No	Poor statistical fit.
Youth living in households with no cellphone	South African Social Attitudes Survey (SASAS) (HSRC)	No	Less than optimal statistical fit.

## Appendix A: Indicators not included in the final framework (Continued)

<b>Health and Wellness</b>			
Youth Satisfaction with treatment for STIs	South African Social Attitudes Survey (SASAS) (HSRC)	No	Poor statistical fit.
Youth satisfaction with their own health	South African Social Attitudes Survey (SASAS) (HSRC)	No	Poor statistical fit.
Deaths: HIV	Mortality and causes of death in South Africa (Stats SA)	No	Less than optimal statistical fit.
Deaths: Tuberculosis	Mortality and causes of death in South Africa (Stats SA)	No	Less than optimal statistical fit.
Deaths: Influenza and Pneumonia	Mortality and causes of death in South Africa (Stats SA)	No	Less than optimal statistical fit.
Deaths: Other Viral Diseases	Mortality and causes of death in South Africa (Stats SA)	No	Less than optimal statistical fit.
<b>Environmental Quality</b>			
Environmental problems: Waste	General Household Survey (Statistics South Africa)	No	We decided to use another, youth-specific indicator.
Environmental Issues - SASAS	South African Social Attitudes Survey (SASAS) (HSRC)	No	Less than optimal statistical fit.
<b>OPPORTUNITY</b>			
<b>Personal rights</b>			
Perceived justice in violent crime sentencing	Victims of Crime Survey (Statistics South Africa)	No	This survey has been discontinued. Last data point was 2017.
Racial discrimination	South African Social Attitudes Survey (SASAS) (HSRC)	No	Poor statistical fit.
Corruption - SASAS	South African Social Attitudes Survey (SASAS) (HSRC)	No	Poor statistical fit.
Human Rights - SASAS	South African Social Attitudes Survey (SASAS) (HSRC)	No	Poor statistical fit.
Satisfaction with democracy	South African Social Attitudes Survey (SASAS) (HSRC)	No	Less than optimal statistical fit.
<b>Personal Freedom &amp; Choice</b>			
Formal Sector Employment Share	Quarterly Labour Force Survey Q4 (Statistics SA)	No	Poor statistical fit.
Youth approval of the use of corporal punishment	South African Social Attitudes Survey (SASAS) (HSRC)	No	
Contribute to medical aid	Quarterly Labour Force Survey Q4 (Statistics SA)	No	We had to choose between this indicator and 'Paid Sick Leave'.
<b>Inclusiveness</b>			
Discouraged Youth	Quarterly Labour Force Survey Q4 (Statistics SA)	No	Indicator used in another component.
Racism - SASAS	South African Social Attitudes Survey (SASAS) (HSRC)	No	Other similar indicators has better conceptual/statistical fit.
Xenophobia - SASAS	South African Social Attitudes Survey (SASAS) (HSRC)	No	Poor statistical fit.
Youth satisfaction with the provision of social grants	South African Social Attitudes Survey (SASAS) (HSRC)	No	Poor statistical fit.
Perception that their race group is excluded from positions of power	South African Social Attitudes Survey (SASAS) (HSRC)	No	Other similar indicators has better conceptual/statistical fit.
Youth subjective fear of race discrimination	South African Social Attitudes Survey (SASAS) (HSRC)	No	Other similar indicators has better conceptual/statistical fit.
Youth perception of improvement in race relations since 1994	South African Social Attitudes Survey (SASAS) (HSRC)	No	Other similar indicators has better conceptual/statistical fit.
Youth perception of improvement in race relations in the last year	South African Social Attitudes Survey (SASAS) (HSRC)	No	Other similar indicators has better conceptual/statistical fit.
Youth perception of equal opportunity amongst race groups	South African Social Attitudes Survey (SASAS) (HSRC)	No	Poor statistical fit.
Welcoming of immigrants by Youth	South African Social Attitudes Survey (SASAS) (HSRC)	No	Poor statistical fit.
Youth satisfaction with feeling part of their community	South African Social Attitudes Survey (SASAS) (HSRC)	No	Poor statistical fit.
Households that benefit from social grants	General Household Survey (Statistics South Africa)	No	Poor statistical fit.
Youth not in employment, education or training	Quarterly Labour Force Survey Q4 (Statistics SA)	No	Indicator used in another component.
<b>Access to advanced education</b>			
Adults with no formal schooling	General Household Survey (Statistics South Africa)	No	Indicator used in another component.
Enrolled in post-school education (18-35 years)	General Household Survey (Statistics South Africa)	No	Other similar indicators has better conceptual/statistical fit.
Post-matric education SASAS	South African Social Attitudes Survey (SASAS) (HSRC)	No	Other similar indicators has better conceptual/statistical fit.



## Appendix B: Indicator definitions and sources

Indicator name	Indicator definition (i.e. what is the indicator measuring and with what units)	Indicator source
<b>BASIC HUMAN NEEDS</b>		
<i>Nutrition and Basic Medical Care</i>		
School nutrition programme beneficiaries	Percentage of persons 7-17 benefitting school's nutrition programme ('Everyday', 'a few times a week' or 'sometimes').	General Household Survey (Stats SA)
Infant death rate	Infant (under 1 year) death rate per 1000 recorded live births.	Mortality and causes of death (Stats SA)
Institutional maternal mortality ratio	Maternal mortality per 100 000 live births at an institutional level	Saving Mothers Report (Department of Health)
<i>Water and Sanitation</i>		
Access to piped water	Percentage of households whose main source of drinking water is piped or tap water inside their dwellings	General Household Survey (Stats SA)
Schools with pit toilet only	Percentage of ordinary operation schools that have pit toilets only.	NEIMS Standard report (DBE)
Satisfaction with water and sanitation	Percentage of Youth that were satisfied or very satisfied with the supply of water and sanitation in their neighbourhood	South African Social Attitudes Survey (HSRC)
Tap water with no bad smells	Percentage of household heads who reported that there are no bad smells in the tap water that they receive.	General Household Survey (Stats SA)
<i>Shelter</i>		
Informal dwelling	Percentage of households whose main dwelling is an informal dwelling	General Household Survey (Stats SA)
Connected to mains electricity supply	Percentage of households that are connected to the mains electricity supply as defined by the GHS	General Household Survey (Stats SA)
Satisfaction with electricity services	Percentage of Youth that were satisfied or very satisfied with the supply of electricity services in their neighbourhood	South African Social Attitudes Survey (HSRC)
<i>Personal safety</i>		
Murder rate	Rate per 100 000 population of murder or culpable homicide cases reported to police.	Victims of Crime Survey (Stats SA)
Feeling safe on the streets in the day	Percentage of Youth that feel fairly safe or very safe walking in their neighbourhood during the day	South African Social Attitudes Survey (HSRC)
Worry about home being burgled	Percentage of Youth that worry about their home being burgled some of the time or all/most of the time	South African Social Attitudes Survey (HSRC)
Worry about being a victim of violent crime	Percentage of Youth that worry about being a victim of violent crime some of the time or all/most of the time	South African Social Attitudes Survey (HSRC)
Sexual offenses	Number of sexual offences reported to the police as a percentage per 100 000 of the population	Saps Crime data
<b>FOUNDATIONS OF WELLBEING</b>		
<i>Access to basic knowledge</i>		
Matric pass rate	Percentage of grade 12 learners who passed the National Senior Certificate exam (based on the number that wrote the exam).	Education Statistics in South Africa (DBE)
Children not at school due to disability	Percentage of those children (aged 7-18) who aren't attending school, with the reason being provided being that the child is disabled.	General Household Survey (Stats SA)
Still schooling at 18-29 years of age	Percentage of the 18 - 29 year old population who are still in school (Primary or Secondary School).	General Household Survey (Stats SA)
Adults with no formal schooling	Percentage of persons aged 20 years and older with no formal schooling	General Household Survey (Stats SA)
<i>Access to information &amp; communications</i>		
Schools connected to the Internet	Percentage of ordinary operation schools that have internet connectivity for teaching and learning purposes.	NEIMS Standard report (DBE)
Households with access to the Internet	Percentage of households where at least one member has access to the internet, either at home or outside of home.	General Household Survey (Stats SA)
Internet access through smartphone	Percentage of Youth that have access to the internet through a cellphone	South African Social Attitudes Survey (HSRC)
TV in household	Percentage of Youth from SASSAS survey with TV in household	South African Social Attitudes Survey (HSRC)
<i>Health and Wellness</i>		
Satisfaction with access to healthcare	Percentage of Youth that were satisfied or very satisfied with the access to healthcare services in their neighbourhood	South African Social Attitudes Survey (HSRC)
Deaths: 'Other forms of Heart Disease'	Other forms of Heart Disease' deaths in persons aged 15-44 calculated as a rate (per 100000 of the 15-34 population)	Mortality and causes of death (Stats SA)
Deaths: 'Certain disorders involving the immune mechanism'	Certain disorders involving the immune mechanism' deaths in persons aged 15-44 calculated as a rate (per 100000 of the 15-34 population)	Mortality and causes of death (Stats SA)
Suicide rate	Suicide as a rate based on the Provincial population	Mortality and causes of death (Stats SA)
<i>Environmental Quality</i>		
Environmental problems: Water	Percentage of households who experienced water pollution problems	General Household Survey (Stats SA)
Environmental problems: Air	Percentage of households who experienced air pollution issues	General Household Survey (Stats SA)
Environmental problems: Land degradation	Percentage of households who experienced issues relating to land degradation	General Household Survey (Stats SA)
Environmental problems: Litter	Percentage of households who experienced issues relating to littering	General Household Survey (Stats SA)
Satisfaction with refuse removal services	Percentage of Youth that were satisfied or very satisfied with the supply of refuse removal services in their neighbourhood	South African Social Attitudes Survey (HSRC)
<b>OPPORTUNITY</b>		
<i>Personal rights</i>		
Trust in police	Percentage of youth that stated that they trust or strongly trust the police.	South African Social Attitudes Survey (HSRC)
Trust in courts	Percentage of youth that stated that they trust or strongly trust the courts.	South African Social Attitudes Survey (HSRC)
Perceived efficacy of police	Percentage of Youth that believe that the police is doing a good or very good job considering all the the police are responsible for.	South African Social Attitudes Survey (HSRC)
Trust in SABC	Percentage of Youth who trust the SABC (Trust and Strong trust)	South African Social Attitudes Survey (HSRC)
Perception of improvement in race relations	Percentage of Youth who believe that race relations have improved in the last year	South African Social Attitudes Survey (HSRC)
<i>Personal Freedom &amp; Choice</i>		
Corporal punishment at school	Percentage of learners who experienced corporal punishment at school	General Household Survey (Stats SA)
Teenage pregnancy	Number of births per 100 000 population where the mother was between 15-19 years of age.	Recorded Live Births (Statistics South Africa)
Unqualified, fully clean municipal audits	Percentage of municipalities in a province that received an unqualified, fully clean municipal audit.	PMFA Reports (Auditor-General South Africa)
Employed with paid sick leave	18 - 35 years old - employed and getting sick leave	Quarterly Labour Force Survey (Stats SA)
Discouraged youth	Percentage of youth (14-35 years) that are classified as "discouraged" as per the Stats SA definition.	Quarterly Labour Force Survey (Stats SA)
<i>Inclusiveness</i>		
Race-based discrimination	The percentage of youth who feel "always" or "often" racially discriminated against	
Age-based discrimination	Percentage of youth who experience discrimination on the basis of age.	South African Social Attitudes Survey (HSRC)
Gender-based discrimination	Percentage of youth who experience discrimination on the basis of gender.	South African Social Attitudes Survey (HSRC)
<i>Access to advanced education</i>		
Youth not in employment, education or training (NEET)	Percentage of youth (14-35) not in employment, education, or training.	Quarterly Labour Force Survey (Stats SA)
Grade 12 Bachelor's entry pass	Percentage of learners that passed the National Senior certificate examination with a Bachelor's entry pass	Education Statistics in South Africa (DBE)
Post-matric education (completed)	Percentage of persons 20-35 who have completed some post grade 12 education (anything from N4/NTC4/NQF5 to Doctorate/PhD)	General Household Survey (Stats SA)
Post-matric education (enrolled)	Percentage of 18 -35 year olds who are in further education (i.e. post secondary school)	Quarterly Labour Force Survey (Stats SA)

## Appendix C: Data availability

Indicator name	2013	2014	2015	2016	2017	2018
<b>BASIC HUMAN NEEDS</b>						
<i><b>Nutrition and Basic Medical Care</b></i>						
School nutrition programme beneficiaries						
Infant death rate						
Institutional maternal mortality ratio						
<i><b>Water and Sanitation</b></i>						
Access to piped water						
Schools with pit toilet only						
Satisfaction with water and sanitation						
Tap water with no bad smells						
<i><b>Shelter</b></i>						
Informal dwelling						
Connected to mains electricity supply						
Satisfaction with electricity services						
<i><b>Personal safety</b></i>						
Murder rate						
Feeling safe on the streets in the day						
Worry about home being burgled						
Worry about being a victim of violent crime						
Sexual offenses						
<b>FOUNDATIONS OF WELLBEING</b>						
<i><b>Access to basic knowledge</b></i>						
Matric pass rate						
Children not at school due to disability						
Still schooling at 18-29 years of age						
Adults with no formal schooling						
<i><b>Access to information &amp; communications</b></i>						
Schools connected to the Internet						
Households with access to the Internet						
Internet access through smartphone						
TV in household						
<i><b>Health and Wellness</b></i>						
Satisfaction with access to healthcare						
Deaths: 'Other forms of Heart Disease'						
Deaths: 'Certain disorders involving the immune mechanism'						
Suicide rate						
<i><b>Environmental Quality</b></i>						
Environmental problems: Water						
Environmental problems: Air						
Environmental problems: Land degradation						
Environmental problems: Litter						
Satisfaction with refuse removal services						
<b>OPPORTUNITY</b>						
<i><b>Personal rights</b></i>						
Trust in police						
Trust in courts						
Perceived efficacy of police						
Trust in SABC						
Perception of improvement in race relations						
<i><b>Personal Freedom &amp; Choice</b></i>						
Corporal punishment at school						
Teenage pregnancy						
Unqualified, fully clean municipal audits						
Employed with paid sick leave						
Discouraged youth						
<i><b>Inclusiveness</b></i>						
Race-based discrimination						
Age-based discrimination						
Gender-based discrimination						
<i><b>Access to advanced education</b></i>						
Grade 12 Bachelor's entry pass						
Post-matric education (completed)						
Post-matric education (enrolled)						

## Appendix D: Weights

Dimension/component	Indicator Name	Weight	Scaled Weight
<b>Basic Human Needs</b>			
Nutrition and Basic Medical Care	School nutrition programme beneficiaries	0,40	0,33
	Infant death rate	0,35	0,29
	Institutional maternal mortality ratio	0,45	0,38
Water and Sanitation	Access to piped water	0,33	0,28
	Schools with pit toilet only	0,29	0,24
	Satisfaction with water and sanitation	0,31	0,25
	Tap water with no bad smells	0,27	0,23
Shelter	Informal dwelling	0,42	0,34
	Connected to mains electricity supply	0,44	0,36
	Satisfaction with electricity services	0,38	0,31
Personal Safety	Murder rate	0,22	0,19
	Feeling safe on the streets in the day	0,25	0,21
	Worry about home being burgled	0,24	0,20
	Worry about being a victim of a violent crime	0,25	0,22
	Sexual offenses	0,21	0,18
<b>Foundations of Wellbeing</b>			
Access to Basic Knowledge	Matric pass rate	0,29	0,25
	Children not at school due to disability	0,27	0,23
	Still schooling at 18-29 years of age	0,31	0,27
	Adults with no formal schooling	0,28	0,24
Access to Information and Communications	Schools connected to the Internet	0,29	0,24
	Households with access to the Internet	0,33	0,28
	Internet access through smartphone	0,29	0,24
Health and Wellness	TV in household	0,29	0,24
	Satisfaction with access to healthcare	0,27	0,21
	Deaths: 'Other forms of Heart Disease'	0,36	0,28
	Deaths: 'Disorders involving immune mechanism'	0,36	0,28
Environmental Quality	Suicide rate	0,29	0,23
	Satisfaction with refuse removal services	0,22	0,18
	Environmental problems: Water	0,19	0,16
	Environmental problems: Air	0,27	0,22
	Environmental problems: Land degradation	0,27	0,22
Environmental problems: Litter	0,27	0,22	
<b>Opportunity</b>			
Personal Rights	Trust in police	0,26	0,21
	Trust in courts	0,23	0,19
	Perceived efficacy of police	0,24	0,20
	Trust in SABC	0,25	0,21
	Perception of improvement in race relations	0,23	0,19
Personal Freedom and Choice	Corporal punishment at school	0,22	0,18
	Teenage pregnancy	0,23	0,19
	Unqualified, fully clean municipal audits	0,26	0,21
	Employed with paid sick leave	0,24	0,20
	Discouraged youth	0,26	0,21
Inclusiveness	Race-based discrimination	0,33	0,29
	Age-based discrimination	0,41	0,36
	Gender-based discrimination	0,41	0,36
Access to Advanced Education	Not in employment, education or training (NEET)	0,25	0,23
	Grade 12 Bachelor's entry pass	0,28	0,25
	Post-matric education (completed)	0,28	0,25
	Post-matric education (enrolled)	0,30	0,27

## Appendix E: Best- and worst-case scenario

Indicator name	Best Case	Worst Case
<b>BASIC HUMAN NEEDS</b>		
<b><i>Nutrition and Basic Medical Care</i></b>		
School nutrition programme beneficiaries	35.00	102.30
Infant death rate	11.13	45.41
Institutional maternal mortality ratio	66.50	233.75
<b><i>Water and Sanitation</i></b>		
Access to piped water	100.00	10.87
Schools with pit toilet only	0.00	67.38
Satisfaction with water and sanitation	99.00	19.34
Tap water with no bad smells	100.00	69.35
<b><i>Shelter</i></b>		
Informal dwelling	0.00	25.14
Connected to mains electricity supply	100.00	70.23
Satisfaction with electricity services	99.00	40.71
<b><i>Personal safety</i></b>		
Murder rate	27.34	95.50
Feeling safe on the streets in the day	99.00	36.06
Worry about home being burgled	11.00	82.75
Worry about being a victim of violent crime	12.00	78.04
Sexual offenses	50.28	168.03
<b>FOUNDATIONS OF WELLBEING</b>		
<b><i>Access to basic knowledge</i></b>		
Matric pass rate	99.00	48.28
Children not at school due to disability	0.00	2615.87
Still schooling at 18-29 years of age	4.00	30.69
Adults with no formal schooling	0.00	12.19
<b><i>Access to information &amp; communications</i></b>		
Schools connected to the Internet	100.00	2.92
Households with access to the Internet	98.00	18.62
Internet access through smartphone	98.00	27.61
TV in household	100.00	53.89
<b><i>Health and Wellness</i></b>		
Satisfaction with access to healthcare	86.00	31.27
Deaths: 'Other forms of Heart Disease'	5.03	38.58
Deaths: 'Certain disorders involving the immune mechanism'	5.82	77.16
Suicide rate	0.09	11.84
<b><i>Environmental Quality</i></b>		
Environmental problems: Water	8.32	30.58
Environmental problems: Air	8.66	40.26
Environmental problems: Land degradation	9.70	82.62
Environmental problems: Litter	19.96	64.74
Satisfaction with refuse removal services	95.00	16.21

## Appendix E: Best- and worst-case scenario (Continued)

<b>OPPORTUNITY</b>		
<b><i>Personal rights</i></b>		
Trust in police	66.00	10.27
Trust in courts	85.00	26.31
Perceived efficacy of police	59.00	9.57
Trust in SABC	96.00	35.86
Perception of improvement in race relations	97.00	17.74
<b><i>Personal Freedom &amp; Choice</i></b>		
Corporal punishment at school	0.00	27.72
Teenage pregnancy	69.87	462.86
Unqualified, fully clean municipal audits	100.00	0.00
Employed with paid sick leave	100.00	20.40
Discouraged youth	0.00	38.77
<b><i>Inclusiveness</i></b>		
Race-based discrimination	0.00	42.10
Age-based discrimination	0.00	12.87
Gender-based discrimination	0.00	47.94
<b><i>Access to advanced education</i></b>		
Youth not in employment, education, or training (NEET)	23.00	52.04
Grade 12 Bachelor's entry pass	50.00	14.96
Post-matric education (completed)	31.00	6.47
Post-matric education (enrolled)	71.00	11.53