AN ALTERNATIVE MULTI-DIMENSIONAL REGIONAL ECONOMIC DEVELOPMENT INDEX: A PROVINCIAL APPLICATION IN SOUTH AFRICA

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─Abstract─

The importance of regional economic development has come to the fore in recent years in driving global development, leading to improving the general standard of living. However, quantifying economic development progress is a difficult process as the measurement thereof is complex and a multi-dimensional concept. Previous attempts to measure economic development have made use of single and limited composite indices, such as the Human Development Index (HDI). These indices are limited in extent, failing to capture important aspects of development and therefore a gap for the formulation of a comprehensive regional economic development index exists. The primary objective of this study was therefore to construct a multi-dimensional, composite, regional development index that measures most dimensions of economic development. The research design methodology included a comprehensive literature review and the use of secondary data obtained from Global Insight. The index as constructed included 18 quantifiable socio-economic variables, consisting of four sub-dimensions and weights were assigned to all individual indicators. The index was applied to all nine provinces in South Africa. The findings indicate that regions are at different stages of development and development occurs at a different pace across regions. The results provide economic development practitioners with detailed insight of the socio-economic strengths and weaknesses of the provinces in South Africa and where interventions are required. The implications of this alternative index are that it could be utilised as a tool for the analysis and measurement of global regional efforts, as well as to compare different economic regions vis-à-vis their level of economic development.

Key Words: Economic development, index, regions development, South Africa.

JEL Classification: O10, O21, R58.

1. INTRODUCTION

The importance of regional economic development has come to the fore in recent years in driving global development (Feldman & Lowe, 2017). The underlining processes of globalisation across the globe have brought with them various implications regarding the economic progress of countries and regions alike. The expected impact of globalisation forces was assumed to allow for greater international cooperation, and economic convergence (Ascani, Crescenzi & Iammarino, 2012). Recent evidence on globalisation however, has been associated with an increase in the occurrence of widespread inequalities and economic dominance that have induced resource concentration to specific economic regions (Bogović & Čegar, 2015). On the basis of these occurrences, increasing awareness has been ascribed to the pivotal role of local and regional development in driving national and global progress (Feldman & Lowe, 2017).

The shift in recognition in this regard has however had various implications in quantifying the progress countries, and regions, have made in development. An increasing focus on the multi-dimensional nature of development, has meant that the use and focus of single indicators, such as gross domestic product (GDP) or sustainable national income (SNI) fail to encompass and reflect the true developmental status of regions (Hajduová, Andrejovsky & Beslerova, 2014). This has in turn proved problematic as measurement and assessment in these processes are decisive for risk identification and strategy intervention. These concerns however have been met by responses directed towards the use of various composite indices in the measurement process. These include the Human Development Index (HDI) and the Weighted Index of Social Indicators (WISP). Whilst all of these indices have undoubtedly contributed to the understanding of development itself, none have been without their specific limitations (Dalton-Greyling & Tregenna, 2016). It is in line with these shortcomings that the study seeks to add to the body of knowledge on the subject. Hence, the main purpose of the study was to further develop and refine the composite regional development index designed by Meyer, De Jongh and Meyer, (2016) by means of assigning weights to indicators as well as a basic regional classification system. Furthermore, the study seeks to test the index's viability as meaningful measure for regional economic development in South Africa.

2. LITERATURE REVIEW

Whilst acknowledgement concerning the importance of economic progress has remained universal, assertions on the comprehension thereof have been contrastingly intricate (Feldman, Hdjimichael, Kemeny & Lanahan, 2015). Schools of thought on this particular discourse have manifested themselves on the recognition and differentiation surrounding the quantitative and qualitative aspects of economic advancement (Haller, 2012). From the earliest contributions of neoclassical growth theories, these improvements were ascribed to a particular focus of expanding output and generating higher levels of production. Based on these understandings, capital and labour had an essential role in facilitating expansion and the overall economic well-being of regions (Das, Mourmouras & Rangazas, 2015). As time has progressed, however, various factors have contributed to the augmentation of these understandings, such as technology and innovation. Nonetheless, proponents of the ideology, even today, view economic progress primarily as a quantitative construct, with a particular belief that expansion would eventually trickle down to ensure an improved standard of living in regions and countries (Škare & Družeta, 2016).

Notwithstanding the important contributions of these views, modernisation and globalisation pressures have brought with them various implications. Economic processes have become more intrinsically complex. Current economic landscapes around the world, especially in developing regions, have been earmarked with substantial growth performances, yet faced with ever-increasing poverty, unemployment and inequality (Samans, Blanke, Hanouz & Corrigan, 2017). Moreover, uneven spatial developments are evident, surpassing the comprehension of classical views (Roy, 2017). This in turn has re-emphasised the importance of viewing economic progress not solely on its quantitative dimensions, but rather as a multi-dimensional process (Todaro & Smith, 2015). Economic development in this regard has become the overarching focus for most. Haller (2012) describes the concept as fundamentally different from economic growth where progress rests on the improvement in the standard of living and literacy levels, reduction of poverty and structural transformation as well as a predominant focus on sustainable means of production.

From regional perspectives, the evolution of viewing economic progress based on various economic and social dimensions has likewise altered the underlying comprehension on the subject. Built on the fundamental notions of theorists such

as Perroux (1955), regional development and competitiveness was primarily ascribed to the role of exogenous factors. Such factors include concentrated economic activity, agglomeration, sectoral specialisation, reduced transportation costs and export performances, amongst others. Despite these early contributions, more modern processes have come to elicit the shortcomings on the exogenous drivers of these developmental processes. The presence of large scale unemployment, inefficient usage of scarce resources and severely unequal wealth distribution in some regions have in fact all come to question the effectiveness of these concepts (Bogović & Čegar, 2015). It is within this framework that more modern understandings of regional development, which emphasise a bottom up approach to the process, have gained profound significance. From these perspectives, regional prosperity is instead driven by endogenous factors including various social, human and environmental aspects, which, contrastingly, stimulate crucial exogenous activities (OECD, 2014).

Based on these views regarding the development process, the quantification thereof has presented itself as a complex phenomenon. Attempts at measuring the process have seen the application of various indicators. Amongst these, the use of a region's gross domestic product (GDP) and gross national product (GNP) have been evident (Ivković, 2016). As single denominators, these indicators just measure the total output of goods and services for specific regions. Nevertheless, despite their application, concerns surrounding their inability to capture the intrinsic social aspects of regions including health, income distribution and the satisfaction of basic needs, have discarded its viability in effectively representing a true view of regional development (Hajduová *et al.,* 2014). Based on these shortcomings and taking into account the social welfare of communities, various alternatives, primarily in the form of composite indices, have been utilised. Amongst the more recognisable of these are the Weighted Index of Social Indicators (WISP) (Estes, 1997) and the HDI (UNDP, 1990). The latter, in particular, has been extensively used in measuring the development of countries, providing extensive insight into their knowledge, health and quality of life. Its usefulness has however been criticised in the past. Concerns focused on limited capacity and lack of additional indicators specifically directed towards measuring purely economic and social developmental aspects (Schrott, Gachter & Theurl, 2015).

Irrespective of these shortcomings, the use of composite indices in measuring regional progress has various advantages. These include the ability to capture a

substantial amount of information and allow effective and responsive identification of risks and problem areas (OECD, 2008). Sánchez-Domínguez and Ruiz-Martos (2014) in this regard reiterate that indicators should be chosen with the aim of ensuring true and accurate reflections for the areas of concern. Building on these concerns, various international bodies such as the OECD (2008) and the IMF (2006) have devised frameworks that serve as a base for the selection of the indicators. The OECD (2008) selection guidelines include aspects such as relevance and appropriateness; accuracy and reliability; timeliness and availability of information; ease of access; high levels of interpretability and understandability; and lastly, coherence and connectivity. These criteria draw attention to the point that although subjectivity exists in selection, indicators chosen should suffice to measure appropriate areas of concern, be able to provide an accurate view that is relevant for the time and be adequate for the use of comparison to other areas. The existing literature assenting to the use of composite indexes measuring regional development has also demonstrated significant variance in the choices of the basic dimensions (Michalek & Zarnekow, 2012). The differences, undoubtedly, showcase the difficulty in ensuring that all aspects of development are represented. Studies undertaken on the subject have illustrated the inclusion of varying social, institutional, economic, labour market and welfare dimensions (Perišić & Wagner, 2015).

The use of development indices has also been a focus in South Africa to assess developmental progress. Characterised by situations reflecting struggles with a high degree of poverty and diverse living conditions, these instruments attempt to assist in gauging the progress the country has made in eradicating the social extremes of the past. Dalton-Greyling and Tregenna (2016) indicate that a number of measurement instruments have been introduced, with the most familiar being the Development Index constructed by the South African Audience Research Foundation (SAARF, 2011). The index makes use of 13 indicators, mainly derived to assess the standard of living of communities and access to basic services or goods. Apart from this index, other measures include the Quality of Metropolitan City Life in South Africa (Naudé, Rossouw & Krugell, 2009) and the Everyday Quality of Life Index devised by Higgs (2007) aiming to measure individuals' livelihood and circumstances. In this process, they reveal important aspects of the micro-economic living conditions in which economic actors must function. Dalton-Greyling and Tregenna (2016) however reiterate that none of these indices constructed for the country have met the criteria for fully

encapsulating the development process. Their study brings to the fore shortcomings or criticisms such as failure to include both objective and subjective indicators of quality of life and development (Stiglitz, Sen & Fitoussi, 2009); indices which are restrictive, including indicators that are purely economic or non-economic as well as the use of equal weighting procedures, failing to objectively account for more important aspects in these processes (OECD, 2008).

Based on these shortcomings, Greyling (2013) introduced the Quality of Life Index for the Gauteng City Region. The index includes various micro variables that focus on household standards of living constructed in terms of the five dimensions of: housing and infrastructure, social relationships, socio-economic status, health and safety and governance. The indicators are selected from annual ordinal survey data collected just for the said region, allowing comparisons regarding the quality of life of different demographic groups within the area, which, however, limits its applicability to the comparison of different regions. A gap therefore exists for the formulation of a multi-dimensional regional development index based on quantifiable indicators. Lastly, a basic regional development classification system needs to be added. Previous works by Ramos, Ranieri & Lammens, (2013) and McKinley (2010) have added a classification system to their indexes. Based on guidance from these indexes, a basic, amended classification system is provided.

3. METHODOLOGY

3.1 Background

The primary objective of the study was to further develop the composite regional development index designed by Meyer *et al.* (2016) by means of further testing, assigning of weights and addition of a classification system. Furthermore, the study sought to apply the refined index and test the development levels in the nine provinces of South Africa. The research included a comprehensive literature review and the use of secondary data collected from Global Insight. Selected annual data was used for both 1996 and 2016 with the aim of measuring the developmental progress of the selected regions over a 20-year period. The refined index was tested and applied in South Africa's nine provinces and compared to the national aggregates to ascertain the leading and lagging regions that are either contributing or deterring national developmental progress. The nine provinces exhibit massive economic and geographical differences, each with its own unique socio-economic environment. For example, Gauteng is the smallest geographical

province, yet is deemed the economic heartland of the country. On the other hand, a geographically large province, such as the Northern Cape, only houses a small percentage of the national population whilst agriculture and mining dominates its economic contribution. It is based on these idiosyncratic characteristics that the inquiry provides an interesting framework for the analysis, and measurement, of regional development within South Africa.

Design and formulation of the alternative composite development index

The alternative development index, as developed by Meyer *et al.* (2016), comprised a total of 18 indicators which were constructed and grouped into four sub-dimensions selected to comprehensively elicit the developmental progress of a region. Each of the four sub-dimensions play an integral role in the economic and social progress. These selected sub-dimensions included demographics, social development, labour and economics. As shown in Meyer *et al.* (2016), index scores assigned for each variable ranged from 0 to 5, where higher scores were allocated to better indicator performances. The subsections below briefly elucidate each of the sub-dimensions and their included individual indicators. Annexure B contains all of the sub-dimensions with indicators.

Sub-dimension 1: Demographics

Demographics play an integral part in regional development. The structure and composition of populations and household characteristics as well as the locality of regions make a significant impact on the well-being and living conditions of individuals (Bloom & Sousa-Poza, 2013). Hence, the first dimension of the study comprised the population growth, average household size, population density and level of urbanisation. Both population density and urbanisation levels are positively correlated with the assigned index score. Population growth and household size however demonstrated both maximum and minimum thresholds that negatively affect scoring criteria, given the intricate relationship with development.

Sub-dimension 2: Social development

The second dimension comprised the social development aspects of areas. According to Midgley (2014) social development entails the collective progress made by society in improving the standard of living, including all social, political and cultural aspects. Given the associated complexity of the variable, seven indicators were included to measure this dimension. Variables that were positively

associated with the assigned index scores included HDI, infrastructure and literacy rates. Poverty levels, crime index, Gini-coefficients and informal housing were negatively associated with their assigned scores based on the premise that lower levels amongst these aspects attribute improved regional development.

Sub-dimension 3: Labour (employment)

Labour and more specifically, the employment thereof, continues to play a crucial role in the functioning of economic systems (Stocker, Gerold, Hinterberger, Berwald, Soleille, Morgan & Zoupanidou, 2015). The more actively involved individuals are in economic processes and the greater the supply and utilisation of labour, the ensuing stimulation results in various advantages for regions. These include higher levels of spending, social security and the transmission of productive investment that facilitate developmental progress. In capturing these aspects, two indicators: the percentage of economically active population (positively correlated to an index score) and the unemployment rate (negatively correlated to an index score) were used.

Sub-dimension 4: Economics

Finally, the last dimension focused on the measurement of purely economic attributes. All variables had a positive association with their scoring criteria except for the Tress Index. The latter attributes a negative correlation to its scoring technique, as lower scores attribute higher levels of diversification and hence improved development levels (Kaulich, 2012).

3.3 Weighting of indicators and classification of regions

Building on the OECD's (2008) framework as well as considering the shortcomings of previously used measures of development, each indicator in the composite index was weighted by means of a participative methodology process. This involved acquiring the opinion of 30 local and international experts in the field of regional and local economic development. Each expert was asked to confirm the completeness of the index and to rank the indicators on a weighting scale ranging from 1 = limited importance to 4 = very high importance. Afterwards, scores were aggregated in which an average weight for each of the 18 indicators was obtained with a maximum score of 4. In this instance, literacy levels obtained the highest score of 3.78 and household size the lowest score of 2.13. Subsequently, average weights were normalised to a ratio of between 0 and 1. This was done by comparing each ranking value to the highest obtained rank.

For example, literacy rates attribute a weight value of 1 (3.78/3.78) and household size a weighted value of 0.56 (2.13/3.78). The derived weights were then applied to the outlined scoring criteria which allowed for computation of an index score with a maximum value of 69.25. Scores were then finally computed as a percentage (out of 100) where a basic classification system was added (shown in Table 1) to classify regions.

Table 1: Classification system

Index Score	Classification and description
0 - 20	Very low levels of development, unacceptable index.
21 – 40	Low levels of development, unsatisfactory index.
41 – 60	Medium levels of development, acceptable index.
61 – 80	High levels of development, satisfactory index.
81 – 100	Very high levels of development, superior index.

Source: Own compilation.

4. RESULTS OF REGIONAL PROFILE

Annexure A is a summary of the key development statistics for South Africa (SA) and all nine provinces. Data were obtained from Global Insight. The data in the table were used to allocate "scores" in the index in Annexure B for each of the regions in the comparison. All the allocated scores were added together to provide a total development index for each of the regions. The following sections provide highlights of the main results from Annexure A. For all 18 indicators, the South African overall data is used as the base line to compare the provinces. In terms of population growth, SA had a constant growth rate of 1.4%. The rural provinces of the Free State (FS) and Eastern Cape (EC) had the lowest population growth rates at 0.2% and 0.5% respectively in 2016, while the more urbanised provinces, that is Gauteng (GP) and the Western Cape (WC), had growth rates above 2.4% in 2016. Population growth rates have been mostly stable for all provinces.

An overall tendency regarding household sizes is that the size of South African households has decreased since 1996 as urbanisation increased and poverty levels decreased. GP has the smallest household sizes of approximately 3.1 persons per household and also by far the highest population density of 739 persons per sq. km. Urbanisation has been rapid since 1996 in all provinces, with GP being the most urbanised at 95%, followed by the WC at 93%. The FS has shown the highest increase in urbanisation since 1996 of all the provinces. In terms of HDI,

the WC with an HDI of 0.73 has the highest index followed closely by GP with 0.71, while the EC has the lowest level of HDI at 0.59. Limpopo Province (LP) has shown the most rapid increase in HDI from 0.47 in 1996 to 0.60 in 2016, although all provinces have improved in terms of HDI. Income inequality is still high in SA with a Gini Coefficient of 0.63 (lower value is better). The Northern Cape (NC) has the lowest inequality at 0.59 while GP has the highest inequality levels at 0.63. As an overall trend, inequality has worsened since 1996. Poverty levels are extremely high although they have improved since 1996. LP and EC have the highest poverty levels at 64% of total population, while WC and GP have the lowest. The NC has the best performance in alleviating poverty since 1996.

The provision of basic infrastructure such as electricity, sewerage and water have significantly improved since 1996. Best performing provinces are again WC and GP, and worst performing are LP and EC. Housing provision has been a major focus of government and most provinces have reduced the housing backlog since 1996, with the EC as the worst performing. Crime is a major problem in SA, although the data indicates a slight reduction. The WC has the highest crime index while LP has the lowest crime index. Overall the economic active population has increased but this has also led to an increase in unemployment. The FS has the highest unemployment rate of 33% while the WC (21%) has the lowest. GDP growth has been low in recent years in all provinces between 1.0% (GP) and -2.7% (NC), while GDP per capita has increased in all provinces since 1996. GP has the highest value while the EC has the lowest. Trade surplus per capita shows interesting results with the more rural provinces of the NC, North-West (NW) and Mpumalanga (MP) showing the highest values, while the WC has a negative surplus per capita. Household income has increased since 1996, with the WC the highest average income followed by GP, while the provinces with the lowest income are LP and EC. The NC has the highest growth in income since 1996 to 2016. In conclusion the leading regions are GP followed by the WC while the EC, NW and LP are lagging and the worst performing regions.

5. APPLICATION OF INDEX INCLUDING RESULTS AND DISCUSSION

Annexure B provides detail regarding the application of the index to all the provinces in the comparison. Firstly, in terms of the overall ranking after the data was applied to the index for 2016, it was found that GP has the highest composite index of 63.3, indicating a high development index, followed by the WC with an index of 59.4 (medium index) in 2016. Interestingly, the NC has the third highest

index of 48.9 (medium index). The province with the lowest index is the EC with 31.3 (low index), followed by LP (low index) and KwaZulu-Natal (KZN) (low index). Provinces achieving index scores below 44.4 achieved by SA are EC, FS, KZN, LP, and NW. The question of convergence between leading and lagging provinces are evident in that the index of the EC has improved 3.8% per annum since 1996, followed by MP with 2.8% and NW by 2.2%. The leading provinces of GP and WC have only improved by 0.69% and 0.76% respectively per annum over the last 20 years.

In terms of the sub-index: Demographic development (maximum score of 20), GP has the highest score of 12.1 followed by WC with 9.3, while the provinces with the lowest score are LP, and EC with sub-indexes of 3.6 and 5.1 respectively. NW and EC are improving the fastest in terms of this sub-index at 4.8% and 4.7% per annum since 1996, while GP and WC are growing at 0.2% and 0.7%. Regarding sub-index: Social development (maximum score of 35), WC has the highest score of 16.8 followed by GP with 15.8 and NC with 12.8, while the provinces with the lowest scores are LP, and EC with sub-indexes of 8.2 and 7.5 respectively. KZN and MP are improving the fastest in terms of this sub-index at 6.1% and 5.9% per annum since 1996, while GP and WC are growing slowly at 1.1%.

The labour sub-indexes (maximum score of 10) have in most cases moved backwards. For example, FS, GP, MP, NC, NW and WC have negative growth rates for this sub-index. WC has the highest index of 5.5 followed by GP at 4.5, while EC has the lowest index of 2.7. LP has the highest growth rate followed by EC in improvement of the index per annum. Lastly, the fourth sub-index: Economics (maximum score of 25) indicates that GP has the highest index of 11.5, followed, surprisingly, by MP and NC with 11.4, while EC is again the lowest at 6.3. The EC has the highest annual improvement growth rate at 2.8% while the NC has the lowest improvement rate of -0.3%. The comparative index indicates that it is possible to facilitate economic development over a period of time, in this case over 20 years. For South Africa, the overall index improved by an average of 1.5% per annum. The EC, which has the lowest total index of 21.7, also has the highest improvement growth rate at 3.8%, compared to a growth rate of 0.7% for GP. This indicates some convergence over time where lagging regions can catch up with leading regions. Overall for all provinces combined, the average annual improvement rate of the total index was 1.9%. The sub-index that improved the most is Social Development with 3.7% growth, followed by the demographic sub-index at 2.4% and the economic sub-index at 1.1%. The labour

sub-index has the lowest improvement rate of 0.7%. Developmental processes are slow and long term processes. The results of the index could be used to identify weaknesses and strengths for a specific region, comparison of regions, determine the speed of development and be utilised to compile strategic development policy for regions.

6. CONCLUSION AND RECOMMENDATIONS

Globally, regions including urbanised regions, are driving development and growth. The main aim of this study was to fill the gap in the research regarding the formulation of a measurement tool for regional economic development. The index was developed to comply with internationally accepted guidelines for an index, such as multi-dimensionality of indicators, quantitatively measurable indicators, grouping of indicators and allocation of weights to indicators. The results of the provincial regional analysis, where the index was tested, produced interesting and realistic results. As expected, GP had the highest development index with a high development classification, followed by WC with a medium development classification. It was surprising to find a rural province such as NC, with the third highest index, also with a medium development classification. Convergence between provinces is taking place with the lowest developed provinces growing at significantly high growth rates when compared to GP and WC. Each province is at a different level of development and is developing at a different pace. One of the limitations of the formulation of a comprehensive index, is the use of subjective indicators which require surveys, making the index slow and costly to update even on an annual basis. Future studies will include the development of a more comprehensive regional classification system, the application of econometric models and further testing and refinement of the index in other regions on a global scale. The implications of the research are that regions could be rapidly assessed and compared. The index has been successful in its original purpose which was to compare the level of development of a region. But the index also makes it possible to compare regions, allow in-depth analysis of regions for strategy development, and to determine the pace and the stage of development of a region.

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Annexure A: Regional profile

Indicator	South Africa		Eastern Cape		Free State		Gauteng		Kwazulu-Natal		Limpopo		Mpumalanga		Northern Cape		North-West		Western Cape	
	1996	2016	1996	2016	1996	2016	1996	2016	1996	2016	1996	2016	1996	2016	1996	2016	1996	2016	1996	2016
Population Growth Rate	1.4%	1.4%	0.4%	0.5%	0.3%	0.2%	2.6%	2.5%	1.2%	0.9%	1.1%	0.9%	1.3%	1.3%	0.7%	1.0%	0.7%	1.3%	2.8%	2.4%
Household Size	4.6	3.5	5.1	3.9	4.2	3.2	3.8	3.1	5.4	4.0	5.4	3.7	4.9	3.7	4.4	3.7	4.6	3.3	4.0	3.4
Population Density*	34.8	45.6	37.4	41.5	21.1	22.0	447	739	97.6	116	38.1	45.7	43.8	56.3	2.7	3.3	28.1	36.1	30.6	49.2
Level of Urbanisation	55%	63%	39%	45%	48%	65%	95%	95%	43%	47%	14%	20%	37%	50%	51%	62%	37%	44%	91%	93%
HDI	0.56	0.65	0.49	0.59	0.53	0.63	0.67	0.71	0.50	0.61	0.47	0.60	0.49	0.60	0.53	0.65	0.50	0.61	0.66	0.73
Gini Coefficient	0.61	0.63	0.60	0.62	0.58	0.61	0.59	0.63	0.60	0.63	0.59	0.60	0.59	0.60	0.58	0.59	0.56	0.60	0.56	0.61
Poverty Levels**	64%	54%	78%	64%	66%	56%	41%	43%	72%	61%	81%	64%	72%	58%	68%	48%	67%	55%	43%	40%
Literacy ***	68%	84%	60%	77%	66%	82%	82%	91%	64%	81%	59%	79%	61%	80%	60%	78%	61%	78%	80%	90%
Infrastructure Basic Index	0.63	0.74	0.43	0.61	0.64	0.79	0.81	0.85	0.55	0.68	0.43	0.59	0.58	0.68	0.72	0.77	0.55	0.67	0.85	0.88
% of Households in Informal Housing	33%	21%	58%	35%	35%	25%	24%	20%	42%	26%	34%	26%	32%	28%	16%	16%	26%	23%	17%	20%
Crime Index****	146	104	137	93	165	132	199	117	108	85	84	65	112	74	235	142	133	92	222	170
Economically Active Population	28%	38%	18%	30%	31%	41%	40%	50%	24%	31%	16%	28%	26%	38%	30%	37%	26%	33%	39%	47%
Unemployment	21%	26%	28%	30%	19%	33%	20%	29%	24%	23%	26%	27%	23%	30%	20%	30%	19%	27%	12%	21%
GDP Growth Rate	2.3%	0.3%	1.4%	0.3%	1.2%	0.0%	2.5%	1.0%	1.6%	0.6%	7.1%	-1.6%	2.6%	-0.3%	4.4%	-2.7%	-1.1%	-2.1%	2.3%	0.9%
GDP per capita in R (X000)(Constant)	42.8	55.2	23.2	33.1	42.8	55.9	74.1	80.9	30.6	44.6	27.5	37.8	43.7	51.4	46.3	53.9	39.5	45.4	57.9	66.9
Trade Surplus per Capita (R1 000)	0.29	0.26	-0.76	0.06	-0.25	0.87	0.92	1.79	0.56	-0.06	0.22	1.99	0.49	2.42	2.88	5.42	2.28	4.96	-1.76	-3.42
Average Income per Household (Rx1000)	51	190	34	146	39	152	77	234	45	178	32	128	39	155	40	196	39	155	68	265
Tress Index	40	40	55	55	34	37	48	50	43	41	43	49	33	35	39	36	35	51	46	46

*Number of people per km² ** Share below upper poverty line ***Functional literacy: age 15+, completed grade 7 or higher ****Weighted average /100 000 people

Source: Global Insight, 2017.

Indicator	South Africa		Eastern Cape		Free State		Gauteng		Kwa-Zulu-Natal		Limpopo		Mpumalanga		Northern Cape		North-West		Western Cape	
	1996	2016	1996	2016	1996	2016	1996	2016	1996	2016	1996	2016	1996	2016	1996	2016	1996	2016	1996	2016
Population Growth Rate	1.26	1.26	0.63	0.63	0.63	0.63	1.88	1.88	1.26	0.63	1.26	0.63	1.26	1.26	0.63	0.63	0.63	1.26	1.88	1.88
Household Size	1.12	2.25	0.56	2.25	1.69	2.81	2.25	2.81	0.56	1.69	0.56	2.25	1.12	2.25	1.69	2.25	1.12	2.81	1.69	2.81
Population Density*	0.68	0.68	0.68	0.68	0.68	0.68	3.39	3.39	1.36	2.03	0.68	0.68	0.68	1.36	0.00	0.00	0.68	0.68	0.68	0.68
Level of Urbanisation	2.38	3.17	0.79	1.59	1.59	3.17	3.97	3.97	1.59	1.59	0.00	0.00	0.79	1.59	2.38	3.17	0.79	1.59	3.97	3.97
Sub-index 1: Demographic Development	**5.44**	**7.36**	**2.66**	**5.14**	**4.58**	**7.29**	**11.49**	**12.05**	**4.76**	**5.93**	**2.50**	**3.55**	**3.85**	**6.45**	**4.69**	**6.05**	**3.22**	**6.33**	**8.22**	**9.34**
HDI	1.98	2.98	0.99	1.98	0.99	1.98	2.98	3.97	0.99	1.98	0.99	1.98	0.99	1.98	0.99	2.98	0.99	1.98	2.98	3.97
Gini Coefficient	1.74	1.74	1.74	1.74	2.60	1.74	2.60	1.74	1.74	1.74	2.60	1.74	2.60	1.74	2.60	2.60	2.60	1.74	2.60	1.74
Poverty Levels**	0.00	0.95	0.00	0.00	0.00	0.95	1.90	1.90	0.00	0.00	0.00	0.00	0.00	0.95	0.00	1.90	0.00	0.95	1.90	2.85
Literacy ***	1.00	2.00	1.00	2.00	1.00	2.00	2.00	4.00	1.00	2.00	0.00	2.00	1.00	2.00	1.00	2.00	1.00	2.00	2.00	4.00
Infrastructure Index	0.90	1.80	0.00	0.90	0.90	1.80	2.70	2.70	0.00	0.90	0.00	0.00	0.00	0.90	1.80	1.80	0.00	0.90	2.70	2.70
% of Households in Informal Housing	0.00	0.76	0.00	0.00	0.00	0.76	0.76	1.52	0.00	0.76	0.00	0.76	0.00	0.76	1.52	1.52	0.76	0.76	1.52	1.52
Crime Index****	0.00	0.00	0.00	0.88	0.00	0.00	0.00	0.00	0.00	0.88	0.88	1.75	0.00	1.75	0.00	0.00	0.00	0.88	0.00	0.00
Sub-index 2: Social Development	**5.62**	**10.22**	**3.73**	**7.50**	**5.50**	**9.23**	**12.94**	**15.83**	**3.73**	**8.26**	**4.47**	**8.23**	**4.60**	**10.08**	**7.92**	**12.80**	**5.36**	**9.21**	**13.70**	**16.78**
Economic Active Population	1.74	2.60	0.87	1.74	2.60	3.47	2.60	3.47	1.74	2.60	0.87	1.74	1.74	2.60	1.74	2.60	1.74	2.60	2.60	3.47
Unemployment	1.98	0.99	0.99	0.99	1.98	0.00	1.98	0.99	1.98	1.98	0.99	1.98	1.98	0.99	1.98	0.99	1.98	0.99	2.98	1.98
Sub-index 3: Labour	**3.72**	**3.60**	**1.86**	**2.73**	**4.59**	**3.47**	**4.59**	**4.46**	**3.72**	**4.59**	**1.86**	**3.72**	**3.72**	**3.60**	**3.72**	**3.60**	**3.72**	**3.60**	**5.58**	**5.45**
GDP Growth Rate	2.38	0.79	1.59	0.79	1.59	0.00	2.38	0.79	1.59	0.79	3.97	0.00	2.38	0.00	3.97	0.00	0.00	0.00	2.38	0.79
GDP per capita	1.85	2.78	0.93	1.85	1.85	2.78	2.78	2.78	1.85	1.85	0.93	1.85	1.85	2.78	1.85	2.78	1.85	4.63	2.78	2.78
Trade Surplus per Capita (R1 000)	0.67	0.67	0.00	0.67	0.00	1.34	1.34	2.68	1.34	0.00	0.67	2.68	0.67	3.35	3.35	3.35	3.35	2.01	0.00	0.00
Average Income per Household	0.74	2.21	0.00	1.47	0.00	2.21	0.74	2.94	0.00	2.21	0.00	1.47	0.00	2.21	0.00	2.21	0.00	2.21	0.74	3.68
Tress Index	3.11	3.11	1.55	1.55	3.11	3.11	2.33	2.33	2.33	2.33	2.33	2.33	3.11	3.11	3.11	3.11	3.11	1.55	2.33	2.33
Sub-index 4: Economics	**8.74**	**9.55**	**4.07**	**6.34**	**6.55**	**9.43**	**9.56**	**11.52**	**7.11**	**7.18**	**7.89**	**8.33**	**8.01**	**11.44**	**12.27**	**11.44**	**8.31**	**10.40**	**8.22**	**9.58**
Total Index Score, max 69.25	23.52	30.73	12.31	21.70	21.21	29.42	38.58	43.86	19.32	25.96	16.72	23.84	20.18	31.56	28.60	33.89	20.60	29.53	35.72	41.15
Total index out of 100	33.9	44.4	17.8	31.3	30.6	42.5	55.7	63.3	27.9	37.5	24.1	34.4	29.1	45.5	41.3	48.9	29.7	42.9	51.6	59.4
Overall ranking			9.00	9.00	4.00	6.00	1.00	1.00	7.00	7.00	8.00	8.00	6.00	4.00	3.00	3.00	5.00	5.00	2.00	2.00

Annexure B: Scoring and calculation of the development index

*Number of people per km² ** Share below upper poverty line ***Functional literacy: age 15+, completed grade 7 or higher ****Weighted average /100 000 people

Source: Global Insight, 2017.