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A comparative analysis of developmental progression: The case of Poland and South Africa

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Abstract: *The growth and development of the economy of any country is dependent on many factors, but theory indicates that good governance with quality institutions, which provides leadership and coordination, are important in this process. Over the last decade, South Africa as a developing country, has experienced low levels of growth and development. The country has also lost ground in terms of its global standing and competitiveness. Contrary to this, Poland has experienced impressive growth and development levels over the last two decades. This study, therefore, has the objective to analyse and compare the two countries, taking into account a number of global indicators. The methodology included a quantitative and comparative approach in the achievement of the main objective. Both countries were analysed over 17 years (2000 to 2017) based on global indicators within the groupings of economics; social, health and education; business and innovation; and politics and governance. Results indicate that for all the categories, Poland outperformed South Africa for the said period. This could be especially due to South Africa's poor management and governance, policy uncertainty, structural economic problems, growing corruption, and crime. South Africa can learn from countries such as Poland to ensure clear policy formulation and effective implementation by means of quality institutions.*

Keywords: *Competitiveness, governance, growth and development, Poland, South Africa*

JEL: F63, G38, J18

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Introduction

Progress in both economic development and growth is important in the progression of any country (Meyer et al., 2019; Androniceanu et al., 2018; Shava & Hofisi, 2019). History has proven that in order for countries to grow, both on an economic and socio-economic level, good governance is vital (Auriacombe & Vyas-Doorgapersad, 2019). Good governance and development are closely interlinked (Meyer & Auriacombe, 2019). Development can be seen as a multidimensional concept that focuses on the improvement of the quality of living conditions of citizens, especially those of marginalised and disadvantaged communities (Meyer et al., 2016). Aspects that should be positively affected if a country or region implement good governance principle include improved economic conditions (growth and development), social, health and education related improvements, a good business environment leading to enhanced innovation and favourable political and governmental conditions (Máté et al., 2018; Sadaf et al., 2019). Good governance should include quality institutions, which provides policy certainty, leadership and coordination (McIntyre, 2018). Over the last decade, South Africa as a developing country, has experienced low levels of growth and development. The country has also moved backwards in terms of its global standing and competitiveness. To the contrary, Poland has experienced impressive growth and development levels. This study, has the objective to analyse and compare the two countries taking into account the mentioned aspects. This was done by comparing four groupings of indicators to form an aggregate index which gives an overall picture of the status of growth and development of these two countries.

1. Literature review

Over the last couple of years, South Africa has been struggling with low levels of economic growth and development, whereas economic growth and development has been on the rise in Poland. Economic growth can be described as the increase of a country's national income or Gross Domestic Product (GDP) (Haller, 2012; Ohanyan, Androniceanu, 2017). Conversely, economic development can be seen as the means of improving the standard of living of people through all of the economic sectors which ultimately aids in reducing unemployment and poverty (Magda, 2013; Androniceanu, 2019). Due to the multidimensional nature of economic development, it is often difficult to measure and determine how societies are progressing in terms of development (Meyer et al., 2016). Nonetheless, there are several indexes such as the Composite Regional Development Index (CRDI), the Weighted Index of Social Indicators (WISP) and the Human Development Index (HDI) that allow researchers to determine the levels of development in particular regions (Rossouw, Greyling, 2019).

One of the main underlying theories of economic growth and development is the 'Big Push' theory first put forward by Rosenstein-Rodan (1961) which links to the theory of 'balanced growth'. The theory simply implies that for economic growth to occur a "big push" is needed to undo the initial inactivity of a stagnant

economy and is based upon the idea of ‘external economies’ (Duca, M et al., 2018). In order for a “big push” to occur, certain aspects need to be in place. These are briefly summarised as the indivisibility of production function (infrastructure), demand and savings with a focus on investment (Abuzeid, 2009; Kinnunen et al, 2019). Although these aspects are quite complex and will not be explained in detail, the focus of this study is on the involvement of the public sector i.e. good governance practices, as a main contributor to the success of a “big push”. Public utilities or services need to be in place for any development to occur and investment by the public sector in infrastructure is one of the key components to this theory. A final factor identified by Rosenstein-Rodan (1961) is the role of international trade. All of these aspects cannot fully be implemented only by private industries and entrepreneurs and therefore the need for centralised planning arise (Macháček, 2017). This highlights the importance of an effective government and a “big push” cannot occur if government is ineffective due to incompetent institutional and administrative actions which placed additional strain on private sector initiatives (Abuzeid, 2009; Kubak et al., 2018).

In order to create the economic conditions needed to stimulate economic development, good governance is of critical importance (Hudson, 2002). According to Naidoo (2012) governance deals with the manner through which responsibilities are distributed by the public sector. Governance can be classified as either “good governance or “bad governance”. Good governance can be described as a process through which public societies and organisations make decisions that impact the public, manage public resources, and conduct public affairs in a way that supports human rights and show no evidence of corruption and the abuse of law (Klimach et al., 2018). In addition, good governance also entails the aforementioned decision-makers taking responsibility and being held accountable for the decisions they make. Therefore, governance involves the interrelationships between various stakeholders and how they cooperate with one another (Baggio et al., 2010). Good governance does however not only deal with economic indicators such as GDP, but it also incorporates categories such as social welfare, business and politics (Rahman et al., 2019). According to Bramwell et al. (2017), social rules, values and relations which includes poverty, health and education can be directed by the regimes and systems of governance. In addition, good governance suggests moving away from inefficiency, maladministration, red tape, secrecy and corruption (Klimach, et al., 2018). The aforementioned negative occurrences are not only prevalent in government, but business operations as well. As Todaro and Smith (2015) point out, through minimising these negative aspects of governance, in particular corruption, the process of economic development could be accelerated. The presence of a stable and enabling government system is at the centre of economic prosperity (wealth and growth aspects), community prosperity (social advancement) and business and innovation success (increased competitiveness). These aspects are all directly and indirectly needed to provide sustained economic development and links to several economic theories such as the “big push” and balanced growth theories (Rosenstein-Rodan, 1961). Moving towards politics and government, one of the

main differences among government and governance is the way in which the society's involvement and approval of decision-making processes are achieved (Bucek & Smith, 2000). Furmankiewicz et al. (2016) are of the opinion that the realisation of local development and governance depends on the status of non-legislative role-players and the commitment of political parties. Furthermore, it is suggested that government act as a facilitator that supports and enables the local community and business sector to act on their own (Furmankiewicz et al., 2016).

South Africa and Poland were chosen as the two focus areas due to the fact that the two countries evolved through a transitioning period at about the same time. Both South Africa and Poland have only been under democratic rule for 25 and 30 years respectively, where South Africa started democracy in 1994 with the end of Apartheid and Poland was under communist rule up until 1990 (Bobby-Evans, 2015). As Chakrabarty (2014) points out, under communist rule the majority of the industries in the country belonged to the government and business development were severely impacted. It is worth mentioning that although South Africa and Poland share a similar political history to an extent, how the two countries have evolved since democracy, greatly differs. South Africa is seen as an upper middle-income country, with GDP per capita at \$6 160, whereas Poland is classified as a high-income country, with GDP per Capita at \$13 811 (United Nations, 2019). With this being said, South Africa struggles with high levels of inequality and an unemployment rate of 29 percent in the second quarter of 2019, whereas Poland recorded an unemployment rate of a mere 5.3 percent for the same period (Trading Economics, 2019a). Therefore it would seem that Poland is doing something right in terms of economic policy. Over the last decade it has become evident that South Africa is moving backwards with regards to its global standing and competitiveness. One of the key elements of democracy and good governance is transparency through which reporting and feedback promotes honesty of developmental processes (Rondinelli, Shabbir, 2003). With this being said, South Africa is plagued by large scale corruption (Prinsloo, 2012). Corruption in many instances affects development policies aimed at improving indicators such as education, health and poverty, which further negatively impacts the poor and the overall development process of a country (Prinsloo, 2012). It has been found that programmes aimed at facilitating economic growth and integration, have not been successful as they are unable to gain private sector trust and investments, highlighting the need for governance reforms (Ahmed, 2016). Furthermore, Ahmed (2016) points out that poor maintenance of infrastructure, a low skilled workforce, corruption and the lack of an effective, clear governance framework within government owned organisations are hampering growth in the business environment. In accordance with Cunningham and Meyer-Stamer (2005) practicing good governance is impossible without a clear and well thought out developmental framework.

On the other hand, Poland has experienced notable growth and development following their political breakthrough in 1989, which saw the establishment of an array of transformation processes (Jerzemowska, Golec, 2013; Mura et al., 2017; Siekelova et al., 2017). After Poland gained independence, the country's entire institutional and legal framework surrounding

governance had to be revised and modified. According to Jerzemowska and Golec (2013) the new framework of good governance in Poland adopted certain tools from the Continental system characteristics as well as from the Anglo-American system. Privatisation can also be described as one of their success instruments, as an effort to grow and develop the country through ensuring an enabling environment, independence from the government and building its private sector, policy makers accepted that the privatisation of firms are imperative (Jerzemowska. Golec, 2013). Implementing self-governance on the local level also proved instrumental, as local governments employed various successful programmes such as the Integrated Territorial Investments and Urban Revitalization Programmes (Peszat, Szlachta, 2017). As Peszat and Szlachta (2017) stress, it is the actions taken at the regional level that proved significant for Poland's turn-around and progression. Furthermore, owing to Poland's clear policy formulation and effective implementation through quality institutions, the country was relatively unshaved by the global financial crisis of 2008/2009 and the resulting economic crisis that negatively impacted the European Union and numerous other states (Gawlikowska-Hueckel, Szlachta, 2016).

2. Methodology

The methodology included a quantitative and comparative approach and considering the primary objective of this study, its underlying philosophical underpinning originates from the radical structuralism or positivist paradigm as it made use of empirical data obtained objectively through secondary sources and interpreted in a statistical manner (Burrell & Morgan, 1997). The rationale for selecting Poland and South Africa was discussed already and both countries were analysed over 17 years (2000 to 2017) based on global indicators within the groupings or sub-indexes of economics; social, health and education; business and innovation; and politics and governance (Tables 1 to 4). Data from the two countries were compared within 9 year intervals (2000, 2009 & 2017) to establish trends. Where available, global average data were used as a base line however, in some cases data were limited. Several indicators were included in each of the four groupings/sub-indexes. This was done to provide a multi-dimensional view of the progress made within the two countries. Meyer et al. (2016) state that although the use of single dimensional indicators could be important, but composite indexes, leads to a broader perspective. Composite indexes in general have proven useful and as such have been applied to a significant extent in the assessment of territorial performance (Vala Pinho, 2015). The option of combining indicators that resemble a variety of dimensions ensures the possibility of producing a well-rounded perspective on the modern view of development.

For the purpose of this study, four sub-indexes were constructed as indicated in Tables 1 to 4. Firstly, the economic sub-index included 13 indicators in an effort to effectively analyse past and current economic performance. The second sub-index contains nine indicators linked to social-welfare, health and education. Sub-index 3 included 9 indicators linked to business development and

innovation and the final sub-index considered 13 aspects pertaining to political and governance aspects.

Total sub-index scores were calculated with each variable converted to a value of between 0.0 to 1.0. For example, the Economic sub-index consists of 13 variables and therefore a maximum score of 13. Each variable included in the index was converted using global averages when available or alternatively using the highest value of the two countries for a specific variable which was converted into a ratio of the highest value. The process allowed for a comparison of the two countries. For each of the four sub-indexes, a total raw score per country was calculated per period. Thereafter, the scores for the four sub-indexes were added to a total raw score out of 43 (there is a total of 43 indicators in the model). The total raw score was then converted to an index between 0 and 100 for example a score of 32.26 out of 43 for Poland in 2000 resulted in an index of 75.0. The economic sub-index with 13 indicators, contributed more than say the business and innovation sub-index with only 8 variables. It was however also decided to also have an “equalized weighted” index where the four sub-indexes had equal weighting and equal contribution to the index score. All indicators used were sourced from reliable secondary sources such as the World Bank, WEF, the Heritage Foundation, GEM, Legatum Institute and other. All sub-index scores are summarised in Table 5 providing an indication of the overall progression of each country.

3. Results and discussion

This section provides a summary and comparative analysis of the data as presented in Tables 1 to 4. Table 5 is a summary of the results of the four tables and also provides a change analysis and an equalized weighted index score for the two countries. Table 1 contains a comparative summary of the economic indicators. When comparing the two countries regarding the total sub-index (Table 5), Poland has improved from a total raw score of 10.2 in 2000 to 12.1 in 2017 with an overall annual growth rate of 1.09 percent. While for South Africa, the total sub-index is much lower with a lower and even negative growth rate. The sub-index moved from 8.2 in 2000 to 7.9 in 2017 with an average annual growth rate of -0.22 percent. From these results, Poland has significantly outperformed South Africa regarding the economic sub-index. The indicators where Poland performed well were in GDP (average annual growth of 4.9%) and GDP per capita (average annual growth of 5.1%), manufacturing (average annual growth of 12.2%), and unemployment reduction of 4.1 percent per annum over the 17-year period. Indicators where Poland experienced negative or stagnant growth includes the labour force participation rate, self-employment, inflows of Foreign Direct Investment (FDI), and gross saving rates. The indicators where South Africa performed relatively well were in GDP (average annual growth of 3.5%), manufacturing (average annual growth of 2.1%), and the net income per capita (average annual growth of 2.3%). Indicators where South Africa experienced negative or stagnant growth include GDP per capita, unemployment, employment to population ratio, self-employment, inflows of FDI, real effective exchange rate with a depreciating currency, and gross saving rates.

Table 1. Economic indicators

Indicators and indexes	Poland			South Africa		
	2000	2009	2017	2000	2009	2017
GDP constant prices (\$Billion)* <i>Score allocation</i>	326.0 0.65	462.5 0.73	600.8 0.75	267.0 0.53	364.3 0.58	426.8 0.53
GDP per capita constant prices PPP (\$)*) <i>Score allocation</i>	14732 0.80	20952 0.93	27343 1.0	9539 0.52	11676 0.52	12294 0.45
Manufacturing value added constant prices (\$Billion)* <i>Score allocation</i>	34.7 0.40	68.5 0.70	106.7 0.9	38.8 0.45	46.3 0.48	52.5 0.49
Unemployment, % of workforce* (lower is better) <i>Score allocation</i>	16.3 0.4	8.2 0.7	4.9 1.0	23.3 0.3	23.5 0.3	27.3 0.2
Labour force participation rate, % of working age population* <i>Score allocation</i>	56.8 0.88	54.9 0.85	56.4 0.87	51.0 0.79	53.9 0.84	55.7 0.86
Employment to population ratio* (higher is better) <i>Score allocation</i>	47.1 0.77	50.7 0.86	53.8 0.92	40.7 0.67	41.3 0.70	39.8 0.68
Self-employed as % of total employment* <i>Score allocation</i>	27.4 0.52	22.8 0.47	21.2 0.46	18.2 0.35	15.6 0.32	15.0 0.33
Net national income per capita constant prices (\$)*) <i>Score allocation</i>	7144 0.72	10409 0.91	12893 1.0	4424 0.44	5720 0.49	6126 0.48
FDI net inflows (% of GDP)* <i>Score allocation</i>	5.43 0.85	3.19 1.0	2.03 0.59	0.71 0.11	2.58 0.80	0.39 0.12
Real effective exchange rate index* (higher is better) <i>Score allocation</i>	89 0.91	94 1.0	93 1.0	97.8 1.0	86.5 0.92	81.0 0.87
Gross saving as % of GDP* (higher is better) <i>Score allocation</i>	19.0 0.76	16.6 0.71	19.7 0.80	15.5 0.63	17.5 0.75	15.8 0.64
Economic freedom index** (higher is better) <i>Score allocation</i>	60 0.94	60 0.94	68 1.0	64 1.0	64 1.0	62 0.91
Food production index* (higher is better) <i>Score allocation</i>	92 0.96	107 0.91	117 1.0	96 1.0	117 1.0	116 0.99
Total score for 13 Indicators (growth in % per annum in brackets)	10.18	11.43 (1.36)	12.06 (0.69)	8.19	9.10 (1.23)	7.89 (-1.7)
Total percentage % score	78.3	87.9	92.7	63.0	70.0	60.7

(Source: * World Bank, 2019a; **The Heritage Foundation, 2019)

Table 2 contains the comparative summary of the social-welfare, health and education indicators. This sub-index includes 9 indicators to effectively

explain the changes in the sub-index. If Poland and South Africa are compared regarding the total sub-index, Poland has improved from a total score of 6.62 in 2000 to 7.41 in 2017 with an overall annual growth rate of 0.7 percent. Poland had a peak in the sub-index in 2009 of 7.64. For South Africa the total sub-index is much lower with a lower growth rate. The sub-index moved from 6.35 in 2000 to 6.13 in 2017 with an average annual negative growth rate of -0.2 percent. From these results, Poland has significantly outperformed South Africa regarding this sub-index. The indicators where Poland performed well were in HDI (average annual growth of 0.55%), and the Gini coefficient (average annual growth of 0.23%) over the 17-year period. Indicators where Poland experienced negative or stagnant growth includes the population growth, dependency ratio, pupil-teacher ratio, and health expenditure. The indicators where South Africa performed well were in poverty reduction from 35 to 20.8 percent of the population, population growth at 1.25 percent, dependency ratio improved from 60.3 to 52.4, pupil-teacher ratio from 34.9 to 30.3, life expectancy and health expenditure from 7.4 to 8.2 percent of GDP over the 17-year period. Indicators where South Africa experienced negative or stagnant growth include the Gini Coefficient and HDI. These two indexes are of significant importance to measure development.

Table 2. Social-Welfare, health and education indicators

Indicators and indexes	Poland			South Africa		
	2000	2009	2017	2000	2009	2017
Poverty head count ratio at \$1.90 per day (% of population, lower is better)* <i>Score allocation</i>	0.1 <i>1.0</i>	0.1 <i>1.0</i>	0.0 <i>1.0</i>	35.0 <i>0.35</i>	16.9 <i>0.17</i>	20.8 <i>0.21</i>
Gini Coefficient (income inequality) Index (lower is better)* <i>Score allocation</i>	33.0 <i>0.96</i>	33.6 <i>0.94</i>	31.7 <i>1.0</i>	57.8 <i>0.55</i>	63.0 <i>0.50</i>	64.0 <i>0.49</i>
Population (Population growth rate per annum)* <i>Score allocation</i>	38.5 <i>(-1.04)</i>	38.3 <i>(0.07)</i>	38.2 <i>(0.02)</i>	45.7 <i>(1.48)</i>	50.9 <i>(1.10)</i>	56.7 <i>(1.25)</i>
HDI (higher is better)* <i>Score allocation</i>	0.790 <i>1.0</i>	0.84 <i>0.97</i>	0.865 <i>0.97</i>	0.620 <i>0.79</i>	0.650 <i>0.76</i>	0.699 <i>0.78</i>
Dependency ratio (% of working age population) (lower is better)* <i>Score allocation</i>	46.2 <i>0.96</i>	40.2 <i>1.0</i>	46.2 <i>0.87</i>	60.3 <i>0.7</i>	54.5 <i>0.74</i>	52.3 <i>0.77</i>
Life expectancy (higher is better)* <i>Score allocation</i>	74 <i>1.0</i>	76 <i>1.0</i>	77 <i>0.98</i>	56 <i>0.75</i>	55 <i>0.72</i>	63 <i>0.81</i>
Pupil-teacher ratio, primary school (lower is better)* <i>Score allocation</i>	11.2 <i>0.91</i>	9.6 <i>1.0</i>	10.8 <i>0.85</i>	34.9 <i>0.29</i>	33.6 <i>0.29</i>	30.3 <i>0.30</i>

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Indicators and indexes	Poland			South Africa		
	2000	2009	2017	2000	2009	2017
Health expenditure as % of GDP (higher is better)* <i>Score allocation</i>	5.3 0.62	6.6 0.67	6.3 0.64	7.4 0.86	7.1 0.73	8.2 0.83
Carbon dioxide emissions per capita (lower is better)* <i>Score allocation</i>	7.82 0.96	7.8 0.96	7.52 1.0	8.28 0.91	9.87 0.76	8.98 0.84
Total score for 9 Indicators (growth in % per annum in brackets)	6.62	7.64 (1.71)	7.41 (-0.38)	6.35	5.59 (-1.33)	6.13 (1.21)
Total percentage % score	73.6	84.9	82.3	70.6	62.1	68.1

(Source: * World Bank, 2019a)

Table 3 contains a comparative summary of the business and innovation indicators. Where the data were available, world data were indicated as a base line. This sub-index includes 8 indicators. Poland has improved from a total score of 5.30 in 2000 to 6.14 in 2017 with a peak in 2009 of 6.51, with an overall annual growth rate of 0.93 percent. While for South Africa the total sub-index is much lower with a lower growth rate. The sub-index moved from 4.21 in 2000 to 4.74 in 2017 with an average annual growth rate of 0.74 percent. From these results, Poland has significantly outperformed South Africa regarding this sub-index. The indicators where Poland performed well were in the number of days to start a business from 63 to 37 days, spending on research and development, established business ownership (average annual growth of 6.5%), and the prosperity index increased from 63.5 to 68.1, over the 17- year period. Indicators where Poland experienced negative or stagnant growth include the global competitiveness index, entrepreneurial intention, and cost of crime to business. The indicators where South Africa performed well were in entrepreneurship intention, early stage entrepreneurial intension, established business ownership, and cost to crime. Indicators where South Africa experienced negative or stagnant growth include the global competitiveness index, time to start a business, spending on research and development, and prosperity index.

Table 3. Business and innovation indicators

Indicators and indexes	Poland			South Africa		
	2000	2009	2017	2000	2009	2017
Global competitiveness Index (WEF**)(ranking in brackets)(higher is better) <i>Score allocation</i>	4.28 (35) 0.93	4.51 (39) 0.98	4.59 (36) 1.0	4.42 (33) 0.96	4.32 (54) 0.94	4.32 (47) 0.94
Time in days to start a business *(less days are better) <i>Score allocation</i>	63 0.83	39 0.95	37 0.57	56 0.93	45 0.82	45 0.47
Research and development spending as % of GDP* (higher is better)	0.64	0.66	0.96	0.76	0.84	0.79

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Indicators and indexes	Poland			South Africa		
	2000	2009	2017	2000	2009	2017
<i>Score allocation</i>	0.30	0.31	0.42	0.36	0.40	0.34
Entrepreneurial intention (EI)(GEM)*** (higher is better)	2.19	22.69	9.96	3.64	10.88	11.72
<i>Score allocation</i>	0.10	1.0	0.44	0.16	0.48	0.52
Total early stage entrepreneurial activity (TEA)(GEM)*** (higher is better)	8.04	9.03	8.85	6.49	5.92	10.96
<i>Score allocation</i>	0.73	0.82	0.81	0.59	0.54	1.0
Established business ownership (EBO)(GEM)*** (higher is better)	4.75	4.97	9.96	0.83	1.42	2.15
<i>Score allocation</i>	0.48	0.49	1.0	0.08	0.14	0.22
Prosperity Index **** (higher is better) (higher is better)	63.5	66.1	68.1	59.8	60.0	60.4
<i>Score allocation</i>	0.93	0.97	1.0	0.88	0.88	0.89
Cost of crime on business Index* (higher is better)	7.12	7.09	6.42	1.80	1.79	2.59
<i>Score allocation</i>	1.0	0.99	0.90	0.25	0.25	0.36
Total score for 8 Indicators (growth in % per annum in brackets)	5.30	6.51 (2.54)	6.14 (-0.71)	4.21	4.45 (0.63)	4.74 (0.81)
Total percentage % score	66.3	81.4	76.8	52.6	55.6	59.3

(Source: *World Bank, 2019a; **WEF, 2019; ***GEM, 2019; ****Legatum Institute, 2018)

Table 4 contains a comparative summary of the political and government indicators. This sub-index includes 13 indicators or indexes. Poland has improved from a total score of 10.16 in 2000 to 10.48 in 2017 with a peak in 2009 of 10.88, with an overall annual growth rate of 0.19 percent. While for South Africa the total sub-index is much lower with a lower and negative growth rate. The sub-index moved from 6.87 in 2000 to 5.23 in 2017 with an average annual growth rate of -1.4 percent. From these results, Poland has significantly outperformed South Africa regarding this sub-index. The indicators where Poland performed well were improving crime index, imprisonment of population, improvement from 48 to 41.5 in fragile state index (lower score is better), improving corruption index, and labour market regulations index over the 17- year period. Indicators where Poland experienced negative or stagnant growth include increasing government debt as percentage of GDP from 37 percent in 2000 to 50.6 percent in 2017, decreasing political stability index and rule of laws indexes, decreasing level of quality of road infrastructure, stable size of government index, and decreasing level of independence of the judicial system. The indicators where South Africa performed well were in the crime index, imprisonment index, and the labour market regulations index. Indicators where South Africa experienced negative or stagnant growth include the government debt as percentage of GDP, fragile state index at 72.9 (lower towards 0 is better), a negative political stability

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index, decreasing government effectiveness index, negative level of rule of law, increasing corruption index, and increasing size of government.

Table 4. Politics and government indicators

Indicators and indexes	Poland			South Africa		
	2000	2009	2017	2000	2009	2017
Crime Index (100 to 0)* (lower is better) <i>Score allocation</i>	39.8 <i>0.76</i>	38.7 <i>0.78</i>	30.19 <i>1.0</i>	82.3 <i>0.37</i>	78.12 <i>0.39</i>	75.40 <i>0.40</i>
Imprisonment per 100 000 of population* (lower is better) <i>Score allocation</i>	206 <i>0.92</i>	214 <i>0.88</i>	189 <i>1.0</i>	385 <i>0.49</i>	316 <i>0.60</i>	287 <i>0.65</i>
Government debt as % of GDP* (lower is better) <i>Score allocation</i>	37.0 <i>0.89</i>	49.4 <i>0.67</i>	50.6 <i>0.65</i>	43.0 <i>0.77</i>	33.0 <i>1.0</i>	53.1 <i>0.62</i>
Fragile state index** (lower is better) <i>Score allocation</i>	47.9 <i>0.87</i>	49.6 <i>0.84</i>	41.5 <i>1.0</i>	55.7 <i>0.75</i>	67.4 <i>0.62</i>	72.9 <i>0.57</i>
Political stability Index*** (between -2.5 and +2.5, higher is better) <i>Score allocation</i>	0.31 <i>0.33</i>	0.94 <i>1.0</i>	0.52 <i>0.55</i>	-0.23 <i>-0.24</i>	-0.11 <i>-0.12</i>	-0.27 <i>-0.29</i>
Government Effectiveness Index*** (between -2.5 and +2.5, higher is better) <i>Score allocation</i>	0.61 <i>0.84</i>	0.53 <i>0.73</i>	0.63 <i>0.86</i>	0.73 <i>1.0</i>	0.48 <i>0.66</i>	0.28 <i>0.38</i>
Rule of Law Index*** (between -2.5 and +2.5, higher is better) <i>Score allocation</i>	0.71 <i>1.0</i>	0.63 <i>0.89</i>	0.47 <i>0.66</i>	-1.91 <i>-0.63</i>	-1.63 <i>-0.56</i>	-1.69 <i>-0.58</i>
Corruption Control Index*** (between -2.5 and +2.5, higher is better) <i>Score allocation</i>	0.71 <i>0.97</i>	0.45 <i>0.62</i>	0.73 <i>1.0</i>	0.63 <i>0.86</i>	0.18 <i>0.25</i>	-0.01 <i>-0.01</i>
Quality of roads* (index between 1 to 7, lower is better) <i>Score allocation</i>	3.2 <i>0.70</i>	2.23 <i>1.0</i>	3.81 <i>0.59</i>	4.84 <i>0.46</i>	4.8 <i>0.46</i>	4.96 <i>0.45</i>
Government debt ratings *** <i>Score allocation</i>	BBB+ <i>0.5</i>	A- <i>0.75</i>	A- <i>0.75</i>	BBB- <i>0.25</i>	BBB+ <i>0.5</i>	BB+ <i>0.4</i>
Size of Government Index* (higher score is better meaning smaller government) <i>Score allocation</i>	5.75 <i>0.97</i>	5.63 <i>0.95</i>	5.62 <i>0.94</i>	5.95 <i>1.0</i>	5.52 <i>0.93</i>	5.04 <i>0.85</i>

**A comparative analysis of developmental progression:
The case of Poland and South Africa**

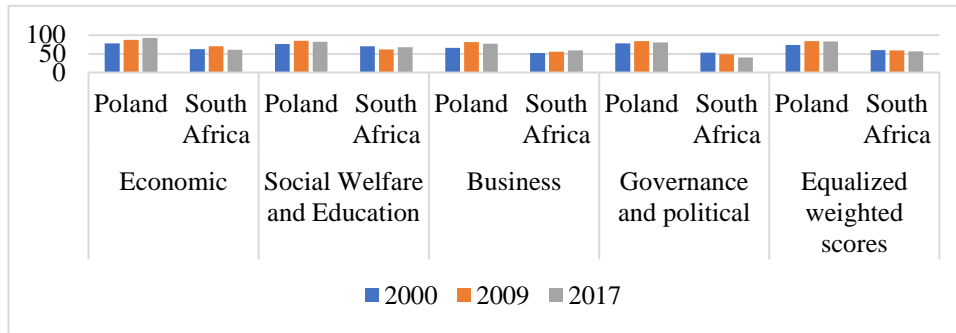
Indicators and indexes	Poland			South Africa		
	2000	2009	2017	2000	2009	2017
Judicial Independence Index* (higher score is better)	5.34	5.56	3.70	7.18	6.16	6.52
<i>Score allocation</i>	0.74	0.77	0.52	1.0	0.86	0.91
Labour market regulations Index* (higher is better)	4.96	7.45	7.14	5.86	6.11	6.52
<i>Score allocation</i>	0.67	1.0	0.96	0.79	0.82	0.88
Total score for 13 Indicators (growth in % per annum in brackets)	10.16	10.88 (0.79)	10.48 (-0.46)	6.87	6.41 (-0.74)	5.23 (-2.30)
Total percentage % score	78.2	83.7	80.6	52.8	49.3	40.2

(Source: *World Bank, 2019b; **The Fund for Peace, 2019; ***Trading Economics, 2019b).

Figure 1 contains a summary of all the sub-indexes for the three years and the equalized weighted scores using a 0 to 100 index score. Poland has performed South Africa in all four of the sub-indexes. Considering the economic indicators sub-index, Poland had a score of 92.7 in 2017 and an overall annual improvement rate of 1.08 percent. The economy has been growing at a stable rate and is healthy. In comparison, South Africa only had an index score of 60.7 with a peak in 2009 of 70.0. The South African economy has moved backwards since 2000 and has achieved a negative annual growth rate from 2000 to 2017 of -0.2 percent and more interesting the country had a negative growth rate from 2009 to 2017 of -0.78 percent indicating an economy hampered by structural problems. Regarding the social welfare, health and education sub-index Poland has performed relatively well with a score of 82.3 in 2017, down from 84.9 in 2009 and with an overall annual improvement rate of 0.7 percent. This level of growth for this sub-index indicates successful improvement of quality of life in the country. In comparison, South Africa only had an index score of 68.1, down from the 2000 score of 70.6, with a negative annual growth rate from 2000 to 2017 of -0.2 percent. Interesting to note is that from 2009 to 2017 the sub-index improved by 1.1 percent per annum. Poland again out performed South Africa regarding the business and innovation sub-index with a score of 76.8 in 2017, down from 81.4 in 2009 and an overall annual improvement rate of 0.93 percent. This level of growth for this sub-index indicates successful implementation of policy. In comparison, South Africa only had an index score of 59.3 in 2017, with an annual growth rate from 2000 to 2017 of 0.75 percent. The country needs higher levels of improvement for accelerated business development. Lastly, considering the politics and governance sub-index, Poland has again performed well with a score of 80.6 in 2017 (however down from 2009) and an overall relatively low annual improvement rate of 0.18 percent. The political and governance environment has been stagnant and lacking significant improvements. In comparison, South Africa had a low index score of only 40.2 with a peak in 2000 of 52.8. The South African

political and governance environment has moved backwards since 2000 and has achieved a negative annual deterioration rate from 2000 to 2017 of -1.4 percent. This high negative improvement rate indicates the political instability and governance problem in the country, which also have a negative impact on economic growth and development. When the scores from the sub-indexes were equally weighted, the results of the total index were similar to the results with unequal weighting. In terms of the equally weighted index, the index increased from 59.8 in 2000 to 59.2 in 2009, while it declined again to 57.0 in 2017 resulting in an average decrease of -0.26 percent from 2000 to 2017.

Figure 1. Sub-indexes and summary of equalized weighted scores



(Source: Author's representation, 2019)

Table 5 provides a summary of the sub-indexes and the total combined index. The table indicates two total indexes, the first one is unequal weighted and out of a maximum of 43 and the second total index is also an equally weighted index from 0 to 100. Poland scored 32.26 in 2000 out of a maximum score of 43 or 75.0 index. This total index increased to 36.46 in 2009 indicating a 1.45 percent annual growth from 2000. The index for 2009 increased to 84.8 which was the highest level of the total index which decreased to 83.9 in 2017, with a negative growth rate since 2009 of -0.13. From 2000 to 2017 the annual growth rate was 0.70 percent. When the scores from the sub-indexes were equally weighted, the results of the total index were similar to the results with unequal weighting. In terms of the equally weighted index the index increased from 74.1 in 2000 to 84.3 in 2009, while it declined again to 83.2 in 2017 resulting in an average annual increase of 0.72 percent. South Africa scored 25.62 in 2000 out of a maximum score of 43 or 59.6 index, this total index decreased to 25.55 in 2009 indicating a -0.02 percent annual growth from 2000. The index further decreased to 23.99 from 25.55 in 2009.

Table 5. Summary of scores achieved

Summary	Poland			South Africa		
	2000	2009	2017	2000	2009	2017
Total score for Economic Indicators(13 indicators)	10.18	11.43	12.06	8.19	9.10	7.81
Total score for Social, health and education Indicators (9 indicators)	6.62	7.64	7.41	6.35	5.59	6.13
Total score for business and innovation Indicators (8 indicators)	5.30	6.51	6.14	4.21	4.45	4.74
Total score for politics and government Indicators (13 indicators)	10.16	10.88	10.48	6.87	6.41	5.23
Total score from 43 indicators	32.26	36.46	36.09	25.62	25.55	23.99
Annual average growth in %		1.45	-0.13		-0.03	-0.76
Total 1: Total percentage % score	75.0	84.8	83.9	59.6	59.4	55.8
Total 2: Equalized weighted scores	74.1	84.3	83.2	59.8	59.2	57.0

(Source: Author's calculations)

4. Conclusion

On a global scale countries and regions progress at different rates. Poland if compared to South Africa, has achieved substantially higher growth and development rates over the last two decades. The overall objective of the study was to compile a multi-dimensional index consisting of four sub-indexes to measure the progression of the two countries under investigation. The two countries were selected due to the similar history since the early 90s, moving from development restricting political regimes. The study had the intension to determine what factors allow for Poland to progress at a faster pace than South Africa. Main findings from the multi-dimensional analysis provide interesting results. The most important findings are that overall Poland has progressed much faster than South Africa, but if the sub-indexes are analysed, interesting differences are visible. The sub-index politics and governance indicates the major difference between the two countries since 2000. Poland had a score for this sub-index of 10.48 out of a maximum of 13 in 2017 while South Africa only achieved a score of 5.23. The main problematic indicators for South Africa within this sub-index are high crime levels, poor performance regarding the Fragile State Index, poor political stability, low levels of rule of law, high levels of corruption, and low government debt ratings. This result stresses the importance of good governance with strong institutions and policy certainty. The study provides an important contribution in the research field of development economics and the measurement of progression. Furthermore, it provides important processes and findings to determine economic development progression of countries. The multi-dimensional nature of the index used encapsulates most if not all relevant and important indicators of economic development. Results from the index allows for an overall view of progression but also provides details regarding 43 indicators. This allows for policy and strategy development. Weak and strong points of a

country could be identified and interventions could be based on the analysis. Data used in the study is available for most countries which allows the methodology and process used to be easily repeated. Any index or measurement tool could be criticised regarding the bouquet of variables or indicators included. However, this index used a total of 43 variables and all efforts has been made to have a comprehensive composite index. Future research could include further testing of the index and investigation of alternative or additional indicators and more comparative analysis of countries leading development or caught in a web of stagnation. Economic development is a multi-dimensional concept and development is difficult to achieve especially on the short-run. This study could assist in the identification of factors that accelerate development.

Authors Contributions

The authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication.

Conflict of Interest Statement

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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