

## EXPLORATION OF THE RELATIONSHIP BETWEEN ECONOMIC DEVELOPMENT AND INCLUSIVE GROWTH IN SOUTH AFRICA

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### ABSTRACT

*Issues such as inequality, collapsed state capacity, and spatial exclusion, particularly in South Africa, affect economic development negatively. This study aims to assess the relationship between inclusive growth and economic development and employs the autoregressive distributed lag (ARDL) approach in annual time series data ranging from 1990-2022. Data were obtained from the South African Reserve Bank and the World Bank. The findings of this study reveal that, in the long run, a percentage change in gross fixed capital formation will positively affect economic development by 44%. Similarly, in the short term, a percentage change in gross fixed capital formation will affect economic development by 33%. Lastly, trade openness has an insignificant impact in the short run and long run. In addition, the error correction term coefficient is negative and significant. The implication is that the economic development model has a speed of adjustment of about 11% to reach equilibrium. This study improves the understanding of the link between economic development and inclusive growth, contributing to academia and policymaking for more equitable and sustainable economic development. This study explores the impact of inclusive growth on South Africa's economic development, offering recommendations for policy formulation to promote equitable benefit distribution across various social segments.*

**Keywords:** Inclusive Growth, Economic Development, Autoregressive Distributed Lags, South Africa.

### 1. INTRODUCTION

Inclusive growth is crucial for both developed and developing countries, but high levels of inequality, collapsing state capacity, and spatial exclusion, particularly in South Africa, negatively impact well-being and economic growth. Samans (2017) conceptualised inclusive growth as both the pace and pattern of economic growth, which are interlinked and evaluated together in all sectors of the economy. Samans (2017) also indicates that the rapid pace of economic growth is necessary to reduce absolute poverty. Inclusive growth requires broad sectoral expansion and participation of the workforce, focussing on productive employment rather than sector-specific employment or income redistribution. Similarly, the (World Bank, 2018) indicates that countries must prioritise long-term growth and inclusiveness by ensuring equal access to markets, resources and an unbiased regulatory environment for businesses and individuals.

Furthermore, Ali & Zhuang (2007) expressed inclusive growth as an impression that goes beyond broad-based growth, since it creates new economic opportunities. The idea is that there must be equal access to the opportunities created for all segments of society, particularly the poor. Inclusive growth promotes the participation of all members of society, focusing on the abilities of the poor and disadvantaged (Kabeer, 2021). Reduce inequality in non-income dimensions of well-being, such as education, health, nutrition, and social integration, promote economic opportunities, and reduce relative and absolute inequalities. Ali & Zhuang (2007) add that rising inequalities lead to an increasing concern that most of the enormous growth benefits cannot be equally shared (Ali & Zhuang, 2007).

Furthermore, inclusive growth is characterised both as an outcome and as a process in which all participants in different sectors contribute to economic development (Suryanarayana, 2013). Inclusive growth ensures that everyone participates in the growth process, both in terms of decision-making and in terms of growth itself. Inclusive growth benefits are shared equitably throughout the economy. Inclusive growth thus implies participation and benefit sharing at all costs (Kumeka, et al., 2023). This includes training and social protection systems to help people anticipate and manage change and build a cohesive society. It is also essential that the benefits of economic growth spread to all parts of the European Union, including its outermost regions, thus strengthening territorial solidity. This way, it will ensure access and opportunities throughout the lifecycle (Barroso, 2013).

Ceteris paribus of all other factors that define inclusive growth, this article focuses on analysing the contributions of gross fixed capital formation, trade openness, and economic development in South Africa. Inclusive growth has been seen as a weapon for reducing poverty and inequality in the long term (Tekam Oumbe et al., 2024). The focus is on productive employment rather than merely direct income redistribution to increase income for minority groups. The study has been accomplished by responding to the question What are the contributions of inclusive growth toward South African economic development? This study is structured as follows: introduction, review of the literature, methodology, results, discussion, and conclusion.

## **2. LITERATURE REVIEW**

Inclusive growth is based on structural transformation theory, which suggests that economic fundamentals can be transformed by diversifying activities and emphasises that the structural transformation approach can be used to reallocate economic activity across three main sectors: agriculture, manufacturing, and services.

The contribution of inclusive growth towards economic development is also well captured by the pro-poor growth theory. The theory explains that the economy needs to benefit the poor and provide them with opportunities to improve their living standards (Kakwani et al., 2004). Thus, rapid economic growth demands addressing extreme poverty and reducing inequality as primary priorities. Duclos (2009) portrayed pro-poor growth as an ideology that the poor should get more growth than some predefined benchmarks. Thus, pro-poor growth is judged by how fast the incomes of the poor rise. The study demonstrates that growth is considered appropriate if the incomes of the poor increase faster than the population.

Horvat (2011) shows that there is a need for inclusion in developed countries to address basic social challenges. The focus is on various aspects such as health, demographics, food security, energy security, smart transport, resource efficiency, climate, raw material supply and inclusive societies. All these activities should cover the range from research to the market, integrating innovation activities, cross-disciplinary approaches, and socioeconomic and humanities.

Similarly, poor countries often struggle to achieve higher growth rates due to their inability to generate or utilise new technological ideas for increased economic opportunities. Furthermore, resource depletion and degradation in poor countries indirectly impact their economic growth potential and innovation. Furthermore, competitive frameworks for industrial leadership should encompass key enabling technologies like information and communication, nontechnology, advanced materials, manufacturing systems, industrial biotechnology, low-carbon adaptation technologies, and space research and innovation. The provision of free risk finance and venture capital, along with support for innovation in small and medium-sized enterprises (SMEs), significantly enhances growth potential.

Macroeconomic policies, including the creation of gross fixed capital, are a significant component of domestic investment that could significantly boost economic growth. (Daniel & Kazeem, 2019) . The study reveals a long-term correlation between domestic investment, employment, and economic growth, with a

causality originating from economic growth to investment, not vice versa. Furthermore, the study indicates that investment has a positive long-term impact on employment. Thus, proper public infrastructure is essential for sound economic development. Similarly, Afonso & Aubyn (2019) studied the macroeconomic effects of public and private investment in 17 OECD economies through a VAR analysis with annual data from 1960 to 2014. From the impulse response function. The results show that public investment had a growth effect in most countries and a contraction effect in other countries. Therefore, the formation of gross fixed capital is the most important input to improve economic development (Maksimovic et al., 2019). Lastly, Trpeski and Cvetanoska (2019) affirm that the formation of gross fixed capital is an important factor for both economic growth and economic development through the building of capital equipment on a sufficient scale and increasing productivity in the economy.

### 3. METHODOLOGY

The study used secondary annual time series data from 1990-2022 from the World Bank (South African Indicators) to examine the impact of inclusive growth on South African economic development. The choice of study period is limited by the availability of data on all variables in the model. The autoregressive distributed lag (ARDL) approach developed by Pesaran, Shin, and Smith (2001) was chosen to estimate the link between the dependent variable and its regressors. The ARDL approach was found to be more relevant due to its ability to generate robust and reliable results even if the sample size is small or finite, as in the case of this study. Furthermore, Granger causality was used to investigate the direction of causality among the variables. Based on (Bennett, et al., 2017), GDP per capita is used as a primary measure of economic development. Similarly, trade openness, FDI, expenditure on education, gross fixed capital formation, population growth, general government financial consumption expenditure, and inflation are regarded as determinants of inclusive growth (Oluseye, C. I. & Gabriel, A. A., et al., 2017). Therefore, this study is specified as follows:

$$GDPPC_t = \beta_0 + \beta_1 GFCF + \beta_2 TOP + \mu \dots 1 \dots \dots \dots (1)$$

Where GDPPC represents GDP per capita in South Africa at a time ; EDUEX represents total government spending on education expressed in million rands; GFCF is gross fixed capital formation expressed in millions of rands; and TOP is trade openness, which is the summation of exports and imports expressed as a percentage of GDP. The following econometric procedures were undertaken to analyse the data.

#### 3.1 Descriptive statistics

Lane et al. (2019) described descriptive statistics as a graphical or tabulation presentation of the data distribution. The purpose of running these tests is to inspect the location of the central distribution in a data set. Second, they help to determine how spread the data is and help to measure the variability of the data set. Mean, median, maximum, and minimum values, standard deviation, skewness, Kurtosis, and Jarque-Bera form components of descriptive statistics according to.

#### 3.2 Unit root test

The statistical theory offers a wide range of unit root tests, but according to the choice of an appropriate one depends primarily on the subjective judgement of the analyst. Therefore, the study decided to apply the most common ones in the form of the Augmented Dickey Full Test (ADF) and the Dickey-Fuller test generalised least squares (DF-GLS) test by Elliot, Rothenberg and Stock . As indicated.

#### 3.3 ARDL bound test for cointegration

The ARDL approach by Pesaran (1999) and Pesaran et al. (2001) was preferred mainly due to limited data in this field of study. This is based on the notion that the ARDL approach is appropriate if there are limited data samples. According to most of the economic data are time series in nature, and a popular kind of time

series model known as the autoregressive (AR) model has been directly or indirectly applied in most economic research; therefore, the foremost exercise in the application of AR model is the determination of autoregressive lag length. Therefore, the lag selection is essential when dealing with ARDL and the following models: Akaike Information Criterion (AIC), Schwarz Bayesian Criterion (SBC), Bayes Information Criterion (BIC) and Hannan-Quinn Criterion (HQ) will be used to determine the proper lag length for cointegration analysis.

Bound-test validation depends on Pesaran (2001) indicating that the computed F-statistics should fall below the lower bound if the variables are I (0), and this makes cointegration impossible. However, if the F-statistics exceeds the upper bound; we then conclude that we have cointegration. Finally, the test is inconclusive if the F statistics fall between the bounds. The first step is to determine the long-term relationship of the variables by computing the F statistics of the bound test for cointegration. Therefore, the bound F-statistics test is performed on each of the variables as endogenous variables while assuming the rest of the variables as exogenous variables. Following the study by Pesaran et al. (2001), the ARDL model used in this study is, therefore, specified as follows:

$$\Delta GDP_{PC_t} = \beta_0 + \sum_{i=1}^m \beta_1 GDP_{PC_{t-i}} + \sum_{i=1}^m \beta_2 \Delta GF_{CF_{t-i}} + \sum_{i=1}^m \beta_3 \Delta TOP_{t-i} + \alpha_1 GDP_{PC_{t-1}} + \alpha_2 \Delta GF_{CF_{t-1}} + \alpha_3 TOP_{t-1} + \mu_{t-1} \dots 2$$

Based on equations 2 up to and to rare the coefficients of the independent variables. is the first difference between the operator and  $\mu_t$  is a term of disturbance from white noise? The coefficients denote the short-run dynamics of the model and the coefficients denote the long-run part of the model. Based on Equation (1.2) above, the null hypothesis is given as that there is no cointegration among the variables and the alternative hypothesis is formulated as follows which denotes there is cointegration among the variables. Furthermore, the ECM of the ARDL is formulated as follows.

$$\Delta GDP_{PC_t} = \beta_0 + \sum_{i=1}^m \beta_1 \Delta GDP_{PC_{t-i}} + \sum_{i=1}^m \beta_2 \Delta GF_{CF_{t-i}} + \sum_{i=1}^m \beta_3 \Delta TOP_{t-i} + ECM_{t-1} + \mu_{t-1} \dots 3$$

### 3.4 Granger causality

According to Türsoy (2017), after confirming the long-term relationship between inclusive growth and economic development by applying the ARDL bounds test and combined cointegration techniques, Granger causality will be applied to investigate the direction of causality among the variables.

### 3.5 Diagnostic test

Diagnostic tests such as the Wald test, histogram, serial correlation, heteroskedasticity, and CUSUM have been used to measure how close the unrestricted estimates come to satisfying the restrictions under the null hypothesis if residuals are normally distributed and to check if the presence of serial correlation in the variables.

## 4. RESULTS AND DISCUSSION

**Table 1. Unit root test results**

Variable	Model	T-statistics	P-value	I (0) / I (1)	T-statistics	P-value	I(0) / I (1)
Variables	Model	ADF unit root test			DF-GLS Unit root test		
LNGDPPC	Intercept	-4.998886***	0.0003	I (0)	-4.878119**	0.0004	I (0)
	Trend & intercept	-5.248614***	0.0009	I (1)	-5.248959***	0.0009	I (1)
LNGFCF	Intercept	-4.998886***	0.0003	I (0)	-4.878119**	0.0004	I (0)
	Trend & intercept	-5.248614***	0.0009	I (1)	-5.248959***	0.0009	I (1)
TOP	Intercept	-5.848068***	0.0000	I (1)	-11.04733***	0.0000	I (1)
	Trend & intercept	-5.741155***	0.0003	I (1)	-10.71761***	0.0000	I (1)

Note: (i) \*-Statistically significant at the 10% level, (ii) \*\*-Statistically significant at the 5% level, and (iii) \*\*\*- Statistically significant at the 1% level.

*Source: Authors' calculations*

The results in Table 1 follow the ARDL requirements as stipulated by Pesaran (1999) that the unit root test becomes valid only if the results are stationary and integrated of order I (0) and I (1). Both ADF and DF-GLS results were statistically significant at a 1% level. On that note, the ADF results show that the gross domestic product per capita and the investment of government in information and telecommunications are stationary at the level, while the government expenditure on education, the formation of fixed gross capital, the openness of trade, and the expenditure on research and development are stationary at the first difference. Similarly, the DF-GLS results show that only trade openness is stationary at a level, while the rest of the variables are stationary at the first difference. Therefore, we reject the null hypothesis that the data have a unit root or are not stationary and accept the alternative hypothesis of no unit root or that the model is stationary.

**Table 2: ARDL bounds test**

Test Statistic	Value	k
F-statistics	11.23783	2
Critical Value Bounds		
Significance	I0 bound	I1 Bound
10%	3.17	4.14
5%	3.79	4.85
2.5%	4.41	5.52
1%	5.15	6.36

*Source: Authors Compilation*

The results have been achieved by running the ARDL bound test on five variables; therefore, given k=5, they are presented in two sections: integrated of order zero and one. The F statistics were found to be higher than any of the critical values at 10%,5%,2.5%, and 1%, respectively, which means that it is above the I (0) and I (1) orders of integration and hence they are all found to be cointegrated. This is in line with The null hypothesis of no cointegration can be accepted if the F-statistic value is higher than the upper bound critical value.

**Table 3. ARDL Long-Run Coefficients**

Variable	Coefficient	Std. Error	t-Statistics	Prob.
LNGFCF	0.441909	0.180963	2.441991	0.0227
TOP	0.016991	0.014054	1.209022	0.2389
C	4.949162	1.985781	2.492301	0.0203

*Source: Authors Compilation*

The results of the long-term coefficient indicate that a percentage increase in the formation of gross fixed capital will positively affect economic development by 44%. Lastly, a 1% change in trade openness will positively affect economic development by 2%.

**Table 4. ARDL short-run Cointegrating Form and ECM**

Variable	Coefficient	Std. Error	t-Statistics	Prob.
D (LNGDPPC (-1))	-0.321180	0.167402	-1.918615	0.0675
D(LNGFCF)	0.328205	0.068896	4.763793	0.0001
D (LNGFCF (-1))	-0.142722	0.065187	-2.189432	0.0390
D(TOP)	0.000032	0.001102	0.029025	0.9771
CointEq (-1)	-0.106044	0.041731	-2.541128	0.0183
Counted = LNGDPPC - (0.4419*LNGFCF + 0.0170*TOP + 4.9492)				

*Source: Authors' calculations*

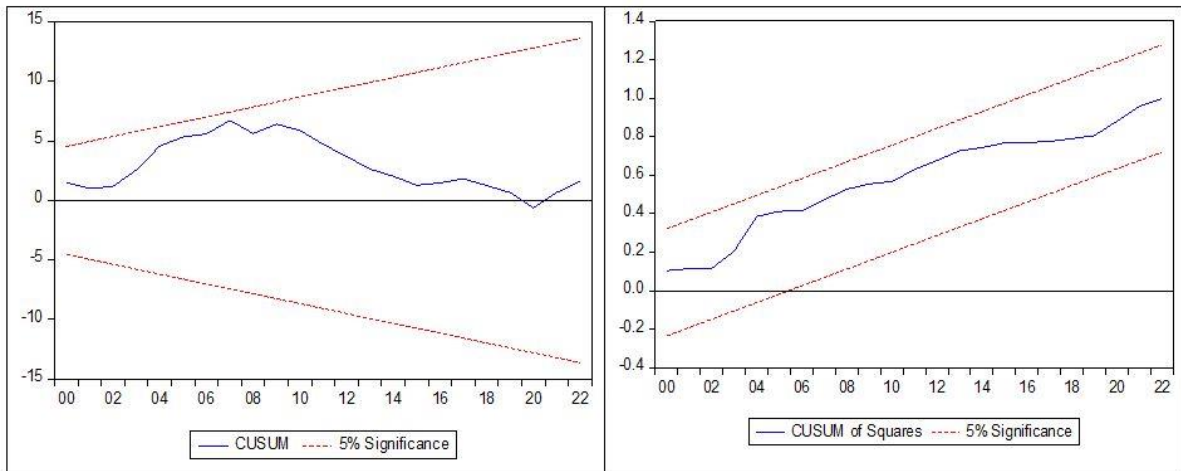
In the short term, government expenditure on education has been shown to have a negative impact. On the contrary, gross fixed capital formation and trade openness have a positive effect. Furthermore, the error correction term coefficient (CointEq (-1) -0.10604) is negative and significant. The implication is that the economic development model has a slow rate of adjustment of about 11%.

**Table 5. Wald, Serial Correlation, and Heteroscedasticity**

Diagnostic Analysis	Test	Null hypothesis (H <sub>0</sub> )	P-value	Conclusions
Normality	Jarque-Bera	Data are normally distributed.	0.6614	Do not reject H <sub>0</sub> because P 5%
Serial correlation	Breusch-Godfrey Serial Correlation LM Test	No serial correlation.	0.8961	The study did not reject H <sub>0</sub> because the P-value is greater than the level of significance. at 5%
Heteroscedasticity	Breusch-Pagan- Godfrey	H <sub>0</sub> : Homoskedasticity H <sub>1</sub> : Heteroskedasticity	0.8571	The study does not reject H <sub>0</sub> in all tests because the P-value is greater than the significance level of 5%.

*Source: Authors' calculations*

The study fails to reject the null hypothesis of the three diagnostic tests because their p-values are greater than 5% ( $p > 0.05$ ). The findings show that the model has passed the tests for autocorrelation and heteroskedasticity and that the residuals are normally distributed since all the null hypotheses could not be rejected. These results support the results of the ARDL model.



**FIGURE 1**  
**CUSUM AND CUSUM SQ TEST RESULTS**

The coefficients using the CUSUM and CUSUMSQ tests in Figures 1 show that they do not exceed the critical values. According to Brown et al. (1975), these findings show that there is parameter stability because the lines generated are within the upper bound and lower bound lines of the 5% significance level. This confirms that the model has been stable throughout the study.

**Table 6. Results of the Granger causality test**

Null hypothesis	P-value	Decision
LNGFCF does not Granger cause LNGDPPC	0.7631	Accept $H_0$
LNGDPPC does not Granger cause LNGFCF	0.0173	Reject $H_0$
TOP does not Granger cause LNGDPPC	0.9574	Accept $H_0$
LNGDPPC does not Granger Cause TOP	0.0043	Reject $H_0$
TOP does not Granger cause LNGFCF	0.4098	Accept $H_0$
TOP does not Granger Cause LNGFCF	0.0204	Reject $H_0$

Based on the findings in Table 6, gross fixed capital formation and trade openness are the greater causes of gross domestic per capita. Therefore, we fail to reject the null hypothesis in the rest of the variables, since the probability values are higher than the significant level of 5%. Based on the findings, we conclude that there is unidirectional and bidirectional causality in the model.

## 5. SUMMARY, CONTRIBUTIONS AND STUDY RECOMMENDATIONS

The purpose of this study was to investigate the contribution of inclusive growth to economic development in South Africa. This study will highlight the implications of the formation of fixed gross capital formation and trade openness on the South African gross domestic product per capita.

### 5.1 Summary of the study

The findings of this study show that, in the short run, gross fixed capital formation and trade openness have a positive effect. Similarly, a percentage increase in gross fixed capital formation will positively affect economic development by 33%. Lastly, a 1% change in trade openness will positively affect economic

development by 2%. Similarly, a percentage increase in gross fixed capital formation in the long run will positively affect economic development by 44%.

The results are supported by and which implements the idea that gross fixed capital formation is a drive for economic development. Similarly, (Stadler, 2012) supports that government expenditure on education has a positive impact on economic development. However, ( Al-Shayeb & Hatemi-J, 2016) show that neither a positive nor a negative shock in the GPD per capita results in any significant response to trade openness. The endogenous growth model supports the findings, which stipulates that economic development is primarily the result of internal forces rather than external forces. Therefore, both government and private sector productivity improvements can be directly related to improvement through innovation and more investment.

The study is limited due to the choice of variables and data range used to explain inclusive growth. Instead of taking all variables into account, this study has chosen the gross domestic product per capita, the formation of gross fixed capital, and the openness of the trade.

## ***5.2 Contribution and study recommendedations***

The study provides a detailed analysis of how economic development in South Africa affects inclusive growth. By exploring this relationship, it helps identify whether economic progress is equitably distributed across different segments of society or if certain groups are left behind. Here are some key areas where such a study could offer valuable insights:

### ***5.2.1 Policy recommendations***

The study aids policymakers in identifying economic development factors that significantly contribute to inclusive growth, thereby enabling the development of targeted policies that promote overall economic growth.

### ***5.2.2 Benchmarking and comparison***

The study could provide benchmarks for evaluating South Africa's economic progress, highlighting successful best practices and strategies from other countries with similar economic conditions.

### ***5.2.3 Identifying barriers and opportunities***

By examining the barriers to inclusive growth, the study can reveal systemic issues that hinder equitable development. It can also highlight opportunities for interventions that could enhance the inclusivity of economic policies.

### ***5.2.4 Long-term impact assessment***

The study could evaluate the long-term effects of various economic policies on different demographic groups. This can be valuable for understanding the sustainability of economic growth and its long-term impact on social equity.

### ***5.2.5 Theoretical contributions***

The study may contribute to theoretical frameworks on economic development and inclusive growth by providing empirical evidence from the South African context. This can refine existing models and theories or propose new ones.

### ***5.2.6 Economic and social equity insights***

Insights gained from the study could help in understanding the interplay between economic policies and social equity, thereby guiding efforts to reduce inequality and promote social cohesion.

### ***5.2.7 Resource allocation***



Findings from the study can assist in better allocation of resources by identifying which sectors or regions require more attention to enhance inclusive growth. This can lead to more effective investment strategies and development programs.

Overall, this study could play a critical role in shaping economic policies and development strategies in South Africa, aiming for a more inclusive approach that benefits a broader segment of the population.

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