

Estimating the Role of Government in Socio-Economic Development in South Africa

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Received: December 20, 2022; Accepted: December 30, 2022; Published: December 31, 2022

Abstract

The paper examines the relationship between government and socio-economic development in South Africa. The analysis focuses on 1996-2020. Various estimations were undertaken, through the Autoregressive Distributed Lag (ARDL) model, to empirically examine the role of government in socio-economic development in South Africa. Because of the unit root that typically characterizes macroeconomic series, the unit root test using the Augmented Dick Fuller (ADF) test with constant, and trend was done. In addition, the ARDL bound tests were undertaken. The results confirm that government has an important role to play in the economy. However, results show that economic growth does not necessarily translate to socio-economic development although government spending does. In addition, results also confirm that institutions and educational spending are important for social and economic development. For instance, improvements in the quality of institutions increases the human development index. In the same vein, there is a strong positive correlation between increased socio-economic development and spending on education. Results show that the quality of institutions is important for both economic growth and socio-economic development. Overall, the findings support the view that governments should be active in facilitating social and economic development. This is more so in instances where economic performance weakens due to exogenous factors such as the coronavirus pandemic. It is worth highlighting that the baseline ARDL results show that the correlation between gross domestic product (GDP) and its prior values is statistically significant, indicating a meaningful relationship between GDP and socio-economic development.

Keywords: government, economic growth, human development, socio-economic development, South Africa, institutions

1. Introduction

The debate about the role of the government in the economy or the role of the state in the markets dates many decades back. It is usually polarized along the different schools of thought in economics, and in politics. In the wake of the coronavirus pandemic (Covid-19), this old-age debate has been revisited more directly if not more comprehensively. Stiglitz (2021:1), for instance, says that “in order to restore robust growth, market forces alone are inadequate to resolve the various issues at hand. Governments must step up to fill this void and play a key role in recovery.” There are increasingly many studies that focus on the relationship between government and economic development, for different countries. However, there are no recent studies in South Africa that empirically examine the role of government in development.

Sulakshna and Singh (2018) are among those who confirm, empirically, that governments can play important roles in economic growth directly and indirectly. Recently, Chindengwike and Tyagi (2022) examined the relationship between government expenditure and economic development in Uganda and found that government expenditure (particularly on infrastructure) contributes to economic development. Arguably, the same can be said with regards to socio-economic development. Actually, Montenegro and Shenai (2019) find a positive relationship between government expenditure and human development in Brazil. Socio-economic development is broader than economic growth. In the context of South Africa, there are many debates about the role of the government in the economy. In addition, there are debates about what appears to be deteriorating socio-economic development.

It is in this context that this paper examines the role that the South African government should be playing in socio-economic development. The South African economy has not performed well in a long time and Covid-19 found it in a vulnerable position, hence it is still underperforming at least relative to its peers. It is in this context that the government must play a more active role in the pursuit of socio-economic development. Gumede and Bila

(2022:166), based on the analysis of key drivers of the South African economy in the context of the macroeconomic identity, conclude that “consumption, investment, and exports are key economic growth determinants in South Africa”. Given low savings, low investments and the structure of the South African economy that constrain the growth of the South African economy, it is important to explore the role that the South African government could perform in socio-economic development. As indicated above, socio-economic development has been deteriorating in South Africa (see Gumede 2022).

2. Background

To start with, as background, it is important to understand how the South African economy has evolved in terms of the various components of gross domestic product (GDP). Figure 1 shows the various components of GDP and how that has evolved over many decades. As a share of GDP, household consumption has remained the biggest contributor to the economy.

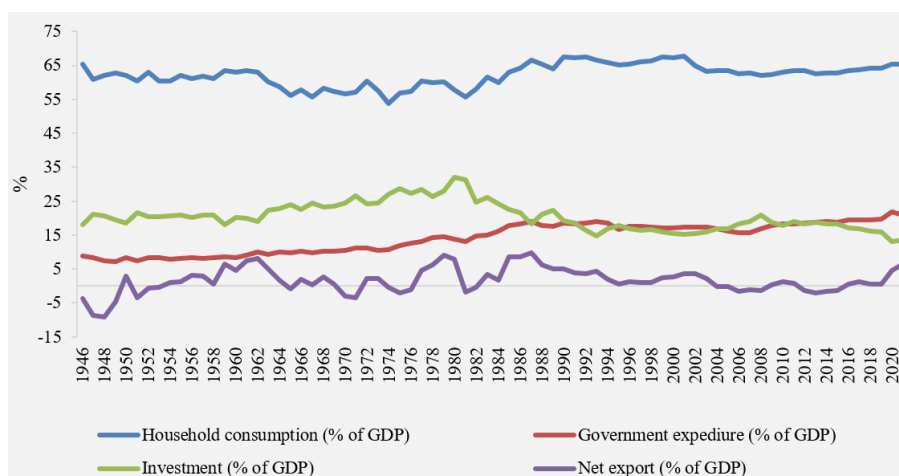


Figure 1. Structural evolution of the South African economy

Source: Based on National Treasury data

As a share of GDP, consumption has remained the highest and has been steady over a very long period (i.e. 1946-2021). The investment variable shows that after reaching a peak in the late 1990s, as a share of GDP, investment levels has been declining and have not returned to the levels of the 1990s. Government expenditure on the other hand has remained stable and somewhat increasing albeit in a rather slow pace. Net exports have been fluctuating at low levels thereby not contributing significantly in the economy.

Covid-19 has had a significant negative impact on the South African economy and society, similar to other economies and societies. Investment, for instance, remain below pre-pandemic levels. It is important that government propels investments for socio-economic development and also to crowd in private sector investment. The rollout of the infrastructure that is envisaged is one of the ways in which government can play a role in socio-economic development. Social infrastructure, for instance, can help create jobs and boost socio-economic outcomes.

It may be necessary to look at the various components that make up total investment in South Africa – the same can be said regarding savings, given the critical importance of investments and savings for the economy. With regards to investments, as measured through gross fixed capital formation, the private sector has remained the biggest investor by far although its investment declines from about 2018. As Figure 2 shows, government investments have not been high enough to crowd in significant private sector investments. Public corporations (i.e. both state-owned entities and development finance institutions) have been the weakest link. Government, also through public corporations, should be playing a bigger role in the economy. As indicated above, investments have not returned to the pre-pandemic levels.

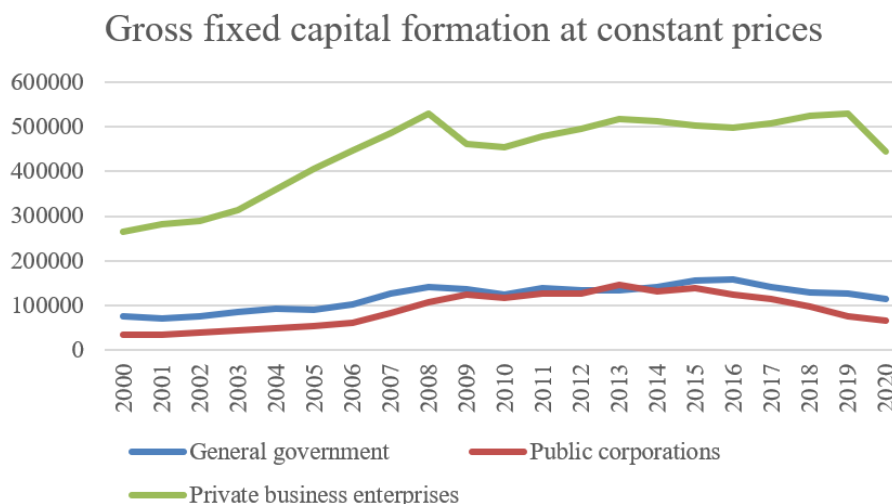


Figure 2. Gross fixed capital formation

Source: Based on South African Reserve Bank data (various issues)

In relation to savings, corporate savings (i.e. savings by the private sector) are the only source of savings that have performed better. Government savings have remains fragile while household savings have remained steady but low, as shown in Figure 3. It is curious that private sector savings show an increase from 2018 while private sector investments show a decrease.



Figure 3. Savings

Source: Based on South African Reserve Bank data (various issues)

Concerning international trade, the country is anticipated to maintain a robust trade performance due to the rise in the value of merchandise exports over imports because of strong performance in mining which accounts for about 60 per cent of total exports – particularly iron ore, rhodium and coal – and plays an important role in foreign exchange earnings. It is anticipated that there will be a current account surplus in 2022.

Regarding manufacturing value added (MVA), as can be seen in Table 1 for the BRICS countries and Botswana, Mauritius, and Nigeria, South Africa has lagged behind its peers, trailing only India. BRICS countries are Brazil, Russia, India, China and South Africa. It is useful to also look at other economies comparable to South Africa, hence the inclusion of Botswana, Mauritius, and Nigeria. Nigeria is the biggest economy in Africa while Botswana and Mauritius are usually viewed as countries that performing well (see Gumede 2022).

Despite being ahead of India, South Africa's MVA per capita appears to be declining while that of India is increasing. China and Russia, on the other hand, have higher MVA per capita in this group of countries. This suggests that while the South African economy has been catching up, it may not have done enough to boost its manufacturing sector, causing economic growth to be driven more by the service sector in comparison to the manufacturing. This appears to be a global trend though. Botswana and Nigeria show similar results and South Africa appears to be doing well in comparison to these countries. Mauritius' MVA per capita has been increasing during the period of analysis.

Table 1. Manufacturing value added per capita

Year	Brazil	Russia	India	China	South Africa	Botswana	Mauritius	Nigeria
2010	1080	1055	195	1517	702	329	1114	160
2011	1094	1119	198	1672	712	361	1119	183
2012	1059	1175	206	1823	716	370	1140	203
2013	1081	1188	214	1966	711	389	1192	240
2014	1022	1195	228	2134	703	387	1212	268
2015	927	1181	255	2276	689	393	1210	257
2016	876	1191	273	2407	684	392	1212	240
2017	889	1241	290	2534	674	392	1228	233
2018	894	1289	302	2676	671	397	1233	232
2019	884	1323	292	2782	657	399	1236	228
2020	840	1322	307	2844	573	357	1014	216

Source: Based on UNIDO data

3. Literature Review

Social and economic development is arguably what countries, especially in the developing world, should aspire for. Access to basic services and improvements in well-being for all have many advantages for societies. Healthy people and the population that live longer can ensure economic growth through productivity, among other possible factors. Governments have important roles to play in ensuring socio-economic development. Stiglitz (2021), for instance, uses the scenario of the post-Covid recovery to analyze the function that the government plays in a market economy. Many market inefficiencies are analyzed along with their potential negative effects on the economy if there is insufficient government intervention. The author demonstrated that in a variety of nations, a growth slowdown and different economic development factors have been negatively induced by pure market forces. Moreover, Stiglitz argues also that, in addition to the fiscal stimulus package, the government should increase its economic intervention in several ways if economic development has to improve. These strategies include putting laws into effect (regulation), preserving full employment, fostering fierce competition, discouraging exploitation, limiting market power, and offering social protection.

Many of the studies reviewed in Gumedé & Bila (2022) confirm a positive relationship between government expenditures and economic growth. For instance, Mo (2007), Goldsmith (2008), Mabugu et al. (2013), Jooste et al. (2013), Kneller & Misch (2014), and Kavese & Erero (2018) examined the relationship between government expenditures and economic growth and discovered a positive correlation. On the other hand, the study by Ghani and Din (2006) finds that only public investment has a positive correlation with economic growth (see Gumedé & Bila, 2022). In the context of multiplier effects, Qazizada & Stockhammer (2015) investigated the government spending multiplier in contraction and expansion using panel data from 21 nations and found that during the expansion, it was approximately 1, as opposed to 3, during the contraction. In other words, the authors compared the government spending multiplier effect for two different economic cycles (i.e. expansion and contraction) and they found that during the recession/contraction government spending had higher multiplier effect as compared to expansion.

There is sufficient recent literature that tries to establish the empirical relationship between government, economic growth and economic development worldwide. For example, Chindengwike and Tyagi (2022) investigated the government expenditure policy impact on sustainable economic development in Uganda, and found that the level of public spending on infrastructure, communication, and energy has a direct impact on the rate at which Uganda's economy is developing. Of critical importance is that the Johansen cointegration test results show that the correlation between the amount of money spent by the government on infrastructure, communication, energy, and

the level of financial development appears to be much more effective in the long more than in the short run. In addition, the outcomes of the Granger-Causality analysis indicate that there is an indirect relationship between the rate of economic development and all elements of public spending.

Onwuka (2022) investigated disaggregated government expenditure and economic development in Nigeria and found that 70.9 percent of Nigeria's short-run human development index (HDI) shocks are corrected annually. This suggests a long-term equilibrium between the HDI and government expenditures. In the long-run, government expenditure on social security, education, health, and agriculture has a positive and considerable impact on Nigeria's HDI, whereas infrastructure expenditure has a negative but significant impact. Nevertheless, in the short-run, while government expenditure on infrastructure (GEI) has a significant effect on HDI at lag period two, education and agriculture were significant at lag period one. In the similar vein, Montenegro and Shenai (2019), using employed the Ordinary Least Square technique to examine the relationship between government spending, economic development, and economic growth in Brazil, found that government spending contributes to economic development and in economic growth. In addition, the correlation between government spending and economic development in Brazil lends credence to the notion that an increase in government spending can spur the HDI. The authors find that there is a strong connection between economic growth and human development in Brazil.

Barilee and Christian (2021), assessing the relationship between federal government expenditures and economic development in Nigeria, the authors conclude that government recurrent expenditures do not boost development in the long-run. Likewise, Barilee and Benvolio (2021) evaluated the government expenditure on transportation and economic development in Nigeria, and their findings indicate that the government's recurrent expenditures do not promote development significantly in the long-run. Rugeiyamu et al (2021) analysed the contribution that the local government authorities play in Tanzania's promotion of local economic development and service delivery to local communities and the authors conclude that the local government authorities boost local investment, improve corporate infrastructure, and promote local economic development by offering subsidized loans. In addition, local government authorities enhance service delivery by ensuring water supply, assisting with energy supply, and enhancing educational facilities. Hasdinawati et al. (2021) examined the village government's role in Pulau Harapan Village's fishermen's economic development. The study found that the village government in Pulau Harapan in Pulau Sembilan Subdistrict had not done enough to realize and develop production centers, processing industry centers, village transportation, community agribusiness, business facilities/business centers in rural areas, and information and communication technology, implying that the village government has not played the expected role towards economic development.

Shaldehi et al. (2020) examined the impact of attracting foreign direct investment (FDI) and government reforms on economic development in East and Southeast Asia and concluded that these two factors have been the most significant influences on both economic growth and the development of East and Southeast Asian societies. Sulakhna and Singh (2018) looked at how the government affects economic development and found that it has a crucial role to play in accelerating the rate of growth both directly by engaging in economic activity and indirectly by pursuing suitable financial institutions, providing economic and social overhead capital, or building the necessary infrastructure.

Relatively similar studies have been conducted in South Africa (see for example Khambule, 2018; Khambule and Mtapuri, 2018; Mashamaite, 2018; Pretorius & Blaauw, 2010). Khambule (2018), for instance, studied how local economic development agencies fit into South Africa's plans for a developmental state and found that while the roles and responsibilities of South African local economic development agencies align with the aspiration of a developmental state, the lack of coordination among local institutions undermines their ability to fulfill their developmental mandate. Along the same lines, Khambule and Mtapuri (2018) in their study on the role of local economic development agencies in KwaZulu-Natal (a province in South Africa) confirm that the lack of institutions jeopardizes the impact that this would have if the institutions were strong. Mashamaite (2018) examined the role of South African local government in local economic development and concluded that local government plays an important role.

There are many similar studies on local government and they reach similar conclusions or highlight a variety of critical issues that need to be addressed in local governments if the aspiration of a democratic developmental state is to be met in South Africa. These studies are mostly in other social science disciplines and therefore, understandably, do not apply rigorous econometric techniques to better quantify the relationship/s between government and economic development. This paper attempts to close that gap.

4. Methodology

World Development Indicators is the primary dataset for the variables that the paper deals with: gross domestic product (GDP) measured in constant prices, Foreign Direct Investment (FDI), government health expenditure as a percentage of total expenditure, government education expenditure as a percentage of total expenditure, government final consumption expenditure as a percentage of GDP; social infrastructure measured by the mobile cellular subscriptions per 100 people as well as instructions variables such as the government effectiveness, regulatory quality, voice and accountability, political stability, control of corruption and the rule of law. Socio-economic development is the dependent variable captured by the Human Development Index (HDI) sourced from the UNDP.

To better understand the relationships between government and development, econometric estimations are done. The positivist aspect of this approach comprises the comparison of variables in order to investigate the linkage between public spending and socio-economic development. It is important to highlight that estimates are based on the Autoregressive Distributed Lag (ARDL) model. The multicollinearity test has not been undertaken because it would overlap with the ARDL technique. The multicollinearity test would have been important if estimations were based on Ordinary Least Squares.

The following model is specified to examine the link between socio-economic development and government:

$$HDI_t = \beta_0 + \beta_1 GDP_t + \beta_3 GSP_t + e_t, \quad (1)$$

Where,

HDI denotes the human development index, *GDP* is the gross domestic product and *GSP* is for government spending. The subscript *t* indicates the time while β is the elasticity through which *HDI* changes given a change in one of the controlled variables and *e* the error term. To account for the role of institutions in the relationship between the government spending and the human development variable, equation (1) is augmented by adding an interaction term between *GSP* \otimes *Inst* and the model is shown below:

$$HDI_t = \beta_0 + \beta_1 GDP_t + \beta_2 GSP_t + \beta_3 GSP \otimes Inst_t + e_t, \quad (2)$$

All other variables are similar to equation 1.

Montenegro and Shenai (2019) argue that although the *HDI* comprises education and health, it's important to see how the spending on this social development variable affects the overall *HDI*. Therefore, to investigate this link and address the potential omitted variable bias, equation (1) is further augmented by adding variables such as expenditure on education (disaggregated by primary education, secondary education as well as tertiary education); expenditure on health, infrastructures and FDI, as shown below:

$$HDI_t = \beta_0 + \beta_1 GDP_t + \beta_2 GSP_t + \beta_n \sum_{n=1}^j X_t + e_t, \quad (3)$$

All other variables are the same as equation (1). *X* is a vector of other explanatory variables such as the expenditure on total education, expenditure on primary education, expenditure on secondary education, expenditure on tertiary education, expenditure on total health, infrastructures and the FDI.

As indicated above, the Autoregressive Distributed Lag model (ARDL) approach is used because it is appropriate for a situation where all the variables are integrated for orders I(0) and I(1). To capture the autoregressive structure of the model, equations 1, 2 and 3 are adjusted to follow the autoregressive structure as depicted below:

$$Y_t = \alpha_0 + \pi_i \sum_{i=0}^n Y_{t-i} + \alpha' \sum_{i=0}^j \Omega_{t-i} + \mu_t, \quad (4)$$

Where,

Y denotes the dependent variable in all equations (i.e. equations 1, 2 and 3 respectively), while Y_{t-i} indicates the lags of dependent variable across all the equations. Moreover, Ω is a vector of explanatory variables and their lags for the respective equations as described above, and μ is the error term. Furthermore, α , π_i , α'_i capture the scalars and raw vectors. The lag operator *L* is used to specify the lag polynomial $\pi(L)$ and $\alpha(L)$ applied to each vector's component, $L^k \Omega_t = \Omega_{t-k}$, formally expressed as follows:

$$\begin{aligned} \pi(L) &= 1 - \pi_1 L - \dots - \pi_n L^n, \\ \alpha(L) &= \alpha_0 + \alpha_1 L + \dots + \alpha_n L^n. \end{aligned}$$

Equation (4) is then modified as shown below:

$$\pi(L)Y_t = \alpha'(L)X_t + \mu_t,$$

Although equation (4) can indeed be estimated, it must be adjusted in order to get parameters that can be correctly interpreted. Therefore, it must be such that $\pi^{-1}(L)$ gives an infinite distributed lag representation (for more details see Gumede & Bila, 2022 and Hassler & Wolters 2005). X, s are re-arranged and $\Delta = 1 - L$:

$$Y_t = \alpha_0 + \pi_i \sum_{i=0}^n Y_{t-i} + \pi(1)\alpha' \Omega_t - \sum_{i=0}^{n-1} (\sum_{j=i+1}^j \alpha_j)' \Delta \Omega_{t-i} + \mu_t, \tag{5}$$

After the transformation, model 5 is appropriate for cointegration with Y_t as a function of its lagged values, current Ω_t and its respective differences $\Delta \Omega_{t-i}$. $\pi_i \sum_{i=0}^n Y_t$ is then subtracted to account for Y_t, Ω_t and their differences. The equation is re-arranged and presented as follows:

$$Y_t = \alpha_0 + \frac{-1}{\pi(1)} \sum_{i=0}^{n-1} (\sum_{j=i+1}^j \pi_j) \Delta Y_{t-i} + \pi' \alpha_t - \frac{1}{\pi(1)} + \sum_{i=0}^{n-1} (\sum_{j=i+1}^j \alpha_j)' \Delta \Omega_{t-i} + \mu_t, \tag{6}$$

The above equation could be estimated. However, it violates the exogeneity assumption due to the lag of the dependent variable which makes it inappropriate to estimate through OLS as it will produce inconsistent results. Moreover, to address the endogeneity bias arising from the inclusion of the lag of the dependent variable, one has to allow $Y_{t-1}, \dots, Y_{t-p-1}$ and $\Omega_t, \dots, \Omega_{t-n+1}$ to be consistent instruments in the instrumental variable estimation. It would therefore be possible to do further transformations for cointegration estimation and testing, (See Bewley 1979 and Hassler & Wolters 2005). The equation would be:

$$\sum_{i=1}^p \pi_i Y_{t-i} - Y_{t-1} = \pi_i(1)Y_{t-1} - \sum_{i=0}^{n-1} (\sum_{j=i+1}^j \pi_j) \Delta Y_{t-i} \tag{7}$$

The combination of the above equation with $\Omega_t = \Omega_{t-i} + \Omega_t$ yields the error correction model and shows the speed of adjustment of Y_t through $\pi_i(1)$ to equilibrium deviations in the lagged values, $Y_{t-1} - \alpha' \Omega_{t-1}$ (for further details see Gumede and Bila, 2022).

5. Analysis

The analysis focuses on 1996-2020, in order to cover a substantial period of the post-apartheid dispensation in South Africa and to try avoiding the (full) negative effects of Covid-19. This section presents the estimations that were undertaken, to empirically examine the role of government in socio-economic development in South Africa, through the Autoregressive Distributed Lag (ARDL) model. Because of the unit root that typically characterizes macroeconomic series, the unit root test using the Augmented Dick Fuller (ADF) test with constant, and trend was done. Table 2 gives a summary of the ADF results. The majority of variables were found to be non-stationary at level order I(0), with the exception of FDI, primary education expenditure, and regulatory quality proxies. This led to cointegration at order I (1).

Table 2. Augmented Dick Fuller test for unit root

Variable	Intercept	and	Decision	First	Decision	Integration
HDI	Trend		Not stationary	difference		order
GDP	-2.6530		Not stationary	-4.0525**	Stationary	I(1)
FDI	-0.5259		Stationary	-4.6254**	Stationary	I(1)
Exp Total heal	-5.1786**		Not stationary	-----	-----	I(0)
Exp on Prim Educ	-0.6310		Stationary	-7.0035**	Stationary	I(1)
Exp on Sec Educ	-4.1499**		Not stationary	-----	-----	I(0)
Exp on Ter educ	-2.8819		Not stationary	-3.4815**	Stationary	I(1)
GSP	-0.8795		Not stationary	-6.7466**	Stationary	I(1)
Exp on Total education	-2.2461		Stationary	-3.6710**	Stationary	I(1)
Infrastructure	-3.3288**		Not stationary	-----	-----	I(0)
Control of Corruption	-1.5545		Not stationary	-4.7001**	Stationary	I(1)
Government	-1.2348		Not stationary	-3.5151**	Stationary	I(1)
effectiveness	-2.6510		Not stationary	-4.9789**	Stationary	I(1)
Rule Law	-2.4591		Not stationary	-4.3905**	Stationary	I(1)
Political Stability	-1.2618		Not	-4.4963**	Stationary	I(1)
Regulatory Quality	-1.8348		stationary	-3.3903**	Stationary	I(1)
Voice and	-5.7210**		Stationary	-----	-----	
Accountability	-0.0473		Not stationary	-2.1372	Not	I(0)
					stationary	

To start with, as shown in Figure 3, HDI and GSP show an acceptable increase overtime after their decreasing pattern, which ended in 2001 and 2005, respectively. This demonstrates that since that time, social infrastructure and/or fundamental public services have improved for the people. However, starting in 2020, they started to trend low again. The Covid-19 pandemic may be the reason for this.

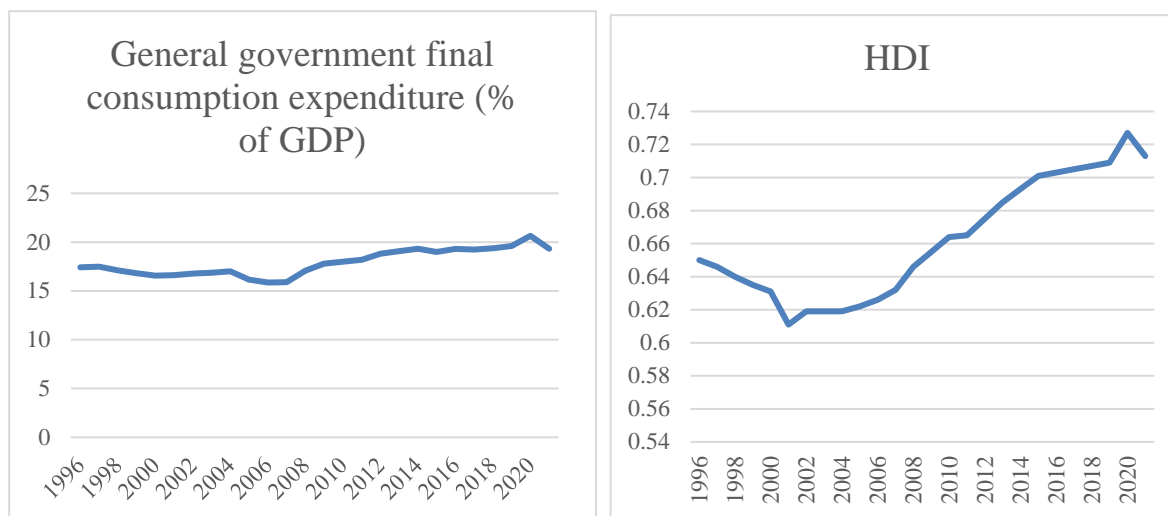


Figure 3. HDI and GSP trends in South Africa (1996-2020)

Source: Author's own plot (Eviews)

The baseline ARDL results indicate that the correlation between GDP and its prior values is statistically significant, indicating a meaningful relationship between GDP and socio-economic development. However, it is important to note that the GDP current values have a negative sign, suggesting that economic growth may not necessarily transfer into socio-economic development in the same year. This can be explained by the feedback adjustment period often required for macroeconomic indicators to have a medium- or long-term impact. This is confirmed by the fact that its previous values, particularly for the second and third lag periods, are positive and statistically significant indicating that some time is required for this to provide the desired results. In addition, government expenditure, despite being positive and statistically significant, indicates that its effect is long term; particularly, only the third and fourth period lags have a substantial impact on socio-economic development.

Development literature make a point that the quality of institutions matters for development and economic growth in particular. To account for this, the specification is supplemented by interacting GSP and institution quality to see whether this enhances or diminishes the effect of government expenditure on socio-economic development. As seen in Table 3, extending the model does not significantly alter the results for GDP, GSP, and their lags.

Table 3. ARDL regression baseline

Variable	Model I		Model II	
	Coeff	SE	Coeff	SE
D(HDI(-1))	-.462**	(.248)	.520**	(.153)
D(HDI(-2))			-.124	(.136)
D(HDI(-3))			-.314	(.159)
D(HDI(-4))			.739**	(.190)
Dlog(GDP)	-.154**	(.076)	-.133**	(.021)
Dlog(GDP(-1))	-.078	(.093)	.108	(.040)
Dlog(GDP(-2))	.242**	(.122)	.047	(.056)
Dlog(GDP(-3))	.334*	(.135)	.152	(.004)
D(GSP)	.004	(.004)	-.005	(.065)
D(GSP(-1))	.001	(.004)		
D(GSP(-2))	.002	(.004)		
D(GSP(-3))	.009**	(.004)		

D(GSP(-4))	.009**	(.004)		
D(GSP)⊗Inst			-.004	(.004)
D(GSP(-1))⊗Inst			.012**	(.004)
D(GSP(-2))⊗Inst			.011**	(.002)
D(GSP(-3))⊗Inst			-.002	(.004)
D(GSP(-4))⊗Inst			.021**	(.003)
C	-.006	(.003)	.009**	(.002)
AIC inf	-7.213		-10.674	
Rsquared	.777**		.995**	
Adj-Rsquared	.555**		.963**	

Standardised beta coefficients; Windmeijer bias-corrected robust standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The main difference is that the impact on economic growth is enhanced by one lag. This also holds true for government spending, implying that the quality of institutions affects the effect of economic growth on socio-economic development. Interestingly, the interaction term between the quality of institutions and government spending appears to have an immediate effect. In other words, unlike government spending alone, the combination of government expenditure with competent institutions has an immediate impact. For instance, a one-unit increase in regulatory quality increases the beneficial impact of GSP to socio-economic development by about a percent.

Control for variables such as expenditure on education, expenditure on health, social infrastructures and FDI was done for robustness check as well as to avoid omitted variables bias. The relationship between economic growth and socio-economic development becomes statistically insignificant, implying that the economic growth does not necessarily increase socio-economic development. This shows that the inclusion of developmental indicators in model trumps the economic growth variable. Furthermore, government spending appears to be consistent, exhibiting positive and statistically significant impact on socio-economic development. For instance, results show that a 1% increase in government spending would improve the human development index by 0.08%.

Something interesting is that expenditure on education and health seem to be harmful to socio-economic development. This contradicts the developmental theory which for example highlights that this can be a function of human capital, implying that the more educated people are, the wider are possibilities that these people become assents towards economic development. However, this can be because some education degree may matter more as compared to others. While FDI would be expected to be positive, its relationship with socio-economic development is surprising by showing that 1% increase in capital inflow reduces economic development in about 0.03%.

Given the surprising and contradictory result in relation to expenditure on education and health and socio-economic development, it is important to break down spending on education by qualification in order to clarify the value of education. As expected, spending on basic and tertiary education plays a part in socio-economic development whereas other variables stay stable and steady. For instance, the results indicate that increasing spending on basic education and higher education, respectively, can result in socio-economic development of roughly 0.03 and 0.08 percent as shown in Table 4.

Table 4. ARDL regression (with education disaggregated)

Variable	Model I		Model II	
	Coeff	SE	Coeff	SE
D(HDI(-1))	-.140	.289	.268	.198
Dlog(GDP)	-1.44	3.79	-6.38	2.00
D(GSP)	.008**	.004	.013**	.003
ExpTotal education	-.005**	.003	-.004	.001
Exp. on Prim Educ			.003**	.001
Exp. on Sec Educ			-.001	.000
Exp. on Ter Educ			.008**	.002
D(Exp. Total health)	-.002	.002	-.002	.002
D(Infrastructure)	.000	.000	-.000	.000
FDI	-.003**	.001	-.005**	.001

C	.096**	.050	-.056	.055
AIC inf	-7.156		-9.404	
Rsquared	.588**		.986**	
Adj-Rsquared	.326**		.916**	

Standardised beta coefficients; Windmeijer bias-corrected robust standard errors in parentheses.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

After analysing the co-integration of the long-run relationship between government spending and socio-economic development, the ARDL bound test is undertaken (see Tables 5 and 6). The null hypothesis of the bound test is that there is no relationship among the variables in the long run, while the alternative hypothesis indicates otherwise.

Table 5. Bound test, model I and II

F-Bounds Test				
Asymptotic: n=1000				
Test Statistic	Value	Signf.	I(0)	I(1)
F-statistic	9.2146	10%	2.63	3.35
K	2	5%	3.1	3.87
		2.5%	3.55	4.38
		1%	4.13	5
Model II				
F-Statistic	20.82084	10%	2.63	3.35
K	2	5%	3.1	3.87
		2.5%	3.55	4.38
		1%	4.13	5

Tables 5 and 6 summarize the results showing that the null hypothesis of the non-existence of the long-run relationship is rejected when the critical value is higher than the lower I(0) and the upper I(1) bounds. The critical values of the overall test appear to be greater than their respective lower bounds, implying that the null hypothesis of the non-existence of the long-run relationship among the variables is rejected. Therefore, there is an overall long-run relationship among the variables of the study.

Table 6. Bound tests model III and IV

F-Bounds Test				
Asymptotic: n=1000				
Test Statistic	Value	Signf.	I(0)	I(1)
F-statistic	3.74435	10%	1.99	2.94
K	6	5%	2.27	3.28
		2.5%	2.55	3.61
		1%	2.88	3.99
Model IV				
F-Statistic	21.113331	10%	1.8	2.8
K	9	5%	2.04	2.08
		2.5%	2.24	3.35
		1%	2.5	3.68

To recap, the ARDL method was used to examine how government spending affects economic development. The results imply that economic growth does not necessarily translate to socio-economic development but government spending does. Nonetheless, the socio-economic development's elasticity to changes in government spending is relatively small. The results also confirm that institutions and educational spending are important. For instance, improvements in the quality of institutions increases the HDI. Similarly, there is a strong positive correlation between increased socio-economic development and spending on education.

5. Conclusion

The paper deals with an important question of the role of government in socio-economic development. The results confirm the positive relationship between variables associated with government's intervention and socio-economic development. By implication, governments can improve socio-economic development through various instruments at their disposal such as fiscal and tax policies. In addition, other policies that allow government to play a bigger role in the economy should be pursued for government to improve socio-economic development. One such policy is social policy, which can play many roles whose effects would be positive in socio-economic development. It is in this context that many scholars argue for a robust role of social policy in development. Lastly, an expansionary fiscal policy can improve socio-economic development and the quality of institutions indeed play an important role in socio-economic development.

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