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RE-EXAMINING THE IMPACT OF PUBLIC EDUCATION EXPENDITURE ON SOUTH AFRICAN LITERACY

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Abstract. Much empirical literature has focused on investigating the role of government expenditure in promoting long-term economic growth in South Africa. However, few studies in comparison have considered the impact of government spending on literacy level in the country. To this end, this paper examines the impact of government spending on literacy rate in South Africa using an Autoregressive Distributed Lag (ARDL) model with annual time series data over the period from 1994 to 2021. The key findings of this study are: (a) there is evidence of a long run relationship between government spending on education and the literacy rate in South Africa; (b) while the long run effect of government education spending on literacy is not significant, there is a statistically significant positive effect in the short run. These findings have several implications for policymakers and other stakeholders. Therefore, the study recommends that increased monitoring and evaluation mechanisms are desirable in the primary and secondary education sectors for accountability and reducing wastage of taxpayer funds. The Department of Education is also encouraged to re-consider current teacher training practices and fill long standing vacancies in the school sector that negatively impact education outcomes.

Keywords*: literacy rate, public education spending, South Africa.*

JEL Classification: E and O

INTRODUCTION

Globally, education is seen as a tool for reducing poverty, inequality, and unemployment as well as improving health outcomes among the population. Within this context, the recent global policy frameworks such as the former Millennium Development Goals (MDGs) and the current Sustainable Development Goals (SDGs), have highlighted the importance of education. For instance, Goal 2 of the MDG focused on the achievement of a universal primary education by promoting primary school enrolment, reducing the number of out-of-school children of primary school age and the promotion of literacy globally (United Nations, 2015a). Similarly, the current 2030 Agenda for Sustainable Development Goal 4, places emphasis on ensuring inclusive and quality education for all and promote lifelong

learning (United Nations, 2015b). These frameworks mark the commitments and efforts by various governments to improve education outcomes for their citizens and to address several social, economic, and environment problems.

The South African government has spent billions of rands to improve access to quality education with a view of reducing poverty, inequality, and unemployment, since the end of apartheid in 1994. For instance, over the period 1994 to 2021, the total government spending on education increased from approximately R28 billion to R397 billion, reflecting an average annual growth rate of 10.4 % or 5.2 % of the gross domestic product (South African Reserve Bank, 2023; World Bank, 2023). Despite increased government spending, education quality and outcomes persist (Berg et al., 2022; Modiba & Mkhize, 2022). In addition, the education system in South Africa is confronted with a multitude of challenges that encompass a scarcity of adequately qualified teachers, inadequate skills development, and an ongoing rise in unemployment rates (Alao & Brink, 2022). As a result, this has called into question whether the increased government spending on education is yielding the desired results.

The literacy rate is considered as one of the major indicators of education outcomes. Basically, literacy relates to the ability to identify, understand, interpret, create, communicate, and compute, using printed and written materials associated with varying contexts (Montoya, 2018). According to the World Bank (2022), South African adult literacy rates have been steadily declining over the last two years and falling behind other developing nations like Mexico and Brazil. The high-level of illiteracy rate in South Africa is inextricably linked to the apartheid practices that prevailed before democratic dispensation in 1994 and to the environment of a developed-developing nation. Apartheid had far-reaching effects and contributed to the entrenchment of racial and gender disparities in poverty (Khuluvhe, 2021). It is estimated that about four million adults in South Africa were illiterate [those who have not completed Grade 7 of schooling, or its equivalent Adult Basic Education and Training qualification (ABET Level 3)] in 2019, which is equivalent to a rate of 11.6 % for men and 12.5 % for women (Khuluvhe, 2021). By comparison, the illiteracy rates trail those in Seychelles, Namibia, Mauritius and Zimbabwe, South Africa's neighbors who have much fewer resources (Gender Live, 2021).

According to Olamide et al., (2022), a high literacy rate may help to increase economic progress, decrease poverty, reduce crime, promote democracy, reduce HIV/AIDS and other illnesses via the availability of knowledge. In addition, de Villiers (2021) also postulates that a literate population increases cultural diversity through literacy programs in minority languages, leads to lower birth rate because of increased education, and confers personal benefits such as higher self-esteem, confidence, and empowerment.

However, there are few studies that have investigated the impact of education expenditure on literacy rate in Africa. For example, Okpara and Okpara (2006) report inconclusive results and Uzonwanne et al., (2020) reports a positive but statistically insignificant effect of education spending on literacy. The research objective of this study is to investigate the relationship between education expenditure and the literacy rate in South Africa. To the best of our knowledge, this

study is one of the first to have studied this for South Africa. The results of this study have policy implications for South African education, as no long-term relationship between education spending and literacy could be established though one exists in the short term. This adds to our understanding of the macroeconomic impact of increasing allocations to education in a bid to develop human capital that is essential to stimulate the economy out of the low growth condition that has persisted for the past decade.

1. LITERATURE REVIEW

Benefits of literacy

Literacy is a cornerstone skill that paves the way to higher learning, the ability to tackle difficult challenges, and the development of the background and perspective necessary to make a positive contribution to society (Desjardins, 2021). Economic theory suggests that there is a positive relationship between public spending and improved human development through the human capital channel (improved literacy is key) (Patel & Annapoorna, 2019). A more educated workforce encourages creative thinking and results in increased productivity and greater employment opportunities (OECD, 2022). Investment in human development is widely acknowledged as a strategic approach to enhance the overall quality of life and foster sustainable economic growth within the African continent.

Achieving high literacy rates in developing countries is still difficult for several reasons: these countries struggle to efficiently spend on education to achieve desired outcomes due to poor capacity, corruption, poor quality infrastructure and high rates of child malnutrition (Cook, 2020; Zua, 2021). Low literacy rates in low-income countries handicap their economies, as a lack of literacy can prevent one from understanding their legal protections and unlikely to grasp the significance of contracts, which decreases their potential investments (Germinal & Da Costa, 2021). The literacy rate measures the percentage of people aged 15 and above who can read and write. There is no common definition for what counts as being literate in South Africa (StatsSA, 2021). As such, given the ethnic diversity of South Africa, functional literacy in official languages of the country is essential for survival and for achieving entrepreneurial success, as shown by Quan-Baffour and Johnson (2022).

Empirically, studies have examined the impact of low literacy rate in the economy. One of such studies can be found in the work of Khumalo and Alhassan (2021) who applied the fixed- and random-effects models and show that improved literacy in South Africa is associated with lower crime rates and unemployment and income GDP per capita. Low literacy levels also stifle economic development of wealthy countries. Statistics Canada (2023) reported that one in six Canadians fail the simplest literacy tests and half of the labor force would not pass a high school level literacy assessment if requested to, increasing the potential for mass job losses due to automation and an inability to secure more skilled jobs. Similarly, Rothwell (2020) attempted to quantify the economic benefits of raising adult literacy level across the entire United States, a country where “54 % of American adults read below a sixth-grade level” (National Centre for Education Statistics, 2020). They

show lost potential economic output or GDP that results from such low literacy level – the U.S economy loses $2.2 trillion per year, a situation that would not occur if "all adults could read at or above a sixth-grade level". The importance of reading and numeracy remains high (wage premiums that vary by country) even in developed OECD nations where a growing share of the workforce holds a university degree (Cherry & Vignoles, 2020).

Developing countries also lose output because of illiteracy, as empirically shown by Germinal & Taleb Da Costa (2021) using Indian datasets for income and literacy measures. Using census data for Congo Brazzaville, in various regression models, Ibara and Ikiemi (2021) show a constant negative relationship between functional illiteracy and employment, implying worsening poverty level in the country. Most of Europe has reached a 99 % literacy level, while sub-Saharan African nations continue to have the world's lowest literacy rates (66 % average) that are negatively impacted by conflict and poor resource utilization (Roser & Ortiz-Ospina, 2018; World Bank, 2022). In sub-Saharan Africa, literacy inequalities are seen in gender differences as 72 percent of males versus 59 percent of females.

Lee and Nam (2020) report differing results for the relationship between education spending and literacy for 100 countries based on their level of economic development; a positive relationship was shown for developing countries, while a negative relationship was shown for developed countries. Paul and Saha (2016) undertook a study that aimed to evaluate the influence of education budget allocation on the literacy rate across a sample of 75 countries worldwide. They found a correlation between the allocation of funds towards education as a percentage of the Gross Domestic Product (GDP) and the literacy rate. However, it is important to note that while the education budget does influence the literacy rate, it is not the sole determining factor. Zhu (2023) explored the potential relationship between government education funding and the illiteracy rate in 31 Chinese provinces among individuals aged fifteen and above. Zhu reports that a statistically insignificant relationship exists between government expenditure on education and illiteracy rates within the specified population.

The government's budget assumes a significant role as a potent tool to tackle development challenges and facilitate the provision of high-quality social services to its populace. Over the course of the last two decades, governmental entities have allocated substantial financial resources towards the advancement of basic education, recognizing its potential as a catalyst for addressing issues of poverty and inequality. Africa is the second largest spender on education globally though the impact of African public funding on schools is varied, as average years spent in school increase with higher spending, but the spending has no effect on test scores, which represent education quality (African Development Bank, 2020). With a primary education efficiency score of 58 % and a secondary education efficiency score of 41 %, Africa is the least efficient region in terms of education spending, with the European Union being the most efficient at 80 % (African Development Bank, 2020). Amongst African countries, Swaziland, Malawi, Niger, Tunisia, and South Africa allocated a higher proportion of their GDP towards education, exceeding the threshold of 6 % (Paul & Saha, 2016). However, it is important to

note that apart from South Africa, the literacy rate in these countries did not surpass the 90 % threshold.

The studies discussed above show mixed results for how education spending affects education outcomes. These studies are all macroeconomic, time series analyses and the differences in results could be due to differences in country specific differences in spending efficiencies that if improved, would lead to improved education outcomes.

2. DATA AND METHODOLOGY

This study utilized annual data spanning from 1993 to 2021 to assess the impact of government education spending on the literacy rate in South Africa. The sample period for this study is limited by the availability of data on various variables. However, the starting point of the analysis is consistent with the transition to democratic dispensation after years of apartheid. The data for this study were sourced from the World Bank Development Indicator, Quantec EasyData and International Labor Organization (ILO) database. The main variables of interest are the literacy rate (LR) and public spending on education (PSE). The literacy rate is the dependent variable and it is defined as the percentage of adults aged 15 years and above with the level of education grade 7 and higher, while public spending on education is the main explanatory variable defined as the total government expenditure on education as a percentage of the gross domestic product. In addition, several control variables were included as independent variables to capture the relationship, namely, gross domestic product per capita (GDPPC), infant mortality rate (IMR), life expectancy at birth (LE), and primary school enrolment rate (SER). The inclusion of these control variables is motivated by evidence in previous studies by Obi et al., (2016) and Uzonwanne et al. (2020).

Given the above variables, the general model for expressing the relation between literacy rate and the explanatory variables is given as

$$LR_t = \beta_0 + \beta_1 GDPPC_t + \beta_2 PSE_t + \beta_3 LE_t + \beta_4 IMR_t + \beta_5 UNER_t + \beta_6 SER_t + e_t, \qquad (1)$$

where β_0 is a constant, $\beta_1 - \beta_6$ are the long run parameters which indicate the long-term impact of the independent variables on the dependent variable, while e_t is the white noise error term.

To estimate Equation (1), this study employs the autoregressive distributed lad (ARDL) model proposed by Pesaran, Shin, and Smith (2001). This approach permits the analysis of both short run and long run impact of public education spending on literacy rate. The adoption of the ARDL model is motivated by the flexibility of the model, as it allows different lag structure for each variable (Menegaki, 2019). Unlike other cointegration techniques, the ARDL model provides robust result even when the variables are integrated of different order, I (0), I (1) or their combination (Nkoro & Uko, 2016).

The estimation of the ARDL model follows a two-step approach. In the first step, both the short run and long run impact of public education spending on literacy rate is estimated to determine whether there is evidence of long run relationship

between the variables. Following Pesaran et al. (2001), the ARDL model for this study is expressed as follows:

$$LR_t = a_0 + \sum_{i=1}^{n} \alpha_1 \Delta \ln GDPPC_{t-1} + \sum_{i=1}^{n} \alpha_2 \Delta \ln PSE_{t-1} + \sum_{i=1}^{n} \alpha_3 \Delta \ln LE_{t-1} + \sum_{i=1}^{n} \alpha_4 \Delta \ln IMR_{t-1} + \sum_{i=1}^{n} \alpha_5 \Delta \ln UNER_{t-1} + \sum_{i=1}^{n} \alpha_6 \Delta \ln SER_{t-1} + \beta_1 \ln GDPPC_{t-1} + \beta_2 \ln PSE_{t-1} + \beta_3 \ln LE_{t-1} + \beta_4 \ln IMR_{t-1} + \beta_5 \ln UNER_{t-1} + \beta_6 \ln SER_{t-1} + e_t \quad (2)$$

In Equation (2), Δ represents the difference operator, a_0 denotes the constant; the short run coefficients are denoted by the parameters a_1–a_6, which represent the short run impact of the explanatory variables on the literacy rate while β_1–β_6 are the long run coefficients.

After estimating Equation (2), the long run relationship between the variables is tested to ascertain the existence of cointegrating relationship. To do this, the bound F-test is used to compare the lower and upper critical values. The hull hypothesis of no cointegration is tested against the alternative that the variables are cointegrated. In the terms of Equation (2), the null hypothesis is defined as $\beta_1,\ldots, \beta_6 = 0$ while the alternative is that $\beta_1,\ldots, \beta_6 \neq 0$. Using the critical values, the null hypothesis is rejected if the computed F-statistic is higher than the upper bound I (1). By contrast, the null hypothesis cannot be rejected if the F-statistic is below the lower bound I (0). However, if the F-statistic falls within the bands, the result is inconclusive.

Once cointegration is established, the second step is to estimate the error correction model (ECM). However, this second step is dependent on the evidence of cointegration between the variables, and absence of such evidence implies that other approaches be used. The ECM for this study is expressed as follows:

$$LR_t = a_0 + \sum_{i=1}^{n} \alpha_1 \cdot \ln GDPPC_{t-1} + \sum_{i=1}^{n} \alpha_2 \cdot \ln PSE_{t-1} + \sum_{i=1}^{n} \alpha_3 \cdot \ln LE_{t-1} + \sum_{i=1}^{n} \alpha_4 \cdot \ln IMR_{t-1} + \sum_{i=1}^{n} \alpha_5 \cdot \ln UNER_{t-1} + \sum_{i=1}^{n} \alpha_6 \cdot \ln SER_{t-1} + \pi ECT_t \quad (3)$$

Equation (3) is the error correction model which shows the short run dynamic lags. All the short run parameters are the same as in Equation (2), except for the error correction term (ECT), which represents the speed of adjustment to equilibrium after a shock to the system. In other words, the ECT shows how long it takes the variables to return to their long run equilibrium relationship after a period of deviation due to shock. Theoretically, the coefficient ECT is expected to be negative and statistically significant.

3. RESULTS AND DISCUSSION

This section presents the results of the study. The presentation and discussion of the results are covered in two parts. The first part discusses the preliminary results, which include the descriptive statistics and unit root tests results. The second part covers the results of the ARDL model.

Table 1 reports the descriptive statistical properties of the variable over the

sample period. Specifically, the table shows that, on average, the rate of literacy in South Africa has improved by approximately 2.8 % while public spending on education also increased by 0.19 % over the period. This finding indicates that South Africans are becoming more literate over time. However, whether such an improvement in the literacy rate can be attributed to public spending on education remains an empirical question, which is addressed in the subsequent paragraphs below. Another notable information from Table 1 is that infant mortality rate and primary school enrolment rate have declined by 2.1 % and 0.39 %, respectively. The decline in the infant mortality rate can be attributed to growing literacy rate among South African population. In general, the report in Table 1 shows that all the variables (except GDP per capita and unemployment rate) are normally distributed, as indicated by the Jarque-Bera test.

Table 1. Descriptive Statistics

Variable	LR	GDPPC	IMR	LE	PSE	SER	UNER
Mean	2.8176	1.0871	–2.1303	0.1274	0.1882	–0.3871	1.4178
Median	3.0990	1.4069	–1.7648	0.4150	0.3436	–0.4624	0.9911
Maximum	5.1488	4.4888	3.4387	2.9312	8.4763	2.7517	20.7261
Minimum	1.4644	–7.7757	–14.9155	–2.8250	–10.5294	–5.3791	–32.7340
Std. Dev.	1.1524	2.4686	5.4000	1.5972	4.3169	1.6579	10.0573
Skewness	0.2583	–1.6797	–1.0213	–0.0401	–0.3738	–0.6817	–1.0499
Kurtosis	1.7406	7.3391	2.9876	1.9719	3.1769	4.4213	6.5260
J-Bera	2.0846	33.8770	4.6942	1.1964	0.6640	4.3641	18.9468
Probability	0.3526	0.0000	0.0956	0.5498	0.7175	0.1128	0.0001

Note: LR denotes the literacy rate, GDPPC is the gross domestic product per capita, PSE is the public spending on education, UNER represents the unemployment rate, IMR is the infant mortality rate, LE is the life expectancy at birth, and SER is primary school enrolment rate.

Before applying the ARDL model, it is important to evaluate the unit root properties of the variables to determine their order of integration. Moreover, the application of the ARDL model requires the variables to be I (0), I (1) or the combination. However, the application of the ARDL model breaks down when the variables are integrated of higher order (Nkoro & Uko, 2016). For this reason, the Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) unit root tests were applied to determine the order of integration of the variables. The results of these tests are reported in Table 2. As reported in the table, both ADF and PP test results show that all the variables are nonstationary in level except for life expectancy. By contrast, all the variables are stationary in first difference with few exceptions. Overall, the unit root test results indicate that the variables are a combination of I (0) and I (1), which is consistent with the application of the ARDL model. Following this finding, the ARDL model is applied, and the results are discussed below.

Table 2. Unit Root Test Results

Variables	ADF Test level	ADF Test 1st difference	PP Test level	PP Test 1st difference
LR	–1.1939	–5.3221***	–1.1358	–5.6765***
GDPPC	–1.7086	–4.0788***	–1.6711	–4.0788***
IMR	–0.2731	–2.7598*	–0.4302	–1.5999
LE	–3.7495***	–0.8453	–1.3277	–0.7793
PSE	0.1091	–3.6973**	–0.4855	–3.7163***
SER	–0.5400	–4.2585***	–0.5400	–4.2329***
UNER	–0.4546	–4.3802***	0.0079	–5.1403***

Note: ***, ** and * indicate statistical significance at 1 %, 5 % and 10 %, respectively. LR denotes the literacy rate, GDPPC is the gross domestic product per capita, PSE is the public spending on education, UNER represents the unemployment rate, IMR is the infant mortality rate, LE is the life expectancy at birth, and SER is primary school enrolment rate. ADF is the Augmented Dickey-Fuller test, while PP is the Phillips-Perron test.

The first step in the application of the ARDL model is to establish evidence of long run relationship or cointegration among the variables. Table 3 presents the results of ARDL bounds tests, and the evidence shows existence of long run relationship between the variables, since the null hypothesis of no cointegration can be rejected at 5 % level of significance. The existence of long run relationship indicates that these variables (literacy rate, public spending on education, GDP per capita, infant mortality rate, life expectancy at birth, primary school enrolment and unemployment rate) share some equilibrium relationships. In other words, there could be a short-term deviation among these variables due to shocks, but they are likely to converge to their equilibrium condition in the long term. This finding is consistent with previous study by Uzonwanne et al. (2020).

Table 3. ARDL Bounds Test Results

Function	F-statistic	Cointegration
F(LR, GDPPC, IMR, LE, PSE, SER, UNER)	10.3725	Yes
Critical value	**Lower bound I (0)**	**Upper bound I (1)**
10 %	2.4570	3.7970
5 %	2.9700	4.4990
1 %	4.2700	6.2110

Note: The estimated model is ARDL (1, 1, 0, 2, 0, 2, 2). LR denotes the literacy rate, GDPPC is the gross domestic product per capita, PSE is the public spending on education, UNER represents the unemployment rate, IMR is the infant mortality rate, LE is the life expectancy at birth, and SER is primary school enrolment rate.

Having established the evidence of long run relationship between the variable, the next step is to estimate the long run and short run impact of public education spending on literacy rate in South Africa. The results of the ARDL model for the long run and short run impacts are reported in Table 4. The report in panel A regarding the long run effect shows that only GDP per capita has a statistically

significant long run impact on literacy rate in South Africa, while other variables do not have any effect on literacy rate. This result suggests that public spending on education in South Africa does not have any long-term effect on literacy rate. Also, this finding could be explained by inefficiencies that plague the education sector and have been the subject of much discourse in the country. With many dysfunctional schools and the inability of the country to fill and adequately train teaching staff, our results highlight the necessity of targeted interventions to improve outcomes. This result is consistent with a similar study by Uzonwanne et al. (2020) and Paul and Saha (2016) who reported insignificant long run effect of government education spending on adult literacy across different countries.

Table 4. ARDL Results

Variable	Coefficient	Standard error	t-statistic	Probability
Panel A: Long run effect				
GDPPC	2.4526**	0.9384	2.6135	0.0241
IMR	0.7498	0.6696	1.1198	0.2867
LE	0.4454	1.4891	0.2991	0.7704
PSE	1.4868	1.1690	1.2719	0.2296
SER	4.2367	4.2153	1.0051	0.3365
UNER	0.8729	0.6149	1.4195	0.1835
Panel B: Short run effect				
C	−1.3090***	0.1247	−10.4935	0.0000
D(GDPPC)	0.0159	0.0322	0.4933	0.6315
D(LE)	0.0106	0.1129	0.0939	0.9269
D (LE (–1))	−0.5196***	0.1165	−4.4584	0.0010
D(PSE)	0.1129**	0.0382	2.9568	0.0131
D(SER)	0.1500***	0.0402	3.7306	0.0033
D (SER (–1))	−0.1806***	0.0442	−4.0820	0.0018
D(UNER)	0.0136*	0.0073	1.8521	0.0910
D (UNER (–1))	−0.0463***	0.0078	–5.9421	0.0001
ECT (–1)	−0.0760**	0.0072	−10.5930	0.0000

Note: ***, ** and * indicate statistical significance at 1 %, 5 %, and 10 %, respectively. LR denotes the literacy rate, GDPPC is the gross domestic product per capita, PSE is the public spending on education, UNER represents the unemployment rate, IMR is the infant mortality rate, LE is the life expectancy at birth, and SER is primary school enrolment rate.

However, the analysis of the short run impact in panel B shows that public spending on education has a statistically significant effect on literacy rate. In particular, the report in Table 4 (panel B) shows that an increase in public spending on education by 1 % is likely to increase the rate of literacy in South Africa by 0.11 % in the short run. This finding is consistent with the prior expectation, as adequate funds would help to facilitate and improve capacity and school infrastructures. The results also show that a rise in current level of primary school enrolment rate by 1 % would cause the rate of literacy to rise by 0.15 %, while a

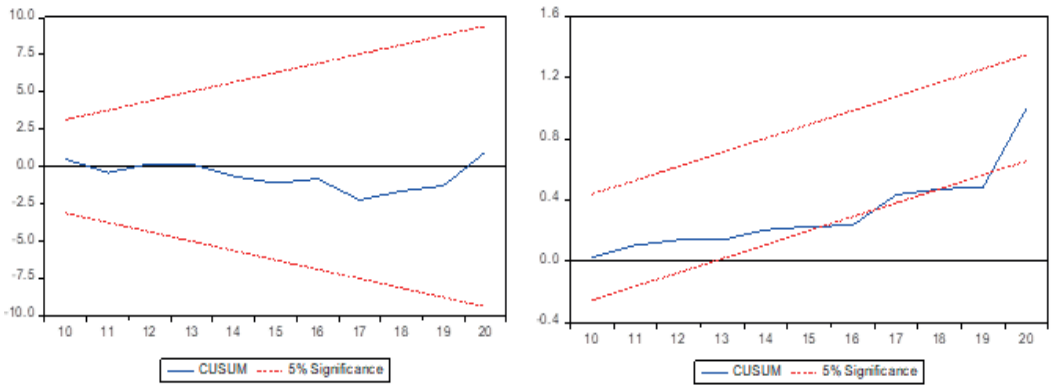
lagged value of the primary school enrolment has a negative effect on the rate of literacy. Also, it is shown that a rise in the lagged value of life expectancy and unemployment rate would cause a decrease in literacy rate. Furthermore, the error correction term (ECT) is negative and statistically significant as expected, which supports the evidence of long run relationship between the variables. The ECT coefficient of −0.076 indicates that approximately 7 % of the previous year's deviation is corrected in the current period. Lastly, the diagnostic test report in Table 5 shows that the model is free from autocorrelation, and heteroskedasticity and that the residuals are normally distributed.

Table 5. Diagnostic Test Results

Tests	Statistic	Probability
Q-stat (2)	5.3259*	0.0700
Q-stat squared (2)	0.2610	0.8780
Breusch-Godfrey LM test (2)	16.0371***	0.0003
Normality test	1.1549	0.5613
ARCH (2)	0.1737	0.9168

Note: ***, ** and * indicate statistical significance at 1 %, 5 %, and 10 %, respectively.

Also, the stability test based on the cumulative sum (CUSUM) and cumulative sum of square (CUSUM of Squares) indicates that the estimate model is stable (see Figs. 1(a) and (b)).



(a) Cumulative sum (CUSUM) (b) (CUSUM of Squares)

Fig. 1. Stability test.

CONCLUSIONS AND RECOMMENDATIONS

The importance of education to South Africa's economy is evident in the large allocation provided to the sector in relation to GDP. Though the country has consistently increased education spending, its literacy rates lag behind other countries who spend proportionally less. To this end, the study investigates the impact of education spending on the rate of literacy in South Africa using ARDL

model and annual time series data over the period of 1993 to 2021. The main findings of this study can by summarized into two parts. First, there is evidence of long run relation between government spending on education and literacy rate in South Africa. Second, while government spending on education does not have any significant effect on literacy rate in the long run, there is a positive statistically significant effect in the short run. These results provide insights into the dynamics of the relationship between the government spending on education and literacy as well as highlights the necessity of targeted interventions to improve outcomes. South Africa has a long history of national, provincial, and local governments mismanaging taxpayer funds, as evidenced by the frequent reports detailing fruitless and wasteful expenditure and multiple court cases where non-government entities sued the education department to provide better quality education. These issues, amongst others detailed in an earlier section, may be reducing the effectiveness of the education budget on literacy. Consequently, the study recommends the following: firstly, increased monitoring and evaluation mechanisms are desirable in the primary and secondary education sectors for accountability and reducing wastage of taxpayer funds; secondly, the Department of Education is encouraged to prioritize and re-consider current teacher training practices and fill long standing vacancies in the school sector that negatively impact education outcomes.

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