CORRUPTION, INSTITUTIONAL QUALITY, AND ECONOMIC GROWTH IN SOUTHERN AFRICAN DEVELOPMENT COMMUNITY (SADC) COUNTRIES

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ABSTRACT

Theories positing that corruption can either grease or clog the wheels of processes leading to economic progress have made the effect of corruption on growth uncertain across economies. In light of the ongoing debates concerning this phenomenon, the current study evaluates the economic growth effects of corruption. It incorporates institutional quality as a moderating factor within the growth-corruption nexus in Southern African Development Community (SADC) countries between 1980 and 2020, utilising the pooled mean group (PMG) estimation method. The results demonstrate a detrimental influence of corruption perception on growth. Conversely, the impact of corruption on GDP shifted direction when government effectiveness and voice accountability were accounted for in the analysis. The findings also reveal that the institutional quality indicators have a disparate moderating effect on the growth-corruption nexus. This result underscores the necessity for SADC governments to consider and treat institutions separately in the economic growth-corruption policy discourse. More so, the empirical results indicate that employment and inflation negatively impact economic growth while trade openness and political stability positively impact it.

Keywords: Corruption, Institution Quality, Economic Growth, Pooled Mean Group, SADC Countries.

JEL Classification: B22, C01, D73, F63, O3

1. INTRODUCTION

The effect of corruption on economic growth and development worldwide has been a subject of considerable scholarly discourse and ongoing debate. The proposition of potentially efficient corruption remains contentious within policy spheres, reflecting a dichotomous perspective in the academic literature regarding the effects of corruption. Proponents (Leff, 1964; Nye, 1967; Huntington, 1968; Friedrich, 1972; Lui, 1985) of corruption posit that it benefits economic growth, mainly at low incidence levels, by circumventing cumbersome bureaucratic regulations. At the same time, critics (Myrdal, 1968; Murphy, Shleifer &Vishny, 1993) of corruption maintain that it is a substantial deterrent to investment and economic development. Furthermore, Mauro (1998), Tanzi and Davoodi (1998), and Gupta et al. (2002) posit that corruption impedes growth by redistributing government spending towards less productive activities. More so, Ackay (2006) advocates that corruption is symptomatic of significant institutional deficiencies, resulting in suboptimal social and political outcomes.

In addition, international organisations consider corruption a significant hindrance to economic development. For example, the World Bank claims that corruption deters the capacity of governments to fulfil their mandates, the growth and employment potential of the private sector, the ability and zeal of individuals to make meaningful contributions, and the ability of societies to rise above poverty (Wei, 1999; World Bank, 2020). The International Monetary Fund (IMF) advocates that corruption impedes investment, constrains economic growth, and reallocates government expenditures, frequently with adverse consequences for long-term growth trajectories (Mauro, 1997). The United Nations Agency for International Development (USAID) (1999, 2022) also added that corruption undermines development by augmenting the financial burden on businesses and management costs of negotiating with officials. The preceding discourse reveals a lack of consensus regarding the relationship between corruption and economic growth. Consequently, the effect of corruption on economic expansion cannot be definitively ascertained prior to empirical analysis. This underscores the necessity for an

econometric analysis of the effect of corruption on growth within Southern African Development Community (SADC) countries for clear, functional, and effective growth-corruption and anti-corruption policies in the region, shedding light on the mechanisms through which corruption hampers economic progress.

Corruption is defined as an act where public officials, including politicians and bureaucrats, violate formal rules of conduct to pursue their private gain, whether for wealth in bribes or political advantage (Heidenheimer, Johnston and LeVine, 1989; Khan, 1996; World Bank, 1999; Zvekic, 2002; Carr, 2009; Nita, 2018). In SADC, corruption has been a growing concern and developmental issue. It is described as a chronic disease, and no country in the region has been spared its negative impacts (de Sousa, 2015; Nsereko & Kebonang, 2005). Zvekic (2002), Ngulube (2007), and Nita (2018) identify several key determinants of corruption within the SADC region, encompassing government intervention, low public sector pay, population size, opaque regulatory frameworks, legal and procedural ambiguities, bureaucratic efficacy, leadership paradigms and the nature of punitive mechanisms. The SADC Secretariat (2022) reports that corruption persistently undermines the economic and social development within the region. Again, commentators (Nita, 2018; Bonga & Mahuni, 2018; Bonga, 2021) on corruption in SADC posit that corruption poses significant challenges to the economies of SADC countries by distorting market mechanisms, diverting resources from productive sectors and undermining the rule of law.

Despite implementing the 2001 SADC Protocol against corruption, designed to address corruption across private and public domains through prevention, detection, and prosecution, the region remains confronted with significant corruption challenges. An analysis by Transparency International (2019) demonstrated that most countries in SADC are classified as highly corrupt. This classification is substantiated by an average corruption perception index (CP) of 35.4, which is predominantly lower than the 50-point threshold indicative of reduced corruption and the global average CP of 44. About half of the SADC countries have recorded CP scores below the SADC average (35) in 2020. These include Angola (27), Comoros (21), Democratic Republic of Congo (DRC) (18), Eswatini (33), Malawi (30), Madagascar (24), Mozambique (25), Zambia (33), and Zimbabwe (24) (Global Economy Data (GED), 2020).

Countries like Malawi, Madagascar, and Mozambique have experienced a decline in their CP scores between 1980 and 2020. For instance, Mozambique experienced an 8-point decline in its CP score, moving from 31 in 2021 to 23 in 2018 (Transparency International, 2019). This was exacerbated by rising abductions of political analysts and investigative journalists, fostering fear that undermines anti-corruption efforts. Again, Lesotho has significantly declined CP over the last few years, from 49 to 41 in 2020. This can be explained by executive meddling in autonomous institutions, as demonstrated by the stand-off between the police and the military.

Nonetheless, other SADC countries have been showing progress. For example, with a score of 66, Seychelles earned the highest mark in the SADC region, followed by Botswana (60), Mauritius (53) and Namibia (Tranparency International, 2019). Again, South Africa (44) and Tanzania (38) are important countries to watch, given some promising political developments following additional steps, such as citizen engagement on social media, to address anti-corruption.

Notably, some SADC member states, characterised by elevated corruption levels, exhibit higher GDP per capita than those with lesser corruption. For example, in 2020 DRC, with a CP score of 18, has an average GDP per capita of US$487.43, yet Madagascar, with a CP score of 24, has recorded a GDP per capita of US$433.84 (GED, 2020). Again, as for high CP scorers, Botswana has a CP score of 60 with a GDP per capita of US$5810.90, while Mauritius has a CP score of 53 with a GDP per capita of US$9362.87 (GED, 2020). This highlights the need to critically assess the economic growth effects of corruption on economic growth in Southern Africa.

Within the corruption and growth discourse, several studies (Mustapha, 2014; Huang, 2016; Ahmad & Arjumand,2016) have focused on the direct influence of corruption on economic development. However, some researchers have redirected their focus toward confounding factors that challenge the validity of findings from conventional empirical studies. For example, Méon and Sekkat (2005) and Aidt, Dutta, and Sena (2008) advocate that the effect of corruption on economic growth depends upon the political regime that oversees the economy. Moreover, international supranational entities, including USAID and the World Bank, advocate that corruption primarily originates from inherent institutional characteristics of a state's approach to formal political processes (World Bank, 1997; USAID, 1999). These include the state's comprehensive authority, creating opportunities for corruption, and minimal accountability mechanisms, lowering the disincentive for corrupt practices (USAID, 1999; Bajpai & Myers, 2020). This underscores the pivotal role of institutional quality in moderating the interplay between economic growth and corruption in a specific economic context.

Generally, institutional quality in developing economies such as SADC is considered weak (Malindini, 2021; Mbuyi & Mulumba, 2022). Most SADC countries are still facing challenges in political stability, government effectiveness, and voice accountability (Mpenjane & Ndebele, 2023). Nonetheless, the quality differs across the region (Rubidge, 2023). Countries like Botswana, Namibia, South Africa, Mauritius, and Seychelles have improved government effectiveness and voice accountability (Armah, 2015; Bekana, 2023). Yet, the remaining countries are still experiencing deficient quality institutions. Thus, given the idea that institutional quality can influence the effects of corruption, considering institutional quality in the growth-corruption relationship is essential for adequate growth policies in SADC countries.

Notwithstanding the documented prevalence of high corruption within SADC economies (Bonga, 2021) and their low indices of institutional quality (Malindi, 2021), select SADC countries have experienced positive trajectories in GDP per capita growth. This poses the question of whether corruption is adverse or advantageous and whether its effect is conditional upon the calibre of institutions. Thus, following Méndez and Sepúlveda (2006) and Heckelman and Powell (2010), the current study considers political stability and government effectiveness as critical institutional quality indicators moderating the corruption and growth relationship in Southern Africa.

The current study utilises the panel Autoregressive Distributed Lag (ARDL) estimation technique (Pesaran, Shin & Smith 1999; Emara, 2020; Mateko & David, 2022) to analyse and provide insight into the long-term relationship between corruption and economic growth across SADC economies. Quantifying the impact of corruption on economic growth enables policymakers to strategically prioritise anti-corruption interventions and optimise resource allocation. The findings of the current paper provide significant implications that highlight the urgency for SADC countries to prioritise anti-corruption efforts as a foundational pillar of their economic prosperity and developmental blueprints. Ultimately, by curbing corruption and promoting transparency, accountability, and good governance, SADC countries can unlock their full potential for sustainable development and enhance citizen well-being.

The ensuing section establishes the theoretical underpinning and reviews empirical evidence concerning the corruption-growth nexus. Subsequently, the third section details the data methodology employed to analyse the impact of corruption on economic growth in SADC economies. The empirical findings are then analysed and discussed in the fourth section, with the final section presenting the conclusions, policy implications and recommendations.

2. LITERATURE REVIEW

The existing literature reveals contrasting theoretical viewpoints regarding the association between corruption and economic growth, with some arguments positing a positive impact on efficiency and others asserting a detrimental effect. Advocates (Leff 1964; Leys, 1965; Nye 1967; Huntington 1968; Friedrich 1972;

Lui, 1985) of the efficiency-enhancing approach posit that corruption can augment allocative efficiency by streamlining bureaucratic procedures. This grease-the-wheels theory suggests its utility lies in bypassing restrictive regulatory and administrative impediments. Again, corruption improves efficiency by introducing competition for scarce government resources, which results in services being provided more efficiently than they otherwise would have been. The grease-sand wheel hypothesis posits that corruption can expedite processes within dysfunctional administrative systems, potentially yielding positive outcomes. (Leff, 1964). Again, with corruption, government employees who take bribes work harder, mainly when the bribes act as a commission (Leys, 1965). Additionally, Lambsdorff (2002) supports the grease-the-wheels hypothesis, arguing that corruption can amplify financial sector efficiency and economic growth by incentivising resource competition and circumventing bureaucratic constraints, particularly within autocratic regimes.

Conversely, a divergent viewpoint, exemplified by Murphy et al. (1993), contends that corruption creates rather than corrects inefficiencies and further posits that it imposes supplementary costs within compromised institutional frameworks. Proponents of the efficiency-reducing perspective (sand-the-wheels theory), including McMullan (1961), Myrdal (1968), Krueger (1974), Mauro (1995), and Tanzi and Davoodi (1998) argue that corruption impedes the efficacy of commercial and business operations. Thus, in turn obstructs economic growth and leads to a misallocation of resources (Akçay, 2006). Aidt (2009) similarly contends that corruption likely contributes to unsustainable long-term development trajectories.

Again, Murphy et al. (1993) posit that corruption is costly for economic activity as it exhibits increasing scale returns. In alignment with the sand-the-wheel hypothesis, Mauro (1995) postulates that corruption impedes growth through incentivising private investments. This subsequently precipitates a reallocation of government resources, notably a diminution in educational expenditures. Consistently, Tanzi and Davoodi (1998) and Carr (2009) postulate that corruption diverts resources to rent-seeking activities, yielding no commensurate societal benefits. Consequently, rent-seeking behaviours become comparatively more incentivised in environments characterised by elevated corruption than productive endeavours, resulting in the former's disproportionate growth relative to aggregate output (Cooray & Schneider, 2018).

The current study integrates institutional quality into the analysis of the growth-corruption nexus. Consequently, the New Institutional Economics (NIE) (North, 1990) provide the theoretical underpinning for explaining this relationship. The NIE theory highlights the crucial influence of institutions, including the rule of law and government effectiveness, on shaping economic outcomes. It theorises that institutions determine the costs of transacting and producing, and effective institutions reduce the costs, fostering economic growth. Thus, corruption in this theory represents a breakdown or inefficiency in these institutional frameworks. This aligns with Meon and Sekkat (2005), who posit that weak institutional frameworks magnify the cost of corruption. This highlights the significance of institutional quality in the growth-corruption nexus. The subsequent section presents a comprehensive examination of the extant empirical literature on the effect of corruption on economic growth.

2.1 Empirical literature

Empirical studies on the impact of corruption on economic growth focused on the direct effects, and the majority are in consensus that corruption detrimentally impacts economic development. For instance, Thach, Duong, and Oanh (2017) utilised the differenced general methods of moments (DGMM) to analyse the relationship between corruption and economic development in 19 Asian countries between 2004 and 2015. The study reveals that corruption hinders growth in this region; however, this effect is nuanced, as low corruption levels may foster growth, while high levels prove detrimental. Employing two-stage least squares (2SLS) analysis, Alfada (2019) further corroborates this by demonstrating that corruption adversely affects growth in Indonesia between 2004 and 2015. Consistently, Gründler and Potrafke (2019) posit that increasing corruption

reduces real per capita GDP by around 17% in 175 countries between 2012 and 2018. Again, the FM-Ordinary Least Squares (OLS) analysis by Spyromitros and Panagiotidis (2022) indicate an adverse impact of corruption on economic development in 83 developing economies.

While the consensus points to corruption having a deleterious effect on economic expansion, alternative studies maintain that its influence is not uniformly negative. For instance, Ibrahim and Okunade (2015) used the vector autoregression (VAR) analysis to assess the impact of corruption on economic growth between 1980 and 2013. The study demonstrates that corruption positively influences Nigeria's output, albeit with a skewed distribution of benefits favouring the wealthy. Again, the positive effect of corruption was found in Asian economies. For example, Huang (2016) employed the panel Granger causality method to assess the impact of corruption on economic growth in 13 Asian Pacific countries between 1997 and 2013. The results reveal a significant positive causal link from corruption to economic growth. An analysis by Trabelsi (2021) on 65 countries between 1987 and 2011 revealed that the influence of corruption on economic growth is non-linear. Specifically, economic growth appears to be enhanced at moderate levels of corruption but declines when corruption is either exceptionally low or exceedingly high.

The literature concerned with the direct relationship between growth and corruption frequently posits a linear association between these variables. Those that consider the impact of institutional quality posit that corruption is regime-dependent, wherein countries are stratified into varying growth-corruption dynamics, conditioned by the strength of their political institutions. For example, the findings of Mendez and Sepulveda (2006), Aidt, Dutta, and Sena (2008), Méon and Weill (2010), Heckelman and Powel (2010), and Malaski and Povoa (2021) converge on the conclusion that the impact of corruption on growth is contingent upon governance level, manifesting as detrimental in well-being governed countries and potentially beneficial in poorly governed ones. Again, Ebben and de Vaal (2009) analysed the effect of institutions on the relationship between corruption and economic growth. The study suggests that corruption may facilitate growth in contexts characterised by underdevelopment institutions.

Nevertheless, the impact of institutional quality is not the same for Meon and Sekkat (2005), who assessed whether corruption greases or sands the wheels of growth using the interactive effects of the quality of institutions and corruption. The study suggests corruption typically exerts a deleterious impact on investment and development, especially within economies characterised by suboptimal institutional structures, thus corroborating the converse sand-the-wheels hypothesis.

Contemporary research challenges the universal significance of institutional quality in the growth-corruption relationship. For example, Osabiyi, Aiyegbusi, and Olofin (2019) analysed the nexus of corruption, institutional quality and economic growth in Western African economies (1995-2017). The study determined that although corruption exerts an adverse effect on economic development, institutional quality has not demonstrated a significant moderating effect on this relationship within the region.

Studies (Bonga & Mahuni, 2018; Frimpong et al., 2019; Kasuni et al., 2020) in SADC have considered short periods of less than 20 years. Again, other studies, such as Chamisa (2020) and Kasuni, Makoto, and Nyoni (2020), assessed the effect of corruption on foreign direct investment (FDI) and economic development. Bonga and Mahuni (2018) analysed the effect of doing business and corruption perception on economic growth measured by the gross domestic product of African Free Trade Zone (AFTZ) member states, including SADC, Common Market of Eastern and Southern Africa (COMESA), and East African Community (EAC), between 2010 and 2016. The pooled OLS indicates that corruption is detrimental to growth in AFTZ member states. However, the fixed effects analysis by Frimpong, Lazarova, and Gyamerah (2019) suggests that proactive institutions enhance the beneficial impact of anticorruption policies on economic growth in 14 SADC economies between 2001 and 2015.

Chamisa (2020) examined the effect of corruption perception on FDI in 15 SADC economies from 2000 to 2016. The study demonstrates that corruption chases investors who become reluctant to invest when its prevalence is high. Kasuni et al. (2020) examined the effectiveness of corruption (control of corruption) on economic growth measured by GDP per capita in SADC between 2000 and 2004. The study suggests that corruption deteriorates economic growth, and increased control of corruption improves economic growth. Bonga (2021) explored corruption in the SADC bloc between 2008 and 2019. The study indicates that prevailing and exhaustive scandals in almost all SADC countries suggest that the SADC economies are corrupt.

Studies (Bonga & Mahuni, 2018; Frimpong, Lazarova, & Gyamerah, 2019; Kasuni et al., 2020) examining the growth effects of corruption confined their analysis to the short-term and direct effects employing OLS, fixed, and random effects estimation techniques. This methodological limitation challenges the premise, well established in theoretical literature, that failing to account for interdependencies between corruption and economic growth may lead to theoretical ambiguity (Ebben & de Vaal, 2009). The periods of study for studies conducted in SADC were concise. Indeed, Bonga and Mahuni (2018) recommended that future studies have a wider data span to appreciate other factors that may come up.

Furthermore, the abovementioned theories and empirical literature demonstrate a lack of consensus regarding corruption's effect on economic growth. More so, other empirical studies suggest that the effect of corruption on economic growth is contingent upon the quality of institutions, specifically political stability, which empowers citizens to elect and recall their leaders. Yet, controversies persist, as some studies highlight that low-quality institutions may amplify the beneficial effect of corruption on growth. Conversely, some scholars assert that both strong and weak institutional frameworks augment the detrimental impact of corruption on economic expansion. This dichotomy underscores the importance of assessing how institutional quality moderating the growth-corruption nexus within the SADC region. Therefore, an analysis of the long run and moderating effects of institutional quality on the corruption-GDP nexus within the SADC region is essential. Consequently, the current study tests the three hypotheses as follows:

***H_0**: Corruption negatively influences economic growth in SADC countries*
***H_1**: Corruption positively impacts economic growth in SADC countries*
***H_2**: Institutional quality moderates the economic growth-corruption nexus in SADC countries.*

The subsequent section delineates the methodology, data, and model utilised to empirically assess corruption's effect on economic growth in Southern African countries.

3. DATA AND METHODOLOGY

This section delineates the methodological framework employed in the current study. It describes the dataset, variables, empirical model and estimation methods.

3.1 Data description

The methodology employed in this study seeks to instrument for corruption in a regression explaining economic growth using trade openness, inflation, employment, and foreign direct investment as control variables. The paper also considers institutional quality (ins) indicators (political stability, government effectiveness, voice accountability) as the interaction variables in the growth-corruption nexus. Empirically, this research centres on SADC countries, assessing the long-term effect of corruption on economic growth and the moderating effect of corruption. The study used secondary data for 16 SADC countries (see Appendix 3) collected from the World Bank, World Integrated Trade Solution (WITS), and the Global Economy Database between 1980 and 2020. The annual growth rate of real GDP per capita (GDPPC) serves as the proxy for the dependent variable, economic growth. The GDPPC is used as it reflects the economy's well-being, capturing total economic output relative to population, and indicating changes in living standards (Ahmad &Arjumand, 2016).

Corruption is measured by the Corruption Perception Index (CP) (Lucici et al., 2016), which assigns scores ranging from 0 to 100. A score of 100 implies a clean country, whereas a low score of 10 represents a corrupt nation (Transparency International, 2022), which signifies a high level of corruption. The CP was used as the optimal indicator of corruption in Mendez and Sepulveda (2006), Ahmad and Arjumand (2016), and Spyromitros and Panagiotidis (2022).

The current study uses the dynamic heterogeneous panel data analysis technique, which controls endogeneity and heterogeneity bias. Moreover, the estimation technique facilitates both long and short-run analyses of the relationship between corruption and economic growth per capita. The panel ARDL estimation technique offers three distinct estimation techniques; however, the pooled mean group (PMG) method is selected for this analysis due to its enhanced informational yield relative to the dynamic fixed effects (DF) and mean group (MG) estimators. However, the Hausman test determines the appropriate estimation approach.

3.2 Model formulation

The study model is adapted from the framework of Mustapha (2014), who assessed the impact of corruption on GDP per capita using the pooled and fixed effect estimation techniques from 2003 to 2011. Their model was specified as:

$$GDP\ per\ cap = \beta_0 + \delta_0 y_{11} + \beta_1 Corruptionindex + \beta_2 foreigninv + \beta_3 bankloan + a_0 + \mu \ldots \ldots (1)$$

Where:

GDP per capita is a function of corruption, foreign investment, and bank loans. The present study aims to analyse the impact of corruption on economic growth in SADC countries and the moderating influence of institutional quality on this relationship. Consequently, the empirical model for the current study is specified as:

$$lgdppc_{it} = \beta_0 + \theta lgdppc_{it-1} + \beta_1 lcp_{it} + \beta_2 ilns_{it} + \beta_3 lcp * lins_{it} + \beta_4 X_{it} + w_i + v_t + \varepsilon_{it} \ldots \ldots (2)$$

Where:

$lgdppc_{it}$ denotes economic growth as measured by the gross domestic product per capita and is the dependent variable. lcp denotes the corruption perception index, the main explanatory variable. X_{it} denotes the control variables, including, real trade openness (rto), foreign direct investment(fdi), employment (emp), and the inflation rate($infl$). $lins_{it}$ represents the institutional quality, and it is the interaction variable. Given that the GDP per capita (*gdppc*) is the outcome variable (Equation 2), the interaction term can be expressed as:

$$lgdppc_{it} = \beta_1 lcp_{it} + \beta_3 (lcp_{it} * lins_{it}) \ldots \ldots (3)$$

Thus, the impact of corruption on economic growth, conditioned by institutional quality, is formulated as:

$$\frac{\partial lgdppc}{\partial lcp} = \beta_1 + \beta_3 * lins_{it} \ldots \ldots (4)$$

Where:

β_1 represents the coefficient of the main effect of corruption on economic growth and β_3 is the coefficient of the interaction term, which shows how the effect of corruption on economic growth changes when institutional quality changes.

As the current study utilises the panel ARDL approach, the economic growth-corruption model (Equation 2) is reparameterised to yield an ARDL (p, q……q) model as:

$$\Delta lgdppc_{it} = \Omega_i\left[lgdppc_{i,t-1} - \psi_i lcp_{it} - \partial_i lins_{it} - \xi_i lcp * lins_{i,t} - \varphi_i X_{it}\right] + \sum_{j=1}^{p-1}\phi_{ij}\,\Delta lgdppc_{i,t-j} + \sum_{j=1}^{q-1}\beta_{ij}\,\Delta lcp_{i,t-1} + \sum_{j=1}^{q-1}\vartheta_{ij}\,lins_{,t-1} + \sum_{j=1}^{q-1}\varsigma_{ij}\,\Delta lcp * lins_{i,t-1} + \sum_{j=1}^{q-1}\lambda_{ij}\,\Delta X_{i,t-1} + \omega_i + \varepsilon_{it}$$
……………………………………………..……… (5)

Where:
$lgdppc_{it-j}$ is the lagged variable of economic growth for country i at time *t* measured by GDP per capita. Ω_i is the speed of adjustment. lcp_{it} is the main regressor. ψ_i, ∂_i , ξ_i and φ_i denote the long-run equilibrium vectors. $\left[lgdppc_{i,t-1} - \psi_i lcp_t - \partial_i lins_{it} - \xi_i lcp * lins_{i,t} - \varphi_i X_{it}\right]$ is the convergence adjustment term, which incorporates the model's long-term equilibrium dynamics. The Error Correction model (ECM) incorporates a differential operator on the outcome variable. Consequently, differencing the ARDL model leads to reduced effective lag length (Kripfganz & Schneider, 2023). Thus, the lag length becomes p-1 and q-1. ϕ_{ij}, β_{ij}, ϑ_{ij}, ς_{ij} , and λ_{ij} are short-term coefficients. ω_i is the individual-specific effects and ε_{it} represents the error term.

The institutional quality $(lins_{it})$ variable is measured by political stability (pls), government effectiveness (gve), and voice accountability (vac). The political stability index measures the perceived risk of government destabilisation, including political violence and terrorism (Global Economy Database (GED), 2020). Government effectiveness (Huynh, 2021) encompasses the quality of public services, policy execution and government credibility, along with their political independence. Voice accountability (Bawuah, 2024) captures perceived citizen participation in government selection, freedom of association, and media freedom.

Other explanatory variables (X_{it}) include real trade openness (rto), foreign direct investment (fdi), employment(emp), and the inflation rate $(infl)$. FDI is quantified as a percentage of the annual GDP, which is computed by subtracting disinvestment from net foreign investment and subsequently divided by GDP. Employment represents the economically active population aged 15 to 64, irrespective of citizenship. The inflation rate is the percentage change in the aggregate price level of consumer goods and services, as reflected by the Consumer Price Index (CPI) (Hassoun, 2011). Trade openness is the annual percentage of total trade (exports plus imports) relative to Purchasing Power Parity GDP.

The selection of the pooled mean group (PMG) estimation method for the current study is substantiated by its inherent methodological design. This estimator facilitates the estimation of a distinct regression model for each individual observation, averaging the resulting coefficients across countries (Pesaran, Shin &Smith, 1998). It allows heterogeneity in short-run coefficients, error terms, and intercepts across individual units while imposing homogeneity of long-run coefficients (Pesaran et al., 1999). Consequently, the Hausman (1978) test (H-test) is used to evaluate the heterogeneity's effect on mean coefficients across MG (Pesaran & Shin, 1995), DFE (Weinhold, 1999) and PMG estimators PMG (Pesaran, Shin & Smith, 1997) and thus to select the suitable estimator. The null hypothesis posits no significant difference between MG/DFE and PMG estimates, implying PMG efficiency under null. The next section commences with the presentation of descriptive statistics, correlation coefficients, and stationarity tests before presenting the empirical results of the current research.

4. EMPIRICAL RESULTS

Table 1. Summary statistics

Variable	Obs.	Mean	Std. Dev.	Min	Max	Source	A priori	Literature
gdppc	627	1.30	4.73	-26.41	18.10	GED		(Ahmad & Arjumand ,2016)
cp	288	35.35	12.60	15	66	GED	+	(Mendez & Sepulveda,2006)
rto	635	43.63	26.50	2.06	143.05	WITS	+	(Spyromitros & Panagiotidis, 2022)
fdi	629	3.14	5.23	-7.04	57.84	GED	+	(Malanski & Povoa, 2021)
emp	628	5.40	6.24	.031	29.84	WB	+	(Spyromitros & Panagiotidis, 2022)
infl	640	83.97	981.40	-72.7	23773.1	WB	-	(Trabelsi,2021)
pls	352	-.11	.83	-2.84	1.28	GED	+	(Malanski & Povoa, 2021)
vac	352	-.27	.73	-1.73	1.01	GED	+	(Meon & Weill, 2008)
gve	352	-.49	.74	-1.88	1.06	GED	+	(Osabiyi et al. 2019)
Note: GED-Global Economy Database; WB-World Bank; (+) -positive; (-)-negative								

The descriptive statistics presented in Table 1 reveal a mean GDP per capita growth rate of 1.3% between 1980 and 2020. The average CP is 35.3, which is very low and lower than 50. This implies that SADC countries exhibit high levels of corruption. Indeed, a low CP, signifying pervasive corruption, is empirically associated with a reduced GDP per capita. The maximum CP is 66, recorded in Seychelles, while the minimum is 15, recorded in the DRC. With the institutional quality indicators ranging from -2.5 (weak) to +2.5 (strong), the mean values for political stability (-0.11), voice accountability (-0.27) and government effectiveness (-0.49) are notably negative. These figures highlight a prevailing deficit in institutional strength in the SADC region. Table 1 also indicates that the average trade, foreign direct investment, employment, and inflation rate were 44%, 3.1%, 5.4%, and 84%, respectively. This implies a less open economy with less FDI, lower employment, and a higher inflation rate. The summary statistics show considerable variability, reflected in the large standard deviations for all variables, thus validating the use of regression analysis to examine the relationship between corruption and SADC growth.

Table 2. Correlation coefficient

	lgdppc	lcp	lfdi	lrto	linfl	lemp	lpls	lgve	Lvac
lgdppc	1.0000								
lcp	0.1203	1.0000							
lfdi	0.1824	0.1769	1.0000						
lrto	0.0629	0.3489	0.0837	1.0000					
linfl	0.0675	-0.103	0.0485	-0.070	1.0000				
lemp	-0.088	-0.592	-0.055	-0.452	0.1570	1.0000			
lpls	0.1892	0.7641	0.1608	0.2240	-0.038	-0.633	1.0000		
lgve	0.1355	0.8815	0.1222	0.3168	-0.075	-0.444	0.7835	1.0000	
lvac	0.1470	0.8208	0.1647	0.1261	-0.023	-0.399	0.7911	0.8703	1.0000

Table 2 shows a direct association between CP and per capita GDP. Additionally, the correlation matrix indicates that the independent variables (fdi, rto, infl, and emp) have correlation coefficients below 0.8. This suggests that the variables do not exhibit a stronger linear relationship. Consequently, independent variables can be used in the regression model simultaneously since they passed the correlation coefficient test. However, given

the high correlation observed among the institutional quality variables, indicating significant linearity, these variables are excluded from simultaneous inclusion in the regression model to avoid multicollinearity.

4.1 Stationarity tests

The paper tests for stationarity to determine the order of integration and assess whether cointegration is possible. Thus, the paper employs the Im, Pesaran and Shin (2003) , Levin, Lin and Chu (LLC) (2002) and the Augmented Dickey-Fuller (ADF)(Kao, 1999) unit root tests presented in Table 3.

Table 3. Unit root test results

Method	**Levin, Lin and Chu**		**Im, Pesaran and Shin**		**Augmented Dickey-Fuller**	
Differencing order	1(0)	1(1)	1(0)	1(1)	1(0)	1(1)
Variable	t-statistic	t-statistic	t-statistic	t-statistic	t-statistic	t-statistic
lgdppc	-4.747	-15.19***	-8.717	-14.64***	-12.515	-26.683***
lcp	-	-	-1.4504	-7.167***	-1.7422	-11.618***
Lrto			0.1928	-10.636**	0.5794	-8.4632**
Linfl	-2.6888**	-15.527**	-5.5139*	-16.276**	-4.900**	19.0415**
Lfdi	-	-	-6.3623**	-17.445**	-3.1806	-19.3000**
Lemp	-	-	12.1719	-12.585**	8.1151**	-5.5533**
Lpls	-2.0530**	-6.166***	-3.549***	-9.454***	-5.1426***	-17.565***
Lgve	-2.287***	-7.532***	-2.1541**	-9.040***	-3.6224***	-16.448***
Lvac	-0.8077	-7.054***	1.2927	-7.390***	1.1767	-11.793***
p<0.01, p<0.05***, p<0.01*** *t-statistic: test statistic*						

Source: Author

Table 3 indicates that all variables exhibit stationarity after their first difference, a finding consistent across the three unit root tests. The regression model utilised in this study is an ARDL (1) model, as documented in Appendix I, and its specification was selected in accordance with the Akaike Information Criterion (AIC). Accordingly, with a common lag of 1 for the variables, except for FDI and voice accountability, which utilise a lag of 0, the panel ARDL coefficients are generated by a common ARDL (1, 1,1,1,1, 0, 1, 1, 0) model shown in Appendix 1 for all countries included in the analysis. The ensuing section presents the empirical findings of the current study.

4.2 Empirical findings

This section presents empirical findings on the impact of corruption on economic growth in Southern African economies (1980-2020). For analytical purposes, only the long-run coefficients are reported in Table 4. The short-term coefficients are available upon request. Model 1, serving as the baseline model, assesses the direct influence of corruption on economic growth, incorporating political stability as the primary institutional quality indicator. Subsequently, the association between corruption and economic growth is examined, with government effectiveness controlled for in Model 2 and voice accountability in Model 3. Models 4 to 6 outline the results regarding the impact of corruption on economic growth, contingent upon variations in institutional quality, precisely political stability, government effectiveness, and voice accountability. The Hausman test, yielding a statistically insignificant probability value, determined the PMG estimator as the current study's appropriate estimation technique. As shown in Table 4, the error correction terms (ECTs) for all models consistently exhibit negative and statistically significant coefficients. For instance, in Model 1, 73% of the short-run disequilibrium is corrected within one period, indicating the cointegration relationship among the variables under consideration.

Table 4. PMG long-run coefficients of impact of corruption on economic growth (1980-2020)

	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6
ECT	-0.732***	-0.678***	-0.823***	-0.648***	-0.703***	-0.641***
	(0.113)	(0.174)	(0.0872)	(0.119)	(0.135)	(0.150)
L.lcp	-2.098***	1.500***	0.828*	-0.914***	1.273**	1.182***
	(0.296)	(0.407)	(0.453)	(0.0981)	(0.613)	(0.259)
lfdi	-0.0601	0.0539	0.181***	0.446***	0.425***	0.307***
	(0.103)	(0.0468)	(0.0494)	(0.0539)	(0.123)	(0.0918)
L.lrto	0.701***	1.012***	0.471***	0.244	1.768***	1.551***
	(0.171)	(0.176)	(0.181)	(0.206)	(0.434)	(0.206)
L.linfl	-0.188	0.0313	-0.207***	0.0360	-0.522***	-0.729***
	(0.116)	(0.0579)	(0.0610)	(0.0562)	(0.0652)	(0.0691)
L.lemp	-2.687***	-5.500***	-4.133***	-0.498***	-0.451	-0.377*
	(0.364)	(0.368)	(0.400)	(0.102)	(0.279)	(0.195)
L.lpls	2.139***			11.72***		
	(0.200)			(1.745)		
L.lgve		0.536			-8.889**	
		(0.386)			(4.116)	
lvac			1.749***			-14.41***
			(0.479)			(3.958)
L.lcplpls				-3.087***		
				(0.428)		
L.lcplgve					2.170**	
					(0.947)	
L.lcplvac						3.751***
						(0.952)
Constant	9.205***	0.835	2.503*	3.540***	-2.390***	-1.686***
	(1.510)	(1.795)	(1.363)	(0.808)	(0.663)	(0.520)
Hausman p-values	1.000	0.9994	0.9966			
Observations	240	240	240	245	245	245

Note*: gdppc: economic growth measured by GDP per capita, cp: corruption perception index; rto: real trade openness; pls: political stability; emp: employment; infl: inflation; vac: voice accountability; gve: government effectiveness;fdi: foreign direct investment;*

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 4 (Model 1) reveals that a percentage increase in the perception of corruption is determined to contribute to a 2.1% decrease in economic growth ($p<0.01$), ceteris paribus. In other words, the result indicates that increasing corruption perception (reducing corruption) in the region is associated with diminished levels of long-term GDP per capita. The result accords with the grease-the-wheel proposition, which argues that corruption acts as a temporary, suboptimal mechanism to overcome obstacles to economic activity. The result is consistent with Huang (2016), who posits that higher levels of corruption contribute to economic growth in Asian countries.

The empirical results demonstrate that the impact of corruption on per capita GDP exhibits variability when different institutional quality indicators are controlled for. Thus, contrary to Model 1, Models 2 and 3 indicate that a 1% increase in corruption perception (a decrease in corruption level) leads to a substantial increase in economic growth, ranging from 0.83% to 1.5%, over the long term in SADC countries. Models 2 and 3 support the sand-the-wheel assertion. This result aligns with Ahmad and Arjumand (2016), Lučić et al.

(2016), Thach et al. (2017), and Alfada (2019), who suggest that economic growth improves in low corruption environments.

Table 4 reveals a positive association between trade and economic growth. Thus, a percentage increase in trade openness induces economic growth, with the magnitude of the effect ranging from 0.4% to 1,8%. This finding suggests that trade openness functions as a growth-enhancing factor for the SADC region. The result corroborates the research by Iyke (2017) and Keho (2017), who posit that openness to international trade is associated with increased GDP per capita.

While the benchmark model (Model 1) indicates that FDI and inflation are statistically significant, this finding is altered by the inclusion of voice accountability as a control variable in Model 3. Therefore, Model 3 shows that a 1% increment in foreign direct investment contributes to a 0.2% elevation in GDP per capita. The result aligns with Mustapha (2014), who suggests that FDI stimulates growth. This calls for SADC governments and policymakers to attract foreign investors to improve economic growth. More so, Model 3 demonstrates a statistically significant negative impact of inflation on economic growth in SADC economies. Correspondingly, a 1% increase is associated with a 0.2% attenuation of economic growth. The result accords with Mamo (2012), who suggests that inflation impairs economic growth in sub-Saharan economies.

Contrary to *a priori* expectations, Table 4 reveals that a 1% rise in employment decreases GDP per capita by 2.7%. This anomalous relationship could potentially be attributed to the substantial informality prevalent within the SADC labour market, where suboptimal working conditions, limited skills, and low productivity lead to unstable incomes, eventually reducing GDP per capita. Consistently, Adeleye and Eboagu (2019) noted a detrimental influence of employment on economic growth in African economies. who similarly observed a detrimental effect of employment on economic growth in African countries.

Again, the empirical findings demonstrate that a 1% increment in political stability induces a 2.1% rise in economic growth ($p<0.01$). This underscores the critical role of political stability in fostering increased economic output within the SADC region. This result is corroborated by Corovei and Socol (2019), who posit a significant positive relationship between political stability and economic progress.

Model 3 demonstrates that a one-percentage-point rise in voice accountability facilitates a 1.8% increment in long-term growth. This suggests that enhancing the voice accountability mechanism is a prerequisite for effective economic growth strategies in Southern African countries. The result is congruent with Tembo (2012), who indicates that voice accountability has favourable long-term impacts on inclusive growth and development.

Again, looking at interaction terms, the empirical findings show that corruption perception and political stability (see Model 4) impair economic growth. This demonstrates that political stability exacerbates the detrimental impact of CP on economic growth. Therefore, the negative interaction term substantiates the grease-the-wheels hypothesis, which posits that a reduction in corruption within politically stable contexts may impede economic growth. This result refutes Aidt, Dutta, and Sena (2008) and Malanski and Povoa (2021), who propose a substantial negative impact of corruption on economic growth in environments with high-quality political institutions. The result is not consistent with the *a priori* expectations. This could be ascribed to SADC's irregular flow of political trade with rigid or inefficient institutions, which allows for more corrupt actions that undermine economic efficiency and result in low output. This calls for SADC to mitigate corruption by monitoring political monopolism amongst government officials and politicians when addressing sustainable economic growth policies.

However, as for government effectiveness and voice accountability in models 5 and 6, the empirical results indicate that government effectiveness and voice accountability enhance the impact of CP (low

corruption) per capita GDP. This means that these two moderating factors enhance low corruption to increase economic growth. This result accords with the sand-the-wheel hypothesis. The result also corroborates Meon and Sekkat (2005), who suggest that weak governance inhibits economic growth. This result aligns with Heckelman and Powell (2010) and Malanski and Povoa (2021), who posit that strong institutions are potentially beneficial in developing economies. Thus, to mitigate the adverse effect of corruption on per capita income, the SADC economies should preserve and enhance more effective government efficacy and voice accountability.

The diagnostic testing, encompassing Durbin Watson, B-Godfrey, and White, revealed that two out of sixteen SADC countries exhibited evidence of serial correlation. Nonetheless, no evidence of heteroscedasticity was detected across the groups. To evaluate coefficient stability, the cumulative sum of the squares (CUSUMQ) test, based on Brown, Durbin, and Evans (1975), was employed (see Appendix 4). Appendix 4 confirmed parameter stability at the 5% significance level, demonstrating sufficient evidence of model stability.

5. CONCLUSION

The current paper examined the effect of corruption on economic growth across SADC economies over the period 1980-2020, using the PMG estimator. The findings of the study echo those obtained in various parallel works of literature. The empirical findings demonstrate that the effect of corruption on economic growth is disparate when different institutional quality indicators are controlled for. Specifically, controlling for political stability, an augmentation in the CP (reduced corruption) is empirically linked to a decrease in economic growth. Conversely, when accounting for government effectiveness and voice accountability, a rise in CP (indicating reduced corruption) positively contributes to long-run economic growth. This suggests that corruption is a significant source of concern in the region that needs to be carefully addressed since it has detrimental long-term effects. Again, the present study confirms that institutional quality significantly moderates the relationship between corruption and economic growth in South African countries.

The interaction term analysis reveals a statistically significant negative moderating effect of political stability on the empirically established relationship between corruption and economic growth. In contrast, the interaction terms involving corruption and government effectiveness, as well as corruption and voice accountability, exhibit a positive sign. This suggests that both voice accountability and government effectiveness augment the beneficial impact of reduced corruption levels on economic growth in SADC economies. These empirical findings provide the foundation for the policy implications and recommendations presented in the subsequent section.

5.1 Policy implications and recommendations

The counterintuitive finding that CP reduces economic growth when political stability is accounted for suggests the presence of underlying, or localised, political instabilities within the SADC region. In such a contest, informal corrupt networks may act as a greasing mechanism, enabling economic activity to persist despite inherent structural inefficiencies. The disruptions of these informal systems, without concurrently addressing the root cause of political instabilities, can thus lead to an economic contraction as alternative formal mechanisms are not yet robust enough to compensate. Therefore, the SADC member states should prioritise addressing localised conflicts, ensuring legal and regulatory predictability, and strengthening the political stability at all levels of governance. This involves investing in conflict prevention and resolution mechanisms, fostering inclusive political dialogue, and implementing reforms that build trust in public institutions.

The observed positive relationship between corruption perception and economic growth, when controlling for both government effectiveness and voice accountability, underscores the critical role of the mentioned institutional quality indicators in enabling corruption reduction to translate into positive long-run growth. It

implies that a well-functioning, responsive government, coupled with active citizen participation, creates the necessary conditions for transparency and accountability to foster a more efficient and productive economy. To leverage the positive relationship, SADC governments should prioritise sustained investments in strengthening public administration, optimising the efficacy of governmental service provision, and ensuring the rule of law. Additionally, efforts should focus on deepening mechanisms for voice accountability, such as safeguarding media freedom, empowering civil society organisations and promoting citizen engagement in governance processes.

The direct positive effect of political stability confirms that a stable political environment is a fundamental precondition for long-term growth, as it fosters a predictable climate for investment and economic activity. Thus, SADC governments should prioritise conflict reduction, uphold the rule of law and ensure peaceful transfers of power to cultivate a consistent, stable environment. Furthermore, the positive effect of voice accountability implies that inclusive governance leads to better policies and greater trust, which are conducive to economic development. Policy efforts should focus on strengthening democratic institutions, safeguarding freedom of expression and supporting independent media and civil society organisations to engender responsive policymaking and create a more transparent and predictable economic landscape. In light of the demonstrated positive relationship between government effectiveness and economic growth, the SADC governments should invest in professionalising the civil service and streamlining the bureaucratic process to enhance efficiency.

Regarding the interaction terms, the negative moderating influence of political stability on the corruption perception-economic growth nexus implies that in the contexts characterised by a veneer of political stability, anti-corruption efforts can exacerbate economic challenges. This suggests that in such environments, corruption might function as a grease for the informal system, and its alleviation without effective structural reforms in the broader political and economic architecture can disrupt existing, albeit illicit, economic flows. Thus, for SADC economies, anti-corruption campaigns in politically stable but institutionally fragile settings should be integrated with comprehensive reforms that enhance regulatory efficiency, protect property rights and formalise informal economic activities. This should be done by implementing gradual, sector-specific anti-corruption reforms alongside digitalising public service delivery to reduce discretion and provide explicit support mechanisms for business transition from informal to formal operations.

A positively signed interaction term of corruption perception and government effectiveness indicates that capable and efficient public administration creates the optimal environment for anti-corruption efforts to translate into tangible economic gains, as resources are reallocated more efficiently and investor confidence is bolstered. In doing so, the SADC governments should prioritise merit-based civil service recruitment and promotion and invest in training and resources for regulatory bodies to ensure consistent, transparent rule enforcement. This builds public sector capacity, directly translating reduced corruption into economic efficiency.

The positive moderating effect of voice accountability underscores that citizen participation, freedom of expression and robust oversight mechanisms are imperative for ensuring that anticorruption initiatives lead to better governance outcomes and, ultimately, greater economic prosperity. Thus, the policies should legally protect and actively support independent media and civil society organisations and establish secure, accessible channels for citizens to report corruption and provide policy feedback. This empowers public oversight and magnifies the economic benefits of transparency.

5.2 Limitations and areas of further research

The current research's focus on aggregate economic growth, while imperative, does not fully elucidate the distributional effects of corruption. Corruption can significantly worsen poverty and income inequality, even if aggregate GDP growth is maintained, by disproportionately affecting vulnerable populations and diverting resources from social welfare. Therefore, further studies should disaggregate the dependent variable to include

socio-economic factors such as income and non-income poverty measures and income inequality, at the country level

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Conflict of interest

The author declares no conflicts of interest

Appendices

Appendix 1. Lag length selection

Country	**lgdppc**	**lcp**	**rto**	**emp**	**fdi**	**linfl**	**lpls**	**lgve**	**lvac**
1. Angola	1	1	1	0	0	1	1	0	0
2. Botswana	1	1	1	0	1	1	1	1	1
3. Comoros	1	1	1	1	0	1	1	1	0
4. DRC	1	0	0	1	0	1	1	0	0
5. Eswatini	1	1	1	1	0	1	0	1	1
6. Lesotho	1	1	1	1	0	1	1	1	0
7. Madagascar	1	1	1	1	1	1	0	0	1
8. Malawi	1	1	1	1	0	1	1	1	0
9. Mozambique	0	1	0	0	1	1	0	0	1
10. Mauritius	1	0	1	1	0	1	1	0	1
11. Namibia	1	1	1	1	0	1	1	1	0
12. Seychelles	1	1	1	1	0	1	1	1	1
13. South Africa	1	1	1	0	0	1	0	0	0
14. Tanzania	1	1	0	0	0	1	0	1	1
15. Zambia	1	1	1	1	0	1	1	0	0
16. Zimbabwe	1	1	1	1	0	1	1	1	1
Optimal lag	**1**	**1**	**1**	**1**	**0**	**1**	**1**	**1**	**0**

Note: DRC _*Democratic Republic of Congo*

Source: Author

Appendix 3. Diagnostics

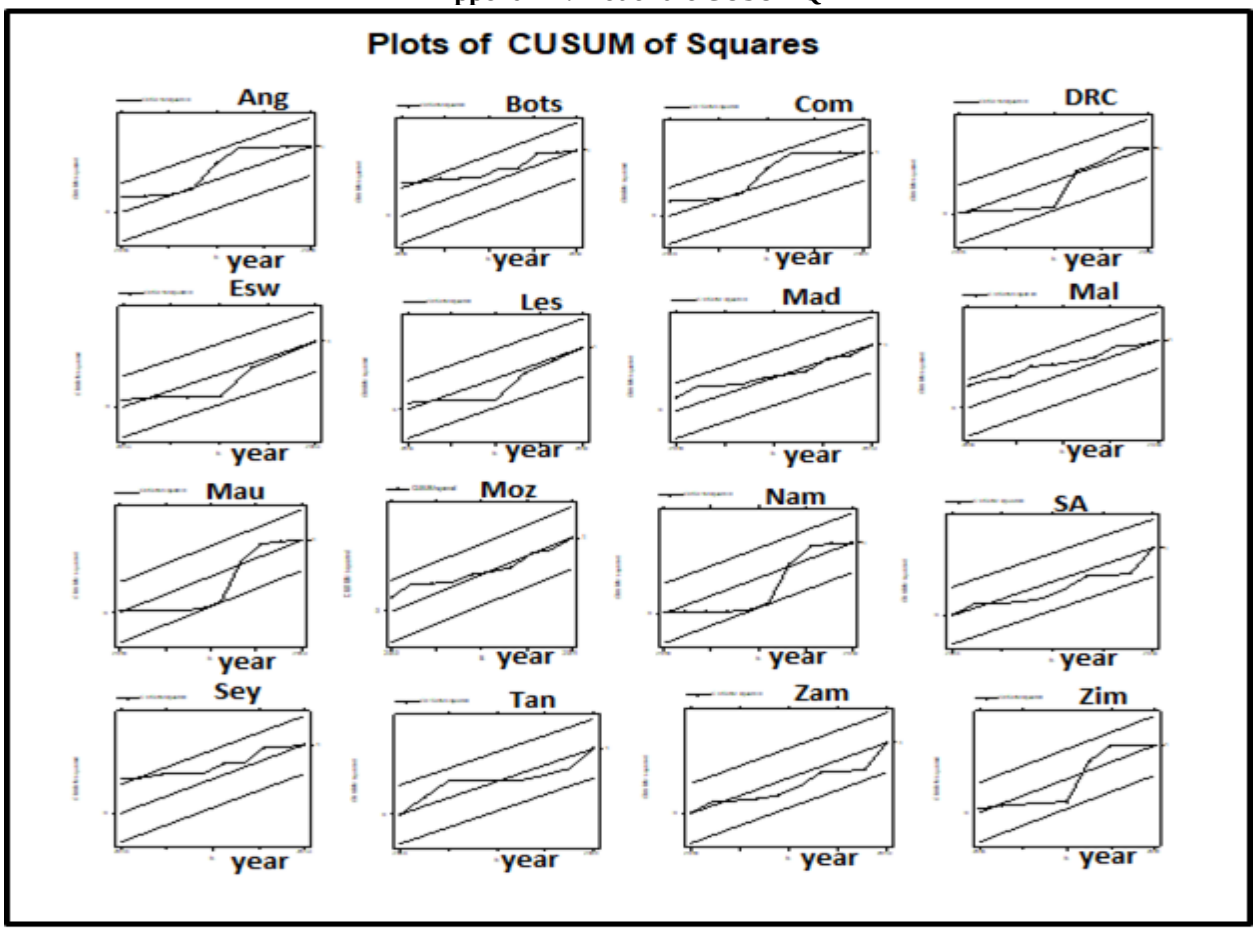
Group/Country	**Durbin-Watson**	**B-Godfrey**	**White**	**CUSUMQ**
1. Angola	2.8691	8.821	17.00	stable
2. Botswana	2.3224	2.003	18.00	stable
3. Comoros	2.3637	0.828	20.00	stable
4. DRC	2.1725	0.576	17.00	stable
5. Eswatini	1.9744	0.068	20.00	stable
6. Lesotho	2.2152	4.058	15.00	stable

7. Madagascar	2.9112	6.872	18.00	stable
8. Malawi	2.0000	0.020	18.00	stable
9. Mauritius	2.000	1.741	21.00	stable
10. Mozambique	2.1946	8.597	17.00	stable
11. Namibia	2.0000	2.302	18.00	stable
12. Seychelles	2.2756	3.594	21.00	stable
13. South Africa	2.1944	2.049	17.00	stable
14. Tanzania	2.4275	7.949	17.00	stable
15. Zambia	2.0853	0.586	18.00	stable
16. Zimbabwe	2.5315	3.395	17.00	stable

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: *Author*

Appendix 4. Plot of the CUSUMQ



Note: ***The straight lines represent critical bounds at the 5% level of statistical significance.***

Source: *Author*

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