

Regional economic integration, natural resources and foreign direct investment in SADC

Gameli Adika

*Department of Economics, University of Botswana, Gaborone, Botswana and
School of Economics, University of Cape Town, Cape Town, South Africa*

Economic
growth in
SADC

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Received 22 February 2021
Revised 1 May 2021
3 July 2021
Accepted 27 July 2021

Abstract

Purpose – This paper aims to examine the role of economic integration and natural resources and foreign direct investment (FDI) complementarity in explaining economic growth in the Southern African Development Community (SADC).

Design/methodology/approach – The study employed the ordinary least square-random effects and the generalized two-stage least square instrumental variables (IV) regression to examine the relationship between the variables.

Findings – The authors find that regional economic integration and natural resource abundance are essential for promoting economic growth. The results further show a potential resource curse phenomenon, offset by the complementary effect of FDI in resource-rich countries. The findings are robust after conditioning for different measures of institutional quality.

Practical implications – The findings suggest the need for deeper regional trade integration and international cooperation, prudent natural resource management and concerted effort toward economic diversification.

Originality/value – Many studies have examined the determinants of economic growth in the Southern African Development Community (SADC). However, these studies did not incorporate or assess the potential of economic integration in the region. Moreover, studies that examined the growth effects of FDI did not assess the complementary role of the region's natural resource endowment which potentially drives FDI inflows. This study fills these gaps and provides a robust analysis of economic growth drivers in the region.

Keywords Regional integration, Natural resources, Foreign direct investment, Economic growth, SADC

Paper type Research paper

1. Introduction

The continent of Africa provides the empirical space to examine existing economic growth models and the opportunity to unearth growth catalysts specific and endogenous to the region. Despite the tremendous potential for growth and development, with an endowment of vast reserves of mineral resources and substantial human capital, sustained economic growth and development that translate into poverty reduction and improvement in the quality of life remain a major challenge in most countries. Besides, increasing population growth and density, and resultant pollution poses a threat to the region's development and the global community. Moreover, climate change has emerged as a significant and increasing threat to development on the continent. Therefore, some have suggested that external resource inflows and international development aid for Africa are legitimate to enable the continent to mitigate and adapt to the threat of climate change for which the continent is least responsible and to promote sustained economic growth and development (Guillaumont, 2012).



Over the years, the potential of external resource inflows and international development aid for promoting economic growth and development in Africa and its sub-regions have been explored. Within the Southern African Development Community (SADC), external resource inflows such as foreign direct investment (FDI) have been touted as a critical driver of economic growth and development. Many empirical studies have observed that FDI enhances economic growth in the SADC region (Biyase and Rooderick, 2017; Moyo and Khobai, 2018; Olamide and Maredza, 2019). However, most SADC economies like most developing economies remain narrow and heavily dependent on rent from the export of natural resources. This phenomenon casts doubt on the potential and independent impact of FDI on economic growth and diversification and the channels through which FDI influences growth. Moreover, FDI inflows to the region are highly concentrated in the extraction sectors with greater inflows to resource-rich countries (Adika, 2020b). Figures 1 and 2 report the gross domestic product (GDP) growth trends and FDI inflows, respectively, in SADC from 1990 to 2018. The annual average GDP growth for resource-rich countries stands at 3.8% against 3.5% for resource-poor countries. Concurrently, annual average FDI inflows as a percentage of GDP to resource-rich countries stand at 3.8% against 1.9% for resource-poor countries. These statistics suggest that GDP growth in resource-rich countries corresponds positively with FDI inflows. However, it is not clear whether the higher growth rates in resource-rich countries are driven by either FDI inflows or natural resources or both.



Figure 1.
Trends in GDP growth
in SADC (1990–2018)

Source(s): Author's construction



Figure 2.
Trends in FDI inflows
to SADC (1990–2018)

Source(s): Author's construction

Thus, the SADC region includes resource-rich countries such as Angola, Botswana, South Africa, Tanzania, The Democratic Republic of Congo and Zambia. However, previous studies that have examined the potential of FDI to influence economic growth failed to capture the potential interdependence/complementarity between FDI and natural resources in promoting economic growth. [Figures 1 and 2](#) seem to suggest that FDI inflows to the region are driven by the availability of natural resources. Consequently, it is imperative to examine the interaction between FDI and natural resources and their potential implications for economic growth. Moreover, previous empirical growth regressions did not control for the region's natural resource endowments that constitute a significant driver of growth in most countries in the region. Another critical omission has been the failure to examine the potential impact of the regional economic integration, and in particular, the participation of member countries in the free trade area (FTA) on economic growth. These omissions create a critical gap and limit our understanding of the drivers of economic growth in the region.

Therefore, this paper attempts to examine the critical drivers of economic growth in the SADC region. We control for the potential growth effects of the region's endowments of natural resources. We also extend previous studies that examined the role of FDI in the region by examining the interaction between natural resource endowment and FDI. This allows us to understand the interdependence between FDI and natural resources and test the hypothesis that FDI inflows to the region is driven by the availability of natural resources. Besides, we also examine the impact of regional economic integration through the participation of member countries in the FTA on economic growth. The study makes two main contributions to the literature. First, the study provides empirical evidence on the impact of economic integration on economic growth. Second, we determine the contribution of the region's vast natural resource endowment to economic growth and the potential complementarity between natural resources and FDI inflows for promoting economic growth in the SADC region.

The empirical estimations reveal that regional economic integration enhances economic growth. We also found that natural resource endowment is essential for promoting economic growth in the region. Moreover, we observed that resource-rich countries showed the tendency to exhibit a resource curse phenomenon. However, with greater FDI inflows relative to their resource-poor counterparts, resource-rich countries on average report a slightly higher growth rate than their resource-poor counterparts. The results further suggest that FDI inflows may be largely resource-seeking in the region. The rest of the paper is organized as follows. [Section 2](#) presents a review of the empirical literature. [Section 3](#) presents the methodology and empirical models. [Section 4](#) presents the empirical analysis and discussions, and [Section 5](#) presents the conclusion and policy recommendations.

2. Review of empirical literature

Several studies have established a positive relationship between FDI inflows and economic growth. FDI inflows create employment opportunities and enhance productivity and innovation among indigenous firms in developing and transition economies ([Adeniyi et al., 2012](#); [Ahmed, 2014](#); [Alege and Adeyemi, 2014](#)), and promote technological diffusion and advancement through labor mobility between foreign and indigenous firms ([Alfaro et al., 2006](#); [Ozekhome, 2017](#)), which result in positive spillovers to the domestic economy. But, FDI has also been found to impede economic growth by crowding out domestic investment in some recipient countries ([Bermejo Carbonell and Werner, 2018](#)). The mixed results require that we examine pre-existing conditions and access their potential to impede or enhance the effectiveness of FDI in promoting economic growth in FDI recipients' economies.

Foreign aid, formally referred to as Official Development Assistance (ODA), has also been linked to economic growth in developing countries. Like FDI, the impact of ODA on economic growth is inconclusive. [Yiew and Lau \(2018\)](#) observed a U-shape relationship between foreign aid and economic growth, suggesting that ODA initially impacts economic growth negatively, but when effectively managed it could enhance growth in the long run. The authors, however, cautioned that overdependence on ODA inflows might have negative repercussions for sustained growth and development. On their part, [Burnside and Dollar \(2004\)](#) observed that pre-conditioned on good fiscal, monetary and trade policies, ODA could positively impact economic growth. However, some authors have found that ODA is detrimental to economic growth in some recipient countries ([Mallik, 2008](#); [Rehman and Ahmad, 2016](#)).

The literature on the natural resources and economic growth nexus presents a “paradox of plenty.” This is primarily due to the strange results observed from countries blessed with the abundance of natural resources that are characterized by lower growth rates when compared to less resource endowed counterparts. Many studies have observed a negative relationship between natural resource abundance and economic growth ([Sachs and Warner, 1995](#); [Auty, 2001](#); [Ding and Field, 2005](#); [Stijns, 2005](#); [Kangning and Jian, 2006](#)). In these studies, the authors regress economic growth on different measures of natural resource endowment and observed that resource endowment was inversely related to economic growth, a phenomenon often referred to as the resource curse.

However, some authors have questioned the methodology and variables employed in analyzing the natural resource abundance and economic growth nexus ([Adika, 2020a](#)). Moreover, [Lederman and Maloney \(2002\)](#) noted that the negative relationship between natural resource endowment and economic growth might not hold when country-specific characteristics and endogeneity issues are accounted for in the regression analysis. Similarly, a recent meta-analysis of the natural resources and economic growth nexus found weak evidence in support of the negative relationship between natural resource endowment and economic growth ([Havranek et al., 2016](#)).

The economic integration and economic growth nexus have gained significant attention over the last three decades, but have been characterized by mixed results. [Vanhoudt \(1999\)](#) examined the effect of regional integration and European Union (EU) membership on economic growth in a panel of 23 OECD countries and found no evidence of significant growth associated with regional economic integration. On the contrary, other authors have found a positive and significant relationship between economic integration and economic growth in Europe ([Henrekson et al., 1997](#); [Crespo-Cuaresma et al., 2017](#); [Bose and Bristy, 2017](#)), South Asia ([Sadiq and Ghani, 2007](#); [Rahman et al., 2012](#)) and Southeast Asia ([Bong and Premaratne, 2018](#)). Over the years, several attempts have been made to replicate the Asian success stories of regional economic integration in other parts of the world, particularly in Africa. However, these attempts have been mostly unsuccessful with mixed results. In sub-Saharan Africa, [Tumwebaze and Ijjo \(2015\)](#) examined the regional economic integration and economic growth nexus in the Common Market for Eastern and Southern Africa (COMESA) and found no significant impact of regional integration on economic growth. On the contrary, using a self-constructed regional integration index, [Kamau \(2010\)](#), found a positive and significant impact of economic integration on economic growth in eastern and southern Africa.

This paper incorporates the impact of regional economic integration, measured by the participation of member countries in the SADC FTA, on economic growth in the region. In addition, we control for the regions’ vast natural resource endowment alongside other conventional economic growth variables such as human capital, savings and external resource inflows.

3. Methodology

3.1 Theoretical framework and empirical models

The baseline framework of any empirical study on growth is to define a growth model that has its foundations on an aggregate production function. Our empirical model is derived from the neo-classical [Solow \(1956\)](#) and [Swan \(1956\)](#) growth models. The Solow growth model explicitly assumes that the level of technology is exogenously determined outside the model. One cardinal shortcoming of the Solow growth model is that it lacks micro-economic foundations for defining technical change as an explanatory variable that determines growth. We deal with this shortcoming by augmenting the Solow model with the [Rebelo \(1991\)](#) AK model with an endogenously determined technology. The composite model is expressed as follows:

$$Y = Ak \quad (1)$$

where k is the capital-labor ratio K/L , K is a composite measure of physical and human capital stock and A is the endogenously determined level of technology and is explained by country-/region-specific characteristics and underlying endogenous macro-economic factors ([Sachs and Warner, 1997](#)). This paper attempts to answer two critical questions: (1) Does economic integration and natural resources impact economic growth in SADC? and (2) How do natural resources and FDI interact to explain economic growth in the region? Therefore, following [Sachs and Warner \(1997\)](#) and [Malikane and Chitambar \(2017\)](#), the empirical models for this study are specified as follows:

$$\begin{aligned} \text{gdp}_{it} = & \gamma_0 + \gamma_1 \text{hcap}_{it} + \gamma_2 \text{sav}_{it} + \gamma_3 \text{trade}_{it} + \gamma_4 \text{fdi}_{it} + \gamma_5 \text{oda}_{it} + \gamma_6 \text{nrr} + \gamma_7 \text{sadc} + \mu_i \\ & + \varepsilon_{it} \end{aligned} \quad (2)$$

$$\begin{aligned} \text{gdp}_{it} = & \gamma_0 + \gamma_1 \text{hcap}_{it} + \gamma_2 \text{sav}_{it} + \gamma_3 \text{trade}_{it} + \gamma_4 \text{fdi}_{it} + \gamma_5 \text{oda}_{it} + \gamma_6 \text{nrr} + \gamma_7 \text{rich} \\ & + \gamma_8 \text{rich} * \text{fdi} + \mu_i + \varepsilon_{it} \end{aligned} \quad (3)$$

$(i = 1, \dots, 16 \text{ and } t = 1, \dots, 29)$

where human capital (hcap), gross domestic savings (sav) and trade openness (trade) capture the vector of domestic resources; foreign direct investment (fdi) and official development assistance (oda) capture the vector of external resources that could stimulate growth in the economy and natural resource rent (nrr) captures natural resource endowment. The variable sadc is the economic integration dummy variable that takes the value of 1 for SADC member countries that participate in the FTA and 0 for non-participation in the FTA. It captures the impact of economic integration on economic growth in the region. μ_i and ε_{it} capture the country-specific heterogeneity and the idiosyncratic error terms, respectively.

In [equation \(3\)](#), the study examines the impact of natural resource endowment in explaining economic growth between the resource-rich and resource-poor countries in the region. We further examine and compare the relative effectiveness and significance of FDI in resource-rich and resource-poor countries. Consequently, the variable “Rich” is a dummy variable that takes the value of 1 for resource-rich countries and 0 for resource-poor countries. A country is considered resource-rich if it has an average natural resource rent exceeding 5% of GDP. The interaction term captures the net effect of FDI in resource-rich countries relative to resource-poor countries.

3.2 Data and summary descriptive statistics

The data for the study were extracted from the World Bank’s World Development Indicators (WDI) and African Development Bank Group Socio-economic indicators 2019. The study covers the periods from 1990 to 2018 and is informed by the establishment of SADC in August 1992. Table 1 reports the definition and sources of the model variables.

4. Empirical analysis

The traditional analysis of panel time-series data often begins by examining the stationary properties of the macro variables using various panel unit root tests. However, most authors often ignore the underlying assumptions of the panel unit root tests employed. The popular first-generation panel unit root tests, including (Im *et al.*, 2003; Levin *et al.*, 2002), assume cross-sectional independence among the individual time series in the panel. However, this assumption is restrictive and mostly unrealistic, particularly for the region under consideration where economic integration and interdependence are prevalent. Therefore, this study employed the Cointegrated Augmented Dickey-Fuller (CADF) panel unit root test (Pesaran, 2007), to examine the stationary properties of the panel data variables. Indeed, the Breusch and Pagan Lagrange Multiplier (LM) test for cross-sectional dependence confirmed the existence of cross-sectional dependence among the series. Thus, Pesaran’s Cointegrated Augmented Dickey-Fuller (CADF) test is suitable for our sample size ($N = 16$ and $T = 29$) and

Variables	Proxy	Source
	<i>Dependent variable</i>	
Economic growth (gdp)	Real GDP growth (annual %)	AFDB
	<i>Domestic variables</i>	
Human capital (hcap)	School enrollment, secondary (% gross)	AFDB
Savings (sav)	Gross domestic savings (% of GDP)	WDI
Trade openness (trade)	Trade (% of GDP)	WDI
Natural resource endowment (nrr)	Total natural resources rents (% of GDP)	WDI
	<i>External Variables</i>	
Foreign direct investment (fdi)	Foreign direct investment, net inflows (% of GDP)	WDI
Official development assistance (oda)	Net ODA received (% of GNI)	WDI
	<i>Dummy Variables</i>	
Sadc	Dummy variable which takes a value of 1 for participation in the FTA and 0 otherwise	Authors Construction
Rich	Dummy variable which takes the value of 1 for resource-rich countries and 0 for resource-poor countries	Authors Construction
	<i>Institutional Variables</i>	
Democracy	The extent to which a country’s citizens can participate in selecting their government as well as freedom of expression, freedom of association and free media	WGI
Political stability	Perceptions of the likelihood that the government will be destabilized or overthrown by unconstitutional or violent means	WGI
Control of corruption	The extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as “capture” of the state by elites and individual interests	WGI

Table 1.
Variable definitions and sources

Note(s): Abbreviations: AFDB: the African Development Bank Group Socio-economic dataset, WDI: the World Bank World Development Indicators dataset and WGI: the Worldwide Governance Indicators

cross-section dependence in the panel time series. The unit root test results suggest that gross domestic product (GDP), gross domestic savings, FDI, official development assistance and natural resource rent are stationary at levels I(0). The other variables, namely, trade openness and human capital, are stationary after de-trending. [Table 2](#) below reports the summary descriptive statistics of the model variables.

The study employed the instrumental variables (IV) regression to estimate the parameters of the empirical equations. The choice of this technique is to enable us to control for possible endogeneity in our estimated models. In the presence of endogeneity, the IV regression, such as the 2SLS, provides a more robust estimate compared with the standard panel data models such as pooled ordinary least squares (OLS), fixed effects (FE) and random effects (RE) models. In the empirical models specified in [equations \(2\) and \(3\)](#), we hypothesized the potential endogeneity of some of the regressors. We deal with the potential endogeneity by employing internal instruments in the two-stage least square (2SLS) IV regression. To confirm the consistency of our estimates and to examine the choice of specification, we employed the Hausman test for regressor endogeneity. The comparison with the more efficient RE OLS suggests a non-rejection of the null hypothesis of exogeneity of the regressors with the conclusion that the differences in the estimated coefficients are not systematic. In the empirical estimations, we examined all the potential endogenous regressors independently and sought to uniquely identify each, independent of others.

Moreover, we did not implement a fixed effects (FE) specification due to the dummy variables as they would be differenced away in the fixed effects (FE) estimations. [Table 3](#) reports the results of the empirical estimations of the OLS RE and generalized two-stage least square (G2SLS) RE IV [\[1\]](#) and specification and diagnostic tests for endogeneity.

4.1 Discussion of empirical results

The results of the empirical analysis from both OLS and G2SLS IV regression are consistent with respect to the signs of the coefficients. However, the size and levels of significance vary marginally across the two estimators. The empirical analysis and discussions are based on the more efficient RE OLS, the preferred specification.

The empirical estimations reveal that regional economic integration positively and significantly impacts economic growth in the SADC. While this observation is contrary to empirical estimations from Europe and parts of Asia, it is mainly consistent with [Kamau \(2010\)](#), who observed that regional integration positively impacts economic growth in Eastern and Southern Africa. However, it is worthy to note that [Kamau \(2010\)](#) employed a

Variable observation	Observation	Mean	Std. Dev	Min	Max
GDP growth	464	3.69	4.75	-23.9834	26.85
Human capital	464	46.09	26.18	5.2674	109.44
Gross domestic savings	453	10.66	17.54	-53.2117	54.39
Trade openness	457	85.44	40.74	21.6498	225.02
Foreign direct investment	464	4.02	6.33	-6.8977	57.84
Official development assistance	456	8.16	9.63	-0.2509	67.74
Natural resource rent	449	8.68	10.15	0.0011	56.61
SADC	464	0.86	0.33	0	1
Rich	464	0.69	0.464	0	1

Source(s): Authors' computation based on data from AFDB and WDI

Table 2.
Summary of
descriptive statistics of
main variables

Table 3.
Empirical estimates of
economic growth
in SADC

Dependent variable (GDP)	OLS random effects		G2SLS- random effects	
	Model 1	Model 2	Model 1	Model 2
Gross domestic savings	0.0819*** (0.0183)	0.0948*** (0.0186)	0.0423*** (0.0144)	0.0536*** (0.0154)
Human capital	0.288*** (0.107)	0.244** (0.105)	0.261** (0.114)	0.216* (0.113)
Trade openness	-0.0497*** (0.0188)	-0.0514*** (0.0188)	-0.0520*** (0.0192)	-0.0548*** (0.0191)
Foreign direct investment	0.0393 (0.0349)	-0.0496 (0.0529)	0.0589* (0.0351)	0.00117 (0.0522)
Official development assistance	0.0722** (0.0296)	0.113*** (0.0288)	0.0424 (0.0289)	0.0879*** (0.0287)
Natural resource rent	0.114*** (0.0436)		0.116** (0.0455)	
SADC	3.905*** (1.318)		3.724*** (1.387)	
Rich		-1.154* (0.623)		-1.225* (0.642)
Rich*fdi		0.165** (0.0694)		0.114* (0.0692)
Years	0.0744** (0.0309)	0.0786*** (0.0299)	0.0558* (0.0319)	0.0597* (0.0312)
Constant	-151.9** (61.87)	-155.6*** (59.98)	-113.6* (63.72)	-116.7* (62.54)
Durbin-Wu-Hausman (p -value)			0.1148	0.3339
Observations	424	431	408	415
Wald χ^2	54.76***	52.87***	38.79***	35.98***

Note(s): (1) *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. (Standard errors in parentheses)
(2) The study employed two-period lags as instruments for all hypothesized endogenous variables
(3) The reported estimates of the Durbin-Wu-Hausman are in respect of gross domestic savings. The Durbin-Wu-Hausman test for the endogeneity of trade, FDI, ODA and natural resources suggests that they are exogenous
(4) The specification with the complete set of endogenous instruments reported p -values of 0.2889 for equation (1)

self-constructed integration index in his analysis. Therefore, this study constitutes the first attempt to examine the impact of participation in the SADC regional trade bloc established in 2008 on economic growth in the region. The results suggest that member countries' participation in the SADC FTA promotes economic growth. Besides, we observe that trade openness has a negative and significant impact on economic growth in the region, probably due to the relatively larger ratios of extra SADC imports and exports of goods in the region.

The results also indicate that natural resource endowments measured by natural resource rent as a percentage of GDP have an overall positive and significant independent impact on economic growth in the region. The estimated coefficient suggests that a unit increase in natural resource rent could spur an approximately 0.1 unit increase in GDP growth across countries in the region. However, we find that FDI has no significant independent impact on economic growth in the region. We observe that the effect of FDI is only significant in relation to its interaction with natural resources. This suggests that FDI and natural resources are significant complements in explaining economic growth in the region. We find that, while natural resources are desirable and can impact economic growth, natural resource endowment does not sufficiently guarantee higher economic growth in resource-rich countries. Instead, the region's resource-rich countries exhibit a slower growth rate than their resource-poor counterparts apart from FDI inflows.

Thus, we find a potential resource curse phenomenon in the region, with resource-rich countries showing an average growth rate of 1.2% lower than their resource-poor counterparts. Indeed, resource-rich countries such as Angola and South Africa, recorded average growth rates of 0.9% and 1.1%, respectively, between 2014 and 2018, while their resource-poor counterparts such as Mauritius and Seychelles recorded average growth rates of 3.7% and 5.2%, respectively, over the same period. However, FDI inflows to resource-rich countries appear to complement and significantly offset the resource curse phenomena leading to the observed overall average higher growth rates in resource-rich countries in the region compared to their resource-poor counterparts. The estimated coefficient of the interaction between the resource-rich variable (*Rich*) and FDI suggests that overall resource-rich countries in the region grow at an average rate of approximately 0.2% higher than their resource-poor counterparts due to the natural resource-driven relatively higher FDI inflows. This result is crucial for assessing the relative contributions of natural resources and FDI in promoting economic growth and reinforces the natural resource endowment FDI inflows nexus in the region. However, since natural resources are exhaustible and irreplaceable, the respective economies must sufficiently diversify away from resource dependence to safeguard against a decline in economic growth emanating from potential declines in FDI inflows concomitant with resource depletion.

Most of the other control variables are consistent with *a priori* expectations. Gross domestic savings have a positive and significant impact on economic growth in SADC. The size of the coefficient suggests that a unit increment in savings rate will increase GDP growth by approximately 0.1 units at a 1% level of significance. Similarly, human capital growth has a significant impact on economic growth. This result is incredibly encouraging for the SADC and, in particular, countries such as Botswana that is deeply committed to investing in education and infrastructure as critical drivers of economic growth and long-term economic diversification.

4.2 Robustness checks

To examine the robustness of the preliminary empirical estimates, and to control for other potential confounding variables, we condition for the quality of institutions within the

region. Adika (2020a) observed that some institutional factors such as political stability and the extent of democracy are critical for sustaining economic growth in resource-rich countries in sub-Saharan Africa. Moreover, other authors have also suggested that resource-rich countries with better institutions could attract greater inflows of FDI to enhance economic growth and development (Acemoglu and Robinson, 2008). Consequently, we controlled for three institutional variables, namely, political stability, the extent of democracy and control of corruption. The results of the empirical estimates are reported in Table 4.

The signs of the estimated coefficients are consistent when we control for institutional variables. We observe a decline in the magnitude of the estimated coefficient for the variable "Rich" and the interaction term. However, they both maintain their signs and significance. The variation in the estimated magnitudes may be attributable to the considerable reduction in the study sample and period due to the availability of data on institutional variables. Therefore, the preliminary findings are robust when we condition for institutional variables [2]. The empirical results suggest that the control of corruption has a positive and significant impact on economic growth. The estimated coefficient of 0.4 suggests that a 1 unit increase in the control of corruption index would, on average, increase economic growth by approximately 0.4 units.

5. Conclusion and policy recommendations

This study sought to examine the impact of regional economic integration on economic growth and the relative contributions and complementarity between natural resources and FDI in the SADC region. A critical contribution has been the control for two crucial variables that have been omitted from previous growth regressions, namely the impacts of economic integration and natural resource endowment on economic growth. The study employed the OLS and the IV estimator to control for potential endogeneity.

The empirical analysis revealed that regional economic integration significantly enhances economic growth in the region. We found that natural resources and FDI jointly and significantly impact economic growth in the region's resource-rich countries. The results established a high degree of complementarity between natural resource endowment and FDI inflows and their potential to impact economic growth and enable the region to overcome the resource curse phenomenon. Moreover, the results reveal that domestic resources such as gross domestic savings and human capital significantly impact economic growth in the region.

The study provides some policy lessons. First, there is a need for deeper collaboration with the region's International Cooperating Partners to attract FDI and other development assistance to resource-rich countries. Second, member countries should focus critically on deepening economic integration through greater participation in the FTA. The participation of resource-rich countries such as Angola might prove significant and could potentially offset or minimize the adverse effects of net exports. Third, there is the need for the prudent management of natural resources through the effective control of corruption. This will require the transformation of resource wealth into economic growth and diversification from the extraction and export of natural resources to maximize trade opportunities and safeguard the economies against external shocks from volatilities in global crude oil prices and other mineral resources. Finally, it is imperative to increase the capacity to mobilize domestic resources, including savings, to enable the region to increase the share of domestic resource contribution to economic growth and gradually wean the region off excessive external dependency.

Variables	OLS random effects		G2SLS- random effects	
	Model 1	Model 2	Model 1	Model 2
Gross domestic savings	0.00882 (0.00543)	0.0125*** (0.00333)	0.0123*** (0.00500)	0.0120*** (0.00339)
Human capital	0.00644* (0.00382)	0.0105*** (0.00364)	0.00711* (0.00386)	0.0105*** (0.00363)
Trade openness	0.00209 (0.00240)	0.00202 (0.00435)	0.00269 (0.00269)	-0.00186 (0.00228)
Foreign direct investment	-0.00135 (0.00795)	-0.0413* (0.0247)	-0.00274 (0.00852)	-0.0425* (0.0247)
Official development assistance	0.00996 (0.00834)	0.0113 (0.00757)	0.0118 (0.00802)	0.0103 (0.00770)
Natural resource rent	0.0194* (0.0109)		0.0140 (0.0113)	
SADC	0.752** (0.339)		0.683* (0.356)	
Rich		-0.508*** (0.192)		-0.621*** (0.238)
Rich*fdi		0.0484* (0.0259)		0.0534** (0.0266)
Control of corruption	0.313 (0.198)	0.434** (0.198)	0.297 (0.202)	0.484** (0.205)
Political stability	0.00690 (0.125)	0.0182 (0.110)	-0.0307 (0.133)	0.0368 (0.113)
Democracy	-0.390** (0.197)	-0.403** (0.183)	-0.361* (0.197)	-0.467** (0.201)
Years	0.000650 (0.0105)	0.0151 (0.0110)	0.0102 (0.0114)	0.0141 (0.0111)
Constant	-0.591 (20.86)	-28.08 (22.05)	-19.85 (22.78)	-25.74 (22.13)
Durbin-Wu-Hausman (<i>p</i> -value)			0.9225	0.0000
Observations	191	181	181	181
Wald χ^2	45.41***	43.10***	34.81***	39.13***

Note(s): *** $p < 0.01$, ** $p < 0.05$ and * $p < 0.1$. (Standard errors in parentheses)
Data on institutional variables were sourced from the Worldwide Governance Indicators (2019). The data covers the period 1996–2017. The sample of countries was reduced to 11 due to insufficient data on institutional variables in some countries

Table 4. Empirical estimates of economic growth in SADC with control for institutions (1996–2017)

Notes

1. Both OLS RE and G2SLSRE IV were estimated with a time trend to control for the trend stationary variables. The study did not consider the choice of FE estimation because of the dummy variables in the estimated equations, which would be differenced away by the FE estimation. The study employed internal instruments of two-period lags for gross domestic savings, official development assistance, natural resource rent, foreign direct investment and trade openness in the IV regression.
2. The Durbin–Wu–Hausman test ruled in favor of the IV estimates in Model 2. A suspicion of multicollinearity between the institutional variables was verified. The correlation matrix and the Variance Inflation Factors (VIF) suggest the absence of multicollinearity.

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Corresponding author

Gameli Adika can be contacted at: gameliadika@gmail.com