

THE ROLE OF INSTITUTIONS IN DETERMINING FDI FLOWS INTO THE SADC REGION

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Abstract

The aim of this study is to examine the role of institutions in determining Foreign Direct Investment (FDI) flows into the Southern African Development Community (SADC) region. Given the financing gap within SADC and the role of FDI in covering the gap, there is a need for the region to attract more FDI. Traditionally, the most popular instrument for attracting FDI is through fiscal incentives. However, over the years this has failed to attract or deliver the expected levels of FDI inflows into the SADC region. The study applies a panel modelling approach (Fixed Effects Model) for all the SADC countries using annual data from 1996 to 2016. However, to deal with the problem of endogeneity, the study further applies the 2 Stage Least Squares (2SLS) methodology. For robustness check, Dynamic General Method of Moments Technique (GMM) is applied. The results of the model indicated that institutions are important in determining the flow of FDI into the SADC region. However, where the host countries have got natural strategic resources, the role of institutions is overshadowed. The market size was also found to be insignificant. Furthermore, the institutional variables affect FDI inflows differently and one of the major findings is that democratic accountability does not matter in influencing the flow of FDI into the SADC region.

Keywords: Foreign Direct Investment, Institutions, SADC, MNCs

JEL Codes: E, E02.

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1. Introduction

The past two decades have seen a dramatic increase in FDI flows across countries (Papaionnou, 2008). However, despite this financial globalisation, most Sub-Saharan African countries still face capital challenges to finance domestic investment. Numerous popular studies such as Kapingura *et al.*, (2018), Alfaro *et al.*, (2008) and Akhtaruzzaman *et al.*, (2018) have been done in an attempt to understand why certain countries attract more FDI than others. Many of these papers attempted to solve the famous “Lucas paradox¹” as to why capital does not flow from rich to poor countries according to the standard neo-classical growth theory. The main objective of this paper is to examine the role of institutions in determining FDI inflows into the Southern African Development Community (SADC) region.

To the best of my knowledge there are few studies which examined the role of institutions in determining FDI flows into the SADC countries. These few studies have not specifically looked at the role of institutions in determining FDI flows into the SADC region for example Kapingura *et al.*, (2016) focused on the different types of capital flows while Muradzikwa (2002) did not apply any econometric techniques to his studies. Furthermore, existing data and indices for example the International Country Risk Guidelines do not cover all the SADC countries.

Most of the available studies on the role of institutions in determining FDI flows have been limited to specific institutional variables without examining the impact of most of the institutional variables. For example Addison and Heshmati (2004) only considered democracy, Asiedu (2002) examined the effect of political risk only for developed and Sub-Saharan African countries, Asiedu and Lien (2011) for a study of 112 developing countries only considered democracy as an institutional variable and Jensen (2008) examined political risk and democracy and their impact on FDI flows.

In this paper, the annual average of 12 components under political risk for all the SADC countries is calculated. In previous studies, countries like Mauritius, Swaziland and the Seychelles were not covered due to the fact that there were no existing indices calculated until this study. It is in this regard that the main contribution of this chapter is the development of a model which measures and assesses the role of institutions in determining FDI inflows for all the 15 SADC countries utilising 12 institutional indicators.

Investment theory dictates that firms invest expecting to get a return on investment and minimise the risk of doing business. However, the business environment in this case is the source of risk which can play a significant role in investment decisions by foreign firms. Included in the business environment are the institutions of the host country. Thus it is imperative to understand the role of the host countries’ institutions in attracting or repelling FDI flows.

¹ The Lucas Paradox comes from the neo-classical growth model which assumes the same technology across all countries. The model assumes that capital should flow from countries endowed with more capital to those with less due to the law of diminishing returns leading to a convergence of returns in the long run. In reality however, this is not the case hence the Lucas Paradox.

Research on FDI has over the years tried to explain decisions relating to location, timing and the mode of entry of FDI. History shows that researchers mainly relied on economic perspectives in trying to explain FDI decisions (Francis *et al.*, 2009). It should however be appreciated that in making FDI decisions, firms face a number of challenges and uncertainties which go beyond the known traditional economic factors such as the availability of markets, infrastructure and labour among other factors. In recent years, researchers have begun to acknowledge and examine the role of institutions in determining the flow of FDI to the host countries (Francis *et al.*, 2009).

Various studies have shown that foreign investment strategies of MNCs take into consideration the quality of institutions in making investment decisions especially the mode entry choice (Bevan *et al.*, 2004). However, the relationship between the role of institutions and impact of these institutions on FDI is still under researched and greatly misunderstood.

Previous studies used the general panel framework methodology and models such as the pooled effect, random effect and the fixed effects models which although they take control of the heterogeneity which exist across countries, they do not cover the problem of endogeneity. Furthermore, the models used in these studies are static. This study applies a dynamic panel set up methodology which takes into account both the problems of endogeneity and heterogeneity. The next section discusses the theoretical framework and literature review. This is then followed by the methodology, a discussion of empirical results, conclusion and policy recommendations.

2. Theoretical Framework

A number of theoretical frameworks have been proposed in an attempt to explain the determinants of foreign capital flows. These theories include the Lucas Paradox (1990) and the Montel and Fernandez –Aris model (1996). This study adopts the Lucas Paradox and it is briefly discussed in the following subsection.

2.1 The Lucas Paradox

According to the standard neo-classical theory, capital should ideally flow from rich to poor countries. This is assuming that the countries produce the same goods, use similar technology and there are constant returns to scale of the use of labour and capital as factors of production. The other important assumption is that there should be perfect capital mobility in which all investments would flow from the rich countries to the poor countries and this would continue until all the returns to all investments are equal in all the countries. The expected relationship between output and the factors of production labour (L) and capital (K) in the Cobb- Douglass production function is represented in equation 2.1.

$$Y_t = A_t F(K_t L_t) = A_t K_t^\alpha L_t^{1-\alpha} \dots\dots\dots(2.1)$$

Where: $F_k(.) > 0$, $F_L(.) > 0$; $F_{kk}(<) < 0$, $F_{LL}(<) < 0$(2.2)

Y is the production output and A is the Total Factor Productivity (TFP) which reflects the level of technology in this case the stock of human capital (Lucas, 1990). Due to the fact that all countries share the same technology and there is perfect competition it is implied

that there should be convergence of the returns to capital. Furthermore, due to the law of diminishing returns, capital is expected to flow from countries which are highly endowed to those which are less endowed in terms of capital. This therefore means that for countries *i* and *j*, the following is expected:

$$A_i f'(k_{it}) = r = A_j f'(k_{jt}) \dots \dots \dots (2.3)$$

f (.) represents the net of depreciation production function in per capita terms whilst *k* represents per capita capital and *r* is the implied return. In practice, the predicted relationship in equation 3.2 does not hold. There is less capital which flows to capital scarce countries and there is no convergence in terms of interest rates. This is then what is called the “Lucas Paradox.”

Lucas (1990) argued that this is mainly due to main factors which are capital market imperfections and economic fundamentals across countries. These economic fundamentals also implies that there are differences in the countries’ technological factors (*A_t*), hence there will be no equality between any two countries. If the assumption of common technology is relaxed and country *i* is more advanced than country *j*, Lucas (1990) argued that *A_{it}* will have higher returns compared to *A_{jt}*. This therefore explains why country *i* will attract more capital than country *j*. Considering the differences in the level of technology between the countries, the return to capital can therefore be illustrated as follows:

$$A_i f'(k_{it}) > A_j f'(k_{jt}) \dots \dots \dots (2.4)$$

Lucas (1990) specifies that *A_{it}* and *A_{jt}* are a representation of other technological factors such as institutions as well as the macro-economic conditions amongst others. This therefore means that capital will flow to countries with higher returns which are generated by the technological factors (including institutions). It is under this framework that the role of institutions in determining FDI flows into the SADC region can be examined. The theoretical and empirical literature regarding the role of institutions in determining FDI flows into the SADC region is an important policy question. The next subsection begins with how the role of institutions and transaction costs impact on investment and economic growth.

3. Literature Review

The last 20 to 25 years has witnessed an overflow of FDI in developing countries. The factors which attract FDI vary according to the region and time frame. This subsection will give a snapshot of the theoretical and empirical findings regarding the role of institutions in attracting or repelling FDI Flows. Since 1960 there have been several contributions to the literature on the role of institutions and transaction costs and how they impact on investment and economic growth. These include studies by (North, 1981, 1991; Knack and Keefer, 1995; Hall and Jones, 1999; Acemoglu et al., 2001; Rodrick 2000). Korutaro et al., (2013) who argued that institutions and property rights influence the size of investment as well as the efficiency at which inputs are allocated. Generally, the studies to a greater extent agree that institutions play a significant role in understanding cross country differences in terms of economic performance and FDI flows.

The role of institutions is to reduce uncertainty through the establishment of a structure for human interaction thus a framework for economic interaction. Institutions combined with technology used, can determine the transactions and transformation costs that make up total costs (Korutaro, 2010). This therefore means profitability and reason for engaging in economic activities is determined by institutions hence their influence on FDI flows.

There is valuable ground to believe that a good institutional environment where there is efficiency, low levels of corruption as well as property rights and mechanisms for contract enforcement should attract more FDI inflows into the host country (Ali and MacDonald, 2010). In a formal set up, institutions are required to enforce agreements and reduce uncertainties and thus in the process promote FDI into the host country.

The preceding paragraph further demonstrates that in order to attract FDI there is a need to have a strong institutional framework dedicated to assist investors (Singh et al, 2012). This is more important for less developed countries which are still experiencing high levels of corruption and a dominance of informal institutions over formal institutions (Ferreira, 2016).

Many researchers such as Lucas (1990), Akhtaruzzaman et al., (2018), Alfaro et al., (2008) and Papaioannou (2008) have concluded that the quality of institutions is the reason why capital does not flow from rich countries to poor countries. Thus, the quality of institutions in the host country is a key determinant of FDI flows because quality institutions are crucial for macro-economic stability and improve the business environment for private players.

Seyoum (2009) argued that countries with weak institutions are most likely to find it difficult to attract inward investment flows unless they are endowed with scarce natural resources and also offer large markets. Thus, a country with large mineral deposits is claimed to often have positive effects which may outweigh the impact of negative institutional factors. That being said, the composition of FDI flows has been shifting away from resource based countries towards the industrial and services oriented economies.

Political instability can be linked to lower property rights security. This is mainly based on the assumption that political leaders who will be facing the loss of power are more incentivised to expropriate property rights. However, there are numerous examples which show that even stable political regimes have systematically expropriated property rights at the same time successfully squashing any coups or revolutions against them.

Ferreira (2016) further argued that corruption reduces the attractiveness of a host country to foreign investors. This is mainly because corruption increases the dangers and risks of operating in such a country. Furthermore, corruption increases uncertainty hence the cost of doing business. Corruption lead to lower investor confidence and in the process discourages future foreign investments. Reducing corruption leads to improved quality institutions which indirectly will promote good governance and hence the promotion of FDI inflows into the host country (Busse and Hefeker, 2007).

That being said, there are still disagreements on the impact of corruption on making investment decisions. Cross country empirical literature has not tested the empirical relationship between corruption and government efficiency and hence its influence on attracting or repelling inward investment. These different views clearly show that there is still a gap to conclude decisively on the impact of corruption with regards to inward investment flows especially for the SADC countries.

Douglas North (1991) argued that property rights are the key institutional determinant of investment. This is supported by Ali and MacDonald (2010) who for their study of 69 countries concluded that property rights is the most important institutional variable in determining FDI inflow into the host country compared to the other variables such as democracy, corruption, political instability and social tension. Once property rights are secured and enforced the other institutional variables will no longer be significant in determining the flow of FDI.

Regarding the use of democracy as an indicator of institutional quality, there is a pre-supposed assumption that democratic regimes offer more property rights protection compared to autocratic regimes. However, there are so many examples of good autocratic regimes and bad democratic regimes and the expectation on property rights security runs against the priori expectations. Cao (2009) emphasised the role of democratic institutions in investment flows. Like many researchers, Cao (2009) argued that democratic institutions have conflicting impacts on the inflows of foreign investment. It must be accepted that some autocratic governments attract more FDI than others.

Robert et al., (2012) argued that autocratic and repressive regimes attract more FDI mainly because they will ensure that there are low wages which will mean low production costs for the foreign firm. These sentiments are shared by Asiedu and Lien (2011) who also argued that MNCs may prefer to invest in autocratic regimes mainly because these governments are not accountable to their electorates hence they may be in better position to provide protection from labour unions and other packages. Furthermore, under autocratic governments it is easier for MNCs to exploit their dominant positions in the host country (Asiedu and Lien, 2011) since they will be enjoying the protection of corrupt host government officials.

Given the different arguments about the impact of different types of regimes on FDI flows, it can then be argued that what matters to foreign direct investors may not be regime type but certain institutional variables of the host country. This therefore means that as long as the host country can provide institutional assurances and credibility, the issue of whether a country is democratic or autocratic will not be significant in FDI decision making. But this is not to disregard the quality of institutions.

The above arguments clearly highlight the fact that the role and impact of institutions in determining FDI flows is mixed. This therefore means in order to comprehensively determine the role of institutions in FDI flows, there is a need to use comprehensive indicators for institutions. The next section details the methodology used in this study to model the role of institutions in determining FDI flows into the SADC region.

3. Methodology

3.1 The Model, Data and Variable Definitions

This section discusses the model used to determine the role of institutions in determining FDI flows into the SADC region. The section also gives a brief description of the data used and the a priori expectations. The justification for the use of the selected model is also discussed.

3.2 Data and Model Description

The study uses the panel data modelling approach for all the SADC countries using annual data from 1996 to 2016. Thus specifically, the study seeks to examine the impact of institutions on FDI inflows into the SADC region. The data is sourced from the International Country Risk Guide (ICRG), World Bank (Development Indicators) and United Nations Conference on Trade and Development (UNCTAD). The base model to be estimated is of the form:

$$FDI_{it} = \alpha_i + \beta Inst_{it} + CV_{it}\delta + \varepsilon_{it} \dots\dots\dots(3.1)$$

Where

FDI_{it} is the dependent variable which is measuring the inflow of FDI into country i in time t . The variable is the log of net FDI inflows expressed as percentage of GDP. This is done to take into account the effect of the country size. The data for this variable is taken from the UNCTAD FDI database.

α is a constant term which may capture the effects of other un-specified factors thus it is a common fixed effect term.

$Inst_{it}$ this is the target explanatory variable. It is proxied by 12 different measures of institutional and political factors. This is important so that the study does not make the same error by previous studies of using only one or some of the institutional variables thus making the indicator robust. The variable is constructed from the International Country Risk Guide (ICRG) which is published by the Political Risk Services Group (PRS).

All the variables are ranked from 0 to 6, where a low score implies weak institutions. It must however be appreciated that the PRS group ranks these variables differently, thus some are ranked from 0 to 4, 0 to 6 and others are ranked from 0 to 12. As an example, a score of 4 may mean very low risk for bureaucratic quality (*it is ranked from 0 to 4*) but a score of 4 for socio-economic conditions which is ranked from 0 to 12 indicates a high risk. This therefore means there is a need to adjust the original ranking to be able to make comparisons across the various risk categories. The following are the selected institutional variables for this study and are defined in line with the PRS group:

- i. Democratic Accountability – the variable covers aspects such as government accountability to its citizens, civil liberties as well as political rights.
- ii. Law and Order –it measures the strength of the legal system in implementing law and order.
- iii. Military involvement in Politics - this indicates a breakdown of the democratic system in a country and might lead to a higher risk to investors.

- iv. Religious Tensions – the variable indicates the marginalisation of certain religious groups in society.
- v. Ethnic Tensions - refers to divisions which exist in society due to differences in race, nationality and language
- vi. Corruption – this variable ranks countries according to their level of corruption as measured by Transparency International.
- vii. Investment Promotion – issues under this variable include exchange control regulations, contract viability, repatriation of profits, payment delays among other additional investment risks which are not covered elsewhere.
- viii. Socio-Economic Conditions – it measures, unemployment, poverty and inequality conditions. These conditions can constrain and destabilise governments.
- ix. Government Stability – this variable consist of government unity, legislative strength and popular support. Thus, it measure the ability of government to undertake its business by carrying out its programmes and to stay in office.
- x. Bureaucratic quality – it measures institutional strength, quality and durability.
- xi. External Conflict- the variable includes all forms of violent and nonviolent pressure for example, war, cross-border conflict as well as foreign diplomatic pressures.
- xii. Internal Conflicts – this institutional variable measures domestic disturbances for example civil war, terrorism and civil disorder.

The study adopted the procedure developed by Cleeve (2012) in adjusting the institutional variables scores. All the rankings were adjusted to have a maximum score of 6 in order to have consistence in estimation and interpretation. For variables with scores from 0 to 4 the study uses the following formula:

$$\frac{7}{5}(x + 1) - 1 \dots\dots\dots (3.2)$$

For the variables with scores from 0 to 12, the study uses the following formula

$$\frac{7}{13}(y + 1) - 1 \dots\dots\dots (3.3)$$

Except for Cleeve (2012), previous studies such as Busse and Heffeker (2007), Asiedu (2006) and Ali and MacDonald (2010) assumed a uniform scoring across the indicators. This may compromise the credibility of their results.

CV_{it} is a vector of other factors which explain the inflow of FDI into the SADC region. These controlling variables are drawn from the surveyed empirical literature. This however is a challenge due to the fact that the empirical literature seems to suggest a large number of variables that can be potential determinants of FDI inflows. That being said, the study chose the variables that have been used extensively in the reviewed empirical literature. The traditional and policy variables are sourced from the World Bank’s World Development Indicators (WDI) database. Based on the mainstream literature on FDI, the chosen controlling variables are the following:

$LGDP_{PC}$, this the log of GDP per capita which is used to measure or capture the impact of the market size of the host country in attracting FDI inflows.

Infrastructure Development – this is proxied by the number of telephones lines per 1000 people (*Tele*).

Tariff- this is the policy variable which measures the openness of the country to trade and investment. It is measured by the mean of the tariff rate to capture the effect of trade policy on FDI flows.

Inflation (Infl) – this is a proxy for the macro-economic and fiscal stability

LTax – this is a measure of the marginal corporate income tax rate. It is used to measure the expected impact of the corporate tax rate on FDI flows.

3.3 A Priori Expectations

The following is expected in terms of the relationship between FDI and the variables under study:

- *Inst_{it}* it is expected that an improvement in any of the institutional variables will lead to an increase in the flow of FDI into the SADC countries.
- It is expected that *LGDP_{PC}* is positively correlated with FDI inflows into the SADC region. This is in line with the market size hypothesis.
- *Tariff*, it is expected that a low level of tariff and an open economy will attract more FDI. The more open the economy is, the higher the probability of FDI flowing to those host countries. It is therefore expected that an open economy will encourage the inflow of FDI.
- *Tele* is expected to be positively correlated to FDI inflows. This is because satisfactory infrastructure makes it easy for FDI firms to do business by improving efficiency of investment hence attracting more FDI inflows in the process. This is more so for efficiency seeking FDI firms. Studies have actually shown that weak infrastructure is the biggest constraint to FDI inflows in Sub-Saharan Africa
- *Inflation (Infl)* - macro-economic stability especially price stability is one of the key factors necessary to stimulate economic growth and FDI flows. If there is no macro-economic stability the risk of doing business to the investing foreign firm increases. It is therefore expected that a lower inflation should be interpreted to mean a good investment climate hence more FDI inflows are expected. Thus it is a priori expectation that the lower the inflation rate the higher the FDI inflows in that particular host country.
- *LTax* – it is expected that there is a negative relationship between corporate tax rates and FDI flows. A higher corporate tax rate is expected to be associated with lower FDI inflows into a particular host country.

All the variables used in the study are transformed into logarithms. After considering all the discussed variables the model to be estimated to determine the impact of institutions on FDI inflows into the SADC countries is as follows:

$$LFDI_{it} = \alpha_1 + \beta_1 Inst_{it} + \delta_1 LGDP_{PCit} + \delta_2 LGDP_{it} + \delta_3 LTele_{it} + \delta_4 LTariff + \delta_5 LInfl_{it} + \delta_6 LTax + \epsilon_{it} \dots \dots \dots (3.4)$$

Table 1 provides the summary of the descriptive statistics of the model estimated to determine whether institutions matter in determining the flow of FDI into the SADC region.

Table 1: Descriptive Statistics of the Variables, 1996-2016

Variable	Obs	Mean	Std Dev	Min	Max	Definitions
FDI	250	1.268631	1.114218	-2.981883	4.202729	Foreign Direct Investment
GDP	250	1.528680	0.685764	-1.384002	3.290092	Gross Domestic Product
GDP_PC	250	1.528680	0.685764	-1.384002	3.290092	Per Capita Income
INFL	250	2.118359	0.896157	-1.742969	5.783816	Inflation Rate
TARIFF	250	1.711295	1.042448	-0.693147	3.663818	Level of Tariff
TAX	250	3.546180	0.416673	2.451555	4.493104	Corporate Tax
TELE	250	0.512833	1.751969	-5.096165	3.450097	Telephones per 1000
BURQUAL	250	0.810329	0.522947	-0.916291	1.667707	Bureaucratic Quality
CORRUPT	250	0.848892	0.585970	-0.916291	1.667707	Corruption
DEMACC	250	1.498763	0.265885	0.693147	1.791759	Democratic Accountability
ETHTEN	250	1.417685	0.219837	0.851410	1.791759	Ethnic Tensions
EXCON	250	1.612781	0.291672	0.143101	2.251292	External Conflict
GOVSTAB	250	1.295963	0.452608	-2.564949	1.697731	Government Stability
INCON	250	1.445683	0.286981	-1.360977	1.791759	Internal Conflict
INVPRO	250	1.219397	0.531071	-2.564949	1.745850	Investment Promotion
LAWORD	250	1.257733	0.517404	-2.564949	1.697731	Law and Order
MILPOL	250	1.206975	0.484055	0.000000	1.791759	Military in Politics
RELTEN	250	0.622462	0.916959	-2.564949	1.609438	Religious Tension
SOCIO_ECON	250	0.323025	0.823120	-2.564949	1.647178	Socio-economic Conditions
INST_AVER	250	4.122705	0.192033	3.564827	4.392905	Annual Institutional Average

Source: Derived from Author's Own Calculations

The descriptive statistics shown in table 3.3.1 clearly indicate the high level of diversity with regard to the SADC countries. The average FDI to GDP ratio for the SADC countries is 1.4 percent whilst the maximum is 4 percent. This is too small a percentage given the huge financing gap in the region. GDP per capita which measures the market size shows that on average SADC residents received USD1.528 per person with a serious variation across countries. The highest GDP per capita is USD3.290. In terms of infrastructure, on average there are 0.51 telephone lines per 1000 people and a maximum of 3.45 per 1000 people in the SADC region. Table .2 summarises the correlation of FDI with the independent variables.

Table 2: Correlation Matrix of the Variables in the Model

	LFDI	LGDP	LGDP_PC	LINFL	LTARIFF	LTAX	LTELE	LINST_AVER
LFDI	1							
LGDP	0.2412475	1						
LGDP_PC	0.2412475		1					
LINFL	0.0107999	0.0769502	0.0769502	1				
LTARIFF	0.0543478	0.1334669	0.1334669	0.140282	1			
LTAX	0.1625206	0.0655259	0.0655259	0.2093233	-0.065281	1		
LTELE	-0.190796	-0.231629	-0.231629	-0.282771	-0.359667	-0.141122	1	
LINST_AVE	-0.1376	-0.061642	-0.061642	-0.254543	-0.41636	-0.009367	0.5539731	1

Source: Derived from Authors Own Calculations

Table .2 shows that FDI is positively correlated with economic growth.. This is in line with the a priori expectations. FDI is also positively correlated with inflation, the tariff rate and the tax rate. This is not line with a priori expectation. This could be due to the fact that investment increases productivity leading to higher incomes and hence increased expenditure and inflation. There is also a negative correlation between FDI and the average institutional variable and the level of infrastructure development as proxied by the number of telephone lines per 1000 people. This could be another source of model errors which then requires further analysis.

It should however, be appreciated that correlation does not mean causation. This therefore means that there is a need to undertake rigorous empirical examination of the role of institutions in determining FDI inflows hence the next subsection runs the necessary regression equations to examine the influence of institutions on FDI flows.

3.4 The Empirical Results

In order to empirically examine the role of institutions in determining FDI flows into the SADC region, a panel data analysis approach is applied. The advantages of panel data are that it allows for the control of variables which one cannot observe or measure. Examples include cultural factors as well as differences in business practices across countries. Furthermore, panel data also enables the examination of variables that change over time but not across entities (i.e. national policies, government regulations, international agreements among other variables). Thus panel data allows accounting for individual heterogeneity.

The study first applied both the random effect and the fixed effect models approaches in analysing the variables. The use of both models is to take account of the fixed and random individual differences in the observations in a time series cross section data set. However, the application of the Hausman (1978) test suggested the use of the fixed effects model as it was more suitable compared to the random effects model. Fixed effects model allow the examination of the relationship between the dependent and the independent variables within a particular country. Thus each country has got its own characteristics that may or may not influence the independent variables. Furthermore, the fixed effects model removes the effect of time invariant characteristics. This enabled the assessment of the net effect of the independent variables on FDI.

The study then estimated 3 equations using the fixed effects model. First a base model with all the institutional variables summed up as the annual average is estimated together with the control variables. The second equation further decomposes the institutional variables into 12 subcomponents for example law and order, government stability, internal conflict etc. The third regression equation estimates FDI inflows against only the institutional variables without the control variables.

Table 4: Fixed –Effects GLS Regressions 1996-2016

Variables	Base Model	Equation 2	Equation 3
LGDP	4.34815 (0.0000)**	4.252243 (0.0000)**	
LINFL	-0.091197 (0.0569)**	-0.091199 -0.1339	
LTARIFF	-0.11482 (0.1785)	-0.187106 (0.0407)**	
LTELE	0.082616 (0.5347)	0.044949 (0.7359)	
LTAX	0.548291 (0.0403)**	0.398198 (0.1881)	
LGDP_PC	-3.934979 (0.0000)**	-3.627207 (0.0000)**	
LDEMACC		0.64 (0.2309)	-0.86 (0.2732)
LMILPOL		-0.31 (0.4051)	-1.00 (0.0575)**
LRELTEN		0.50 (0.1291)	0.04 (0.9315)
LSOCIO_ECON		-0.29 (0.3472)	-0.32 (0.4527)
LBURQUAL		-0.78 (0.1646)	1.12 (0.1535)
LCORRUPT		0.29 (0.6083)	-1.55 (0.0461)**
LEHTEN		1.07 (0.0373)**	1.88 (0.0113)**
LEXCON		-0.27 (0.5532)	0.08 (0.8996)
LGOVSTAB		0.10 (0.696)	-0.50 (0.1694)
LINCON		-0.39 (0.2854)	-0.10 (0.8537)
LINVPRO		0.22 (0.6116)	1.15 (0.0608)**
LLAWORD		-0.08 (0.8662)	-0.52 (0.4156)
LINST_AVER	1.584457 (0.0106)**		
Observations	310	283	288
R- Squared	0.80	0.83	0.61

** denotes significance at 5%

Source: Derived from Authors Own Calculations

The numbers in parenthesis represents the test static values. The R squared which measures how good the model is in explaining the changes of the dependent variable (FDI) due to its regressors are 80 percent (base model), 83 percent (equation 2) and 61 percent (equation 3) for the three estimated models respectively. This therefore means the models used can be used to estimate how institutions influence the flow of FDI into the SADC region. However, the R squared can be misleading especially when dealing with panel data.

3.5. 2 Stage Least Squares (2SLS)

The estimated equations in section 3.4.1 only considered heterogeneity and did not deal with the potential problems of endogeneity. For example GDP can also be determined by FDI thus an increase in FDI can lead to an increase in GDP and vice versa. This leads to dual causality which then creates the endogeneity problem. Furthermore, some of the proxies used such as telephone lines per 1000 people can also be another source of problems leading to measurement errors. The model can run into the challenge of omitted variables. To deal with the above challenges, the study applies the 2 Stage Least Squares (2SLS) approach. But first there is a need to test for the existence of endogeneity between FDI and Economic growth. To check whether there is endogeneity between FDI and Economic growth the Durbin–Wu–Hausman Test is applied in this study.

First a model with all the institutional variables was run to determine the role of institutions on FDI flows into the SADC region using the 2 Staged Least Squares methodology (2SLS). However, the results were not making economic sense compared to a priori expectations and established economic relationships in literature. This then means that there is a need to estimate the role of each institutional variable together with the established macro-economic variables but controlling for the rest of the institutional variables. Eleven models are estimated and the results are shown in table 5.

Table 5: Results of the 2SLS Estimated Models

Variables	Estimated Models										
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
LGDP	0.023 (0.675)	0.187 (0.00)**	0.102 (0.091)	0.022 (0.696)	0.055 (0.369)	0.051 (0.395)	0.025 (0.672)	0.062 (0.294)	0.031 (0.558)	0.042 (0.453)	0.036 (0.520)
LGDP_PC	0.153 (0.245)	0.163 (0.242)	0.242 (0.069)	0.293 (0.031)**	0.236 (0.084)	0.213 (0.130)	0.248 (0.067)	0.251 (0.063)	0.192 (0.131)	0.242 (0.071)	0.395 (0.005)**
LINFL	-0.119 (0.019)**	-0.163 (0.001)**	-0.156 (0.003)	-0.150 (0.004)	-0.152 (0.005)	-0.348 (0.000)	-0.151 (0.004)	-0.150 (0.004)	-0.106 (0.033)	-0.350 (0.000)	-0.139 (0.008)
LINVPRO	0.214 (0.104)	0.195 (0.125)	0.176 (0.190)	0.908 (0.18)	0.107 (0.23)	0.075 (0.671)	0.098 (0.465)	0.160 (0.243)	0.246 (0.054)	-0.104 (0.560)	0.194 (0.150)
LTARIFF	-0.320 (0.000)**	-0.247 (0.001)**	-0.310 (0.000)**	-0.216 (0.025)**	-0.313 (0.000)**	-0.282 (0.000)**	-0.286 (0.000)**	-0.306 (0.000)**	-0.270 (0.000)**	-0.293 (0.000)**	-0.212 (0.010)**
LTAX	1.582 (0.000)**	0.977 (0.000)**	1.146 (0.000)**	1.109 (0.014)**	1.099 (0.000)**	1.223 (0.000)**	1.150 (0.000)**	1.151 (0.000)**	1.481 (0.000)**	1.297 (0.000)**	1.179 (0.000)**
LTELE	-0.032 (0.776)	-0.256 (0.009)**	-0.295 (0.002)**	-0.341 (0.000)**	-0.342 (0.000)**	-0.424 (0.000)**	-0.345 (0.000)**	-0.328 (0.001)**	0.097 (0.389)	-0.508 (0.000)**	-0.367 (0.000)**
LBURQUAL	-1.132 (0.000)**										
LDEMACC		-1.6156987 (0.000)**									
LMILPOL					-0.17393536 (0.335)						
LRELTEN						0.114986111 (0.354)					
LSOCIO_ECON										0.352376165 (0.012)**	
LCORRUPT									-1.44769912 (0.000)**		
LEHTEN			-1.14230951 (0.002)**								
LEXCON											-0.89959028 (0.001)**
LGOVSTAB							0.148150125 (0.456)				
LINCON									-0.5214144 (0.080)**		
LLAWORD				-0.82981867 (0.036)**							
Observations	310	289	310	310	309	305	310	310	310	305	310
R-Squared	0.42	0.46	0.40	0.39	0.38	0.39	0.38	0.38	0.45	0.40	0.40

** denotes significance at 5%

Source: Derived from Authors' Own Calculations

3.5.2 Economic Growth and FDI Inflows

There is a positive relationship between economic growth (GDP) and the inflow of FDI for the SADC countries for all the estimated models. This confirms the results of the base model estimated using the Fixed Effects (Table 3.4.1). The base model shows that FDI inflows for SADC countries are positively correlated to the GDP. This is in line with the priori expectations and the findings of other researchers such as Ali and Macdonald (2010) who for a study of 60 countries between 1981 and 2005 concluded that the impact of GDP growth on FDI is positive and significant. However, the results are only significant for model 2 where the institutional variable democratic accountability is introduced.

3.5.3 Institutions and FDI Inflows

The base model under the fixed effect also confirms that institutions play an important role in determining FDI inflows for SADC countries. The study found that there is a positive and significant relationship between FDI flows and institutions. This means the better the institutions in a particular country in SADC the more FDI flows into that country. This is also supported by the findings of Alfaro *et al.*, (2008), Papaioannou (2008) and Akhtaruzzaman *et al.*, (2018) who resolved that the quality of institutions is a key determinant of FDI flows into a particular country.

3.5.4 GDP Per Capita and FDI Inflows

The results of the fixed effect model show that there is a negative relationship between FDI inflows and the GDP per capita both in the base model and the second model which included institutional variables in addition to the control variables. The relationship is also statistically significant. This could mean that MNCs invest in the SADC region for the reason of cheap natural and human resources and not necessarily market seeking. In this regard, the products of the MNCs are exported to other foreign markets.

However, the results of the 2SLS (table 3.5.2) confirms that the market size in the host country matter in attracting FDI inflows for the SADC region across all the estimated models. There is a positive relationship between FDI inflows and the market size as proxied by the GDP per capita (GDP_PC). The results are however, significant in models 4 and 11 only where there is law and order as well as government stability. Cleeve (2012), for a study of 40 Sub-Saharan Africa reached the same conclusion.

3.5.5 Inflation Rate and FDI Inflows

As expected there is a significant negative relationship between the inflation rate of a particular country in the SADC region and the inflow of FDI into countries across all the estimated models including the fixed effect base model. This is the same observed relationship in equation 2 after decomposing the institutional variables into the 12 subcomponents. This is in line with a priori expectations and reviewed literature. An environment with high inflation makes it difficult for firms to plan and maximise their profits which is their main objective. It therefore makes economic sense that an increase in inflation leads to a decrease in the flow of FDI into the SADC region.

3.5.6 Investment Promotion and FDI Inflows

The results also show that deliberate efforts to promote investment in a host country leads to an increase in FDI inflows into the SADC region. Although, this is in line with the a priori expectations and the findings of Dumludag (2008) for the study of Turkey and Egan (2015) for the study of Brazil, the results are not statistically significant at the 5 percent level of significance.

Investment promotion is positively related to FDI flows for the SADC region and the relationship is statistically significant for the estimated model 9. This therefore means SADC countries should establish independent investment promotion agencies in order to attract FDI inflows into their economies. Singh *et al.*, (2012) as well as Egan (2015) concluded that investment promotion efforts lead to more FDI inflows for the host countries for Rwanda and Brazil respectively. It must however, be acknowledged that these countries are not within the SADC region meaning there may be other factors such as physical infrastructure and geographical location which determines the flow of FDI, hence the same result should not be expected for the SADC countries.

For a study on the determinants of FDI into developing countries, Asiedu (2002) concluded that the determinants of FDI are not uniform across Africa and that policies which have been proved to work in other economic regions do not necessarily work in Africa. This proved that Africa as a region is different and as such FDI policies should be formulated in the right context.

3.5.7 Corporate Tax and FDI Flows

Contrary to expectations, there is a positive relationship between FDI flows and the level of corporate tax in the host country for the SADC region and the results are statistically significant. This could mean that the MNCs which invest and operate in the SADC region are usually in the mining and oil industrial sectors for example diamonds in Botswana and Zimbabwe, Gold and Platinum in South Africa and oil in Angola. The availability of such strategic natural resources and the high returns from their economic activities make MNCs to overlook other variables such as corporate tax.

3.5.8 Bureaucracy and FDI Inflows

An increase in the level of bureaucracy leads to a decrease in the flow of FDI into the SADC region. This is in line with the a priori expectations. Bureaucracy leads to inefficiencies which are a cost to the firm hence eroding the expected profits. Naturally, MNCs will be hesitant to invest in such a business environment. Likewise, Cleeve (2012) for a study of 40 Sub-Saharan Africa countries also found that bureaucracy leads to a decrease in the flow of FDI.

3.5.9 Democracy and FDI Inflows

The results indicate that an increase in democracy leads to an increase in the inflow of FDI for the SADC countries. Asiedu (2011) for a study of the interlinkages between democracy, FDI and natural resources made the same conclusion. An increase in democracy makes the political leaders to be accountable to their citizens hence one would assume that issues of contract enforcement, corruption and property rights are respected and hence MNCs will find it easy to invest in such kind of a business environment thereby increasing the inflow of FDI into the host country. These sentiments are also shared by

Jensen (2008) who also concluded that democratic governments promote FDI inflows into the host country as they are perceived to be less risk by MNCs investors. Jensen (2003) also concluded that a switch from an authoritarian regime to a democratic regime increases FDI inflows by 60 percent for 114 countries.

However, the relationship is not statistically significant meaning that in the SADC region, the type of regime whether democratic or autocratic does not really matter in determining and influencing the flow of FDI into the region. These findings are also in line with Asiedu and Lien (2010) who for a study of 112 developing countries concluded that democracy only promotes FDI if and only if the value of the share of minerals and oil in total exports is less than a certain critical value.

From the examined 122 countries, 90 countries showed a positive relationship between FDI and democracy whilst 22 countries showed that an increase in democracy reduce FDI inflows into the host country. One possible explanation is that the availability of natural resources overshadows the negative institutional factors. Zimbabwe (*diamond, gold and platinum*), Angola (*oil*) and Zambia (*copper*) are classic examples where democratic accountability does not matter in terms of attracting or repelling FDI flows due to the fact that they are endowed with strategic natural resources.

3.5.10 Law and Order and FDI Inflows

The results also indicate that an improvement in law and order leads to an increase in the inflow of FDI for the SADC countries. This is in line with the a priori expectations and other researchers such as Cleeve (2012) who for 40 Sub-Saharan African countries also concluded that a country with law and order tend to attract more FDI inflows. Busse and Hefeker (2007) also concluded that ensuring basic rights and promoting the rule of law is significant in attracting FDI inflows.

Although law and order is in line with expectations and theory by exhibiting a negative relationship with FDI flows, it is not statistically significant. This could be due to the fact that many countries in the SADC region are endowed with strategic natural resources which make investors overlook the lack of law and order and other institutional variables.

This highlights how endowment in natural resources is a key factor in determining FDI inflows. Researchers such as Asiedu (2006), Campos (2004) and Ferreira (2016) made the same conclusions. However, because the relationship is not significant the results become inconclusive meaning law and order cannot explain the flow of FDI into the SADC region.

3.5.11 Military in Politics and FDI Inflows

The involvement of military in politics is associated with a decrease in the inflow of FDI for the SADC countries. The results show that if the military gets involved in politics, it leads to a decrease of FDI inflows into the SADC region and the relationship is statistically significant. This is in line with the a priori expectations. The involvement of military in politics means there is a high risk of political change and the new government can change whatever initial agreements and arrangements which may be in place for the existing MNCs. The results are supported by the findings of Cleeve (2012) for a study of 40 Sub-Saharan African countries who also concluded that once the military get involved in politics it act as a deterrent for FDI inflows into that particular country.

3.5.12 Socio-Economic Conditions and FDI Inflows

The socio-economic conditions of the host country are also positively related with the inflow of FDI into the SADC countries and the results are statistically significant. This therefore means that an improvement in the host country's socio-economic conditions will lead to an increase in the inflow of FDI into that particular country.

3.5.13 Corruption and FDI Inflows

Similar to the work of Asiedu (2006), corruption is a major constraint to the inflow of FDI to the SADC countries. The results show that an increase in corruption will lead to a decrease in the inflow of FDI into the SADC countries and the results are statistically significant. This is in line with the a priori expectations. SADC countries should therefore address their leadership and governance issues with the aim of stamping out corruption. A case in point is South Africa, whereby the government has been on an anti-corruption drive by establishing various commissions of enquiry especially for the State Owned Companies. Likewise, Zimbabwe has also established an anti-corruption unit to deal with the rampant corruption in that country. This is done with the hope that it will improve the image of the respective countries and hence the business confidence and in the process lead to an increase in the inflow of FDI.

3.5.14 Government Stability and FDI Inflows

Government stability is also an important institutional variable in determining the flow of FDI into the SADC countries. The results show that a stable government is associated with an increase in the inflow of FDI for the SADC countries. This is supported by the findings of Ahlquist (2006) who for a study of FDI into developing countries concluded that countries which are more politically stable tend to attract more FDI inflows.

3.5.15 Tariff Rate and FDI Inflows

The results confirms that there is a negative correlation between the tariff rate and the flow of FDI into SADC countries. This is similar to the results of the fixed effect base model. This makes economic sense as high tariff makes imports of raw materials expensive if the MNC is manufacturing products which require imports from outside the foreign country where it will be operating. In any case even in resource seeking FDI for example in the mining sector, there is still a need to import heavy duty equipment into the SADC countries hence a high tariff will add up to the total costs of imports.

However, the impact of tariff is not statistically significant in the fixed effect base model. In the second model after disintegrating the institutional variables, the tariff rate becomes significant meaning tariffs play an important role in determining FDI flows into the SADC region when combined with the elements of institutional variables. This further amplifies the importance of institutions in determining the flow of FDI into the SADC region.

3.5.16 Internal and External Conflict and FDI Inflows

Internal and external conflicts impact negatively the inflow of FDI into the SADC countries and the results are statistically significant. This is in line with the findings of Busse and Hefeker (2007) who concluded that FDI inflows are determined by government stability, the absence of internal conflicts and ethnic tensions. A country can determine its domestic politics and conflict but will have no direct control over the affairs of its

neighbours. Thus the results indicate within the SADC region, external conflicts lead to a decrease in the inflow of FDI to the SADC countries. This is the so called spatial contagion effect or the neighbourhood effect.

3.5.17 Ethnic Tensions and FDI Inflows

Ethnic tensions are positively correlated to the flow of FDI into the SADC region and the relationship is significant under the fixed effect model. However, using the 2SLS, the relationship is negative and in line with the a priori expectations, although it is not statistically significant. This may be due to the fact that certain ethnic groups will protect the MNCs operating into their country as they will be benefiting from the presence of such foreign investors. Thus as long as the ethnic group which is in power favours and protects the MNC then FDI will flow into that particular host country and most specifically in a particular geographical region within the host country. This is mainly true for resource seeking FDI for example the mining of strategic mineral resources such as diamonds and gold.

3.6 Robustness Test

In order to check the results established through the use of the 2SLS methodology, this study re-estimated all the 11 models under table 3.5.2 using the Dynamic Generalised Methods of Moments Technique (GMM). Results of the GMM technique are in line with the output of the 2SLS in terms of the sign of the coefficient and significance. This therefore means the estimated models through the 2SLS can be used to understand the role of institutions on FDI flows into the SADC region.

Table.6: Estimated GMM Models Results

Variables	Estimated Models										
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11
LGDP	0.023 (0.6751)	0.187 *** (0.0049)	0.055 (0.3694)	0.051104 (0.3949)	0.051 (0.3949)	0.031 (0.5577)	0.102 *(0.0908)	0.036 (0.5204)	0.025 (0.6716)	0.062 (0.2938)	0.022 (0.6957)
LGDP_PC	0.153 (0.2457)	0.163 (0.2421)	0.236 *(0.0839)	0.213452 (0.1302)	0.213 (0.1302)	0.192 (0.1306)	0.242 *(0.0692)	0.395 *** (0.0050)	0.248 *(0.0668)	0.251 *(0.0629)	0.293 ** (0.0310)
LINFL	-0.119 *** (0.0198)	-0.163 *** (0.0011)	-0.151900 *** (0.0048)	-0.348309 *** (0.0000)	-0.348 *** (0.0000)	-0.106 ** (0.0327)	-0.156 *** (0.0028)	-0.139 *** (0.0078)	-0.151 *** (0.0044)	-0.150 *** (0.0043)	-0.150 *** (0.0044)
LINVPRO	0.214 (0.104)	0.195 (0.1248)	0.107 (0.4262)	0.074941 (0.671)	0.075 (0.671)	0.246 ** (0.0544)	0.176 (0.1899)	0.194 (0.15)	0.098 (0.4652)	0.160 (0.2431)	0.908 ** (0.025)
LTARIFF	-0.320 *** (0.0000)	-0.247 *** (0.0014)	-0.313234 *** (0.0002)	-0.282116 *** (0.000)	-0.282 *** (0.0004)	-0.270 *** (0.0003)	-0.310 *** (0.0001)	-0.212 *** (0.0102)	-0.286 *** (0.0004)	-0.306 *** (0.0001)	-0.216 *** (0.0136)
LTAX	1.582 *** (0.0000)	0.977 *** (0.0014)	1.099 *** (0.0004)	1.223090 *** (0.000)	1.223 *** (0.0000)	1.481 *** (0.0000)	1.146 *** (0.0000)	1.179 *** (0.0000)	1.150 *** (0.0000)	1.151 *** (0.0000)	1.109 *** (0.0000)
LTELE	-0.032 (0.7763)	-0.256 *** (0.0086)	-0.342 *** (0.000)	-0.423534 *** (0.000)	-0.424 *** (0.0000)	0.097 (0.3894)	-0.295 *** (0.0023)	-0.367 *** (0.0001)		-0.328 *** (0.0007)	-0.341 *** (0.0004)
LBURQUAL	-1.132 *** (0.0000)										
LDEMACC		-1.61557 *** (0.0000)									
LMILPOL			-0.174 (0.3350)								
LRELTEN				0.114986 (0.354)	0.352376 *** (0.0122)						
LSOCIO_ECON											
LCORRUPT						-1.447699 *** (0.0000)					
LEHTEN							-1.14231 *** (0.0017)				
LEXCON								-0.89959 *** (0.0012)			
LGOVSTAB									0.14815 (0.4557)		
LINCON										-0.521414 *(0.0795)	
LLAWORD											-0.829819 ** (0.0360)
Observations	310	289	310	310	309	305	310	310	310	305	310
R- Squared	0.42	0.46	0.40	0.39	0.38	0.39	0.38	0.38	0.45	0.40	0.40

*** denotes significance at 1% , ** at 5% and *at 10%

Source: Authors' Own Calculations Using Eview

3.7. Policy recommendations

The policy implications from the study clearly indicate that the growth rate of the host country is important in attracting FDI inflows into the SADC region. This therefore means SADC countries need to promote growth enhancing policies and initiatives in order to attract FDI inflows. However, the impact of the size of the market in the host SADC countries is still ambiguous in attracting or repelling FDI flows. This means the majority of the MNCs which invest in the SADC region are not necessarily market seeking but resource seeking. Governments in the SADC region should therefore put terms and conditions which will ensure that FDI comes with the intended and desired benefits and not only take away the host countries' resources.

The role of institutions in determining FDI flows cannot be overemphasised. All the SADC countries should ideally work together and put common policies which support and promote favourable institutions for example low levels of corruption, promoting peace and stability in the region, reduce the involvement of military in politics, promotion of the rule of law etc. This is important to avoid the negative neighbourhood effect which might affect the rest of the SADC countries which will be putting efforts in place to improve on governance and other institutional variables.

SADC governments should set up independent investment promotion agencies in their economies to promote FDI and in the process deal with the funding gap problem. This is because the empirical results show that there is a positive and significant correlation between investment promotion and FDI flows into the region.

4. Conclusion

The study examined the role of institutions in determining the flow of FDI using three panel data techniques which are the fixed effects model, 2SLS and the GMM technique. The study made use of 12 institutional indicators and calculating institutional indices for countries like Mauritius, Swaziland and the Seychelles for the first time in the academic literature.

From the reviewed literature and results of the econometric models developed in the study, it is evident that institutions play a significant role in attracting or repelling FDI flows. The study found that there is a positive and significant relationship between FDI flows and institutions. This means the better the institutions in a particular country in SADC the more FDI flows into that country.

The results also confirms that the market size in the host country matter in attracting FDI inflows for the SADC countries across all the estimated models. Investment promotion is positively related to FDI flows for the SADC region and the relationship is statistically significant. Thus, the results also show that deliberate efforts to promote investment in a host country leads to an increase in FDI inflows into the SADC region.

In the SADC region, the type of regime whether democratic or autocratic does not really matter in determining and influencing the flow of FDI into the region. For example, the modelling results confirm that democratic accountability does not always impact on the flow of FDI into the SADC region.

Government stability is also a significant institutional variable in determining the flow of FDI into the SADC countries. The results show that a stable government is associated with an increase in the inflow of FDI for the SADC countries. The determinants of FDI are not uniform across Africa and that policies which have been proved to work in other economic regions do not necessarily work in SADC.

Corruption is a major constraint to the inflow of FDI to the SADC countries. The theoretical and empirical literature also confirms that there is correlation between corruption and the flow of FDI. Even though the findings for the impact of corruption on FDI are mixed for other studies, this study found that there is a significant negative correlation between corruption and FDI inflow in a particular host country. Thus, SADC countries should put measures in place to deal with corruption.

The study also showed that the level of good governance, property rights, business regulation and political stability also impact on the flow of FDI. However, for resource exporting developing countries, institutional variables are not always significant in determining the flow of FDI. Lastly, the availability of strategic natural resources such as diamond, gold and oil among other resources in host countries can alter lead to investors to overlook the negative institutional indicators and invest in those countries.

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