Does FDI Cause Economic Growth?

Alexander Maune[1], **Ephraim Matanda**[2]

Abstract: This article examined the impact of foreign direct investment on economic growth and development in Zimbabwe. There is, however, inconsistency regarding the impact of foreign direct investment on economic growth and development across economies. An econometric strategy was used to test the depth of correlation between the variables by applying the regression analysis of the Ordinary Least Squares approach for the period 1991 – 2017. The findings of the study show that foreign direct investment had a positive correlation coefficient with Gross Domestic Product and was statistically significant at all levels. Policy recommendations are provided in light of the study findings.

Keywords: Foreign Direct Investment; Gross Domestic Product; Economic Growth; Economic Development

JEL Classification: F21; O11; O16; O47

1. Introduction

Foreign direct investment refers to direct investment equity flows in an economy. It is the sum of equity capital, reinvestment of earnings, and other capital. OECD (2008) defines foreign direct investment (FDI) as a set of investments in which a resident enterprise in one country establishes a long-term interest in another enterprise outside its country borders. Direct investment is a category of cross-border investment associated with a resident in one economy having control or a significant degree of influence on the management of an enterprise that is resident in another economy. Ownership of 10% or more of the ordinary shares of voting stock is the criterion for determining the existence of a direct investment relationship (World Bank, 2016). This is operationally defined as having at least a 10% equity stake in the foreign firm. Inward Foreign direct investment (FDI) refers to foreign investment flows into the home countries, whereas outward FDI is the countries' investment flows to other countries. FDI is classified into two types: (1) Greenfield investment which involves constructing new operational facilities (factories, machinery, etc.)

[1] Research Associate, UNISA, Pretoria, South Africa, Address: Preller St, Muckleneuk, Pretoria, 0002, South Africa, Tel: +263 71 756 7452, Corresponding author: alexandermaune6@gmail.com.
[2] Senior Lecturer, GZU, Masvingo, Zimbabwe, Address: Great Zimbabwe University, 1235, Masvingo, Zimbabwe, Tel.: +263 77 374 2494, E-mail: eematanda@gmail.com.

from the ground up and (2) mergers and acquisition (M&A) involve foreign firms acquiring existing assets from local firms. FDI has proven useful in the past to advance economic development and foster structural changes in host countries. Recent literature and empirical evidence suggests that due consideration is needed from policy makers to maximize benefits of FDI. Such benefits include skills and technological transfer, and foster overall spillover effects to the domestic economy. These arguments are strongly supported by the practical experiences of East Asian Tigers, of China, of Ireland and of Israel where FDI contributed significantly to the upgrading and diversification of their industrial structure.

FDI plays a constructive role in economic development by transferring capital, skills and know-how. However, attracting FDI does not automatically guarantee economic development (Chen, Geiger & Fu, 2015). Previous findings suggest that whether FDI contributes to development depends on macroeconomic and structural conditions in the host economy (UNCTAD, 2005). And a recent study further established that long term and sustainable development comes from the aggregated productivity growth brought by FDI spillover effects (Farole & Winkler 2014). The successful cases are from developing Asia. China has shown how foreign investment has exhibited positive impact on employment, productivity, and exports. Examining firm-level data covering 1998 to 2007 in China's manufacturing sector, Du et al. (2011) conclude that trade reforms and tax policies adopted by China have generated productivity spillovers, especially for backward linkages. They also find that China's successful industrial policy harnessed the FDI spillovers potential, as evidenced by the finding that foreign investors who received corporate tax breaks transmitted larger spillovers to domestic enterprises.

Romer (1993), for example, argues that there are important "idea gaps" between rich and poor countries. He notes that foreign investment can ease the transfer of technological and business know-how to poorer countries. These transfers may have substantial spillover effects for the entire economy. Thus, foreign investment may boost the productivity of all firms - not just those receiving foreign capital (Rappaport, 2000). While there are sound conceptual reasons for believing that FDI can ignite economic growth, the empirical evidence is divided. But does FDI really benefit the host country? Researches by Maune, 2018b; Munyanyi, 2017; Choi & Baek, 2017; Barua, 2013; Ghoshal & Saxena, 2012; Jacob et al., 2012; Khan, 2007; Bengoa & Robles, 2003; Choe, 2003; Zhang, 2001; Xu, 2000; De Mello, 1996; Blomstrom et al., 1994; Dunning, 1993; De Gregorio, 1992; and Findlay, 1978 show that FDI is critical for economic growth whilst a handful of researches such as Saqib et al., 2013; Falki, 2009; Durham, 2004; Manzolillo et al., 2000; Fry, 1992; and Singh, 1988 show negative effects of FDI on economic growth.

Falki (2009) discusses the role of FDI as a growth-enhancer in the developing countries. In his study Falki (2009) argues that the effects of FDI in the host economy

are increase in; employment, productivity, exports and amplified pace of transfer of technology. The potential advantages of the FDI on the host economy are; it facilitates the utilization and exploitation of local raw materials, introduces modern techniques of management and marketing, eases the access to new technologies, foreign inflows can be used for financing current account deficits, finance flows in form of FDI do not generate repayment of principal and interests (as opposed to external debt) and increases the stock of human capital via on the job training (Falki, 2009).

The new dispensation, that has seen the ushering in of the second republic in Zimbabwe, is actively engaging and re-engaging with the global world with the mantra 'Zimbabwe is Open for Business.' But is the country really open for business? If so what are the pointers to show its openness given that the country was in isolation for decades? To show its commitment the government of Zimbabwe has tabled a number of reforms that will see Zimbabwe being a destination conducive for foreign investments. Some of these reforms include; ease of doing business reforms, State Enterprises and Parastatals reforms, regulatory reforms, control of corruption, monetary and fiscal reforms among others. Attracting meaningful FDI is a key challenge for Zimbabwe due to a number of factors. Some of these challenges include sanctions, corruption, monetary and fiscal, external and domestic debt, poor governance, political instability and violence, poor regulatory framework, lack of accountability and disrespect of property rights.

The country's dilemma is to strike a balance between FDI-led growth, export-led growth and external debt. Export-led growth has proven to be a more sustainable channel for FDI (Nunnenkamp & Spatz, 2003 and Younus et al., 2014). Domestic investments have proved to be the most favorable but due to limited capacity the government is forced to look outside, that is, to attract FDI to stimulate the economy.

But what are the determinants of FDI, that is, reasons other countries are recipients of huge amounts of FDI than others? Maune (2018a) argues that there are a number of key drivers of FDI. One approach in the literature sees FDI as being market-seeking (driven by economy size and country location), efficiency-seeking (driven by human capital or infrastructure quality) or resource-seeking (driven by the availability of natural resources or other strategic assets) (UNCTAD, 2016). According to Doing Business (2013) cited by Maune (2018a), many studies use a gravity model, which seeks to explain what causes FDI flows between two specific countries. Studies such as Dogan (2014); Doing Business (2013); Haidar (2012); Hornberger et al. (2011); Blonigen & Piger (2011); Wagle (2011); Jayasuriya (2011); Walsh & Yu (2010); Eifert (2009); Busse & Groizard (2008); Desai et al. (2003); Banga (2003) and Wei (2000) confirms that factors such as market size, growth prospects, distance to markets, openness to trade, well-educated labour forces, judicial independence and labour market flexibility, better doing business

ranking, better transport and communication infrastructure, fiscal incentives, strength of the arbitration regime, real exchange rates among others are significantly associated with FDI inflows. However, other findings show that corruption, substantial increases in the tax rate, indirect taxes, the number of procedures required to start a foreign-owned business are a significant deterrent to FDI.

The remainder of the article is organized as follows: literature review; research methodology; data presentation, analysis and interpretation; conclusions and recommendations; references and appendices.

2. Literature Review

2.1. Zimbabwe`s Foreign Direct Investment

Despite the increase in FDI inflows in Africa, Zimbabwe`s FDI inflows has been trending below USD500 million since the 1970s. This was due to a number of factors stemming from the Indigenisation and Economic Empowerment policy, expensive cost structure, regulatory burden, labour market rigidities, and doing business restrictions among others. Figure 1 below depicts the trend of Zimbabwe`s FDI net inflows from 1970 to 2017. Zimbabwe has not attracted significant FDI inflows despite the fact that the country is rich in minerals that include: gold, platinum, nickel, ferrochrome and diamonds among others. These normally attract resource-seeking FDI inflows. The insignificant FDI through commodities has, however, affected the country`s economic growth over the period. FDI inflows were expected to augment domestic investment as it brings in the much needed capital investment, employment creation, managerial skills and technology and at the end accelerate growth and development. Zimbabwe`s inability to attract meaningful FDI inflows is troubling. FDI inflows presents a potential solution to the country`s liquidity, growth and development challenges.

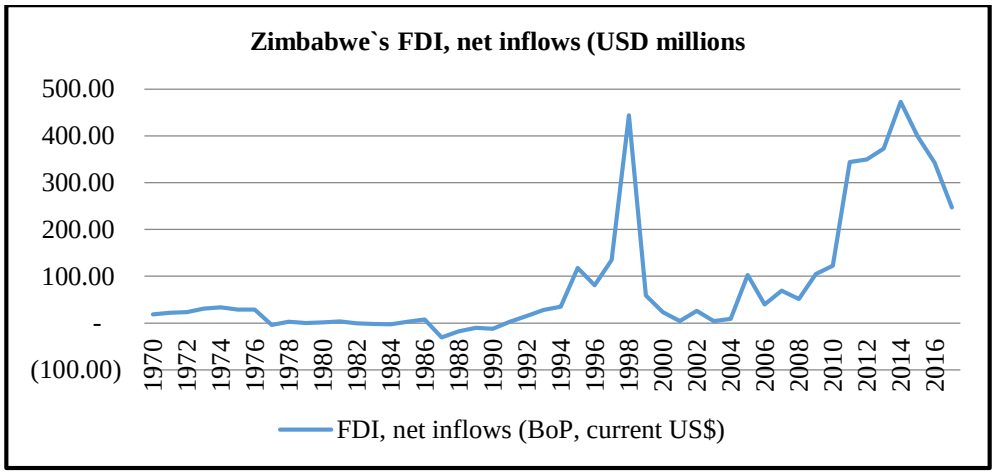


Figure 1. Zimbabwe`s FDI net inflows (BoP in USD million)
Source: World Development Data Indicators (2019)

2.2. Zimbabwe`s Gross Domestic Product

Gross domestic product is a very strong measure to gauge the economic health of a country and it reflects the sum total of the production of a country and as such comprises all purchases of goods and services produced by a country and services used by individuals, firms, foreigners and the governing bodies (Jain, Nair & Jain, 2015). It is used as an indicator by almost all governments and economic decision-makers for planning and policy formulation. It enables one to judge whether the economy is contracting or expanding, whether it needs a boost or restraint, and if a threat such as a recession or inflation looms on the horizon. When government officials plan for the future, they consider the various economic sectors' contribution to the gross domestic product (GDP). GDP was first developed by Simon Kuznets for a US Congress report in 1934 (Jain et al., 2015). The volume of GDP is the sum of value added, measured at constant prices, by households, government, and industries operating in the economy. GDP accounts for all domestic production, regardless of whether the income accrues to domestic or foreign institutions (Jain et al., 2015). Figure 2 below shows Zimbabwe`s FDI inflows as a percentage of GDP and GDP annual growth from 1970 to 2017. Zimbabwe recorded some significant GDP annual growth rates since 1970, that is, 1970 (22.6%), 1980 (14.42%), 1981 (12.53%), 1996 (10.36%), 2009 (12.02), 2010 (19.68%), 2011 (14.19%) and 2012 (16.67%). However, negative GDP annual rates were recorded in the following years, 1977 (-6.86%), 1992 (-9.02%), 2002 (-8.89%), 2003 (-17%) and 2008 becoming the worst year in the history of Zimbabwe after recording -17.67%. This was, however, due to a number of macroeconomic and political challenges. These

challenges saw Zimbabwe abandoning its local currency and adopting a basket of foreign currency in January 2009.

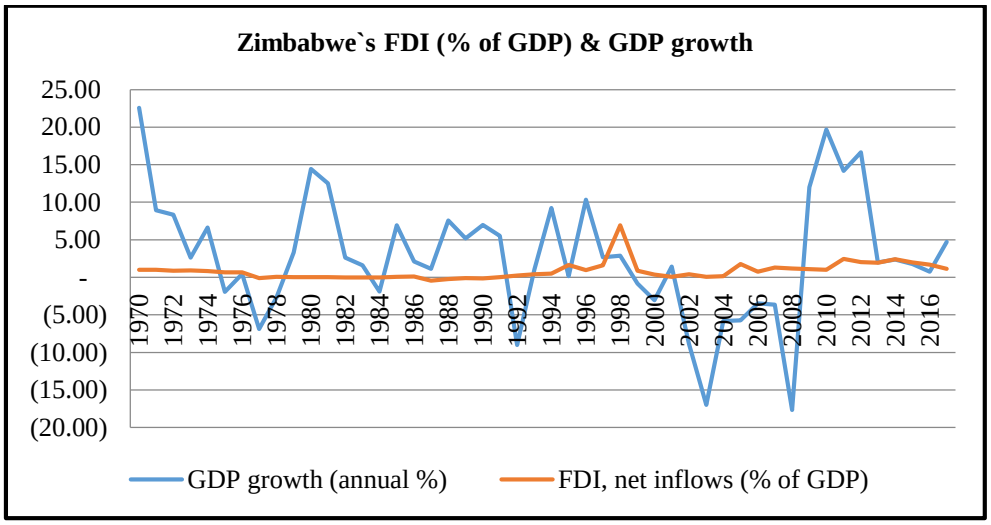


Figure 2. FDI, net inflows (% of GDP) and GDP annual growth in Zimbabwe.

Source: World Development Data Indicators (2019)

It is also critical to trend Zimbabwe`s FDI as a percentage of GDP against its neighboring countries in the region such as South Africa, Botswana, Mozambique, Zambia, Malawi, Namibia, Angola as well as the performance of sub-Saharan Africa (Figure 3). Zimbabwe`s performance has been below 10% since 1990, recording a high of 6% in 1998 before subsiding to a low of 0.86% in 1999. In 2011 it grew to 3.53% points before stabilizing within this range until 2015. Its performance has been below Mozambique, Zambia, Botswana as well as the Sub-Saharan Africa though above South Africa. Mozambique has recorded a significant upward trend of FDI net inflows as a percentage of GDP from 2010 to 2017 with the highest of 41.81% recorded in 2013 before dropping to 29.47% in 2014 and 18.34 in 2017. However, the rest were in the 0 to 10% range.

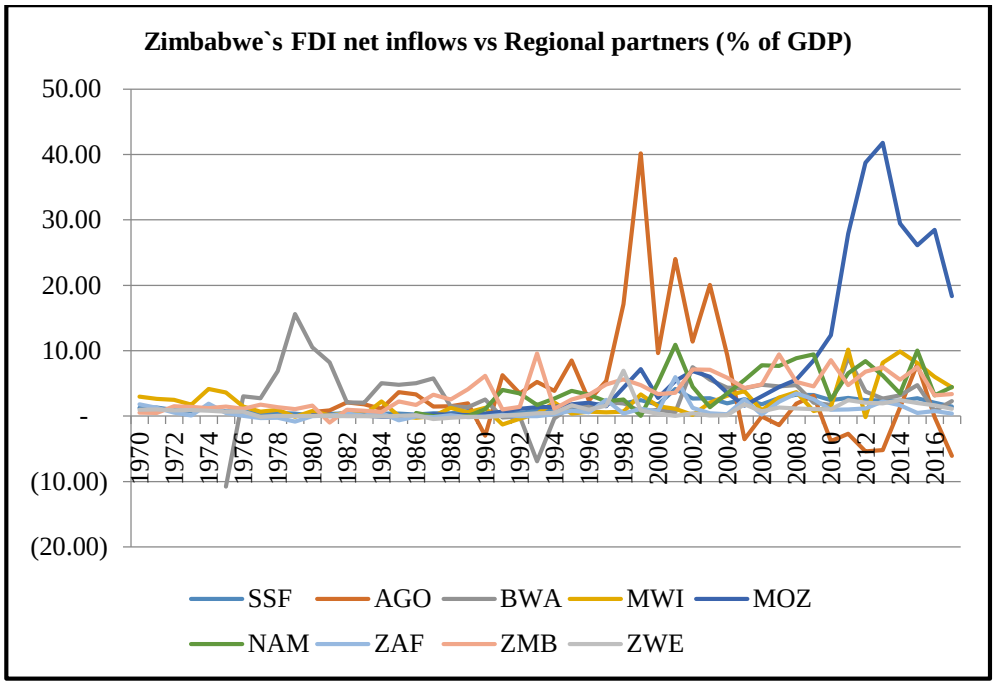


Figure 3. Zimbabwe`s FDI net inflows vs Regional Partners (% of GDP)
Source: World Development Data Indicators (2019)

2.3. Empirical Evidence

FDI has generally been considered as a factor which enhances economic growth, as well as the solution to the economic problems of developing countries (Iqbal, 2010). However, there is no consensus with regard to the direction of causality about FDI and economic growth as measured by GDP. Theoretically there are sound reasons for believing that FDI can ignite economic growth, but the empirical evidence is still divided. Many countries have embraced this idea and have formulated and implemented policies earmarked towards attracting FDI. However, this notion needs to be tested empirically especially in developing countries. Several theories have been used by researchers to evaluate the relationship between FDI and economic growth (Table 1).

Table 1. Empirical Evidence on FDI-led growth

Author(s)	Country(s)	Methods	Findings
Munyayi (2017)	Zimbabwe	ARDL cointegration	FDI has positive effect on economic growth.
Maliwa & Nyambe (2015)	Zambia	Granger causality procedure	FDI does not granger cause economic growth.
Mupfawi & Tambudzai (2015)	Zimbabwe	Multivariate linear regression model (OLS)	FDI has a positive and significant long run effect on economic growth.
Jain et al. (2015)	India	Multiple regression analysis	The results found a significant effect of FDI on GDP.
Dogan (2013)	Turkey	Time series techniques	Post long-run nexus between FDI and economic growth and bi-directional causality.
Barua (2013)	India	Dynamics cointegration	FDI, economic growth & exports are positively correlated.
Saqib et al. (2013)	Pakistan	OLS model	FDI negatively affects economic growth while DI statistically significantly explaining positive changes in economic growth.
Alkhasawneh (2013)	Qatar	Granger causality	The findings confirmed a strong and positive nexus between economic growth and FDI inflows.
Moyo (2013)	Zimbabwe	Regression Analysis	FDI has significant positive impact on economic growth.
Sichei & Kanyondo (2012)	45 African countries	Dynamic panel data estimation techniques	The study shows that Africa-wide environment has become more conducive to FDI.
Mehmood (2012)	Pakistan & Bangladesh	Multiple Regression model	FDI has a positive impact on GDP.
Egbo et al. (2011)	Nigeria	Granger causality test	Positive nexus between FDI & GDP.
Adefabi (2011)	24 sub-Saharan African countries	Fixed effect estimation technique	Existed a weak but positive effect of FDI on economic growth in sub-Saharan Africa.

Srinivasan (2010)	Association of Southeast Asian Nations	Johansen Co-integration	Found a long run nexus between FDI & GDP.
Roy & Van den Berg (2006)	USA	Simultaneous-equation model	Found that FDI had a significant, positive and economically important impact on economic growth in USA.
Hansen (2006)		Granger Causality	Found bi-directional causality between the FDI-to-GDP ratio and the level of GDP.
Hsiao (2006)	Eight East and Southeast Asian economies	Granger Causality	FDI had unidirectional effects on GDP directly and also indirectly through exports.
Yao (2006)	28 Chinese provinces	Adopting Pedroni's panel unit root test and Arellano and Bond's dynamic panel data estimating technique.	It was found that both exports and FDI had a strong and positive effect on economic growth.
Li (2005)	84 countries	Both single equation and simultaneous equation system techniques.	A significant endogenous relationship between FDI and economic growth was identified from the mid-1980s onwards. FDI not only directly promotes economic growth by itself but also indirectly does so via its interaction terms.
Li & Liu (2004)	46 developing countries	Modified production function.	It was found that FDI is more important for economic growth in export-promoting countries than in import substituting countries.
Alfaro (2004)			Shows that FDI alone plays an ambiguous role in contributing to economic growth.
Simeo (2004)	Zambia	Conventional growth model	Found that FDI can have a positive impact on economic growth particularly when the host country has a highly

			educated workforce to exploit FDI spillovers.
Basu (2003)			A long-run co-integrating relationship was found between FDI and GDP after allowing for heterogeneous country effects. The co-integrating vectors revealed bidirectional causality between GDP and FDI for more open economies. For relatively closed economies, long-run causality appeared unidirectional and runs from GDP to FDI, implying that growth and FDI were not mutually reinforcing under restrictive trade and investment regimes.
Elboiashi (2002)	Egypt, Morocco & Tunisia.		The study found that FDI affected negatively the DI and GDP in the short-run and positively in the long-run.

Source: Authors` compilation

While some studies find that FDI contributes positively to economic growth, others have found that FDI has a non-significant or even negative effect on economic growth. The differences in these results show the importance of regional and country specific studies. Given the conflicting theoretical views, many empirical studies have been conducted to examine the relationship between FDI and economic growth in developing countries. Some researchers have preferred country specific investigations while others have carried out investigations on a broad cross-section of countries and their studies have varied in application and approaches.

3. Research Methodology

The research methodology used in the study is broken down into the components detailed below.

FORMULATION OF THE EMPIRICAL RESEARCH MODEL: It can be inferred from the works reviewed in the previous sections that economic growth and development in Zimbabwe is determined by factors at both macro and microeconomic levels. The study at hand was set out to examine the impact of FDI on the growth (GDP) and development of Zimbabwe. A financial regression model was formulated whose explanatory variables were identified through literature and theory drawn from multi-lateral relationships represented by foreign direct investment (FDI), IMF credit (IMF), lending rates (LR) and policy inconsistency as the dummy variable (Dummy). The other explanatory factors not explicitly included in the model were captured by the error term. A multiple linear regression model (MLRM) connecting the above variables was generated to assess the impact of FDI on the economic growth and development of Zimbabwe in the period under review.

3.1. Data sources, period and type: The data set in this article was obtained from Government of Zimbabwe publications, the IMF, the World Bank, the Reserve Bank of Zimbabwe and ZIMSTAT. These were denoted in current United States dollars from 1991-2017 as well as percentages. Data which were used in this study were mainly secondary in nature and is in line with previous studies on the impact of FDI on growth and development of Zimbabwe, as an emerging economy.

MODEL SPECIFICATION: The study adopted and modified the MLRM employed by Chingarande et al. (2012) in their study on the impact of interest rates on FDI in Zimbabwe. The model specified and implicitly applied by Chingarande and others was of the form:

$$FDI= \beta_0 + \beta_1 GDP+\beta_2 IR+\beta_3 INFL+\beta_4 ER+\beta_5 LC+ \beta_6 RF+\ldots. + E_1 \quad (1)$$

The study at hand removed some variables from the above model namely inflation (INFL) and exchange rates (ER) since they were correlated with the main explanatory variable, that is foreign direct investment (FDI). More so, labour costs (LC) and risk factors (RF) were found to be insignificant in this study. Labour costs in Zimbabwe were found to be mainly below the poverty datum line (PDL). Almost 75% of the government employees were earning very low salaries which were highly taxed, implying that their impact on the economy was insignificant. Thus the study reorganised the above model to suite its main objective and expressed it in the form:

$$GDP=\beta_0 + \beta_1 FDI+\beta_2 IMF+\beta_3 LR+\beta_4 +D_i +\ldots. + E_1 (2)$$

Where Di = the dummy variable added by the author to represent the major policy inconsistencies in Zimbabwe in the period under review. Therefore Di =Policy inconsistency period =1 and D0 = 0 for Otherwise.

3.2. Justification of variables in the econometric model: This section outlines and justifies the variables drawn into the model used by the study.

THE DEPENDENT VARIABLE: The study used the gross domestic product (GDP – per capita-currencies) as its dependent variable**.** The GDP is the total value of all goods and services produced by a nation over a period of time usually one year, (World Bank, 2014). The study proceeded to use the GDP per capita as proxy for the GDP which was adjusted to inflation GDP per capita accounts for the change in market value, in order to narrow the difference between the output figures from one year to the other. Analysts use this information to determine whether the growth rate of real GDP per capita is positive or negative. A positive growth rate of the GDP meant that the nation's economy is booming, while a negative rate would imply that the economy is in a recession. Hence the use of the GDP as the dependent variable to find out how it was influenced by changes on the explanatory variables selected for the model.

EXPLANATORY VARIABLES: The explanatory variables used in the MLRM are as elaborated below.

Foreign direct investment (Currency, US$): African relations refer to the historical, political, economic, military, social and cultural connections between countries of the world for instance, China and the African continent (Harrison, 2010). Their cooperation is extended to cover education, public health, culture and other fields such as mining and manufacturing. This variable was presented as private capital flows consisting of net foreign direct investment and portfolio investment. Foreign direct investment is net inflows of investment to acquire a lasting management interest (10% or more of voting stock) in an enterprise operating in an economy other than that of the investor, World bank (2016). The study used FDI to represent capital inflow to Zimbabwe, since the country started receiving more private capital flows from China for example under the Look East Policy (LEP) of 2003. This arose after the Zimbabwean economy could not receive more funding from IMF, World Bank and other Western and regional foreign investors. This therefore justifies the inclusion of FDI in the model and was measured in the USD currency.

IMF credit (DOD, US$): The study used IMF credit data related to the operations of the IMF as provided by the IMF Treasurer's Department. It was also noted that special drawing rights (SDR) allocations are recorded as the incurrence of a debt liability of the member receiving them. This is because of the requirement to repay the allocation in certain circumstances, and also because interest accruals (The World Bank, International Debt Statistics, 2016). The IMF credit was included in the model since Zimbabwe did not completely stop receiving funding from IMF and other countries of the world other than China and hence the inclusion of the variable in the mode.

Interest rates (RR-measured as commercial bank lending rates): Lending rates are the proportion at which financial institutions loan money and constitute the base on which the banks then offer money to the final customer. They can also be defined as the amounts paid by the borrowers for the use of money that they borrow from lenders. They are the bank rates that usually meet the short and medium-term financing needs of the private sector, according to Baker & Krugman (2005). These rates are normally differentiated according to the creditworthiness of borrowers and the objectives of financing. The terms and conditions attached to these rates differ with countries, and this limits their comparability. An rise in the lending rate results in the high cost of borrowing which forced most firms and individuals to cut back their borrowing activities leading to slow economic growth. However, in Zimbabwe high interest rates have positive effect on economic growth since they encourage banks to lend money since credit will be profitable Barrow (2009) and the opposite is true for low interest rates.

Dummy variable (Dummy-policy inconsistencies): Policy inconsistency is captured as a dummy variable in the model. In 1980, Zimbabwe got on a program of post-war reconstruction, which was supported by a few foreign donors particularly from China and Russia. The general terms for reconstruction involved policy crafting, adoption and implementations. Challenges arose when one policy failed to work before maturity, as it was then terminated and another policy crafted and implemented by the government. Policy inconsistencies in Zimbabwe resulted in economic meltdown, confusion, bad image to attract FDI and make strategic planning impossible. The challenges caused by policy inconsistencies included hindering economic growth and employment, poor funding of critical sectors such as education and health, which are central to growth of nations towards self-reliance and sustainable development.

The error term (E_i): The error term captured the other explanatory variables that were not deterministic but rather stochastic in nature. It is surrogate for all other variables that are omitted from the model but that collectively affected economic growth and development of the Zimbabwean economy.

The analytical framework: In an attempt to establish the relationship between the variables, the study employed the Ordinary Least Squares technique which is straight forward and simple to conceptualise. It was important in literature for use in testing the relationship between variables. The following variable tests were projected.

Stationarity test (Unit root test for variables): The study tested if the variables were stationary using Augmented Dickey-Fuller test (ADF). Time series data is going to be used in this study. Thus, most OLS regressions that are carried out at levels may not be reliable. Given this knowledge, testing for stationarity of variables to obtain a more reliable result becomes very essential. We usually regret the null

hypothesis when the p-value is less than or equal to specified level often, 0.05 (%), or 0.01 (%) and even 0.1 (10%).

Multicollinearity tests: Multicollinearity is the existence of a perfect or exact linear relationship among some or all explanatory variables of a regression model (Gujarati and Porter, 2009). Multicollinearity exists if the pair wise or zero order correlation coefficient between two regressors is high, say in excess of 0.8 proportion.

Heteroskedasticity: The research study employed a log-transformation to the data to reduce the problem of heteroskedasticity. Log-transformation reduces heteroskedasticity as it compresses the scale in which the variables are measured, thereby reducing a tenfold difference between two variables.

Autocorrelation: Time series data are usually correlated hence preliminary test were done. The study employed the Breusch-Godfrey Serial Correlation LM Test. If the probability is greater than 0.05 then there is no autocorrelation. The Durbin-Watson was not employed as it is biased for autoregressive moving average models, so that autocorrelation is underestimated.

Normality test: Normality tests were done to determine if a data set is well-modelled by a normal distribution. It was also used to compute how likely it was for the random variables underlying the data set to be normally distributed. One can assess normality of data sets numerically or graphically. When the numerical approach is applied, Jargue-Bera and probability should be close to zero and below 0,05 respectively leading to acceptance of the null hypothesis.

USE OF THE ORDINARY LEAST SQUARES (OLS) ESTIMATION: The OLS technique was used to determine the impact of the above explanatory variables on Zimbabwe's GDP in the period under investigation. The main reason for using the OLS estimation technique was because it produced parameter estimates which were BLUE provided that the Gaussian /Standard assumptions held. After running all the data tests as highlighted above and ascertaining that they satisfied all the regression inevitabilities, OLS estimation was carried out to test the significance and degrees of correlation between variables using E-Views 8 Package.

4. Data Presentation, Analysis and Interpretation

The study used an econometric strategy to test the depth of correlation between the variables by applying the regression analysis of the Ordinary Least Squares approach using E-Views 8 software package. The software helps to carryout statistical analysis of the relationships among series to create new series from existing ones, to display and print series, and provides convenient visual ways to enter data series from the keyboard or from disk files.

Descriptive statistics: These are a summary of statistics that quantitatively describe or summarise features of a collection of information. It aims to summarize the sample, rather than use the data to learn about the population that the sample of the data is thought to represent. Descriptive statistics is of great importance as it allows visualize the meaning of given raw data. Table 2 below shows the estimates.

Table 2. Showing Descriptive Statistics with Raw Data (GDP, FDI, IMF, LLR were logged)

Variable	DGDP	DFDI	IMF	DLRC
Mean	4.20E+13	388.1529	-5297418.	2.744640
Median	108416.8	30.30000	-1856.000	2.744293
Maximum	1.47E+15	10600.00	1810028.	3.142702
Minimum	3441.000	7.500000	-1.86E+08	2.352183
Std. Dev.	2.48E+14	1784.717	31498122	0.210145
Skewness	5.659453	5.583105	-5.658415	0.269984
Kurtosis	33.02941	32.45425	33.02185	2.723220
Jargue-Bera	1501.913	1447.012	1501.182	0.536919
Probability	0.000000	0.000000	0.000077	0.000000
Observations	27	27	27	27

Source: E-views 8 Raw Data

The mean and median of the IMF, GDP and FDI were different showing that the data were asymmetric. The study revealed that the median and the mean of LR were the same implying that the data were symmetric in nature. The values of the IMF and GDP variables gave the maximum values, reflecting how the data were spread and the existence of outliers in the data sets. The study realised a case of positive skewness for all the explanatory variables in the model. The kurtosis of variables was not closer to three except for the LR variable. The LR variable was found to be normally distributed. For there to be normality of variable the Jargue-Bera probabilities should be greater than 0.05. The major findings about specific scores in our distribution were given by the standard deviation. The arithmetic mean was 195.875 which depicted that the scores were normally distributed but with very large standard deviations. We found out that the above statement that the estimate was approximately 95% of the scores fell in the range of 4.20E+13-(4.0799) to 2.744640. On the other hand, it can be argued that the assumption of normality is just a procedure which does not affect the regression of a model. The raw data consisted of too large standard deviations which reflected greater variation between actual observations and their means. This justified the reason for introducing natural logarithms and solving for the problems of there being the existence of outliers in the data sets.

DIAGNOSTIC TESTS: The following are the diagnostic tests that were performed by the study on the variables drawn into the model.

STATIONARY TESTS: The study used Augmented-Dickey Fuller test to test for stationarity to see the presents of the unit roots on their variables as well as to identify if the data were given series in a random walk. Augmented-Dickey Fuller is used for a larger and more complicated set of time series models. The use of non-stationarity data led to inaccurate results. From the Augmented Dickey Fuller test the results indicated that LGDP, LRR, LTNC, were non-stationary at 5% level, thus Augmented Dickey Fuller Test was then employed at first difference as shown on the following table.

Table 3. Showing Augmented Dickey-Fuller (ADF) Unit Root Test

Original Variable	Dickey-fuller Tests	Critical Value at 1%	Critical Value at 5%	Critical Value at 10%	Order of Integration
DLGDP	-4.8647	-3.7240	-2.9862	-2.632604	I(1)
DLFDI	-5.49403	-3.7240	-2.9862	-2.63260	I(1)
DLIMF	-25.1669	-3.7240	-2.9862	-2.6326	(0)
DLLR	-4.9807	-3.7240	-2.9862	-2.6362	I(1)

Source: E-views 8 (Raw Data)

The study discovered that a variable was stationary when its Augmented-Dickey Fuller test statistics value exceeded the critical value in absolute terms. The difference is shown by the letter D, when it reached such level it meant that the data variables, LGDP, DLFDI, DLIMF, and DLLR were stationary at 1% level of significance. This revealed that the variables had an integral of order one.

The above findings were translated into a new model of the form:

$$DLGDP = \beta_0 + \beta_1 DLFDI + \beta_2 DLIMF + \beta_3 DLLR + \beta_4 Di + U \quad (3)$$

MULTICOLLINEARITY TEST OF VARIABLES: The multicollinearity test results are shown on the table below:

Table 4. Showing the Correlation Matrix of the Variables

	DLFDI	DLIMF	DLLR	DUMMY
DLFDI	1.000000	0.510399	-0.441952	0.126602
DLIMFC	0.510399	1.000000	0.018243	-0.187039
DLLR	-0.441952	0.018243	1.000000	-0.125650
DUMMY	0.126602	-.0187039	-0.125650	1.000000

Source: E-views 8 (Raw Data)

The findings of the study were that there was no multicollinearity on the variables provided, since all results were less than 0.80. This implied that there were no perfect linear relationships among the explanatory variables in the model.

Heteroscedasticity test results: The results from the Arch test are shown on the table below. The ARCH model captured the serial correlation in summation of $\dot{\varepsilon}_t^2$ using a smaller number of parameters.

Table 5. Showing Heteroscedasticity ARCH Test results

F-Statistic	0.014850	Probability	0.903797
Observed R-Squared	0.015800	Probability	0.899970

Source: E-views 8 (Raw Data)

A probability of 0.90 was found to be above the mark of 0.05. This measure of 0.90 revealed that there was some significant presence of homoscedasticity in the variables in the model.

AUTOCORRELATION TEST RESULTS: The study used Breuch-Godfrey Test to test for autocorrelation among the variables in the model.

Table 6. Showing Autocorrelation that is Breusch Godfrey Serial Correlation LM Test

F-Statistic	0.170240	Probability	0.844361
Observed R-Squared	0.423413	Probability	0.809202

Source: E-views 8 (Raw Data)

The study postulated that there was no correlation between the elements of a series and others from the same series separated from them by a given level of interval. The probability of 0.844 was far much more than 0.05 and hence that there was no autocorrelation in the variables in the model.

NORMALITY TEST RESULTS: Normality of variables included in the model was tested using the Jargue-Bera test. The Jargue-Bera is derived from mathematical observations which were entirely distribution-free and less sensitive to outliers. The data followed a normal distribution with parameters mean,μ and variance, σ^2. The data would be normally distributed if Jargue-Bera probability testis gave values greater than 0.05.

Table 7. Showing Results from the Jargue-Bera Normality Test

Jargue-Bera	1.400692
Probability	0.496413

Source: E-views 8 (Raw Data)

The results of the test revealed that the probability p = 0.4964 was greater than 0.05, and hence the residuals from the variables were normally distributed.

ORDINARY LEAST SQUARES REGRESSION RESULTS: The empirical results on the impact of interest rate fluctuations on economic growth are shown and presented on the table below. The table presents all the variables of the model including the dummy variable.

Table 8. Showing the Regression Results with Dependent Variable DLGDP

Variable	Coefficient	Standard Error	T-Statistic	Probability
Constant	0.99005	0.19051	5.196837	0.000
DLFDI	2.011441	0.172982	11.62801	0.0000
DLIMF	5.02E-09	2.89E-09	1.739294	0.0926
DLLR	-0.46060	1.609326	1.811681	0.0804
Dummy	-1.107744	0.223067	-4.965976	0.0000
R Squared (R^2) = 0.866997		F- Statistic =47.26004		
Adjusted R Squared= 0.848652		Probability of F-Statistic= 0.000000		
Durbin Watson = 2.124639				

Source: E-view 8 (Raw Data)

The above findings were translated into a specific MLRM given by:

$$\text{DLGDP} = 0.990051 + 2.011441\text{DLRR} + 5.02\text{E} - 09\text{NE} + 2.915585\text{DLTNC} - 1.107744\text{Dummy}.$$

INTERPRETING OF THE MLRM RESULTS: The study found out that the coefficient of determination of the data was 0.866997. This measure showed that about 86.70% of the variation in economic growth was accounted for by the explanatory variables. Therefore the remaining 13.3% value of the GDP was caused by the other explanatory variables captured by the error term. The adjusted R^2 value of 0.8486 meant that the model was about 85 per cent in terms of its goodness fit to normality. The F-value of 47.26 was greater than the F critical-value of 0.00. This confirmed that there existed a significant relationship between the dependent variable, GDP and the independent variables. The Durbin-Watson statistic was 2.124639 to signify that the model was significant. The estimated coefficient for interest rates was positive, indicating that they had a positive relationship with GDP. The probability of the F- Statistic was 0.000000. It was less than 0.01 or 0.05 and hence it postulated that the model was correctly specified.

FOREIGN DIRECT INVESTMENT (DLFDI): The primary independent variable, FDI was found to have a positive correlation coefficient with GDP and was statistically significant at all levels. The study depicted that multilateral relationship of FDI had a positive influence on the growth and development of the Zimbabwean economy. Providers of FDI in Zimbabwe had interests to establish subsidiary firms to exploit source of raw materials that were readily available such as crude oil, iron ore/concentrates, and copper which had helped fuel for example China's rapid infrastructure development in the domestic economy. On the other hand, China

represented a major trading partner and investor that provided Zimbabwe with cheap consumer products, bought its natural resources, and helped build its infrastructure but with political motives in mind.

IMF (DLIMF): According to the study the IMF was statistically insignificant at 10% level of importance. The positive coefficient signified that IMF funding had an influence on Zimbabwe's economic growth. The sign attached to the measure reflected that an increase in the IMF funding would result in 5.02% increase in economic growth. The IMF credit assisted the Zimbabwean economy to boost its output and hence be able to export excesses to generate foreign currency.

LENDING RATES (DLRLR): The study discovered that high interest rates encouraged commercial banks to lend. This boosted the domestic investment and attracted FDI and increased the country's economic growth. Lending rates were found to be statistically significant at 10% level. Existence of low interest rates encouraged borrowing for consumption and saving purposes. This finding was in line with the New Classical view that growth required a well-recognized relationship between investment demand and interest rates. The study discovered that a unit increase in interest rates resulted in an increase in the country's economic growth by US2.9 million dollars. Therefore a rise in interest rates attracted foreign direct investors to invest in the domestic country, FDI helped to reduce liquid crunch problems and exerted the much needed competition on poor performing private and government owned firms. Overall FDI was found to be very low in Zimbabwe in the period under review, due to unfavorable policies that scared foreign investors. The significant increase in interest rates in 2008 led to a spontaneous increase in GDP in the same year.

DUMMY VARIABLE: The dummy variable got a value of 0.00 which was attributable to the policy inconsistencies in the period under review. The coefficient attained reflected that there was a negative relationship between policy inconsistencies and economic growth in Zimbabwe. These policies magnified the country and political risks of the domestic economy making it a very unsafe FDI destination and hence its isolation from international groupings such as COMESA. In other words Thus, policy inconsistencies for example the abrupt changes from medium term economic recovery programme (MTERP) or long term (LTERP) to Indigenous and Economic and Empowerment Act (IEEA) or Zimbabwe Agenda for Socio-Sustainable Economic Transformation (ZIMASSET) in Zimbabwe chased away many existing and potential foreign investors and hinders economic planning.

ZIMBABWE-CHINA RELATIONSHIP: China and Zimbabwe bilateral diplomaticrelations dated back to the colonial period where China assisted most African countries including Zimbabwe where they fought against the Smith regime. The relationship has flourished with the passage of time as witnessed with about 128 agreements that are currently running although not much ground has been covered.

There is no mutual equal beneficial out of this bilateral relationship, Zimbabwe have not benefited a lot from this relationship more needs to be done and there is great room for improvement.

MUTUAL BENEFICIATION: Zimbabwe-China relationship failed to produce a win-win situation between these two countries; the relations are skewed to the Chinese side. More and more needs to be done as witnessed in this case there are few companies that have been set out in Zimbabwe that are manufacturing and doing the value addition either upstream or downstream.

MAJOR FINDINGS OF THE STUDY: Based on the above model result analysis and interpretations and views drawn from the corporate world and academia the study came up with the following major findings:

- The study revealed that Zimbabwe's public and private sectors needed more FDI to be able to attain meaningful economic growth and development or acquire assets and grow shareholders' wealth.
- Zimbabwe's main provider of FDI in the period under review was China as the country's relations with USA, UK and other developed countries had constrained funding particularly in the 21st century.
- Zimbabwe's relations with China stretched back to the colonial era and were of late intensified due to China's foreign policy drive on Africa, but should be taken with caution.
- The above Zimbabwe-Sino arrangement has strengthened relations between Africa and China, as China has become one of the leading investors and trade partners for the African continent.
- There are opportunities that have been posed by the Zimbabwe-China relationship in the period under investigation. For example since the turn of the new millennium, China has been more visible in Zimbabwe in respect of trade as compared to other rich nations such as Europe and America.
- Chinese loans and investments have been exploited by Zimbabwe its infrastructure base for example investment in capital projects such as Kariba hydro-electric power (HEP) extension and Hwange thermal power station expansion. However, the motives or benefits attached to the funding of the two major capital projects remain unknown to the general public.
- Some of the Chinese investments were concentrated on resource extraction which signalled that China's renewed interest in Africa and Zimbabwe in particular could be based on its own economic and political interests.
- There could be some long run risks or challenges to be faced by the country, given China's economic involvement in Africa. It was believed that China's continued extraction of resources from Africa and Zimbabwe in particular could lead to continued depletion of such resources rendering access to such endowments by future generations limited.

- Most Chinese companies that won contracts in Africa and Zimbabwe in particular rarely faced competition from African countries if any. This was mainly because the latter were not capable of handling such huge contracts due to lack of experience and technical skills. Moreover, Chinese companies were heavily subsidised, which, in turn, made them superior to African countries and firms.
- There outstanding loans that Zimbabwe held with Bretton Woods Institutions namely the World Bank and IMF impacted significantly on the retardation in growth and development prospects of the economy since the turn of the new millennium.
- The country's domestic debt, balance of payment (BOP) and emergence of the parallel market were behind the dismal performance of the formal banking sector, liquidity crunch, erosion of the purchasing power from households and firms, and serious volatilities in interest and exchange rates that were haunting the livelihoods of the poor and vulnerable citizens of the country.
- The unabated externalisation of foreign currency by those in authority, corruption, nepotism, inconsistent policies, political and country risks were some of the challenges that the country faced in its desire to honour its obligations with financiers and directing its growth towards self-reliance and sustainable development in the foreseeable future.

5. Conclusions and Recommendations

Based on the study objectives given at the commencement of this study, the following are the main conclusions and recommendations extracted from its major findings.

CONCLUSIONS OF THE STUDY: The following are the main conclusions of the study at hand:

Foreign direct investment (DLFDI): The study concluded that Zimbabwe's GDP had a direct relationship with FDI. FDI had a positive influence on the growth and development of the Zimbabwean economy and conditions should be created to boost access to such developmental funds and credit lines. Without access to FDI and loan facilities the country's capacity to direct its economic activity towards sustainable development could remain very difficult, stagnant or repressed.

IMF (DLIMF): It was also concluded that the influence of the IMF on Zimbabwe's GDP was statistically insignificant. Although the coefficient between Zimbabwe's GDP and IMF funding was positive, the impact on economic growth and development was marginal. In other words favourable conditions must be created in the economy to be able to lure significant funding from the IMF and WB as well. Although the IMF credit assisted the Zimbabwean economy to boost its output in the past, the funding has significantly dwindled due to non-performing loans (NPLs)

Zimbabwe got from the Bretton Woods Institutions in the early 1990s and is failing to honour even to this day and hence the country's current reduced foreign currency earning capacity and retarded growth.

LENDING RATES (DLRLR): The study concluded that high interest rates encouraged commercial banks to lend but simultaneously made the cost of borrowing very expensive. High interest rates, the world over, attracted FDI, boosted domestic investment and increased the country's economic growth. However the study concluded that lending rates had a statistically significant impact on Zimbabwe's GDP during the GNU, and was short-lived. The study also concluded that due to liquid crunch problems, interest rates in the economy soured leading to the emergence of the black market which has compounded the financial challenges faced by the government and the financial sector. High interest and exchange rates led to a serious fall in FDI in Zimbabwe in the period under review. The situation was compounded by introduction of a repressed or administered financial system coupled with unfavorable economic policies such as the fast track land reform programme (FTLRP) and IEEA that scared foreign investors.

OTHER SOCIO-ECONOMIC FACTORS: The study concluded that corruption, nepotism, abuse of authority and policy inconsistencies saw the gains achieved by the GNU in the period 2009-13 being short-lived. The revitalization of some private sector firms and zeal for the government to commercialize or privatize its firms were eroded shortly after the end of the life of the GNU. It was concluded that policy inconsistencies and economic growth in Zimbabwe had a negative relationship. Both country and political risks facing the country increased because of nepotism, politicking, corruption, greed and policy inconsistencies. The unpredictable nature of the country's policies made it a very unsafe FDI destination and hence the isolation the country faces lately from western countries leading to lack of access to credit lines and FDI in the period under investigation.

RECOMMENDATIONS OF THE STUDY: There are a number of problems that are posed by Zimbabwe-China FDI relationship over the period under review. It is not a win-win situation and therefore China has lost its popularity with the Zimbabwean people. Based on the conclusions above, the study came up with the following recommendations that can be implemented Zimbabwe to attain economic growth and development.

Public involvement: From the Zimbabwean perspective government should engage both the private and public sector for inputs on the relations and then draw some conclusive concrete ideas from the consultations. This has to be done since most Zimbabwean citizens have a negative perception about the relationship with China which is perceived to be skewed in favour of the elite and China itself.

Politicking and development: Party affiliation and line appointments let alone corruption and nepotism in bilateral relationships have to be abolished. Since this bilateral relationships stretches even to education and skills exchanges the selection even of students to China are done on the party lines and these have to be stopped if we as a country need to derive maximum satisfaction from these exchanges. For a country to derive maximum value from the bilateral relationship the ruling party has to accept criticism and build upon this criticism in order to move the country ahead. Zimbabwe has to be result oriented so as to maximise on the returns on all bilateral relations.

Policy inconsistencies and reviews: While the country's policies towards western countries have been varying over time, labour policies for China and Zimbabwe differ in most respects. Hence due to this variance, there is need for the two countries to harmonise their labour laws to strengthen their bilateral relationships. Minimum wages have to be introduced in all the Chinese companies that are operating in Zimbabwe, together with setting the maximum number of working hours per day or week. There is also need for reviewing the terms of unprocessed goods to China. Therefore there is need for exports of semi or finished goods unlike looting of raw materials to be limited in order to for the government to maintain a certain level of control of the country's economic activities.

Accountability: There is need for accountability on the public officials on all the loans that have been forwarded to the Zimbabwe by world-wide financing institutions including the IMF, WB and China. These have to be audited and there is need for disclosure and public announcement of the loans and advances that have been extended to our country for transparency and accountability purposes. This will go a long way in promoting transparency, accountability and reducing corruption and other forms of illegal activities that have characterised our country particularly backdating to the year 2000.

Liquidity crunch: Zimbabwe is advised not to politicise its currency system if it is to effectively manage its liquidity crunch and development processes. The use of surrogate currencies such as bearer's cheques, bond notes and of late the RTGS dollars have created serious socio-economic challenges which include a 95% unemployment rate, retarded economic growth and development. The challenges caused by use of such currencies are also manifested in the form of erosion of purchasing power from the hands of households and firms and crowding out of private firms and closure of government owned firms such as National Railways of Zimbabwe, Zimbabwe Iron and Steel Company and African Associated Mines (AMM) Limited.

Honouring outstanding loans with WB and IMF: It is recommended that the country must honour its financial obligations with the World Bank and IMF to be able to unlock the much needed credit lines. Rationalization of relations with the WB

and IMF and accessing other credit lines are indispensable if the country is to attain price stability, revive the private sector, commercialize public entities, finance infrastructural projects, education and health and let alone create employment.

References

Adefabi, R. A. (2011). Effects of FDI and human capital on economic growth in sub Saharan Africa. *Pakistan Journal of Social Sciences*, Vol. 8(1), pp. 32 - 38.

Alfaro, L. C.-O. (2004). FDI and economic growth: the role of local financial markets. *Journal of International Economics*, Vol. 64(1), pp. 89–112.

Alkhasawneh, M. F. (2013). The granger causality relationship between foreign direct investment and economic development in the state of Qatar. *Applied Mathematics and Information Sciences: An International Journal*, Vol. 7(5), pp. 1767-1771.

Banga, R. (2003). Impacts of Government policies and investment agreements of FDI inflows. Indian Council for Research on International Economic Relations, *Working Paper* No. 116.

Barua, R. (2013). A study on the impact of FDI inflows on exports and growth of an economy: evidence from the context of Indian economy. *Journal of Arts, Science and Commerce*, Vol. 3(1), pp. 124 – 131.

Basu, P. C. (2003). Liberalization, FDI, and Growth in Developing Countries: A Panel Cointegration Approach. *Issue Economic Inquiry*, Vol. 41(3), pp. 510–516.

Bengoa, C. & Robles, S. (2004). Does Foreign Direct Investment Foster Economic Growth? *Some Theoretical and Empirical Arguments*. Available at http://ssrn.com/abstract=525882.

Blomstrom, M., Lipsey, E. R. & Zejan, M. (1994). What Explains the Growth of Developing Countries? In Baumol, William J. Nelson, Richard R. & Wolff, Edward N. (eds.), *Convergence of Productivity*, Oxford University Press, New York.

Blonigen, B. & Piger, J. (2011). Determinants of Foreign Direct Investment. *NBER Working Paper 16704*, National Bureau of Economic Research, Cambridge, MA.

Busse, M. & Groizard, J. L. (2008). Foreign Direct Investment, Regulations, and Growth. *World Economy*, Vol. 31(7), pp. 861–86.

Chen, G; Geiger, M. & Fu, M. (2015). *Manufacturing FDI in Sub-Saharan Africa: Trends, Determinants, and Impact*. Washington, DC: World Bank.

Chingarande, A.; Machiva, B.; Karambakuwa, R. T.; Denhere, W.; Tafirei, F.; Zivanai, O.; Muchingami, L. & Mudavanhu, V. (2012). The Impact of Interest Rates on Foreign Direct Investment. *The International Journal of Management Sciences and Business Research*, Vol. 1(5), pp. 1-24.

Choe, J. I. (2003). Do Foreign Direct Investment and Gross Domestic Investment Promote Economic Growth? *Review of Development Economics*, Vol. 7(1), pp. 44 – 57.

Choi, Y. J. & Baek, J. (2017). Does FDI Really Matter to Economic Growth in India? *Economies*, Vol. 5(20). doi:10.3390/economies5020020.

De Gregario, J. (1992). Economic growth in Latin America. *Journal of Development Economics*, Vol. 39, pp. 59-83.

De Mello, L. R., Jr (1996). *Foreign Direct Investment, International Knowledge Transfers, and Endogenous Growth: Time Series Evidence*. Discussion Paper, Department of Economics, University of Kent.

Desai, M. C., Foley, F. & Hines, J. (2003). Foreign Direct Investment in a World of Multiple Taxes. *Journal of Public Economics*, Vol. 88, pp. 27–44.

Dogan, E. (2013). Foreign Direct Investment and Economic Growth: A Time Series Analysis of Turkey, 1979-2011. *Çankırı Karatekin University, Journal of the Faculty of Economics and Administrative Sciences*, Vol. 3(2), pp. 239-252.

Dogan, E. (2014). Foreign direct investment and economic growth in Zambia. *International Journal of Economics and Finance*, Vol. 6(1), pp. 148 – 153.

Du Luosha, Harrison, A. & Jefferson, G. (2011). FDI Spillovers and Industrial Policy: The Role of Tariffs and Tax Holidays. *World Development*, Vol. 64, pp. 366–383.

Dunning, J. H. (1993). *Multinational Enterprises and Global Economy*, Wokingham, Addison-Wesley.

Durham, J. B. (2004). Absorptive capacity and the effects of Foreign Direct Investment and equity foreign portfolio investment on economic growth. *European Economic Review*, Vol. 48(2), pp. 285–306.

Egbo et al. (2011). Foreign direct investment and economic growth in Nigeria: a granger causality analysis. *International Journal of Current Research*, Vol. 3(11), pp. 225-232.

Eifert, B. (2009). Do Regulatory Reforms Stimulate Investment and Growth? Evidence from the Doing Business Data, 2003–07. *Working Paper 159*, Center for Global Development, Washington, DC: USA.

Elboiashi, H. N. (2002). The causal relationships between Foreign Direct Investment (FDI), Domestic Investment (DI) and Economic Growth (GDP) in North African non-oil producing Countries: Empirical Evidence from Cointegration Analysis. *Advances in Management*, Vol. 2(11).

Falki, N. (2009). Impact of Foreign Direct Investment on Economic Growth in Pakistan. *International Review of Business Research Papers*, Vol. 5(5), pp. 110-120.

Farole, T., & Winkler, D. (eds.) (2014). *Making Foreign Direct Investment Work for Sub-Saharan Africa: Local Spillovers and Competitiveness in Global Value Chains*. Washington, DC: World Bank.

Findlay, R. (1978). Relative backwardness, Direct Foreign Investment, and the transfer of technology: a simple dynamic model. *Quarterly Journal of Economics*, Vol. 92, pp.1-16.

Fry, M. J. (1992). Foreign Direct Investment in a Macroeconomic Framework: Finance, Efficiency, Incentives and Distortions. *PRE Working Paper*, Washington DC: The World Bank.

Ghoshal, M. & Saxena, S. (2012). Role of Foreign Direct Investment in Indian Small Scale Industries. *International Journal of Management, IT and Engineering*, Vol. 2(5), pp. 560-574.

Graham, E. H. & Krugman, P. R. (2005). *Foreign Direct Investment in the United States.* Washington, D.C: Institute for International Economics.

Gujarati, D. N. & Porter, D. C. (2009) *Basic Econometrics.* (5th Ed.). McGraw Hill Inc., New York.

Haidar, J. (2012). The Impact of Business Regulatory Reforms on Economic Growth. *Journal of the Japanese and International Economies*, Vol. 26, pp. 285-307.

Hansen, H. R. (2006). On the Causal Links between FDI and Growth in Developing Countries. *The World Economy*, Vol. 29(1), pp. 21–41.

Harrison, A. (2010). The World Bank, UC Berkeley and National Bureau of Economic Research Gary Jefferson, Brandeis University.
Hornberger, K., Battat, J. & Kusek, P. (2011). Attracting FDI: How Much Does Investment Climate Matter? Viewpoint Note 327, World Bank, Washington, DC: USA.

Hsiao, F. S.-C. (2006). FDI, exports, and GDP in East and Southeast Asia—Panel data versus time-series causality analyses. *Journal of Asian Economics*, Vol. 17(6), pp. 1082–1106.

Iqbal, M. S. (2010). Causality relationship between Foreign Direct Investment, Trade and Economic Growth in Pakistan. *Asian Social Science*, Vol. 6(9).

Jacob A. O., Okon, J. U. & Chuku, A. (2012). Foreign Direct Investment and Economic growth in Nigeria: An Analysis of the Endogenous Effects. *Curr. Res. J. Econ. Theory*, Vol. 4(3), pp. 53-66.

Jain, D., Nair, K.S., & Jian, V. (2015). Factors affecting GDP (Manufacturing, Services, Industry): An Indian Perspective. *Annual Research Journal of SCMS, Pune*, Vol. 3, pp.38-56.

Jayasuriya, D. (2011). Improvements in the World Bank's Ease of Doing Business Rankings: Do They Translate into Greater Foreign Direct Investment Inflows? Policy Research *Working Paper* 5787, World Bank, Washington, DC: USA.

Khan, A. (2007). Foreign Direct Investment and Economic Growth: The role of Domestic Financial sector. PIDE *Working Paper*.

Li, X (2005). Foreign Direct Investment and Economic Growth: An Increasingly Endogenous Relationship. *Journal of World Development*, Vol. 33(3), pp. 393–407.

Maliwa, E. & Nyambe, M.J. (2015). Investigating the impact of FDI on economic growth in Zambia: 1980-2012. *European Journal of Business, Economics and Accountancy*, Vol. 11, pp. 1-12.

Manzolillo, D. L., Marchal, R., Mubarak, J.A., & Del Buono, M. (2000). *Globalization and its impact on Somalia*. UNDP/UNDOS, Nairobi.

Maune, A. (2018a). Economic Development in Africa: Unlocking the potential of Zimbabwe`s Ease of Doing Business in attracting Foreign Direct Investment. *Journal of Economic and Management Perspectives*, Vol. 12(2).

Maune, A. (2018b). The Impact of FDI Inflows, Exports and Domestic Investment on Economic Growth in Africa. *Journal of Economics and Behavioral Studies*, Vol. 10(4), pp. 152-164.

Mehmood, S. (2012). Effect of different factors on Gross Domestic Product: A comparative study of Pakistan and Bangladesh. *Academy of Contemporary Research Journal*, Vol. 1(1), pp. 11-12.

Moyo, T. (2013). The impact of foreign direct investment on economic growth: The case of Zimbabwe (2009-2012). *International Journal of Economics, Finance and Management Sciences*, Vol. 1(6), pp. 323-329.

Munyanyi, M. E. (2017). Foreign direct investment and economic growth nexus in Zimbabwe: A cointegration approach. *Munich Personal RePEc Archive*, MPRA Paper No. 77946, posted 27 March 2017, https://mpra.ub.uni-muenchen.de/77946/.

Mupfawi, J. & Tambudzai, Z. (2015). *Impact of foreign direct investment on employment in Zimbabwe*. Paper prepared for the conference on economic integration, entrepreneurship and sustainable development, 14-16th October, 2015, MSU, Zimbabwe.

Nunnenkamp, P. & Spatz, J. (2003). *Foreign direct investment and economic growth in developing countries: how relevant are host countries and industry countries?* Kiel working paper 1175, pp. 3 – 38.

OECD, (2008). *Benchmark Definition of Foreign Direct Investment*, 4th edition, America.

Rappaport, J. (2000). *How Does Openness to Capital Flows Affect Growth?* Mimeo, Federal Reserve Bank of Kansas City.

Romer, P. (1993). Idea gaps and object gaps in economic development. *Journal of Monetary Economics*, Vol. 32(3).

Roy, A. G. & Van den Berg, H. F. (2006). Foreign direct investment and economic growth: a time series approach. *Global Economy Journal*, Vol. 6(1), pp. 1 – 13.

Saqib, N., Masnoon, M. & Rafique, N. (2013). Impact of Foreign Direct Investment on Economic Growth of Pakistan. *Advances in Management & Applied Economics*, Vol. 3(1), pp. 35-45.

Sichei, M. M. & Kinyondo, G. (2012). Determinants of foreign direct investment in Africa: A panel data analysis. *Global Journal of Management and Business Research*, Vol. 12(18), pp. 84-97.

Simeo, F. (2004). *Foreign direct investment and its impact on economic growth and gross domestic savings – the case of Zambia, 1970 – 2000* (unpublished masters' thesis). University of Zambia, Zambia.

Singh, R. D. (1998). The Multinational's Economic Penetration, Growth, Industrial Output and Domestic Savings in Developing Countries: Another Look. *The Journal of Development Studies*, Vol. 25(1), pp. 55-82.

Srinivasan, P. K. (2010). FDI and Economic Growth in the ASEAN Countries: Evidence from Cointegration Approach and Causality Test. *The IUP Journal of Management Research*, Vol. 9 (1), pp. 38-63.

The World Bank Group (2016). *World Development Indicators*, http://databank.worldbank.org/data/reports.aspx? Retrieved 11/11/2016.

The World Bank (2014). *The World Bank Annual Report 2014*. Washington, DC. https://openknowledge.worldbank.org/handle/10986/5995.

The World Bank (2016). *The World Bank Annual Report 2016*. Washington, DC. © World Bank. https://openknowledge.worldbank.org/handle/10986/24985.

UNCTAD (2005). Transnational Corporations and the Internationalization of R&D, *World Investment Report*, United Nations, New York and Geneva.

UNCTAD (2016). *World Investment Report: Investor nationality policy challenges*, UN Publications, UN: Geneva.
UNCTAD (January, 2013). *Global Investment Trends Monitor*.

Waglé, S (2011). Investing across Borders with Heterogeneous Firms: Do FDI-Specific Regulations Matter? *Policy Research Working Paper 5914*, World Bank, Washington, DC: USA.

Walsh, J. & Yu, J. (2010). Determinants of Foreign Direct Investment: A Sectoral and Institutional Approach. *IMF Working Paper* WP/10/87, International Monetary Fund, Washington, DC: USA.

Wei, S. (2000). How Taxing Is Corruption on International Investors? *Review of Economics and Statistics*, Vol. 82(1), pp. 1–11.

Xu, B. (2001). Multinational enterprises, technology diffusion and host Country productivity growth. *Journal of Development Economics*, Vol. 62, pp. 477-494.

Yao, S. (2006). On economic growth, FDI and exports in China. *Applied Economics*, Vol. 38(3), pp. 339-351.

Younus et al. (2014). Impact of foreign direct investment on economic growth in Pakistan. *World Journal of Economics and Finance*, Vol. 1(1), p. 2 – 5.

Zhang, K. H. (2001). Does Foreign Direct Investment Promote Economic Growth? Evidence from East Asia and Latin America. *Contemporary Economic Policy*, Vol. 19(2), pp. 175-185.

Appendices

Appendix 1.

	GDP_PER_CAPITA_$	FDI	IMF_CREDIT__DOD__$	LENDING_RATES	DUMMY_VARIABLE
1991	827487	2790485.	0	15.500	1
1992	631991	14949899	216149000	19.771	1
1993	601867	27955135	281580000	36.330	1
1994	619835	34648490	37591100	34.860	0
1995	628185	1.18E+08	460812000	34.720	0
1996	742573	80900000	437236000	34.230	0
1997	728401	1.35E+08	385250000	32.500	0
1998	538285	4.49E+08	407172000	43.050	1
1999	568440	59000000	382930000	55.380	1
2000	547389	23200000	293949000	68.200	1
2001	548059	38000000	274770000	38.021	1
2002	507348	25900000	294113000	36.480	0
2003	453351	3800000.	316711000	97.290	0
2004	454361	8700000.	309048000	278.917	0
2005	444761	1.03E+08	125086000	235.670	1
2006	414796	40000000	128124000	496.460	1
2007	396998	68900000	134461000	578.958	1
2008	325679	51600000	129426000	1008.900	1
2009	624272	1.05E+08	542317000	11.900	1
2010	719980	1.23E+08	528729000	10.500	1
2011	840950	3.44E+08	527095000	10.200	1
2012	968164	3.50E+08	520124000	9.990	1
2013	1026388	3.73E+08	519342000	9.740	1
2014	1031105	4.73E+08	486730000	9.470	1
2015	1033416	3.99E+08	463753000	8.540	1
2016	1029072	3.43E+08	444390000	7.110	0
2017	1079608	3.47E+08	439078900	6.000	0

Appendix 2. Descriptive statistics for raw data

	LGDP	LFDI	LIMF	LLR	DUMMY_VARIABLE
Mean	5.808480	7.862786	8.167001	1.571427	0.444444
Median	5.795374	7.907949	8.583119	1.540580	0.000000
Maximum	6.033266	8.674677	8.734253	3.003848	1.000000
Minimum	5.512790	6.445680	0.000000	0.778151	0.000000
Std. Dev.	0.145954	0.628248	1.654558	0.622881	0.506370
Skewness	-0.013182	-0.531763	-4.698439	0.819894	0.223607
Kurtosis	2.085805	2.581403	23.71630	2.736156	1.050000
Jarque-Bera	0.941003	1.469601	582.1500	3.103331	4.502812
Probability	0.624689	0.479601	0.000000	0.211895	0.105251
Sum	156.8290	212.2952	220.5090	42.42853	12.00000
Sum Sq. Dev.	0.553867	10.26207	71.17662	10.08749	6.666667
Observations	27	27	27	27	27

Appendix 3. Stationarity tests

3.1. Unit root test for Gross Domestic Product

Null Hypothesis: D(LGDP) has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=6)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-4.864792	0.0007
Test critical values:	1% level		-3.724070	
	5% level		-2.986225	
	10% level		-2.632604	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(LGDP,2)				
Method: Least Squares				
Date: 08/16/18 Time: 20:29				
Sample (adjusted): 1993 2017				
Included observations: 25 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.

D(LGDP(-1))	-0.958233	0.196973	-4.864792	0.0001
C	0.009144	0.014881	0.614474	0.5449
R-squared	0.507138	Mean dependent var		0.005515
Adjusted R-squared	0.485709	S.D. dependent var		0.103622
S.E. of regression	0.074312	Akaike info criterion		-2.284477
Sum squared resid	0.127011	Schwarz criterion		-2.186967
Log likelihood	30.55596	Hannan-Quinn criter.		-2.257432
F-statistic	23.66620	Durbin-Watson stat		2.049821
Prob(F-statistic)	0.000065			

3.2. Unit root for foreign direct investment

Null Hypothesis: D(LFDI) has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=6)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-5.494032	0.0001
Test critical values:	1% level		-3.724070	
	5% level		-2.986225	
	10% level		-2.632604	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(LFDI,2)				
Method: Least Squares				
Date: 08/16/18 Time: 20:31				
Sample (adjusted): 1993 2017				
Included observations: 25 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LFDI(-1))	-1.086330	0.197729	-5.494032	0.0000
C	0.061822	0.086603	0.713859	0.4825
R-squared	0.567542	Mean dependent var		-0.028979
Adjusted R-squared	0.548740	S.D. dependent var		0.632748
S.E. of regression	0.425054	Akaike info criterion		1.203418
Sum squared resid	4.155435	Schwarz criterion		1.300929
Log likelihood	-13.04273	Hannan-Quinn criter.		1.230464
F-statistic	30.18439	Durbin-Watson stat		2.119635
Prob(F-statistic)	0.000014			

3.3. Unit root test for IMF DOD

Null Hypothesis: D(LIMF) has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=6)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-25.16693	0.0001
Test critical values:	1% level		-3.724070	
	5% level		-2.986225	
	10% level		-2.632604	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(LIMF,2)				
Method: Least Squares				
Date: 08/16/18 Time: 20:33				
Sample (adjusted): 1993 2017				
Included observations: 25 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LIMF(-1))	-1.003434	0.039871	-25.16693	0.0000
C	0.013500	0.067662	0.199516	0.8436
R-squared	0.964959	Mean dependent var		-0.333599
Adjusted R-squared	0.963435	S.D. dependent var		1.732077
S.E. of regression	0.331205	Akaike info criterion		0.704460
Sum squared resid	2.523027	Schwarz criterion		0.801971
Log likelihood	-6.805756	Hannan-Quinn criter.		0.731506
F-statistic	633.3744	Durbin-Watson stat		2.870470
Prob(F-statistic)	0.000000			

3.4. Unit root test for Lending rates

Null Hypothesis: D(LLR) has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=6)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-4.980670	0.0005
Test critical values:	1% level		-3.724070	
	5% level		-2.986225	
	10% level		-2.632604	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(LLR,2)				

Method: Least Squares				
Date: 08/16/18 Time: 20:34				
Sample (adjusted): 1993 2017				
Included observations: 25 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LLR(-1))	-1.036469	0.208098	-4.980670	0.0000
C	-0.021209	0.088045	-0.240887	0.8118
R-squared	0.518900	Mean dependent var		-0.007177
Adjusted R-squared	0.497982	S.D. dependent var		0.621001
S.E. of regression	0.439999	Akaike info criterion		1.272530
Sum squared resid	4.452779	Schwarz criterion		1.370040
Log likelihood	-13.90662	Hannan-Quinn criter.		1.299575
F-statistic	24.80707	Durbin-Watson stat		1.998209
Prob(F-statistic)	0.000049			

3.5. Unit root test for Dummy variable

Null Hypothesis: D(DUMMY_VARIABLE) has a unit root				
Exogenous: Constant				
Lag Length: 3 (Automatic - based on SIC, maxlag=6)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-3.894322	0.0076
Test critical values:	1% level		-3.769597	
	5% level		-3.004861	
	10% level		-2.642242	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(DUMMY_VARIABLE,2)				
Method: Least Squares				
Date: 08/16/18 Time: 20:35				
Sample (adjusted): 1996 2017				
Included observations: 22 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(DUMMY_VARIABLE(-1))	-3.518678	0.903540	-3.894322	0.0012

D(DUMMY_VARIABLE (-1),2)	1.659974	0.761231	2.180645	0.0435
D(DUMMY_VARIABLE (-2),2)	0.690910	0.503199	1.373035	0.1876
D(DUMMY_VARIABLE (-3),2)	0.286963	0.232021	1.236800	0.2330
C	-0.044048	0.117667	-0.374347	0.7128
R-squared	0.849822	Mean dependent var		0.000000
Adjusted R-squared	0.814486	S.D. dependent var		1.272418
S.E. of regression	0.548048	Akaike info criterion		1.831808
Sum squared resid	5.106058	Schwarz criterion		2.079772
Log likelihood	-15.14988	Hannan-Quinn criter.		1.890221
F-statistic	24.04972	Durbin-Watson stat		1.433182
Prob(F-statistic)	0.000001			

Appendix 4. Correlation Matrix

	LFDI	LIMF	LLR	DUMMY_VARIABLE
LFDI	1.000000	0.510399	-0.441952	0.126602
LIMF	0.510399	1.000000	0.018243	-0.187039
LLR	-0.441952	0.018243	1.000000	-0.125650
DUMMY_VARIABLE	0.126602	-0.187039	-0.125650	1.000000

Appendix 5. Heteroskedasticity

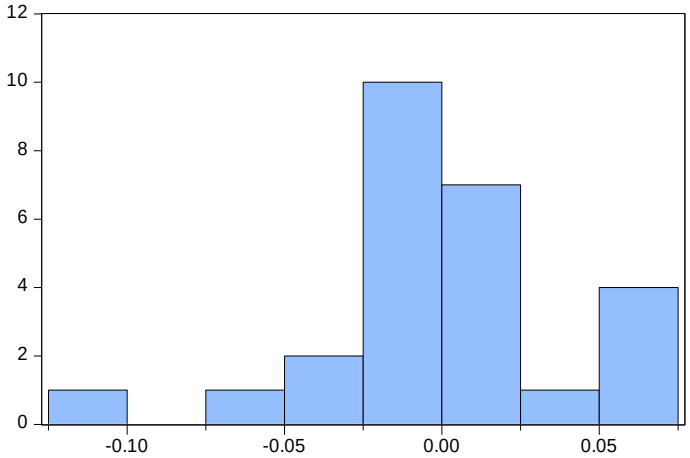
Heteroskedasticity Test: ARCH				
F-statistic	0.614962	Prob. F(1,23)		0.9409
Obs*R-squared	0.651030	Prob. Chi-Square(1)		0.8197
Test Equation:				
Dependent Variable: RESID^2				
Method: Least Squares				
Date: 08/16/18 Time: 20:41				
Sample (adjusted): 1993 2017				
Included observations: 25 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.001878	0.000636	2.950805	0.0072
RESID^2(-1)	-0.161389	0.205802	-0.784195	0.4409

R-squared	0.026041	Mean dependent var	0.001617
Adjusted R-squared	-0.016305	S.D. dependent var	0.002690
S.E. of regression	0.002712	Akaike info criterion	-8.905766
Sum squared resid	0.000169	Schwarz criterion	-8.808256
Log likelihood	113.3221	Hannan-Quinn criter.	-8.878721
F-statistic	0.614962	Durbin-Watson stat	1.984005
Prob(F-statistic)	0.440928		

Appendix 6. Autocorrelation

Breusch-Godfrey Serial Correlation LM Test:				
F-statistic	0.1702405	Prob. F(2,19)		0.84407
Obs*R-squared	0.4234134	Prob. Chi-Square(2)		0.80924
Test Equation:				
Dependent Variable: RESID				
Method: Least Squares				
Date: 08/16/18 Time: 20:44				
Sample: 1992 2017				
Included observations: 26				
Presample missing value lagged residuals set to zero.				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.003233	0.011578	-0.279238	0.7831
D(LFDI)	-0.024969	0.027108	-0.921105	0.3685
D(LIMF)	0.003023	0.005697	0.530694	0.6018
D(LLR)	-0.009763	0.022279	-0.438198	0.6662
DUMMY_VARIABLE	0.010255	0.018897	0.542666	0.5937
RESID(-1)	0.478979	0.275067	1.741319	0.0978
RESID(-2)	-0.277799	0.233940	-1.187482	0.2497
R-squared	0.164786	Mean dependent var		1.05E-18
Adjusted R-squared	-0.098965	S.D. dependent var		0.040216
S.E. of regression	0.042160	Akaike info criterion		-3.269906
Sum squared resid	0.033771	Schwarz criterion		-2.931187
Log likelihood	49.50877	Hannan-Quinn criter.		-3.172367
F-statistic	0.624778	Durbin-Watson stat		1.997979
Prob(F-statistic)	0.708503			

Appendix 7. Normality test



Appendix 8. Ordinary Least Squares Regression Results

Dependent Variable: D(LGDP)				
Method: Least Squares				
Date: 08/16/18 Time: 20:47				
Sample (adjusted): 1992 2017				
Included observations: 26 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.990058	0.190518	5.196838	0.0005
D(LFDI)	2.011445	0.172983	11.628012	0.0009
D(LIMF)	5.02e-09	2.89E-06	1.739295	0.0921
D(LLR)	-0.46060	1.609323	1.811680	0.0000
DUMMY_VARIABLE	-1.107740	0.223065	-4.965972	0.0009
R-squared	0.716472	Mean dependent var		0.004442
Adjusted R-squared	0.662466	S.D. dependent var		0.075528
S.E. of regression	0.043880	Akaike info criterion		-3.243684
Sum squared resid	0.040434	Schwarz criterion		-3.001743
Log likelihood	47.16790	Hannan-Quinn criter.		-3.174014
F-statistic	13.26667	Durbin-Watson stat		1.499935
Prob(F-statistic)	0.000015			