DETERMINANTS OF UGANDA'SFOREIGN DIRECT INVESTMENT INFLOWSIN THE PERIOD BETWEEN 1987 AND 2018

DETERMINANTS OF FOREIGN DIRECT INVESTMENT INFLOWS INTO UGANDA: 1987-2018.

This study investigates determinants of Uganda's Foreign Direct Investment (FDI) inflows in the period between 1987 and 2018using the Grangercausality test and Vector Error Correction Model (VECM). Although the results from the Granger causality test in this study indicate domestic investment as the major determinant of Uganda's FDI inflows, VECM estimates however present electricity consumption as the major determinant of Uganda's FDI inflows both in the short and the long run. Nevertheless, in the short run, electricity consumption and GDP growth were indicated as the major determinants of Uganda's FDI inflows in the period under review. These results suggest that most of the FDIs that visited Uganda during this period were interested in the manufacturing sector which uses a significant amount of electricity and thus making electricity the major driver of FDI inflows into the country. The study recommends that drivers of FDI inflows into Uganda should be promoted as this may help to encourage more FDIs to visit the country. Secondly, to encourage more FDI inflows into the country, long-run electricity supply should be promoted in Uganda by fast-tracking and consolidating intervention in electricity generation and transmission.

Key Word: Determinants of Foreign Direct Investment Inflows

1.0 Introduction

Foreign Direct Investment (*FDI*) inflows into developing countries can be considered as one of the essential driversof growth inthese countries(Abdouli and Hammami (2017).*FDI*inflows into developing countries can supplement government efforts in employing capital and labor in the production process(Bengos and Sanchez-Robles (2003)and (Zhang 2001).

It therefore contributes to economic growth through employment generation and also leads directly in to value addition associated with the extraction and transformation of inputs, technology transfers, marketing and distribution of goods and services(Lim, 2001). It also reinforces modernization of traditional economic sectors and assists in the continuous expansion of secondary and tertiary sectors of the economy, in addition to improving the quality of life of individuals, particularly through the provision of income in the form of salaries and wages and also better quality of goods produced in the country (Hayami 2001) and(UNCTAD, 2005).

Despitethe widespreaddiscussions in the economic literature on this topic, the determinants of *FDI* inflows into developing countries remain ambiguous.Assuch, it is not directly easy in economic literature todetermine those factors that drive *FDI* inflows into developing countries. This ambiguity can be attributed to the use of different data sets, methods of analyses and country characteristics (Obwona 2004) and (World Bank 1998).

It is against this background that this study investigates the determinants of Uganda's *FDI* inflows, to contribute to the body of knowledge on this topic. In addition, the knowledge about the major determinants of Uganda's *FDI* inflows is important for the design of effective development policy in the country.

Given this background, the performance of Uganda's *FDI* inflows into the country in the period between 1987 and 2018 is considered to be important in this study because this is a period when *FDI* inflows into the country were stable. Nevertheless, the period following 2018 witnessed a significant reduction in the *FDI* inflows into the country possibly due to the effect of *COVID-19* pandemic. The performance of *FDI* inflows into Uganda in the period between 1987 and 2018 is indicated in Table 1 below.

Table 1: Uganda's *FDI*Inflows (1987 – 2018)

Year	FDI (Billions of USD)
1987	0.003
1988	0.003
1989	0.003
1990	0.003
1991	0.003
1992	0.003
1993	0.055
1994	0.088
1995	0.121
1996	0.121
1997	0.175
1998	0.210
1999	0.140
2000	0.161
2001	0.152
2002	0.185
2003	0.202
2004	0.295
2005	0.380
2006	0.644
2007	0.792
2008	0.729
2009	0.842
2010	0.544
2011	0.894
2012	1.205
2013	1.096
2014	1.060
2015	0.738
2016	0.626
2017	0.803
2018	1.055

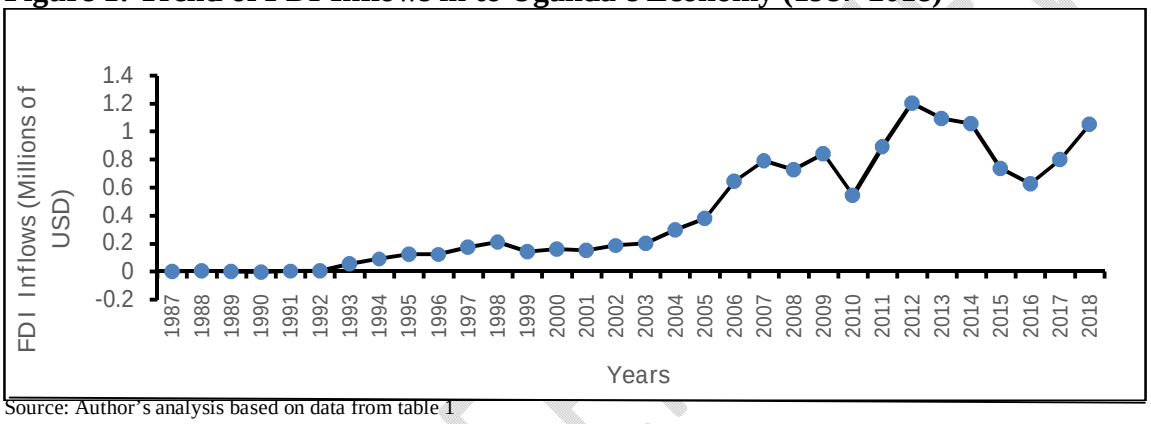
Source: Uganda's Development Indicators(1960-2021)and also various sources and Electricity Regulatory Authority

The performance in Table 1 indicates that Uganda's *FDI*inflows increased significantly from United States Dollar (*USD*) 0.003billion in 1987 to *USD*1.055billion in 2018. This performance indicates that Uganda's *FDI* inflows performed significantly well in the period between 1987 and 2018.

Nevertheless, Figure 1 below indicates the trend of *FDI* inflows into Uganda in the period between 1987 and 2018. It indicates that the trend of *FDI* inflows into Uganda increased significantly in the period between 1987 and 2009 but declined sharply in the period between 2009 and 2010 and again rose gently in the period between 2010 and 2012which thereafter fell significantly.

This sharp decline in the trend of *FDI* inflows into Uganda in the period between 2012 and 2016 could perhaps be attributed to the compounding effect of the financial meltdown of 2008 which adversely affected the global economy.The performance of *FDI* inflowsintothe country in the period between 1987 and 2018 is indicated in Figure1.

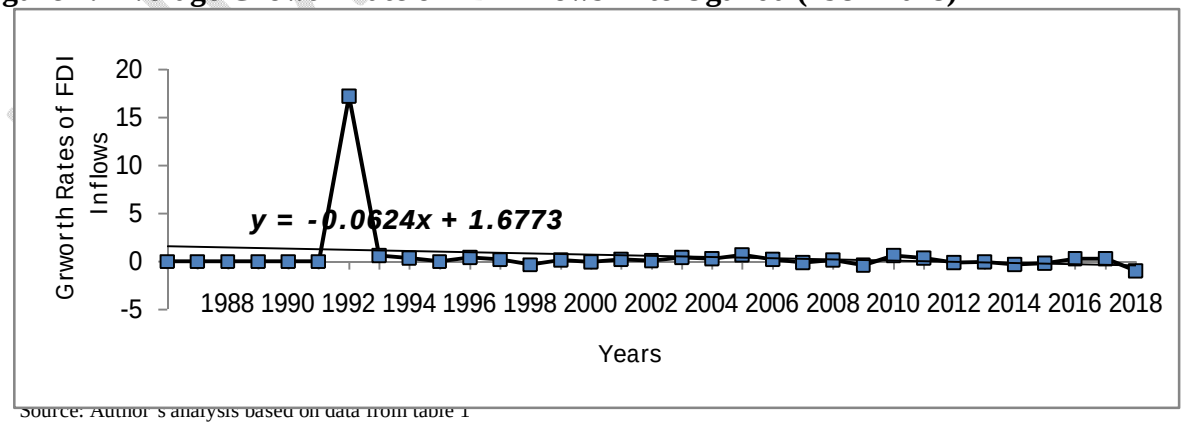
Figure 1: Trend of *FDI* Inflows in to Uganda's Economy (1987-2018)



Source: Author's analysis based on data from table 1

Despite the increase in the trend of *FDI* inflows intoUganda in the period between 1987 and 2009 and the subsequent improvement in the performance of*FDI* inflows into Uganda in the period between 2010 and 2012, the average growth rate of *FDI* inflows into the country during this period surprisingly declined by 6.2 percent per annum. The average growth rate of *FDI* inflows into the country in the period under the review is presented in Figure 2 below.

Figure 2: Average Growth Rate of *FDI*inflows in to Uganda (1987-2018)



Source: Author's analysis based on data from table 1

Thus, the performance in Figures1 and 2 presented above indicates that the average growthrate of *FDI* inflows intoUganda in the period between 1987 and 2018 is inconsistent with the trend of *FDI*inflowsintothe country. The case of the decline in the average growth rate of *FDI* inflows into Uganda following the increase in the trend of *FDI*inflows into the country is the cause of concern for this study and points to the possible effect of other factors than the increase in the trend of *FDI* inflows to be responsible for the decline in the average growth rate of *FDI* inflows into Uganda.

2.0 Methodology

2.1Introduction

This section presentsthe methodology adapted by this study to analyze the data. The methodology section in this study indicates the data type and sources, data estimation techniques, model specification and the analytical procedures carried out in the study. Details of the methodology adopted by this study is indicated below.

2.2 Data Type and Sources

The study uses an annual secondary data set on *FDI* inflows, domestic investment, *GDP*growth, trade liberalization and electricity consumption collected for the period between 1987 and 2018. These data sets have been obtained from Government of Uganda data base, Uganda Electricity Regulatory Authority as well as other sources.Nevertheless, Uganda's economy was liberalized in 1992.

2.3 Data Estimation Technique

This study uses time series data ande-views software to analyze the data. Various tests and analyses have been carried out in this study. These include; the stationarity test, cointegration test, granger causality test and vector error correction model. Details of these tests and analyses carried out in the study are indicated below.

2.3.1 Statistical Test

This test includes the Stationarity test and Cointegration test. The details of these tests are indicated below.

2.3.1.1 Stationarity Test

The stationarity of each data series hasbeen estimated in this study using the Augmented Dickey-Fuller (*ADF*) test and Phillips Perron (*PP*) test. A unit root null hypothesis has been tested against a stationary alternative. The stationarity test in this study uses regressions of time series data analyzed against a constant. These regressions can be expressed as follows;

$$Y_t=\alpha + \beta.t +\varepsilon_t \quad (1)$$

$$dY_i= \alpha +\beta.t + \sum_{i=1}^{n}\lambda.dY_{t-i}+\delta.Y_{t-i} +\varepsilon_t \quad (2)$$

The stationarity of residuals (ε_t) has been tested. Lag length (p) of *ADF* (dY_{t-i}) and Phillips Perron equations have been selected using Schwarz Information Criterion (*SIC*) and Bartlett Kernel respectively.

2.3.1.2 Cointegration Test

Johnsen (1988) proposes a procedure to test for cointegrating relationships within endogenous variables. This procedure has been adapted by this study to test for cointegrating relationships within endogenous variables in this study. This procedure is based on Maximum Likelihood (*LM*) test and unrestricted Vector Auto Regression (*VAR*) test.

Cointegration rank r (number of cointegrating vectors) has been tested using Trace Statistics and Maximum eigenstatistics (*MES*). The trace statistics, test for the null hypothesis that there are at most r cointegrating vectors against the alternative of *r* or more cointegrating vectors.While the *MES* test for the null hypothesis of r cointegrating vectors against the alternative of *r+1* cointegrating vectors.

2.3.2 Diagnostic Tests

Diagnostic tests have not been carried out in this study because of the presence of a dummy variable (***lib)*** that takes the value *0* before trade liberalization and the value *1* after significant trade liberalization.

2.4. Determinants of Uganda's Foreign Direct Investment Inflows

Thedeterminants of Uganda's FDI inflows have been carried out in this study using causality analyses. The causality analyses in this study uses Grangercausality test and the Vector Error Correction Model (*VECM*). The details of the causality analyses carried out in this study are indicated below.

2.4.1 Granger Causality Test

The granger pair-wise test has been carried out in this study to estimate the causal relationship between the variables in the model specified. Granger (1969) proposed a time series data technique to estimate causality between set of variables.

The Granger causal relationship is said to exist if variable *Xt*helps to improve the forecast of another variable, say *Yt*. The forecast of *Yt* can be denoted as $Yt+h|\Omega$ for optimum *h*–step at origin *t*, based on set of all relevant information in the universe (Ωt).*Xt*is said to be granger non-causal for *Yt* if and only if $Yt+h|\Omega = Yt+h\ |\Omega/[Xt,s|x\leq t], h=1,2,3....$ (3)

*Xt*can be non-causal for *Yt* if the removal of past information from *Xt* does not change the optimal forecast horizon. In turn,*Xt*granger causes *Yt* if(3) does not hold for at least one *h* and therefore a better forecast of *Yt*can be obtained from some forecast horizon by including the past information on *Xt* in the information set. The optimum lag length in the Grangercausality test can be determined by information criteria.

2.4.2 Vector Error Correction Model (*VECM*)

The analysis of *VECM*has been carried out in this study to determine whether there exists any short-run or long-run causal relationship within variables in the model specified. The

presence of a cointegrating relationship within endogenous variables is a necessary condition for estimating *VECM*. Following Bruce and Natalie (2003), the general form of the vector error correction model estimated in this study can be presented as follows;

$$\Delta X_t = \sum_{t=1}^{n} \beta_t \Delta X_{t-1} + \sum_{i=1}^{r} \gamma_i ECT_{t-1} + v_t (4)$$

Where $X_t$is an*nx1* matrix and $n = 5$ vectors of dependent variables, ΔX_{t-1}, β and γ are parameters, whileV_t is a residual. The errorcorrection mechanism is evidenced in the Error Correction Term (ECT_{t-1}). There are as many error correction terms as there are cointegrating vectors (r).

Parameter $\gamma_i$associated with ECT_{t-1}measures the proportion of adjustment back towards equilibrium that can be completed within a single period. If parameter $\gamma_i$is not significantly different from zero then there is no error correction process working within the model. Parameter β_t on the other hand, indicates the presence of a short-term lag from one variable to another and it measures short-term adjustment back towards equilibrium.

2.5 Model Specification

The model estimated in this study has been adapted from (Taremwa, 2015) but modified to provide a model that states that *FDI* inflowsdepend on GDP, electricity consumption and other existing macroeconomicvariables such as; Domestic Investments and openness of the economy (*trade liberalization).* Thus;

$$\boldsymbol{FDI_t = a_o + a_1(ELC_t) + a_2(DINV_t) + a_3(GDP_t) + a_4(lib)} \quad (5)$$

Where; $\boldsymbol{a_o, a_1, a_2, a_3, a_4 > 0}$ (6)

$\boldsymbol{FDI}_t$ = Foreign Direct Investment inflows at time t.; $\boldsymbol{ELC_t}$= Electricity consumption at time t; $\boldsymbol{DINV_t}$ = Domestic Investment at time t ;$\boldsymbol{GDP_t}$ = Economic performance at time t; ***lib*** = *Trade liberalization*(*represented by a dummy variable* ***lib*** *which takes the value* ***0*** *in the period before trade liberalization and the value* ***1*** *in the period aftertrade liberalization*).

3.0 Presentation of the Results

This section presents the results for this study. The resultsin this study include;a statistical test, granger causality test and vector error correction estimates. The details are indicated below.

3.1 Statistical Tests

These tests include the unit root test and the cointegration test. The unit root test, tests for the stationarity of residuals in the model specified while the cointegration test, tests for long-run relationship within variables in the model specified. The details of which are indicated below.

3.1.1 Test for Stationarity

The stationarity of residuals in this study has been tested using the Augmented Dickey-Fuller (*ADF*) test and Phillips-Perron (*PP)*test. The summary statistics in Table2 present the *ADF* and the Phillips Perron statistics for the variables estimated. The results in this table indicate that all variables are stationary at first difference except for *FDI*, *DINV* and *lib*which are stationary at level.

Table 2: Stationarity Test Results

Estimation period (1987 - 2018)				
Variables	***ADF*(level)**	***PP*(level)**	***ADF*(Difference)**	***PP*(Difference)**
log(*FDI*)	-5.347736***	-5.347736***	-9.779179***	-9.748843***
log(*ELC*)	-2.539885	-2.348528	-8.784884***	-20.46469***
log(*DINV*)	-5.548208***	-4.790778***	-10.24246***	-10.24246***
log(*GDP*)	-1.507992	-1.414370	-3.354822***	-3.354822***
lib	-4.536964***	--5.264260***	-7.065409***	-7.349644***

Source: Author's analysis based on data from the Government of Uganda and various sources; ***ADF and (PP) test statistics are significant at 5 percent level.

3.1.2 Test for Cointegration

A cointegration test has been carried out in this study to determine if there exists any long-run relationship within variables in the model specified. The results of the cointegration test carried out in the study are presented in Table3 below.

Table 3: Cointegration Test Results

Trace test of:	**Trace Statistics**	**Critical Values**
r ≤	43.469777	3.841466
r ≤	325.55543***	15.49471
r ≤ 2	49.77579***	29.79707
r ≤ 1	89.07792***	47.85613
r ≤ 0	164.4836***	69.81889
Maximum Eigen value	**Max-Eigen Statistics**	**Critical Values**
Test of:		
r ≤	43.4697773	3.841466
r ≤	322.08566***	14.26460
r ≤ 2	24.22035***	21.13162
r ≤ 1	39.30213***	27.58434
r ≤ 0	75.40567***	33.87687

Source: Author's analysis based on data from Government of Uganda database also from various sources; ***ADF and (PP) statistics are significant at 5 percent level.

The results from Unrestricted Trace Statistics (*UTS*) indicate four cointegrating vectors at 5 percent level of significance; while the results from Maximum Eigen Statistics (*MES*) also indicate four cointegrating vectors at 5 percent level of significance. Thus, there exists a long-run relationship within variables in the model specified.

3.2Results for the determinants of Uganda'sForeign Direct Investmentinflows

The determinants of Uganda's *FDI* inflowshave been carried out in this study using the Granger causality test and *VECM*. The details of the results from these analyses are indicated in the subsequent sections below.

3.2.1 Granger Pairwise Test

This test indicates the pairwise relationship between variables in the model specified. It indicates whether the variables in the model specified are the major determinants of Uganda's *FDI* inflows or whether Uganda's *FDI* inflows can be explained by other variables outside the model specified in the study. The results from the Grangerpairwise relationship in this study are indicated in Table 4below.

Table 4: Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
D(LOG(FDI)) does not Granger Cause D(LOG(ELC))	32	0.22823	0.7979
D(LOG(ELC)) does not Granger Cause D(LOG(FDI))		0.24991	0.7812
D(LOG(DINV)) does not Granger Cause D(LOG(ENC))	32	0.44152	0.6492
D(LOG(ELC)) does not Granger Cause D(LOG(DINV))		4.27673	0.0284***
D(LOG(GDP)) does not Granger Cause D(LOG(ELC))	32	1.31930	0.2896
D(LOG(ELC)) does not Granger Cause D(LOG(GDP))		11.0930	0.0006***
D(LIB) does not Granger Cause D(LOG(ELC))	32	0.04866	0.9526
D(LOG(ELC)) does not Granger Cause D(LIB)		0.00445	0.9956
D(LOG(DINV)) does not Granger Cause D(LOG(FDI))	32	7.66423	0.0034***
D(LOG(FDI)) does not Granger Cause D(LOG(DINV))		0.06618	0.9362
D(LOG(GDP)) does not Granger Cause D(LOG(FDI))	32	0.90528	0.4204
D(LOG(FDI)) does not Granger Cause D(LOG(GDP))		3.98406	0.0350***
D(LIB) does not Granger Cause D(LOG(FDI))	32	0.03697	0.9638
D(LOG(FDI)) does not Granger Cause D(LIB)		0.43734	0.6518
D(LOG(GDP)) does not Granger Cause D(LOG(DINV))	32	5.54454	0.0121***
D(LOG(DINV)) does not Granger Cause D(LOG(GDP))		2.32353	0.1238
D(LIB) does not Granger Cause D(LOG(DINV))	32	0.67364	0.5210
D(LOG(DINV)) does not Granger Cause D(LIB)		0.44815	0.6451
D(LIB) does not Granger Cause D(LOG(GDP))	32	0.46541	0.6345
D(LOG(GDP)) does not Granger Cause D(LIB)		0.20634	0.8153

Source: Source: Author's analysis based on data from Government of Uganda database also from various sources; *** Significant at 5 Percent level

The results from the Granger pairwise test indicate that domestic investment is the major determinant of Uganda's *FDI* inflows in the period under review. Nevertheless, the results from the Granger causality test in this study also indicate that electricity consumption (*ELC*) determine investment (*DINV*), *GDP* growth determines domestic investment (*DINV*) and *FDI* inflows determine the growth of*GDP*in the country,while electricity consumption (*ELC*) also determines *GDP* growth. The above results therefore suggest that domestic investmentsby both the government and the private sector are the major determinants of Uganda's *FDI* inflows in the period under review.

3.2.2 Estimates of Vector Error Correction Model (*VECM*)

The second part of the causality analysis carried out in this study estimates the Vector Error Correction Model (*VECM*) to indicate the determinants of Uganda's *FDI* inflows in the period under review. The *VECM* results in this study are presented in Table5 below.

Table 5: Vector Error Correction Estimates

Error Correction:	D(LOG(FDI),2)	D(LOG(ELC),2)	D(LOG(DINV),2)	D(LOG(GDP),2)	D(LIB,2)
CointEq1	-1.665636	***6.348177***	***-0.379418***	***-0.194423***	***-0.206070***
	(0.70242)	(1.72560)	(0.29798)	(0.09494)	(0.43454)
	[-2.37127]	[3.67882]	[-1.27332]	[-2.04780]	[-0.47423]
D(LOG(FDI(-1)),2)	***0.027702***	-5.167316	0.251319	0.015152	0.107711
	(0.57697)	(1.41742)	(0.24476)	(0.07799)	(0.35693)
	[0.04801]	[-3.64559]	[1.02680]	[0.19429]	[0.30177]
D(LOG(ELC(-1)),2)	***59.97011***	-231.2841	13.67178	6.999705	7.420007
	(25.2856)	(62.1177)	(10.7265)	(3.41771)	(15.6424)
	[2.37171]	[-3.72332]	[1.27459]	[2.04807]	[0.47435]
D(LOG(DINV(-1)),2)	***-33.01989***	-150.7205	-3.651976	-5.547739	-7.636708
	(20.0034)	(49.1412)	(8.48566)	(2.70374)	(12.3746)
	[-1.65071]	[-3.06709]	[-0.43037]	[-2.05187]	[-0.61713]
D(LOG(GDP(-1)),2)	***2.169460***	8.840826	0.080789	-0.275882	0.996957
	(1.85951)	(4.56816)	(0.78883)	(0.25134)	(1.15035)
	[1.16668]	[1.93531]	[0.10242]	[-1.09765]	[0.86666]
D(LIB(-1),2)	***-0.583504***	6.030175	-0.048742	-0.101957	-0.918928
	(0.51763)	(1.27163)	(0.21958)	(0.06997)	(0.32022)
	[-1.12726]	[4.74208]	[-0.22198]	[-1.45726]	[-2.86967]
C	51.54669	-196.8461	11.72272	6.014515	6.375699
	(21.7216)	(53.3622)	(9.21455)	(2.93598)	(13.4376)
	[2.37306]	[-3.68887]	[1.27220]	[2.04855]	[0.47447]
R-squared	0.812807	0.982285	0.653787	0.826480	0.606566
Adj. R-squared	0.641214	0.966046	0.336425	0.667420	0.245918
Sum sq. resids	6.168302	37.22622	1.110017	0.112691	2.360606
S.E. equation	0.716955	1.761302	0.304141	0.096907	0.443528
F-statistic	4.736824	60.49009	2.060066	5.196026	1.681877
Log likelihood	-17.75096	-39.32204	2.829613	30.27941	-6.224900
Akaike AIC	2.479247	4.276837	0.764199	-1.523284	1.518742
Schwarz SC	3.068274	4.865864	1.353226	-0.934257	2.107769
Mean dependent	-0.002145	0.857810	-0.005659	-0.020811	0.000000
S.D. dependent	1.196946	9.558498	0.373361	0.168037	0.510754
Determinant resid covariance (dof adj.)		2.12E-05			
Determinant resid covariance		6.63E-07			
Log likelihood		0.453537			
Akaike information criterion		5.378872			
Schwarz criterion		8.569434			

[1] Elasticity for dummy variable (*lib)* in the long run was calculated as (exp (-0.206070)-1) *100

[2] Elasticity for dummy variable *(lib)* in the short run was calculated as (exp (-0.583504)-1) *100

The results in this table indicate the estimated parameters in each of the five versions of the *VECM* equations that are drawn from each column. The first row contains the Error Correction Term (*ECT*) for each equation. The estimated parameters on *ECT* are presented in the first row and their standard errors are presented in the second row, while *t* ratios are presented in the third row.

The results for the long-run relationship in the *VECM* estimate indicate that 1 percent increase in electricity consumption increases *FDI*inflows by 6.3 percent. Secondly, in the long run, 1 percent increase in domestic investment reduces FDIinflows by 38 percent. Thirdly, in the long run, a 1 percent increase in *GDP*reduces *FDI*inflows by 19 percent. Finally, in the long run, a 1 percent increase in liberalization of the economy (*lib)* reduces*FDI* inflows by 18.6[1] percent.

Followingtheresultsforthe long-run relationship in the *VECM* estimate presented in this study, it is therefore clear that the major determinant of Uganda's *FDI* inflows in the period under review is electricity consumption. This result is perhaps because the majority of *FDIs* who visited Uganda during this period were interested in the manufacturing sector that uses a significant amount of electricity. Nevertheless, in the long run, domestic investment (*DINV*),*GDP*growth and trade liberalization (*lib*) wereindicated by the study not to be the major determinants of Uganda's *FDI* inflows in the period under the review. Thisis indicated below.

$$\Delta\,(FDI)\ inflows = 6.3\Delta(ELC) - 38\Delta(DINV) - 19\Delta(GDP) - 18.6\Delta(lib) \quad (7)$$

The results for the short-run relationship in the *VECM* estimate in this study indicate that a 1percent increase in Uganda's electricityconsumption (*ELC*)increases *FDI* inflows increaseby 60 percent, 1 percent increase in domestic investment (*DINV*) reduces *FDI*inflows by 33 percent, 1 percent increase in*GDP*increases *FDI*inflows by 2.2 percent. Finally, 1 percent increase in liberalization of the economy (*lib)*reduces *FDI* inflows by44.2[2] percent. This is indicated below.

$$\Delta(FDI)\ Inflows = 6o\Delta(ELC) - 33\Delta(DINV) + 2.2\Delta(GDP) - 44.2\Delta(lib) \quad (8)$$

Followingtheresultsforthe short-run relationship in the *VECM* estimate presented in this study, it is therefore clear that electricity consumption and GDP growth are the major determinants of *FDI* inflows into Uganda in the period under review.

4.0 Conclusions and Recommendations

This study uses the Grangercausality test and *VECM* to investigate the determinants of Uganda's *FDI*inflows in the period under review. Although the results from the Granger causality test in this study indicate domestic investment as the major determinant of Uganda's *FDI* inflows, *VECM* estimates however present electricity consumption as the major determinant of Uganda's *FDI* inflows both in the short and the long run. Nevertheless, in the short run, electricity consumption and *GDP* growth were indicated as the major determinants of Uganda's *FDI* inflows in the period under review. These results suggest that most of the *FDIs*that visited Uganda during this period were interested in the manufacturing sector which uses a significant amount of electricity and thus making electricity the major driver of *FDI* inflows into the country.

This study therefore recommends that drivers of *FDI* inflows into Uganda should be promoted as this may help to encourage more *FDIs* to visit the country which consequently promotes the growth of Uganda's economy. Secondly, to encourage more *FDI* inflows into the country, the long-run electricity supply should be promoted in Uganda by fast-tracking and consolidating intervention in electricity generation and transmission.

5.0 References

Abdouli, M. and Hammami, S., (2017). Exploring Links between FDI Inflows, Energy Consumption, and Economic Growth: Further Evidence from MENA Countries*Journal of Economic Development, 2017, vol. 42, issue 1, 95-117.*

Bengos, M., and Sanchez-Robles (2003),"FDI, Economic Freedom and Growth: New Evidence from Latin America"*European Journal of Political Economics*, 19: 529-545.

Bruce, F. and Natalie J. (2003). Population change and Australia Living Standard – Discussion Paper (2003-2006). ISSN 1443-8593 ISBN 186295-1365. Available at http://www.utas.edu.au/economics.

Granger, C.J. (1969). Investigating Causal relationships between variables. Econometrica ; Vol. 37. 37, Econometrics Modelsand Cross Spectra Methods:1969, pp 425 -435.

Hayami, Y. (2001). "Development Economics: From the Poverty to the Wealth of Nations", OxfordUniversity Press.

Johnsen, S. (1988). "Statistical Analysis of Cointegrating Vectors". *Journal of Economics Dynamics and Control. Vol. 1, No. 2-3, pp 231-254.*

Lim, E. (2001), "Determinants of and Relationship between Foreign Direct Investment and Growth: A Summary of Recent Literature", IMF Working Paper No. 175, International Monetary Fund, Washington DC.

Obwona, M. B. (2004). "Foreign direct investment in Africa". In Financing Pro-Poor Growth: AERC Senior Policy Seminar VI, Kampala, Uganda, 2–4 March 2004 – Seminar Papers, pp. 60–95. Nairobi: African Economic.

Taremwa Kananura, M. (2015). "Examining the relationship between electricity Consumption". Stellenbosch University.

UNCTAD (2011) "World Investment Report", New York, United Nations Publication

World Bank(1998), (1999), (2004). "World Development Indicators". 1999; 2004. CD-ROM.

Zhang, K.H. 2001. "Does foreign direct investment promote economic growth? Evidence from East Asia and Latin America". Contemporary Economic Policy,19(2, April): 175–85.

Appendix 1: Augmented Dickey-Fuller (ADF) Test and Phillips Perron Tests

Augmented Dickey-Fuller (ADF) Test at Level

Null Hypothesis: LOG(FDI) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.347736	0.0002
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: LOG(ENC) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-2.539885	0.1169
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	
	10% level	-2.622989	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: LOG(DINV) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-5.548208	0.0001
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: LOG(GDP) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-1.507992	0.5144
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: LIB has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.536964	0.0013
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test at First Difference

Null Hypothesis: D(LOG(FDI)) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-9.779179	0.0000
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LOG(ENC)) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=7)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-8.784884	0.0000
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LOG(DINV)) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-10.24246	0.0000
Test critical values:	1% level	-3.711457	
	5% level	-2.981038	
	10% level	-2.629906	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LOG(GDP)) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-3.354822	0.0225
Test critical values:	1% level	-3.711457	
	5% level	-2.981038	
	10% level	-2.629906	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LIB) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=6)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.065409	0.0000
Test critical values:	1% level	-3.711457	
	5% level	-2.981038	
	10% level	-2.629906	

*MacKinnon (1996) one-sided p-values.

Phillips Perrion Test at Level

Null Hypothesis: LOG(FDI) has a unit root
Exogenous: Constant
Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-5.347736	0.0002
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: LOG(ENC) has a unit root
Exogenous: Constant
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-2.348528	0.1645
Test critical values:	1% level	-3.679322	
	5% level	-2.967767	

	10% level	-2.622989

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: LOG(DINV) has a unit root
Exogenous: Constant
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-4.790778	0.0007
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: LOG(GDP) has a unit root
Exogenous: Constant
Bandwidth: 2 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-1.414370	0.5603
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: LIB has a unit root
Exogenous: Constant
Bandwidth: 5 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-5.264260	0.0002
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Phillips Perron Test at First Difference

Null Hypothesis: D(LOG(FDI)) has a unit root
Exogenous: Constant
Bandwidth: 1 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-9.748843	0.0000
Test critical values:	1% level	-3.699871	
	5% level	-2.976263	
	10% level	-2.627420	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LOG(ENC)) has a unit root
Exogenous: Constant
Bandwidth: 19 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-20.46469	0.0001
Test critical values:	1% level	-3.689194	
	5% level	-2.971853	
	10% level	-2.625121	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LOG(DINV)) has a unit root
Exogenous: Constant
Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-10.24246	0.0000
Test critical values:	1% level	-3.711457	
	5% level	-2.981038	
	10% level	-2.629906	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LOG(GDP)) has a unit root
Exogenous: Constant
Bandwidth: 0 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-3.354822	0.0225
Test critical values:	1% level	-3.711457	
	5% level	-2.981038	
	10% level	-2.629906	

*MacKinnon (1996) one-sided p-values.

Null Hypothesis: D(LIB) has a unit root
Exogenous: Constant
Bandwidth: 3 (Newey-West automatic) using Bartlett kernel

		Adj. t-Stat	Prob.*
Phillips-Perron test statistic		-7.349644	0.0000
Test critical values:	1% level	-3.711457	
	5% level	-2.981038	
	10% level	-2.629906	

*MacKinnon (1996) one-sided p-values.

Appendix 2: Cointegration Test

Series: ***D(LOG(FDI)) D(LOG(ELC)) D(LOG(DINV)) D(LOG(GDP)) D(LIB)***
Lags interval (in first differences): 1 to 2
Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.956799	164.4836	69.81889	0.0000
At most 1 *	0.805552	89.07792	47.85613	0.0000
At most 2 *	0.635483	49.77579	29.79707	0.0001
At most 3 *	0.601575	25.55543	15.49471	0.0011
At most 4	0.134609	3.469777	3.841466	0.0625

Trace test indicates 4 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.956799	75.40567	33.87687	0.0000
At most 1 *	0.805552	39.30213	27.58434	0.0010
At most 2 *	0.635483	24.22035	21.13162	0.0178
At most 3 *	0.601575	22.08566	14.26460	0.0024
At most 4	0.134609	3.469777	3.841466	0.0625

Max-eigenvalue test indicates 4 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values