sciendo Journal of Social and Economic Statistics

Vol. 8, No. 2, Winter 2019

DOI: 10.2478/jses-2019-0003

A CAUSAL RELATIONSHIP BETWEEN TRADE, FOREIGN DIRECT INVESTMENT AND ECONOMIC GROWTH IN NIGER

Issoufou OUMAROU[a] , Ousseini A. MAIGA[b]

Abstract

Foreign direct investment and Trade were regarded as an important elements in enhancing economic development. This study used some time series econometric tests including the Augmented Dickey – Fuller (ADF) unit root test developed by Dickey – Fuller, stationary test developed by Kwiatkowski-Philips-Schmidt-Shin (KPSS), Johansen co-integration test and Granger causality test to analyse the connection between foreign direct investment, trade and economic growth in Niger. The tests results showed a bilateral relationship between trade and economic growth and a unidirectional causal relationship between trade and foreign direct investment with direction from trade to foreign direct investment. The long run effect tests revealed that trade has a positive effect on economic growth while foreign direct investment has a negative effect on economic growth in Niger. On average, ceteris paribus, the coefficients are statistically significant at 5% level.

Keywords: Trade, Foreign Direct investment, Economic growth, Niger

JEL Classification: F14; F21; F23; F43; O1

Authors' affiliation

[a] – Université de Tahoua / Niger, Faculté de droit d'économie et de gestion, Département d'économie et gestion, e-mail : oumar1911@yahoo.com; https://orcid.org/0000-0002-7950-5612

[b] – Hunan university / China, Department of economics and trade, e-mail: ousseini22000@yahoo.fr; https://orcid.org/0000-0002-5172-3634

1. Introduction

Niger has a strategic position between Northern Africa and Sub-Saharan Africa. The country shares borders with eight countries of the Economic Community of West African States (ECOWAS), the Central African Economic and Monetary Community (CEMAC) and the Arab Maghreb Union. The economy of Niger centers on subsistence crops, livestock, and some of the world's largest uranium deposits. Niger has also a sizable reserves of oil. According to INS (2018), agriculture contributes approximately 40% of GDP and provides livelihood for over 80% of the population. The Government of Niger plans to exploit oil, gold, coal, and other mineral resources to sustain future growth. Foreign direct investment (FDI) is considered as one of the main causes of economic development and growth in host countries and it has followed an increasing tendency over recent decades. Endogenous growth theory underlines the role of exports on economic growth highlighting that exports can increase long-run growth by allowing innovations growth in sectors of research and development. This view has been supported by Edwards (1992).The association between trade, foreign direct investment (FDI) and economic growth has urged massive practical studies. Many research focused on the influence of foreign direct investments and exports on economic growth in many countries and using variant time periods and different econometric methodologies.

This analysis is an attempt to determine the connection between Trade, foreign direct investment and economic growth in Niger. In order to reach its objective, the paper used time series econometrics tests including unit root test, stationary test, Johansen co-integration test and Granger causality test on annual data set obtained from the International Monetary fund (IMF). The distinction of this study from other studies on foreign direct investment, trade and economic growth in developing countries is that, there are not sufficient writings on Niger. The study therefore also intends to fill this existing gap.

2. Literature review

There is mixed evidence on the causal relationship between foreign direct investment, export and economic growth in the empirical literature. Melina, Chaido and Antonios (2004) used data from Bangladesh to investigate the causal relationship among foreign direct investment, domestic investment, trade openness and economic growth. They used unit root test, co-integration and Granger causality tests. Their results support a unidirectional interconnection starting from foreign direct investment to economic growth.

Saibu, Agbeluyi and Nwosa (2011) adopted the Autoregressive Distributed Lag (ARDL) procedure to examine the effects of financial development and foreign direct investment on economic growth in Nigeria. Their study used data covering the period from 1970 to 2009. Their results showed that financial growth and foreign direct investment had negative effects

on economic growth in Nigeria. Their result further showed that the effect of foreign direct investment differed significantly when different procedures are used. Their result also showed that financial market liquidity but not the size of the financial market that matter for economic growth in Nigeria.

Awolusi (2012) used multivariate co-integration technique developed by Johansen and Juselius to investigate the long-run equilibrium relationships among the international factors and economic growth in Nigeria. The article used data from 1970 to 2010. The tests results found existence of co-integrating vectors in the systems of Nigeria during the study period. The article also revealed a unidirectional or bidirectional short-run causal effect among the used variables.

Renu and Mandeep (2013) examined the causal relationships between foreign direct investment and trade in India and China. Renu and Mandeep (2013) employed Granger causality test to examine connection between FDI and trade. They used data from the period of 1976-2011. The results for China showed unidirectional causality running from FDI to imports and FDI to exports. The results also revealed the existence of bidirectional causality between imports and exports. For India, the results showed bidirectional causality between FDI and imports; FDI and exports; and exports and imports.

Mohammad and Mahmoud (2013) in their article reviewed many articles studying the connection among foreign direct investment and economic growth, principally the effects of foreign direct investment on economic growth during the period from 1994 to 2012. They found a significant positive connection between foreign direct investment and economic growth in some cases and a negative or no connection in other cases.

Zuzana (2014) examined the relation between foreign direct investment, economic growth and export in Slovakia using co-integration test and vector error correction model on quarterly data from 2001 to 2010. The article results confirmed the presence of long-term connection among the studied variables. The article also revealed a positive effect of foreign direct investment and export on gross domestic product.

Jan and Marta (2014) used panel data regression models to identify the key determinants of FDI in EU countries. The article focused particularly on effective and statutory corporate tax rates and their impact on FDI. The article found significant effect of labor costs, openness of the economy, firing costs, GDP per capita and public debt in the country. The article also revealed some evidence of a negative impact of the financial and economic crisis on FDI inflows in the EU.

Rasha and Ismail (2015) used co-integration test and vector error correction model to analyze the relationship between foreign direct investment, economic growth and exports in Jordan. The study was implemented on quarterly data from 2003 to 2013. Their results endorsed the presence of long-term connection among the variables studied. The results also showed a positive effect of export on Gross Domestic Product and found no effect of foreign

direct investment on Gross Domestic Product. The article finally revealed that foreign direct investment had negative effect on economic growth.

Uwubanmwen and Ogiemudia (2016) in their article used Error Correction Model and Granger causality test to investigate the nature of the relationship among foreign direct investment and economic growth in Nigeria. Their study was conducted on annual secondary time series data covering the period of 1979 to 2013.Their empirical analysis revealed that foreign direct investment has both instant and time lag effect on Nigeria economy in the short run. They also found that in the long run foreign direct investment has negative but non-significant effect on the Nigerian economy.

Etale (2016) examined the relationship between exports, foreign direct investment and economic growth in Malaysia from year 1980 – 2013. The study used unit root test, stationary test, co-integration and Granger causality tests. The study showed significant bidirectional long run connection among foreign direct investment per capita and GDP per capita. The study also revealed a unidirectional long run relationship from Exports to FDI Inflows and Exports to GDP per capita.

Akinlo (2017) in his article used several nonlinear FDI equations where the main determinants of FDI are determined using Markov- Regime Switching Model (MSMs) to analyze the movement of foreign direct investment in Nigeria. The results showed that FDI process in Nigeria is governed by two different regimes and a shift from one regime to another regime depends on transition probabilities. The results also showed that the main determinants of FDI are GDP growth, macro instability, financial development, exchange rate, inflation and discount rate.

Mohamed, Zahir and Ali (2017) examined the determinants of foreign direct investment (FDI) in Somalia, measured FDI inflow. They used data covering a period the period of 1970-2010. The authors used Augmented Dickey-Fuller test and ordinary least square to measure the degree of influence the variables have on each other. They found a negative significant connection between exchange rate and foreign direct investment and a positive significant connection is observed between inflation, external debt and domestic investment of foreign direct investment. The paper finally found a negative but insignificant connection between gross domestic product and foreign direct investment.

Champa, Mohammed and Debasish (2017) studied the causal relationship between foreign direct investment, domestic investment, trade openness and economic growth in Bangladesh over the period 1976–2014. They used unit root, co-integration and Granger causality tests to investigate the relationships. Their results support three unidirectional causalities and two bidirectional causalities between the variables.

Tshepo (2018) in his article used data from 1980 to 2014 to determine the nexus between foreign direct investment (FDI) inflows and economic growth in South Africa. The article used vector error correction model to determine and estimate the long-run connection

between the variables in the model. The article found that economic growth has a positive relationship with both foreign direct investment and the real effective exchange rate, while it has a negative long-run relationship with government expenditure.

Khun (2018) investigated the effect of foreign direct investment on economic growth in Cambodia by utilizing the time series data throughout 2006-2016. The article used correlation matrix and multiple regression analysis techniques for the analysis. The article found that foreign direct investment has a positive effect on the economic growth in Cambodia. The study recommended that government should bring reforms in the domestic market to attract more FDI in Cambodia.

Sofia (2018) examined the causal relationship between export, FDI and economic growth. The paper used unit root and Granger causality tests on data from two periods 1975-1991 and 1992-2014. The article revealed that that the causal relationships and the directions differ regarding the observed country. The article also concluded that the causal relationship in stable economies is not affected to the same extent as emerging economies. Smaller economies tend to have no causal relationship when trade is liberalized.

Abraham (2018) in his paper used co-integration and Granger causality test to study the connection between foreign direct investment and Exports from India during two periods. The period from 1990 to 1991 and the period from 2014 to 2015. He found no long-run connection between foreign direct investment and exports from India. The Granger causality test revealed a bidirectional causality between foreign direct investment and exports.

Ousseini, Oumarou and Salifou (2019) used panel data from 1990 to 2016 to examine the Granger causality and long run relationship between foreign direct investment, and trade (imports, exports, and trade openness) in the West African economic and monetary union (WAEMU). Their tests results indicated that foreign direct investment has a positive long-run effect spurring import and leads to more trade openness in WAEMU. The long run estimation indicates that FDI induces to more trade openness in WAEMU. Finally, their analysis indicated that export and import have positive and long-run effect on foreign direct investment and trade openness has a positive effect on attracting more foreign investment in West African Economic and Monetary Union.

Emrah, Erdal and Turban (2019) reinvestigated the Granger-causal relationships among trade openness and real economic development in Turkey during the period from 1950 to 2014. They identified the changes in the nature of the causal relationships overtime.

3. Data and methodology

3.1 Data

The study used annual data obtained from the International monetary fund. The data cover the period from 1980 to 2017. All data are expressed in logarithms in order to include

the proliferative effect of time series and are expressed with the letter L at the beginning of the variable. The variable of economic growth is measured by the real GDP, FDI is measured by the foreign direct investments inflows and the variable of trade is measured by the real revenues from exports. Table 1 shows the descriptive statistics of the variables.

Table 1: Series descriptive statistics

Statistics	Ltrade	Lfdi	Leco_growth
Mean	8.747899	7.575396	7.604959
Median	8.647906	7.450498	7.611439
Maximum	9.239469	9.027671	7.895024
Minimum	8.410278	5.44108	7.362786
Std. Dev.	0.252823	0.887123	0.166543
Skewness	0.703698	-0.167529	0.138067
Kurtosis	2.064122	2.768726	1.781431
Jarque-Bera	4.522999	0.26244	2.471836
Probability	0.104194	0.877025	0.290568
Sum	332.4202	287.8651	288.9884
Sum Sq. Dev.	2.365021	29.11851	1.026255
Observations	38	38	38

3.2 Methodology

In this study the method of vector autoregressive model (VAR) is adopted to estimate the causal relationship between exports, economic growth and foreign direct investments inflows in Niger. The model has the following form:

$$\begin{aligned} L\exp ort_t &= f \quad (Leco\_growth_t, Lfdi_t) \\ Lfdi_t &= f \quad (L\exp ort_t, Leco\_growth_t) \\ Leco\_growth_t &= f \quad (L\exp ort_t, Lfdi_t) \end{aligned} \tag{1}$$

Our approach is developed using a series of econometrics tests. We begin by checking unit root presence in the variables. The Augmented Dickey-Fuller (ADF) test is applied for the unit root existence checking. After the unit root test, the study went on with the Kwiatkowski –Phillips-Schmidt-Shin (KPSS) test for confirmatory analysis. We proceed with: (i) The selection of an initial model specification; (ii) The study of the variables integration order; (iii) Detection of co-integration relations; (iv) Application of Granger causality test.

For the model specification, the choice is between model with a constant term, a trend term, a drift term or a combination of any of them. Information criteria are used to determine the suitable model. The model providing the minimum value of the information criteria is selected. The information criteria suggest a model with a constant without trend for the variables.

The number of lags to be considered in the model is selected according to the results provided by the following two information criteria Akaike Information Criterion (AIC) and Schwarz Information Criterion (SIC) and is designed by p. In order to avoid spurious regression, we started the lag length selection by including a maximum of 4 lags and then we compare the suggestions of the two information criterion in regard of the number of lags to be included. Since AIC provided the lowest value it was selected. The optimal number of lag to include in the model given by the AIC is 2 (p=2).

The variables integration order is determined using the Augmented Dickey-Fuller (ADF) unit root test and the Kwiatkowski-Philips-Schmidt-Shin (KPSS) stationary test. The equation of the ADF test and the test hypothesis are presented as below:

$$\Delta Y_t = \beta_1 + \beta_2 Y_{t-1} + \sum_{i=1}^{p} \alpha_i \Delta Y_{t-i} + \varepsilon_t \tag{2}$$

$$\begin{aligned} H_0 &: \beta_2 = 0 \\ H_1 &: \beta_2 < 0 \end{aligned} \tag{3}$$

Where Y_t equal $Ltrade$, $Lfdi$ and $Leco\_growth$.

The equation of the Kwiatkowski-Philips-Schmidt-Shin (KPSS) stationary test and the test hypothesis are presented as below:

$$Y_t = \xi_t + \varepsilon_t \quad with \quad \xi_t = randomwalk \quad and \quad \varepsilon_t \sim I(0) \tag{4}$$

$$\begin{aligned} H_0 &: \sigma_v^2 = 0 \\ H_1 &: \sigma_v^2 > 0 \end{aligned} \tag{5}$$

For the tests of co-integration relation we adopt in this study the methods developed by Johansen. The Johansen test is a test for co-integration of several integrated of order one I(1) time series data. The advantage of the Johansen test comes from its ability to handle several time series variable in contrast with other co-integration test that could only handle one co-integration relationship. The Johansen test relies on 2 types of tests: the trace and the maximum Eigen value tests. The maximum Eigen value tests and the trace test are used in

order to detect the existence of co-integration relationships. The lag of the variables is selected taking into consideration two information criterions: AIC and SIC. The equation of the Johansen co-integration test is presented as below:

$$Y_t = c + A_1 Y_{t-1} + ... + A_p Y_{t-p} + e_t \quad (6)$$

Where Y is $n \times 1$ (n by 1) vector that are integrated of order 1 or commonly written as $I(1)$, and e_t is $n \times 1$ vector of innovations. Equation can be rewritten as:

$$\Delta Y_t = c + PY_{t-1} + \sum G_i \Delta Y_{t-1} + e_t \quad (7)$$

Where $P = \sum A_i - I$ and $G_i = \sum A_i$

The use of granger causality tests provides the possibility of testing the existence of precedence relationships among export, foreign direct investment and economic growth that represent the variables in study. The number of lags to be considered in the estimation procedure is determined according to the use of two information criteria: AIC and SIC. The equation of the Granger causality test and the test hypothesis are presented as below:

$$\begin{cases} Y_t = \beta_0 + \beta_1 t + \sum_{i=1}^{k} \gamma_i Y_{t-i} + \sum_{j=1}^{k} \delta_i X_{t-j} + \varepsilon_t \\ X_t = \beta_0 + \beta_1 t + \sum_{i=1}^{k} \gamma_i X_{t-i} + \sum_{j=1}^{k} \delta_i Y_{t-j} + \mu_t \end{cases}$$

(8)

$$H_0 : "X \text{ does not Granger cause } Y"$$
$$H_1 : "Y \text{ does not Granger cause } X"$$

(9)

Where Y_t and X_t equal $Ltrade$, $Lfdi$ and $Leco\_growth$.

4. Results and discussions

4.1 Unit root and stationary tests

The Augmented Dickey-Fuller (ADF) test is used for testing the presence of unit root in the variables. The test result is given bellow in Table 2. The ADF test null hypothesis is stated as follow: H_0 :"$Series has unit root$".

Table 2: Unit root ADF test result

Variables	Level		First differences	
	k	ADF test statistic (p_value)	k	ADF test statistic (p_value)
Ltrade	0	-0.26404 (0.9208)	0	-5.036335* (0.0002)
Lfdi	1	-1.514091 (0.5152)	0	-8.582322* (0.0001)
Leco_growth	1	-1.33977 (0.6003)	0	-4.263401* (0.0019)

Notes:

1. In level series, the test equation includes constant without trend. The test is conducted at 5% significance level.
2. In the first-difference series, the test equation includes constant without trend. The test is conducted at 5% significance level
3. Lag length (k) is selected by the minimum AIC with maximum lag = 2. The p-value is in the parenthesis.
4. ADF test CV provided by the econometric software package (Eview 11) at series level: 5% level (-2.94584); ADF test CV at series 1st difference: 5% level (-2.94584);
5. * indicates that the null hypothesis is rejected at the 5% significance level.

According to the ADF unit root test results, the null hypothesis can't be rejected at 5% significance level for all the variables at series level. But the null hypothesis is rejected at 5% significance level for all the variables at series' first differences. Hence all the variables are integrated of order one I(1).

After Augmented Dickey-Fuller (ADF) test, a confirmatory test Kwiatkowski-Philips-Schmidt-Shin (KPSS) stationary test is conducted on the variables under study. The null hypothesis of the KPSS test is stated as follow: $H_0 :"series is stationary"$. The KPSS stationary test result is given in Table 3.

Table 3: KPSS test result

Variables	Level				First difference			
	KPSS_stat.	1% CV	5% CV	10% CV	KPSS_stat.	1% CV	5% CV	10% CV
Ltrade	0.47955*	0.739	0.463	0.347	0.30162**	0.739	0.463	0.347

Variables	Level				First difference			
	KPSS_stat.	1% CV	5% CV	10% CV	KPSS_stat.	1% CV	5% CV	10% CV
Lfdi	0.51078*	0.739	0.463	0.347	0.23026**	0.739	0.463	0.347
Leco_growth	0.34855*	0.739	0.463	0.347	0.28729**	0.739	0.463	0.347

Notes:

1. At series level and at series' first differences the test equation includes constant but without trend for all the variables. Rejection of the null hypothesis: Series is stationary at the 5% significance level

2. * indicates that the null hypothesis is rejected at the 5% significance level.

3. ** denotes failure to reject the null hypothesis at 5% level of significance. Hence the series is stationary.

According to the KPSS stationary test results, the null hypothesis "series is stationary" is rejected at 5% significance level for the 3 variables used in the study at series level. But the null hypothesis "series is stationary" is accepted at 5% significance level for all the variables at series' first differences. Therefore the 3 variables used in the study are stationary in their first differences.

The Augmented Dickey-Fuller (ADF) test results are confirmed by the KPSS stationary tests. Hence all the series (Ltrade, Leco_growth and Lfdi) are non-stationary at their level but become stationary in their first differences. The 3 variables used in the study are found to be integrated of order one I(1).

4.2 Co-integration test

Having established that all 3 variables used in the study are integrated of order one, the appropriate integration test is Johansen co-integration test. The Johansen co-integration test includes 2 tests: the trace and the maximum Eigen value tests. The null hypothesis of the test is stated as follow: H_0 :"No cointegrating $equation$". The Johansen co-integration test result is given in Table 4.

Table 4: Johansen co-integration test result

Test	Test statistic (p_value)	5% Critical Value
Trace test	31.95232* (0.0278)	29.79707
Max-Eigen value test	22.36586* (0.0334)	21.13162

Note:

1. The test is conducted at level series

2. The test equation includes constant without trend. Rejection of the null hypothesis: No co-integrating equation at the 5% level.

3. Lag length (p) is selected by the minimum AIC with maximum lag = 2. The p-value is in the parenthesis.

4. Johansen co-integration test: Trace test CV at series level: 5% level (29.79707); Eigen value test CV at series level: 5% level (21.13162);

5. * indicates that the null hypothesis is rejected at the 5% significance level.

Table 5: Normalized co-integrating coefficients

Variable	Coefficients (Standard error)	Test statistic
Leco_growth	1	_
Lfdi	-1.415885 (0.2945)	-4.807758913*
Ltrade	4.899777 (0.97327)	5.03433*

Note:

1. Leco_growth is used as dependent variable

2. The test statistic is obtained by dividing the coefficient value to the standard error)

3. * denotes significance of the coefficient at 1% level (coefficient higher than 2)

Both Trace statistic and Maximum Eigen value statistic are greater than the 5% Critical value, therefore the null hypothesis of "no co-integrating equation" is rejected at the 5% significance level. The test indicates a co-integration equation at the 5% significance level. Hence there is a long run relationship among the variables. Table 5 showed that in the long run, trade has a positive effect on economic growth, while foreign direct investment has a negative impact on economic growth. On average, ceteris paribus, the coefficients are found statistically significant at 5% level. The null hypothesis of no co-integration is rejected. Hence there is co-integrating relationship in the model.

4.3 Granger causality test

The Granger causality test was used in order to examine the Granger causal relationships between the variables under examination. The results relating to the existence of Granger

causal relationships between exports, economic growth and foreign direct investment appear in Table 5.

Table 6: Granger causality test result

Variables	Ltrade	Lfdi	Leco_growth
Ltrade	_	4.40177 (0.0208)	5.37503 (0.0099)
Lfdi	0.61298 (0.5482)	_	2.28249 (0.1189)
Leco_growth	4.95182 (0.0136)	1.61485 (0.2152)	_
Observations	36	36	36

Note:

1. The test is conducted at level series
2. Two lags are included in the test
3. The test p_values are given in brackets
4. The test F_statistics are given on the top of the p_values

From the results of Table 6, there is a bilateral relationship between trade (Ltrade) and economic growth (Leco_growtn), a unidirectional causal relationship between trade and foreign direct investment (Lfdi) with direction from trade to foreign direct investment.

5. Conclusion

The present study investigates the relationship between trade, economic growth and foreign direct investment in Niger using annual data for the period 1980 - 2017. The empirical analysis suggested that all variables used in this study present a unit root, which means that the variables are integrated of order one. On this basis the Johansen co-integration test analysis was used to lead to a long-run equilibrium relationship among these variables. On average, ceteris paribus, the coefficients were found to be significant at 5% level. Finally, using Granger causality test we can conclude that there is a bilateral relationship between trade and economic growth and a unidirectional causal relationship between trade and foreign direct investment with direction from trade to foreign direct investment.

References

[1] Abraham, B., 2018. Causality between foreign direct investments and exports in India. *Theoretical and Applied Economics*, 25(4), pp. 135-144.

[2] Akaike, H., 1973. Information Theory and an Extension of the Maximum Likelihood Principle. *Akademiai Kiado*, pp. 267-281.

[3] Akinlo, E. A., 2017. Determinants of foreign direct investment in nigeria: a markov regime-switching approach. *Review of innovation and competitiveness*, 3(1), pp. 21-48.

[4] Awolusi, O. D., 2012. Foreign Direct Investment and Economic Growth in Nigeria: A Vector Error Correction Modeling. *Journal of Research in Economics and International Finance*, 1(3), pp. 58-69.

[5] Champa, D. B., Mohammed, Z. H. & Debasish, D. K., 2017. Dynamics of Economic Growth, Investment and Trade Openness: Evidence from Bangladesh. *South Asian Journal of Macroeconomics and Public Finance*, 6(1), pp. 82-104.

[6] Dalado, J. J. & Helmut, L., 995. Making wald tests work for co-integrated VAR systems. *Econometric Reviews,* 15(4), pp. 369-386.

[7] Edwards, S., 1992. Trade Orientation, Distortions and Growth in Developing Countries. *Journal of Development*, Volume 39, pp. 31-57.

[8] Emrah , C. 1., Erdal , A. & Turhan, K., 2019. Trade Openness and Economic Growth in Turkey: A Rolling Frequency Domain Analysis. *mdpi economies*, pp. 7-41.

[9] Etale, E. L. & Etale, L. M., 2016. The Relationship between Exports, Foreign Direct Investment and Economic Growth in Malaysia. International Journal of Business *Management and Economic Research,* 7(2), pp. 572-578.

[10] Granger, C., 1988. Some recent development in a concept of causality. *Journal of Econometrics*, 39 (1-2),, 39(1-2), pp. 199-211.

[11] Jan, H. & Marta, O., 2014. Determinants of Foreign Direct Investment in EU Countries – Do Corporate Taxes Really Matter? *Procedia Economics and Finance*, Volume 12, pp. 243-250.

[12] Jeffrey, M. A. & Kislaya, P., 1992. A comparison of model selection criteria. *Econometric reviews*, 11(2), pp. 201-234.

[13] Johansen, S., 1988. Statistical analysis of co-integration vectors. *Journal of Economic Dynamics and Control*, 12(2-3), pp. 231-254.

[14] Johansen, S. & Juselius, K., 1990. Maximum likelihood estimation and inference on co-integration — with applications to the demand for money. *Oxford Bulletin of Economics and Statistics,* 52(2), pp. 169-210.

[15] Johansen, S. & Juselius, K., 1992. Testing structural hypotheses in a multivariate co-integration analysis of the PPP and the UIP for UK. *Journal of Econometrics*, 53(1-3), pp. 211-244.

[16] Johansen, S. & Katarina, J., 1990. Maximum likelihood estimation and inference on co-integration — with applications to the demand for money. *Oxford Bulletin of Economics and Statistics*, 52(2), pp. 169-210.
[17] Khun, S., 2018. The Impact of Foreign Direct Investment on the Economic Growth in Cambodia: Empirical Evidence. *International Journal of Innovation and Economic Development*, 4(5), pp. 31-38.
[18] Melina, D., Chaido, D. & Antonios, A., 2004. A Causal Relationship between Trade, Foreign Direct Investment and Economic Growth in Greece. *American Journal of Applied Sciences*, pp. 230-235.
[19] Mohamed, I., Zahir, M. O. & Ali, Y., 2017. The Determinants of Foreign Direct Investment in Somalia. International Journal of Economics and Financial Issues, 7(3), pp. 713-720.
[20] Mohammad, A. A. & Mahmoud, K. A., 2013. Foreign Direct Investment and Economic Growth Literature Review from 1994 to 2012. s.l., *International Conference on Innovation*,
[21] Ousseini, A. M., Oumarou, I. & Salifou, K. C., 2019. Foreign Direct Investment and International Trade in WAEMU- Panel Causality and Long-term Relationship Analysis. *Review of economics*, 70(2), pp. 193-212.
[22] Peter, C. B. & Pierre, P., 1988. Testing for a Unit Root in Time Series Regression. *Biometrika,* 75(2), pp. 335-346 .
[23] Procedia, M., n.d. Management and Technology Research. *Social and Behavioral Sciences*, Volume 129, pp. 206-213.
[24] Rasha, I. M. & Ismael, M. T., 2015. .A Causal Relationship between Foreign Direct Investment, Economic Growth and Export: Empirical Case for Jordan. *Advances in Management & Applied Economics*, 5(4), pp. 19-30.
[25] Renu, S. & Mandeep, K., 2013. Causal Links between Foreign Direct Investments and Trade: A Comparative Study of India and China. *Eurasian Journal of Business and Economics,* 6(11), pp. 75-91.
[26] Saibu, M., Agbeluyi, M. & Nwosa, P., 2011. Financial development, foreign direct investment and economic growth in Nigeria. *Journal of Emerging Trends in Economics and Management Sciences,* 2(2), pp. 146 - 154.
[27] Schwarz, G., 1978. Estimating the Dimension of a Model. *The Annals of Statistics*, 6(2), pp. 461-464.
[28] Sofia, L., 2018. Export, FDI and Economic Growth in Mercosur: The causal relationship and effect of trade liberalisation. *Lund university press*.
[29] Søren, J., 1988. Statistical analysis of co-integration vectors. *Journal of Economic Dynamics and Control*, 12(2-3), pp. 231-254.

[30] Tshepo, M. S., 2018. The relationship between foreign direct investment and economic growth in South Africa: Vector error correction analysis. *Acta Commercii - Independent Research Journal in the Management Sciences.*

[31] United Nations Economic commission for Africa, 2019. United Nations Economic commission for Africa. (2019). *Economic report on Africa*. Addis Ababa: s.n.

[32] Uwubanmwen, E. A. & Ogiemudia, O. A., 2016. Foreign Direct Investment and Economic Growth: Evidence from Nigeria. *International Journal of Business and Social Science*, 7(3).

[33] Zuzana, S., 2014. A causal relationship between foreign direct investment, economic growth and export for Slovakia. *Emerging Markets Queries in Finance and Business*, p. 123 – 128.