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Time Series Analysis among Tourism, Financial Development, FDI and Economic Growth in Jordan

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Abstract

This study investigates the relationships among tourism, financial development, FDI inflows and economic growth in Jordan for the (1985-2016) period. The current paper has used bounds testing approach to confirm the relationship among the study variables. Multivariate Granger causality test is used to determine the directions of causality between the study variables. The results confirmed that there is evidenced of relationships among tourism, financial development, FDI inflows and economic growth. Also, the multivariate Granger causality test confirmed deferent directions of causal among the study variables.

Keywords: economic growth, tourism, FDI inflows, financial development, causality, Jordan

1. Background

Over the past decades, several studies argued the relationship between the economic growth and its determinants hypotheses to better understand the interaction among them. These studies examined the relationship between economic growths represented by gross domestic product (GDP) and other economic factors based on the work of Keynes (1936). In general, the economic hypotheses which are foreign direct investment (FDI), energy consumption (EC), tourism (T) and financial development led economic growth are discussed by many researchers (See, Khan et al., 2014; Shahbaz, 2012; Hamdi et al., 2014; He & Ahmed, 2012; Balaguer & Cantavella-Jorda, 2002).

Recently, the influence of tourism sector on economic growth has been researched in several countries due to the growing size of the tourist Market (Ohlan, 2017). Moreover, the tourism sector plays an important role in economic growing through different channels, (1) tourism stimulates investments in new infrastructure, human capital and increases competition. (2) Tourism significantly contributes to foreign exchange reserves which help in bringing new technologies for production process. (3) Tourism helps to promote industrial development through spillover effects and creates new jobs and hence stimulates earnings (Ohlan, 2017; Cernat & Gourdon, 2012; Lemmetyinen & Go, 2009; Lee & Chang, 2008; McKinnon, 1964).

Therefore, some studies argued that FDI inflows affect the economic growth by add new technology, make new infrastructure and transfers managerial skills that enhance the total factor productivity. Moreover, FDI has subject the development areas of economics, this is because FDI inflows have direct effects on overall economic such as employment skills, total income, imports, export and balance of payment. This makes FDI inflows as one of the leading variables that effect economic environment, especially due to the globalization of international economy (Bekhet & Al-Smadi, 2015; Shahbaz, 2012; Borensztein, De Gregorio, & Lee, 1998).

Other studies are confirmed that, the financial development (FD) play a vital rolls in economic growth by the efficient financial systems that direct effects on economic growth (Bekhet & Al-Smadi, 2016; Khan et al., 2014; Sghaier & Abida, 2013). Also, FD promotes economic growth through capital accumulation and technological advancement by boosting savings rate, optimizing the allocation of capital, delivering information about investments, facilitating and encouraging FDI and mobilizing and pooling savings (Bekhet & Al-Smadi, 2017;Otchere, Soumare, & Yourougou, 2016; Uddin, Sjö, & Shahbaz, 2013; Saibu, Agbeluyi, & Nwosa, 2011; Hassan, Sanchez, & Yu, 2011; Khan, 2001).

Generally, some studies examine the effect of FD on economic growth by using the aggregate money supply as proxy of financial development (Ohlan, 2017; Başarir & Çakir, 2015; Hassan, Sanchez, & Yu, 2011). Thus, to

give a clear picture for the policy makers about the effects of (T, FD and FDI) on economic growth the relationship and the directions of causality among the selected factors is analysed. The rest of the current study is structured as the following. Jordanian economy overview is presented in section 2. The previous studies are provided in section 3. Data collection and model specification are presented in section 4. Econometric framework is discussed in section 5. The results and concluding remarks are discussed in sections6 and 7 respectively.

2. Jordanian Economy Overview

Jordanian economy is considered as one of the smallest economy in Middle East countries with several economic obstacles such as (high level of poverty, high level of inflation rate, huge budget deficit and high level of unemployment). Also, Jordan has a few natural resources and depends on its energy requirements on external sources. Therefore, Jordanian economy faced several shocks in past decade, for example global financial crisis, Arab spring and Syrian crisis (Central Bank of Jordan, 2013; Bekhet & Matar, 2013; World Bank, 2014). Frome these facts, Jordanian policy maker trade to deal with these facts by address set of internal and external policies starting from 1997 Jordan has sign set of economic agreement whit other countries. New energy strategy has been developed in 2007 that aims to development indigenous and renewable energy resources (World Bank, 2011; Bekhet & Al-Smadi, 2012).

Nowadays, the tourism sector in Jordan is play a vital role in Jordanian economy and showed substantial growth in terms of revenues to became the second faster sector in Jordan (Jordan Inbound Tour Operators Association (JITOA, 2017). Also, Jordan became a member of the main international organizations in the world. As a result of economic policies and international agreements, the Jordanian economy became the most significant market in the Middle East (Bechtel & Al-Smadi, 2012; Ministry of Industry and Trade, 2012). However, to show the performance of Jordanian economy activities could be by testing the level of RGDP in Jordan at constant prices. Figure1 demonstrations that RGDP in Jordan at constant prices recorded an annual growth rate of 4.4% for the 1985-2016period.

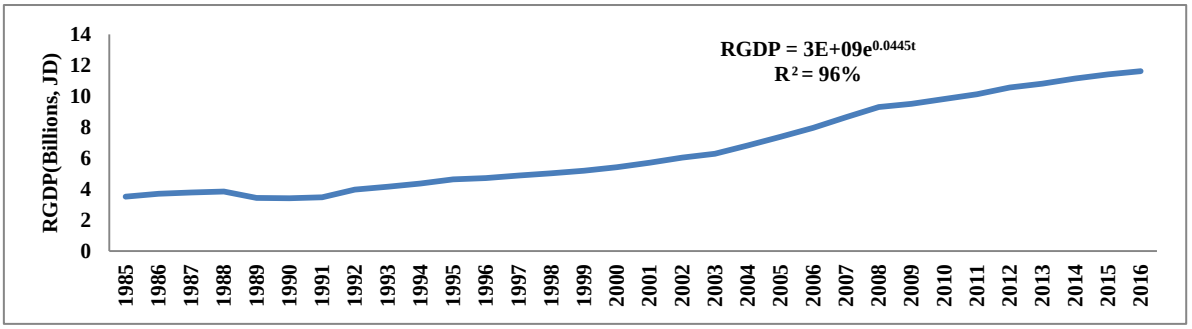

Figure 1. Jordanian RGDP for the (1985-2016) period

Source: World Bank database (2017); http://data.worldbank.org/country/jordan, accessed on Jan 2017.

Figure 1 show that in 1985 RGDP started with value of JD 3.50 billion and reached JD 3.84 billion in 1988. Also, can be see that, Jordanian RGDP in 1990 and 1991 decreased to reach JD 3.41 billion and 3.46 billion respectively as a results of the Gulf War which affected in the middle east countries negatively (CBJ, 2013; Bekhet & Matar, 2011). However, Jordanian RGDP improved again to reach JD 9.29 billion in 2008 and continued an upward trend to reach JD11.61 Billion in 2016.

Historically, Jordanian policy maker have made several steps to improve the level of Jordanian economy for example, (many economic policies and roles have been adopted to encourage the private sector, prepare towards a free market economy and new investment regulations was adopted to increase the level of business environment). Resulted of that, Jordanian economy is considered as one of the highs countries in the world in terms of attracting FDI inflows (Bekhet & Al-Smadi, 2015). Also, Jordan has witnessed structural reforms containing liberalization of the trade and investment administrative, introduction of modern regulations, and institutions, to become one of the most open economies in the Middle East Countries (Jordan Investment Board, 2012).

Figure 2 show that Jordanian FDI inflows and M2 noted an annual growth rate of 20% and 9.5% for the 1985-2016 periods respectively. The inward of FDI in 1985 started with JD9.82 Million and improved radically

to reach JD 2.51 billion in 2006. From 2011 to 2015 the total investment decreased by 40% to reach around JD1.04 billion in 2011 and JD 905 million in 2015 as a results of many shocks in middle east countries, that forced the investors to restructure their investment strategies (Jordan Investment Board, 2012).

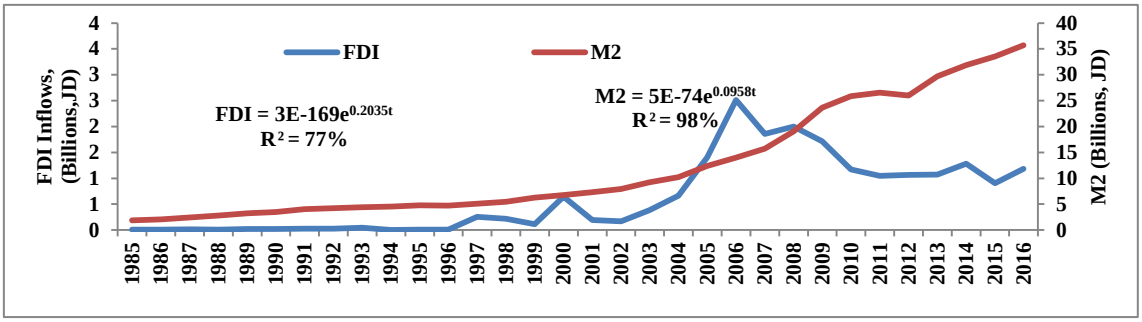

Figure 2. FDI inflows and M2 in Jordan for the (1985-2016) period

Source: World Bank database (2017); http://data.worldbank.org/country/jordan, accessed on Jan 2017.

In term of money supply (M2) many studies confirmed that there is a positively relationship between M2 and economic growth, this is because the high level of M2 came as a result of the growth in GDP and M2 is consider as one of the most important factor that affective in economic growth (Bekhet & Al-Smadi, 2017). Figure 2 show that M2 in Jordan is started whit absolute value of JD 1.87 billion in 1985 and increased in 2003 to reach JD 9.2 billon. Between the years of 2003 to 2011 the value of M2 achieved an average of growth rate around 6% to reach in 2011 around JD 26.5 billion (CBJ, 2014) and then continued an upward trend to reach JD35.71 billion in 2016. This growth in Jordanian M2 came as a result of increasing the domestic and foreign assets that absolutely led to high level of economic during the same period.

Moreover, the tourism sector has become an important sector that has an impact on the economic development. Also, for many countries it is consider as the most important source of welfare and the main benefits of the tourism sector are the income creation and generation of jobs (JITOA, 2017). For Jordan the tourism sector accounted around JD2.6billion in 2016. This is because, Jordan has witnessed several development projects in some of main tourist attractions, which cooperate in marketing Jordan as a tourist destination and raise its competitiveness within the region (JITOA, 2017).

Also, Jordan National Tourism Strategy vision (2010-2015), is to create a special point in Jordan that encourages the foreign visitor to come to Jordan that will lead to increase the level of Jordanian economic. However, this strategy aims to improve the level of quality service, diversifying products and increase the number of tourist in Jordan (Jordan Tourism Board, 2017). As a result of that, Jordan ranked in position 53 out of 130 countries on the Travel and Tourism Competitive Index (Travel and Tourism Competitiveness Report, 2016). Figure 3 show that Jordanian tourism sector performance (Total Number of Arrivals, (TA)) noted an annual growth rate of 4.1% for the 1985-2016 periods.

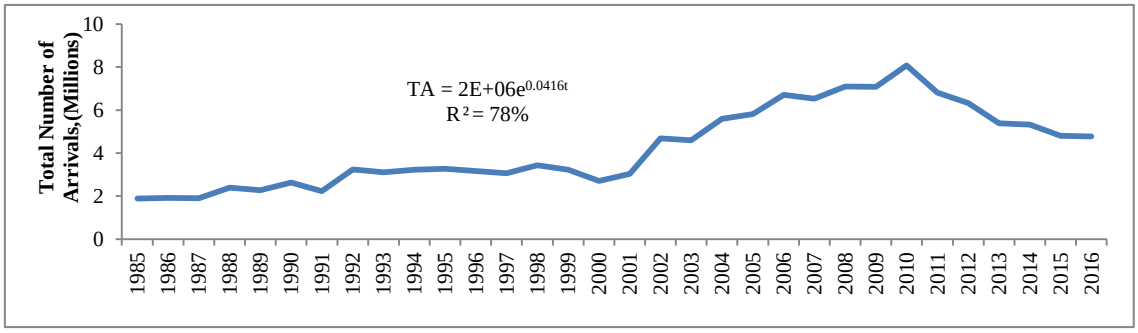

Figure 3. Total number of arrivals in Jordan for the (1985-2016) period

Source: Ministry of Tourism and Antiquities database, (2017) available online at: http://http://www.mota.gov.jo, accessed on Jan 2017.

Figure 3 shows that the number of tourists who visited Jordan in 1985 was around 1.88 Million and increased to reach 3.24 Million in 1992. The number of tourists visiting the Jordan has recorded a promising increase towards the end of year 2010 to reach 8.09 Million. Due to the instability in the Middle East region, the number of tourists who visited Jordan was greatly affected and decreased to reach 4.8 Million in 2015. However, Jordan received 4.77 million foreign visitors who spent at least one night in Jordan, with 2.6%increase from the previous yare, (LinaAnnab, 2016).

3. Previous Studies

The relationship among GDP, TA, FD and FDI inflows is examined in previous empirical studies (See, Mishra, Rout, & Mohapatra, 2011) for India, Georgantopoulos (2013) for India, Kumar (2014) for Vietnam, Ngoasong and Kimbu (2016) for Cameroon, Ridderstaat and Croes (2017) for Canada, United Kingdom, and United States). All these studies have given conflicting results about the relationship among these variables. Table 1 summarises the results of these studies.

Table 1. Summary of selected studies

GDP= (TA, FD and FDI)				
Author	Country	Variables used	Methodology	Results
Ohlan, R. (2017)	India	GDP=F(TA, FD)	ARDL	GDP and TA- long-run
Başarir, and Çakir, 2015	TEFSG	CO_2= F(FD, Energy, TA)	VAR	TA → FD-unidirectional
Ahmed (2012)	Malaysia	GDP=F(K,L, HC,FDI)	OLS	GDP and FDI - positive
Kholdy and Sohrabian (2008)	22 countries	FDI=F(FD,GDP)	VEC	FDI ↔ FD-bi-directional
Al-Mulali (2012)	MSC	GDP=F(EC,FDI,EO,CO_2)	VEC	GDP ↔ EC-bi-directional
Kok and Ersoy (2009)	Countries	FDI =F(GDP, INF, GFCF)	OLS	GDP and FDI - positive
Bassil, Hamadeh, and Samara, (2015)	Lebanese	GDP =F(TA)	VAR	TA → GDP-unidirectional
Brida, Lanzilotta, Pereyra, and Pizzolon, (2015).	MERCOSUR regional	TA=F(GDP)	VAR	TA↔ GDP-bi-directional
Uddin et al. (2013)	Kenya	FD=F(GDP, L, K, DCB,M2)	ARDL	FD and GDP- long-run
Ekanayake, and Long,. (2012).	140 countries	GDP=F(GFCF, TA)	VAR	GDP and TA - positive
Belloumi, M. (2010).	Tunisia	GDP=F(TA, EX)	VECM	TA and GDP - positive
Ertugrul, and Mangir, (2015)	Turkey	GDP=F(TA)	VECM	TA → GDP-unidirectional
Hamdi et al (2014)	Bahrain	GDP=F(EC,K,FDI)	VECM	GDP ↔ EC- bi-directional
Georgantopoulos, (2013)	INDIA	GDP=F(TA)	VECM	TA→ GDP-unidirectional
Otchere et al. (2011)	Africa	FDI=F(FD,GDP,EO)	VAR	FDI↔ FD-bi-directional
Kumar, (2014)	East Asia countries	TA=F(FD,GDP)	VECM	TA and FD- long-run
Lee, (2012).	Singapore	GDP=F(EX, IM, TA)	VECM	TA and GDP- long-run
Karim and Majid (2010)	UJSCT	FD=F(FDI)	ARDL	FD and FDI- long-run
Oseni and Enilolobo (2011)	Nigeria	FDI=F(FD,GDP,EX)	VEC	FDI and FD- long-run
Salmani, Panahi, and Razzaghi, (2014)	OIC countries	GDP=F(TE)	panel data method	TE and GDP- long-run
Nwosa et al. (2011)	Nigeria	FDI=F(FD,GDP)	VEC	FDI ↔ FD-bi-directional
Chulaphan, and Barahona, (2017)	Thailand	IPI=F(TA)	VAR	TA→ IPI-unidirectional

Note. Turkey, France, Spain, Italy and Greece (TEFSG); tourism expansion (TE); Inflation rate (INF); Export (EX); Domestic credit provided by banking sector (DCB); Total carbon dioxide(CO_2); Vector autoregressive (VAR) model; Vector Error Correction Model (VECM); Ordinary Least Squares (OLS) regression; physical capital (K); Human capital (HC); UJSCT is (USA, Japan, Singapore, China and Thailand); Industrial Production Index (IPI).

As discussed above the existing literatures, there are given conflicting results about the relationship amongGDP, TA, FD and FDI inflows.Subsequently, to achieve the objectives of the current paper, it could be formulating the following hypotheses:

H_1: There are significant long-run relationships among (TA, FD, FDI and GDP) in Jordan.

H_2: There are significant short-run relationships among(TA, FD, FDI and GDP) in Jordan.

H_3:There are long-run and short-run directions of causality among (TA, FD, FDI and GDP) in Jordan.

4. Data Collection and Model Specification

Annual time series data was used and collected for the (1985-2016) period. However, it was obtained from different sources. TA was collected from the Ministry of Tourism and Antiquitiesdatabase (http://http://www.mota.gov.jo). The variables of (GDP, FDI and FD) were obtained from the World Bank (https://data.worldbank.org/country/jordan).Furthermore, all the variables transformations into natural logarithmic (L) to reduce the hetrosecedasticity problem and to obtain the growth rate of the variable (Bekhet & Al-Smadi, 2017; Montgomery et al., 2008; Chen et al., 1986). Thus, followed the empirical literature (Table 1), it is plausible to form the long-run, short-run and causality as in Equation (1):

$$LGDP_t = \alpha + \delta_1 LTA_t + \delta_2 LFD_t + \delta_3 LFDI_t + \omega_t \quad (1)$$

Where the intercept is (α), error term is (ω), the variables coefficients is δ_is (i= 1,…., 3) and the time period is (t).

5. Econometric Framework

Several studies confirmed that if the time series data are not stationary, the regression analysis would not be true or spurious regression (Bekhet, Yasmin, & Al-Smadi, 2017; Gujarati & Porter, 2009). However, to select the suitable time series models are depends on the results of stationarity and co-integration tests (Bekhet & Matar, 2013a; Pesaran et al., 2001). Therefore, in the present study the augmented Dickey-Fuller (ADF) [1979, 1981] and Phillips-Perron (P-P) [1988] and Kwiatkowski, Phillips, Schmidt and Shin (KPSS) [1992] statistical tests are used to detect the level of stationarity either at I(0), I(1) or I(d) to selected the appropriate time series models.

To reach the objectives of the present study, the Autoregressive Distributive Lag (ARDL) bounds testing model is utilized. As discussed in many study the ARDL model developed by Pesaran et al. (2001) has several important advantage. First, allow for testing the relationship among the variables at different levels of stationary data either I(1), I(0) or both. Second, this model gives well results in case of small sample of data used. Third, this model can take the suitable lag order without losing any long run information. Finally, this model could be reducing the serial correlation problematic (Hamdi et al., 2014; Chandran & Munusamy, 2009; Pesaran, Shin, & Smith, 1999).

Generally, if the equilibrium relationship between the study variables is confirmed, this means that these variables are co-integrated (Bekhet, Yasmin, & Al-Smadi, 2017). Thus, to examine the long and short run relationship among (i.e., GDP, TA, FD, and FDI) ARDL model could be formulated as in Equation. (2).

$$\begin{bmatrix}\Delta LGDP\\ \Delta LTA\\ \Delta LFD\\ \Delta LFDI\end{bmatrix}_t = \begin{bmatrix}\alpha_1\\ \alpha_2\\ \alpha_3\\ \alpha_4\end{bmatrix} + \begin{bmatrix}\eta_{11} & \eta_{12} & \eta_{13} & \eta_{14}\\ \eta_{21} & \eta_{22} & \eta_{23} & \eta_{24}\\ \eta_{31} & \eta_{32} & \eta_{33} & \eta_{34}\\ \eta_{41} & \eta_{42} & \eta_{43} & \eta_{44}\end{bmatrix}\begin{bmatrix}LGDP\\ LTA\\ LFD\\ LFDI\end{bmatrix}_{t-1} + \sum_{S=1}^{K}\begin{bmatrix}\beta_{11} & \beta_{12} & \beta_{13} & \beta_{14}\\ \beta_{21} & \beta_{22} & \beta_{23} & \beta_{24}\\ \beta_{31} & \beta_{32} & \beta_{33} & \beta_{34}\\ \beta_{41} & \beta_{42} & \beta_{43} & \beta_{44}\end{bmatrix}_S\begin{bmatrix}\Delta LGDP\\ \Delta LTA\\ \Delta LFD\\ \Delta LFDI\end{bmatrix}_{t-S} + \begin{bmatrix}\varepsilon_1\\ \varepsilon_2\\ \varepsilon_3\\ \varepsilon_4\end{bmatrix}_t \quad (2)$$

Where, the first difference operator is (Δ), the intercepts is (α_is), the long run coefficients is (η_{ij}s), while the short run coefficients is (β_{ij}s), the error terms is (ε_{it}s), the optimal lag length is (k), the lag order is (s), and i.j=1.,….,4.

Furthermore, several studies argued that the vector error correction Model (VECM) is a standard technique to observe the causality direction between the study variables (Hamdi et al., 2014; Shahbaz et al., 2014; Khan et al., 2014; Gujarati & Porter, 2009). This model is developed from VAR model established by Engle and Granger in (1987) to examine the long and short run causality between the study variables (Gujarati & Porter, 2009). However, if all the study variables are stationary at same level and co-integration then the VECM is used to observe the direction of causality between the study variables (Bekhet & Mugableh, 2012; Johansen & Juselius, 1990). (see the general form of VECM in Equation (3).

$$\begin{bmatrix}\Delta LGDP\\ \Delta LTA\\ \Delta LFD\\ \Delta LFDI\end{bmatrix}_t = \begin{bmatrix}\theta_1\\ \theta_2\\ \theta_3\\ \theta_4\end{bmatrix} + \sum_{S=1}^{K}\Delta\begin{bmatrix}\Pi_{11} & \Pi_{12} & \Pi_{13} & \Pi_{14}\\ \Pi_{21} & \Pi_{22} & \Pi_{23} & \Pi_{24}\\ \Pi_{31} & \Pi_{32} & \Pi_{33} & \Pi_{34}\\ \Pi_{41} & \Pi_{42} & \Pi_{43} & \Pi_{44}\end{bmatrix}_S\begin{bmatrix}\Delta LGDP\\ \Delta LTA\\ \Delta LFD\\ \Delta LFDI\end{bmatrix}_{t-S} + \begin{bmatrix}\lambda_1\\ \lambda_2\\ \lambda_3\\ \lambda_4\end{bmatrix}_s\begin{bmatrix}ECT_1\\ ECT_2\\ ECT_3\\ ECT_4\end{bmatrix}_{t-1} + \begin{bmatrix}\varepsilon_1\\ \varepsilon_2\\ \varepsilon_3\\ \varepsilon_4\end{bmatrix}_t \quad (3)$$

Where, the first difference operator is (Δ), intercepts is (θ_is), the short run coefficients is (Π_{ij}s), the error correction terms coefficients (ECT_{t-1})is (λ_is) which use to examine the long run causality, and I,j=1.,…,.4

6. Results and Discussion

6.1 Quality Data, Stationarity and Co-integration Results

Table 2 demonstrations the tests of quality data and interrelationship matrix results. The outcomes of Skewness and JarqueBera(J-B) tests confirmed that ($LGDP_t$, LTA_t, LFD_t and $LFDI_t$) variables are normally distributed with

zero mean and constant variance ($\varepsilon_t s \sim N(0, \sigma^2)$). Moreover, Table 2 shows that all the variables are in acceptance range of correlation coefficients. Also, the results show that all the variables have positively relationship between each other, which means the effects of the multicollinearity is not existed (Menyah et al., 2014; Hamdi et al., 2014).

Table 2. Data quality test results

Variable	$LLGDP_t$	LTA_t	LFD_t	$LFDI_t$
Mean	22.5	15.1	22.8	18.8
Median	22.4	15.0	22.6	19.2
Maximum	23.1	15.9	24.2	21.6
Minimum	21.9	14.4	21.3	14.4
Std. Dev	0.42	0.44	0.90	2.16
Skewness	0.19	-0.03	0.17	-0.37
Kurtosis	1.57	1.76	1.76	1.68
J-B	2.90	2.03	2.19	3.07
Probability	0.23	0.36	0.33	0.21
$LGDP_t$	**1.00**			
LTA_t	0.88	**1.00**		
LFD_t	0.90	0.89	**1.00**	
$LFDI_t$	0.87	0.84	0.86	**1.00**

Note. The H_0 of non- normality is rejected if the values of J-B test 10%.

Source: E-Views 7.2 econometric software.

Table 3 confirm that the study variables are stationary at I (1), with constant and trend in ADF, P-P, and KPSS tests at significant levels of (1%, 5% and 10%). The results of ADF, P-P and KPSS tests are consistent with other many findings such as, Ohlan (2017) for India; Bekhet and Al-Smadi (2015) for Jordan; Seghir, Mostéfa, Abbes, and Zakarya (2015) for 49 countries.

Table 3. Stationary test results

Variables	**ADF**		**P.P**		**KPSS**		**Decision**
	I(0)	I(1)	I(0)	I(1)	I(0)	I(1)	
$LGDP_t$	-3.07	-6.34^a	-2.89	-6.27^a	0.33^a	0.11^c	I(1)
LTA_t	-2.21	-4.65^a	-2.03	-4.63^a	0.25^a	0.16^b	I(1)
LFD_t	-3.18	-5.31^a	-3.13	-5.21^a	0.31^a	0.13^c	I(1)
$LFDI_t$	-2.11	-3.74^b	-2.02	-3.55^b	0.23^a	0.18^c	I(1)

Note. (1) The significance statistical level at 1%, 5% and 10% are a, b and c. (2) H_0 for ADF and P-P tests are rejected if the variables have unit root.

Source: E-Views 7.2 econometric software.

As shown in Table 3, that all study variables are stationary at I(1), this means that the bounds F-statistics test would be utilized to confirm if the selected variables are co-integrated. Thus, the results of the co-integration are determined based on F-statistic test and reported in Table 3.

Table 4. The results of Co-integration test

Models	F-statistic	Critical Values Range			Decisions
		1%	5%	10%	
		I(0), I(1)	I(0), I(1)	I(0), I(1)	
$LGDP_t$	4.34^b	4.32, 5.78	3.03, 4.18	2.51, 3.51	Co-integration
LTA_t	3.78^c	4.32, 5.78	3.03, 4.18	2.51, 3.51	Co-integration
LFD_t	4.24^b	4.32, 5.78	3.03, 4.18	2.51, 3.51	Co-integration
$LFDI_t$	4.75^b	4.32, 5.78	3.03, 4.18	2.51, 3.51	Co-integration

Note. (1)F-statistics critical values were selected from (Narayan (2005), Case II). (2) The significance statistical level at 1%, 5% and 10% are a, b and c.

Source: Output was obtained from Micro-fit 4.1 econometric software packages.

Table 4 shows that the H_0 of no co-integration among the variables in the $LGDP_t$, LFD_t and $LFDI_t$ models are rejected at 5% significance level, while it rejected among the variables in LTA_t model at 10% significance level. The above results are consistent with the findings of Bekhetand Al-Smadi, (2015) for Jordan; Bekhet, Yasmin and Al-Smadi (2017) for Malaysia; Ohlan (2017) for India.

6.2 Long Run and Short Run Results

Several studies confirmed that, if the co-integration relationship among the variables in modelis warranted, then the long run and short run relationship between the study variables can be utilized (Bekhet & Al-Smadi, 2015; Khan et al., 2014; Uddin et al., 2013). However, in this study the lag order is selected based on the lowest value of Hannan-Quinn information criterion (HQ), Schwarz information criterion (SC), Akaike information criterion (AIC) tests (Pesaran & Shin, 1999; Granger, 1981). However, the results confirm that the optimal lag length (k) is one lag. Table 4 shows that the long and short run relationship between the study variables is confirmed.

Table 5. Long – run and short -run results

Model = $LGDP_t$			
Long Run-Results			
Variables	Coefficient	t-Statistic	Sig. level
LTA_t	0.34[a]	3.21	0.00
LFD_t	0.49[a]	4.90	0.00
$LFDI_t$	0.06[c]	1.75	0.09
Constant	7.05[a]	4.35	0.00
Short Run-Results			
ΔLTA_t	0.05	0.68	0.50
ΔLFD_t	0.49[a]	4.90	0.00
$\Delta LFDI_t$	0.34[b]	2.99	0.06
Constant	3.11[a]	2.96	0.00
ECT_{t-1}	-0.27[a]	-3.35	0.00

Note. (1) The significance statistical level at 1%, 5% and 10% are a, b and c respectively; (2) multiplier test of residual serial correlation = 1.124; (3) autoregressive conditional heteroskedasticity test = 2.73; (4) Normality test = 3.87; (5) RESET test using the square of the fitted values = 0.24; (6) F-statistics = 13.4; (7) R^2 = 68%; (8) Durbin Watson = 2.26.

Source: Micro-fit 4.1 econometric software.

Table 5 confirm the relationship between $LGDP_t$ model and (LTA_t and LFD_t) variables in the long run at 1% significance level, which means that an increase of the numbers of tourist arrival and the size of financial development will lead to increase the level of the economic growth. Also, all the coefficients results have a correct sign as discussed by several empirical studies see Ohlan (2017) for India; Bassil, Hamadeh, and Samara (2015) for Lebanese; Lee, (2012) for Singapore. Furthermore, the result confirmed the relationship between FDI inflows and economic growth in the long run at 10% significance level. This result is similar to many studies and confirmed by the endogenous growth theory which recommended that FDI help economic growth in a capital scarce economy by increasing the volume of money supply as well as efficiency of the physical investment (Bekhet, Yasmin, & Al-Smadi, 2017; Bekhet & Al-Smadi, 2015; Romer, 1986; De Mello, 1999).

Table 5 also presents the short-run dynamics equilibrium relationship results between the $LGDP_t$ and the study variables. At 1% significance levels, the financial development is positively associated with economic growth. However, the $\Delta LFDI_t$ is positively associated with $\Delta LGDP_t$ model at 5% significance levels. In addition, the coefficients of ECT_{t-1} are significant with appropriate signs in absolute value with 45%. This implies that this model $\Delta LGDP_t$ is corrected from the short-run towards the long-run equilibrium by45%, in other word the long-run would be shortly corrected back by 1.8 year.

Therefore, the stability of co-integration is examined by conducting the CUSUM and CUSUMQ tests. The results of these tests are displayed in Figure 4.The CUSUM and CUSUMQ tests results confirmed that the co-integration estimates are reliable and consistent because both diagrams are within critical bounds at (5%) of significance level (Shahbaz et al., 2013).

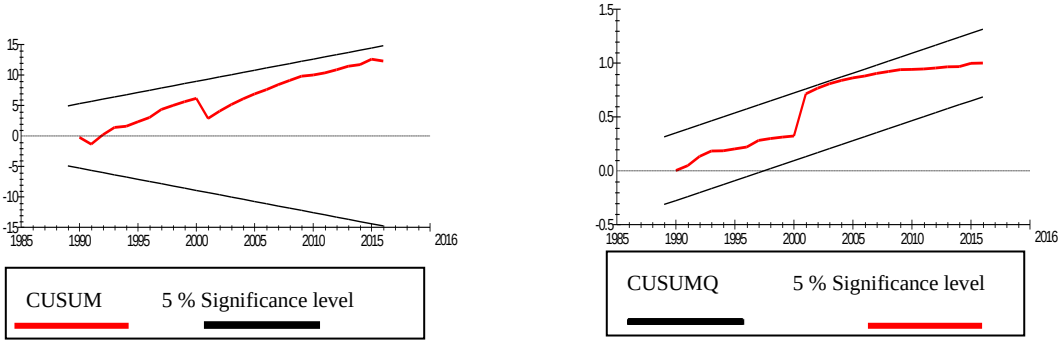

Figure 4. $LGDP_t$ model for CUSUM and CUSUMQ for the (1985-2016) period

Note. (1) plot of cumulative sum of recursive residual is (CUSUM). (2) plot of cumulative sum of square of recursive residual is (CUSUMQ).

Source: Micro-fit 4.1 econometric software.

6.3 The Results of Multivariate Granger Causality Tests

The multivariate granger causality tests are utilized to find out the long-run and short-run directions of causality among the study variables. The empirical results are based on applying VEC model in Equation (3) and given in Table 6.

Table 6. The long run and short run causality results

	Short- Run Causality Models				Long- Run Causality
Variables	$\Delta LGDP_{t-1}$	ΔLTA_{t-1}	ΔLFD_{t-1}	$\Delta LFDI_{t-1}$	ECT_{t-1}
$\Delta LGDP_t$	-------	0.18	4.46^a	4.14^b	-0.27^a
ΔLTA_t	5.62^a	--------	2.53^c	2.71^c	-0.21^b
ΔLFD_t	3.69^b	2.84^c	-------	4.65^a	-0.35^a
$\Delta LFDI_t$	4.03^b	1.54	0.53	------	-0.41^a

Note. (1) The significance statistical level at 1%, 5% and 10% are a, b and c respectively.(2) The short-run causality obtained from Wald Test.(3) The long-run causality obtained from ECT_{t-1}.

Source: E-Views 7.2 econometric software.

Table 6 confirms that in this study there is long run Granger causality (bidirectional) running among the study variables. These results were detected using t-statistics test at 1% and 5% significant levels. The above results are consistent with the findings of Ohlan (2017) for India; Seghir, Mostefa, Abbes, and Zakarya (2015) for 49 countries; Georgantopoulos, (2013) for India. However, the results of the short run causality are summarized in Figure 5.

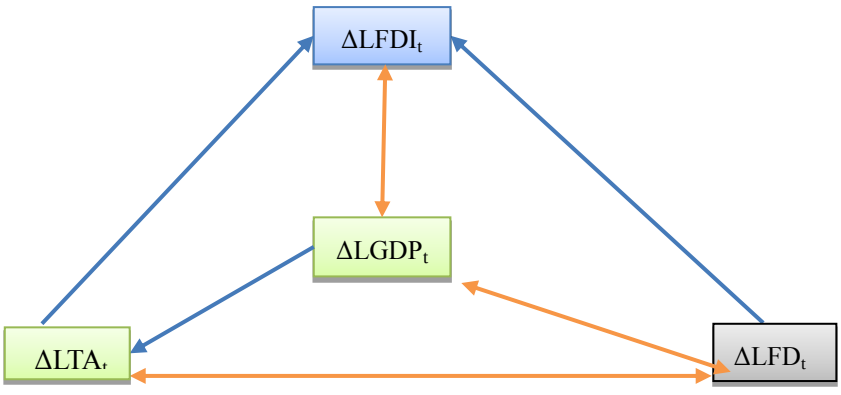

Figure 5. The direction of causality in short run

Note. (1) ⟶ represent the short run unidirectional results; (2) ⟷ represent the short run bidirectional results.

Source: Table 5.

Figure 5 shows that bidirectional causality running from economic growth to FDI inflows, from economic growth to financial development and from tourism to financial development is determined. Unidirectional causality running from economic growth to tourism, from financial development to FDI inflows, from tourism to FDI inflows is existed. However, these results are consistent with the findings of Ohlan (2017) for India; Seghir, Mostefa, Abbes, and Zakarya (2015) for 49 countries; Başarir and Çakir (2015) for Turkey, France, Spain, Italy and Greece; Chulaphan, and Barahona (2017) for Thailand.

7. Concluding Remarks and Recommendations

This study is identified the long and short run linkage and causality directions between economic growth, tourism sector, financial development and FDI inflows for the 1985-2016 period. Stationarity tests, ARDL Model and Multivariate Granger Causality test are used. The results show that the increase of the numbers of tourist arrival and the financial development are absolutely lead to increase the level of the economic growth. Also, the result confirmed that there is long run relationship between FDI inflows and economic growth in Jordan. The multivariate Granger causality results show that there is bidirectional Granger causality running among the study variables in the long run. Also, there is bidirectional causality running from economic growth to FDI inflows, from economic growth to financial development and from tourism to financial development in the short run.

In the policy context, the finding of this study offer justification for Jordanian Government to give more careful consideration toward encouraging inbound tourism. Jordanian policy makers should give more attention for the current regulations and continue implementing the economic plans that ultimately lead to Increase the number tourist arrive in Jordan and create more productivity power in the Jordanian economy. These results are important for academics, corporations and foreign investors since they are interested in the relationship between economic growth, financial development, tourism and FDI inflows. Finally, the results of this study it appears to have no evidence that the financial development and FDI inflows are played a role in increase the level of tourism sector performance in Jordan.

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