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The Role Of Investments On The Growth Of Tourism Revenues: Evidence From An Emerging Economy

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Abstract

The purpose of this research is to assess whether and to what extent the growth in the Jordanian economy responds to the increase in foreign direct investment (FDI) and local investment (LI) through tourism revenue over the period that ranges from 1995 to 2019. The study implements the Autoregressive Distributed Lag (ARDL) methodology to examine both the short-run and long-run impacts. The research findings confirm the long-run relationship between tourist revenues and FDI, LI, and the other determinants. In the long-run, contrary to expectations, LI has a negative and significant impact on tourism revenue, while FDI exerts an insignificant impact on tourism revenue. The short-run results also show that LI has a significant and negative impact on tourism revenue, whereas the impact of one period lag of FDI on tourism revenue is negative and significant at the 10% level. Originality: First, to the best of our knowledge, this is the first study that examines the extent to which both foreign direct investment and local investments impact economic growth through tourism revenue. Second, this research examines both the long-run and short-run impacts. Finally, contrary to previous research, this paper controls for economic freedom and the country's level of openness as factors that are important in the relationship between FDI, LI, and tourism revenue.

Keywords: Tourism; Revenue; Jordan; FDI; LI; ARDL

1. Introduction

This research aims to assess whether, and to what extent, the growth in the Jordanian economy responds to the increase in foreign direct investment (FDI) and local investment (LI) through the tourism sector over the 1995–2019 period. As reflected in the country's vision 2025, the Jordanian government recognized the importance of the tourism sector and put an emphasis on medical, religious, and cultural tourism, among others. Therefore, one of the main goals of the country's development is the creation of a competitive tourism sector, which is capable of reacting to all the demands of tourists while protecting the nation's heritage and environment. Consequently, the tourism industry has been increasingly valued for its contribution to economic growth and is expected to promote and stimulate the country's socio-economic development. This manifests itself in the development of the country's basic infrastructure, contributes to the growth of domestic industries, and attracts foreign investment. Tourism also facilitates the transfer of technology and information, encourages economic diversification, and helps in the preservation and rational usage of cultural and historical heritage. Furthermore, the structural composition of

tourism may be of particular interest to archeologists because tourists' activities are usually reflected in the physical environment through the historical sites in the area. This physical environment is divided into three sections: tourist, external, and internal facilities. Archaeology has conventionally directed the greater part of its investigation toward issues of cultural change. Therefore, tourism seems a suitable subject not just for economic growth but also for archeological investigations. Thus, in a more services-oriented economy, the tourism industry helps to stimulate urban areas and cultural activities, which, according to the UNCTAD, are in decline (Endo, 2006; UNCTAD, 2007).

In fact, given that the tourism industry needs capital, knowledge, infrastructure, and access to global marketing and distribution chains, foreign direct investment (FDI) is often considered the most effective way to access these critical success factors (UNCTAD, 2007: 6), especially in countries that lack natural energy resources. In addition to FDI, the government of Jordan complements that by allocating a large part (around 10.7%) of its budget to the tourism sector (World Economic Forum (WEF), 2017).

Tourism is one of the fastest-growing sectors and a major source of foreign income. The importance of tourism development lies in the fact that it links different activities in the country, such as construction, accommodation, and transportation, among others. Many players engage in tourism activities, ranging from domestic companies to foreign companies. As tourists' demand for goods and services represents an export, this provides a good opportunity for many sectors to participate in an indirect way in the global economy. Through this channel, tourism would offer important opportunities for a country to generate income, create more jobs, alleviate poverty, and consequently contribute to the country's Gross Domestic Product (GDP) growth.

Although tourism is important to both developed and developing countries, it is very sensitive to different external shocks which would affect the receipt of tourists, the revenue from tourism, as well as the different sectors whose return is highly correlated with the sector. This was clear in crisis situations like the COVID-19 pandemic beginning in 2020, which impacted mostly developing countries profoundly as their economies are not well diversified and more concentrated on service sectors. Parlak et al. (2021), support this fact as they found that the COVID-19 pandemic had a greater impact on tourism flows to developing countries than to developed countries.

Before the COVID-19 Pandemic began in 2020, Jordan faced an increase in tourism revenue due to the increase in international tourists over the previous two decades. Pre-pandemic, the tourism sector in Jordan represented around 10% of the country's GDP. With the start of the COVID-19 pandemic, there was a sudden seizure of travel and most economic activities in the world. As tourism in Jordan accounts for around 10% of the country's income, the crisis had a devastating impact not only on the income from tourism but also on the jobs created by this sector as well as on other related sectors.

Previous research looked at the relationship between FDI, tourism receipts, and economic growth, but the empirical evidence is still ambiguous and inconsistent. Few researchers found a positive impact of FDI on the tourism sector (Zhang 1999; Tang et al. 2007; Chen, 2010; Salleh et al. 2011; Roudi et al. 2018), while others found a negative impact (Ivanov and Webster (2007), Hazari and Ng (1993). In addition, some researchers found no impact of FDI on the tourism sector (Yazdi et al., 2017).

The aim of this paper is to assess whether and to what extent the growth in the Jordanian economy responds to the increase in FDI or local investment (LI) through the tourism sector over the 1995–2019 period. To achieve the research

objectives, current research divides the investment in tourism into local investment and foreign direct investments to determine which form of investment has the greatest impact on tourism revenue. In particular, the current research investigates whether and/or to what extent the evolution of both FDI and local investment boosts tourism revenue growth. The results of this research have implications for policy makers who seek welfare improvement via FDI and local investment in tourism.

This research contributes to the literature in many ways: First, to the best of the researcher's knowledge, this is the first study which examines the extent to which both foreign direct investment and local investments impact economic growth through using tourism revenue as a key factor. It is important to note that Jordan, as in the case of any other country, has its own specific characteristics. In addition, FDI impacts different industries and countries differently. Thus, this study will add to the literature on the impact of FDI as well as local investments in tourism on the growth of this sector in Jordan.

Second, this research employs suitable factors as proxies for tourism receipt, FDI, and local investments. This research implements Autoregressive Distributed Lags (ARDL) to examine not just the short-run but also the long-run impacts. As each of the underlying variables stands as a single equation, endogeneity is not considered a problem in the ARDL technique. Third, this study takes into consideration the level of economic freedom and the country's level of openness as factors that are important in determining FDI. These factors were not considered in the literature that examined the impact of FDI on tourism revenue. The researcher believes that the exclusion of these factors could be responsible for the inconsistent results documented in the literature.

The remainder of this paper is organized as follows: The next section introduces the tourism sector in Jordan. Section 3 surveys the literature. Data and variable construction are outlined in section 4. Section 5 specifies the econometric procedure implemented in the study. Section 6 discusses the empirical findings, while the final section concludes and provides policy

Tourism in Jordan

Jordan is a developing country located in Western Asia, situated at the crossroads of three continents: Asia, Europe, and Africa, within the Levant region. Jordan's economy faces many challenges, such as few natural energy resources, a weak productive base, a high fiscal deficit, a significant amount of public debt, a high unemployment rate, and weak economic growth. Although it is stable, political risk still exists due to its geographic proximity to the turbulent countries of Syria, Israel, and Iraq. All these factors have contributed to its economic fragility, which was and still is exaggerated by the recent COVID-19 pandemic.

According to the World Bank, the Jordanian economy contracted by around 1.6% in 2020. GDP growth dropped from around 2% in the years 2018 and 2019 to -4% in 2020. Public debt has increased from 93% in 2019 to 116% in 2020, according to data from the Ministry of Tourism and Antiquities. In 2019, the tourism industry employed 53,488 people, 85% of whom were Jordanians. This is especially important in a country such as Jordan. However, as a result of the pandemic, the unemployment rate rose to around 25%, with youth unemployment rates reaching around 50% (World Bank, 2021). Foreign direct investment in Jordan was also modest. The FDI received by Jordan accounted for only 11.3% of the total amount of FDI directed to the Middle East and North African countries (MENA). The FDI received in 2013 and 2014 represented around 6% of Jordan's GDP. It has dropped to an average of 4% in the period 2015-2016 and further deteriorated in the years 2018 (2.2%) and 2019 (1.9%). The lack of FDI

might be due to the statutory restrictions on foreign direct investment, as Jordan scored poorly on the OECD's foreign direct investment restrictiveness index in 58 countries and 22 sectors. Jordan's score was higher than the scores of other regional countries, which indicated its inability to compete with these countries to attract FDI.

On the positive side, Jordan is endowed with many historical and archaeological sites spread from the north to the south of the country, some of which are world heritage sites, such as Petra, Quseir Amra, Um er-asas, Wadi Rum Protected Area, and the Baptism Site of Jesus Christ, among others. In addition, Jordan has few therapeutic resources like the Dead Sea and few hot springs. Thus, it is common for policymakers in Jordan to try to build on these resources to develop a tourism sector, which is considered to be an important part of the country's economy as it contributes to its sustainable economic development. In 2017, the tourism sector in Jordan contributed to around 18.7% of the country's GDP. Visitor exports represented 37.8% of total exports, while the sector contributed directly to 7.3% of total employment, and if we add the indirect jobs supported by the industry, it contributed to 19.2% (WTTC, 2018).

Government spending on tourism is high in relation to the overall government budget. In 2017, the government of Jordan allocated around 10.7% of its budget to the tourism sector. Although the government's support for the sector is high, many challenges still face this sector related to the business environment; institutional set-up; price competitiveness; and educational and vocational training (GIZ, 2019). In 2019, Jordan ranked 84 (out of 140 countries) on the Travel and Tourism Competitiveness Index (WEF World Economic Forum, 2020). This is a huge drop from the country's rank in 2013 (60/140) and in 2009 (54/133). This overall index is a combination of 4 sub-indices and reflects the enabling environment, T&T policy, infrastructure, and natural and cultural resources. The indicators which contributed the most to the deterioration in the competitiveness index were related to the drop in the business environment (drop by 10 places); ICT readiness (21 places); tourist service infrastructure (15 places); and human resources and labor market (drop by 37 places).

Given all the previously listed facts about the country's state of the economy, the researcher believes that it is essential to study one of the most important sectors to the economy as the tourism sector.

2. Literature review

There is an agreement among policymakers and researchers that one important direction to boost tourism-led growth is through improving FDI. However, the implications of FDI in the tourism sector have not received much attention by researchers, especially in Jordan. The results of the empirical research that examined the impact of FDI on the tourism sector are inconclusive. Few researchers discovered a positive impact of FDI on the tourism sector (Zhang 1999; Tang et al. 2007; Chen, 2010; Salleh et al. 2011; Roudi et al. 2018), while others discovered a negative impact (Ivanov and Webster (2007), Hazari and Ng (1993). A few researchers also found no impact of FDI on the tourism sector (Yazdi et al., 2017).

Zhang (1999), for example, found that the need for capital was crucial for the development of the tourism industry and economic growth, and a country can achieve this through FDI. Chen (2010) analyzed the impact of FDI on the tourism sector in China over the 1978–2000 period. The researcher documents a positive impact of FDI on the tourism industry. Using Granger causality in a vector autoregressive model, Tang et. al (2007) also find a positive impact of FDI on tourism growth in China. According to the authors, foreign investors could help countries attract

more tourists by improving accommodation facilities, different attractions, and better transportation, among others. Roudi et al. (2018), document a positive long-run relationship between tourism, FDI, consumption of energy and GDP.

On the other hand, previous research found tourism to attract FDI. For example, Sanford and Dong (2000) implemented the Tobit model and found that, in the case of the US, tourism led to an increase in the level of FDI. The tourism industry can influence public policy for infrastructure upgrades and can provide the required capital investment by attracting tourists and foreign investment (Yazdi et al., 2015). Yazdi et al. (2017) investigate FDI-led international tourism in 27 European countries from 1995 to 2014. The results suggest no causal relationship between FDI and international tourism receipts.

In the Jordanian context, Al-Hallaq et al. (2019) used the Error Correction Model (ECM) to examine the impact of FDI on tourism growth in Jordan. The researchers found that FDI had a positive impact on the growth of the tourism sector. They, however, did not consider the role of local investments in the growth of the tourism sector. In addition, the researchers did not control for the factors that affect FDI, such as economic freedom and the level of openness of the Jordanian economy. As several studies have found a direct relationship between FDI, trade openness, economic freedom, and economic growth (Dkhili H and Ben Dhiab L, 2018; Azman-Saini et al., 2010), the current researcher believes that excluding these variables would expose previous studies to the omitting variables problem, which could affect the relationship between FDI and tourism revenue. This study comes to fill this gap and examines the impact not just of FDI but also of LI in tourism on the growth of tourism revenue.

3. Methodology of the study

The objective of this research is to analyze the impact of FDI and (LI) on tourism revenue (TR) in Jordan over the period 1995-2019. Therefore, this paper attempts to find an answer to the following two questions: First, what is the impact of FDI on tourism revenue in Jordan? Second, is there an impact of local investments in tourism on the growth of tourism revenue in Jordan?

To reach the goal of the paper, the researchers collected annual data including the country's GDP, tourism receipts (TR), and FDI net inflows. Here it is important to note that data on the share of FDI in the tourism sector is not available for Jordan. This might be one of the main limitations of the study. Variables' definitions are outlined in Table 1.

The dependent variable is tourism revenues as a percent of GDP. The independent variables include: FDI net inflows to Gross Domestic Product (GDP). Forsyth and Dwyer (2003) suggest that foreign investment and know how are important in improving tourism related infrastructure and helps to encourage more tourism investments. Thus, the current researcher expects a positive impact of FDI on tourism revenues. Furthermore, local investment (LI) on tourism can also impact positively the tourism sector through its impact on employment, and expenditure on infrastructure, among others.

Control variables:

Based on previous studies, this research added the following control variables: Trade openness (OPEN). According to Leitão (2010) international trade promotes travel and exchange between countries. It attracts consumers attention and produces awareness of not just products but also their country of origin, encourages the desire to travel to the products' country of origin (Kulendran &Wilson, 2000); and international trade encourages a country to develop infrastructure that will help attract more tourists (Santana-Gallego et al., 2011). Developing countries hold great expectations for the benefits that will accrue from trade openness (OPEN) to

their development. In other words, these countries expect that international tourism will leverage international trade and vice versa. Accordingly, understanding the relation between tourism and international trade is of major importance to policy makers in the tourism industry. Economic Freedom (EF) index serves as a control variable in the study as it affects FDI flow (Dkhili H and Ben Dhiab L, 2018; Azman-Saini et al., 2010). To be consistent with previous studies, we include the exchange rate, measured as the USD to one Jordan Dinar (JD); and Interest rates (R).

To control for instability, a dummy variable is included which takes a value of 1 for the years that witnessed instability and zero otherwise.

Table 1: variables definitions

Variables	Definition	Expected sign	Data Sources
TR	Ratio of Tourism Revenues / GDP		World Tourism Organization
FDI	Foreign direct investment/ GDP	+	The Central Bank of Jordan (CBJ)
LI	Local investment on tourism/GDP Public investment which includes investment on tourism-related infrastructural development, including government-funded airports; utilities such as water, sanitation, and electricity supply; ICT-based infrastructure; and the construction of the resorts, visitor centers and tourist information offices.	+	CBJ
ER	Exchange rate = USD per one Jordan Dinar (JD)	+	CBJ
R	The discount rate, the interest charged by the CBJ of loans by commercial banks	-	CBJ
OPEN	Level of openness measured as (import+ export)/GDP	+	CBJ
EF	Economic freedom index	+	Heritage Foundation
D	Dummy variables; include 2008 financial crisis and Syrian crisis in mid-2012	-	

Table 2 provides the descriptive statistics of the variables included in the study. The results of the skewness, kurtosis and Jarque-Bera indicate that our variables are normally distributed except for the foreign direct investment. The table also shows that FDI and the level of openness vary over the study period.

Table 2: Descriptive Statistics

	FDI	LI	OPEN	R	ER	EF	TR
Mean	6.690833	3.774	115.4000	9.564000	1.412206	66.40000	5.771590
Median	5.035000	3.66	114.0200	8.950000	1.412000	67.00000	5.821210

Maximum	23.21000	6.335	144.8800	12.89000	1.412429	70.00000	6.524590
Minimum	0.200000	2.47	87.62000	7.590000	1.412000	61.00000	4.529570
Std. Dev.	5.444278	1.134	17.24712	1.545847	0.000219	2.254625	0.570650
Skewness	1.421876	.635	0.122811	0.986567	0.080064	-0.333943	-0.426695
Kurtosis	4.774417	2.303	2.204465	2.757488	1.006410	2.674415	2.236874
Jarque-Bera	11.23548	2.186	0.693206	4.116740	4.166709	0.575081	1.365246
Probability	0.003633	0.335	0.707086	0.127662	0.124512	0.750106	0.505290
Sum	160.5800	94.358	2769.600	239.1000	35.30515	1660.000	144.2898

TR is tourism revenue /GDP; FDI refers to foreign direct investment. GDP; LI refers to local investment /GDP; R refers to interest rates; ER refers to the exchange rate; EF is economic freedom; OPEN refers to economic openness (E+I)/GDP

Econometric Procedure

This section investigates the short-run and the long-run impact of FDI and LI on tourism-led economic growth in Jordan over the period 1995 to 2019. The main hypothesis of this study is that foreign direct investment and local investments in tourism positively impact the growth of tourism revenue in the Jordanian economy.

Based on economic theory, a long-term relationship exists between foreign direct investments and tourism revenue. This implies that the means and variances are constant and independent of time. However, many researchers have found that the constancy of the means and variances is not satisfied when analyzing time series variables. This research applies the Autoregressive Distributed Lag (ARDL) or bound co-integration technique (Perasan and Shin 1999, and Perasan et al. 2001) to determine both the short-run and the long-run relationship between FDI and tourism-led economic growth in Jordan. The use of the ARDL co-integration technique does not require pretests for the unit roots as compared to other techniques. Therefore, ARDL is preferable when dealing with variables that are integrated into different orders, I(0), I(1), or a combination of both. However, this technique will not work if the series is integrated of order 2, since using ARDL with I(2) would lead to model misspecification and, consequently, would lead to wrong estimates and wrong policy implications. Therefore, it is important to test anyway for the order of integration to make sure that none of our variables is integrated to a higher order than 1. Furthermore, although the sample size in this study is small, using ARDL is considered robust to test the long-run relationship between the underlying variables (Pesaran et al. 2001).

If FDI and LI and tourism revenue cointegrate, then the researchers should detect the presence of steady state equilibrium between these three economic variables. The long-run relationship of the underlying variables can be detected through the Wald test (F-statistics). If the F-statistics is more than the critical value band (upper bound) one can confirm a long run cointegration. Furthermore, one can derive a dynamic unrestricted error correction model (ECM) through a simple linear transformation. The implemented error correction model (ECM) integrates long-run equilibrium with the short-run relationships with no loss of long-term information. Furthermore, ARDL approach can identify the co-integrating vectors in case when multiple co-integrating vectors exists.

Panel Unit Root Tests

Table 3 part A, shows the results of unit root tests of the variables using Augmented Dickey-Fuller, ADF (1981), while table 3 part B shows the results of Phillip-Perron, PP (1988). The researcher applies ADF with constant and with

time trend. The outcomes of both ADF and PP tests provide support that all of the variables under study are stationary at the first difference, showing an integration order of one I(1). Thus, the study data does not suffer from the problem of having a unit root of more than 1.

Table 3: Unit Root Tests

A. Augmented Dickey-Fuller Test						
	Level			1st Difference		
	Constant	Constant and trend	None	Constant	Constant and trend	None
TR	-2.75*	-2.64	-0.505	-4.176***	-4.297***	-4.226***
FDI	-3.441**	-0.773	-1.243	-5.261***	-2.832	-5.292***
LI	-0.873	-2.604	0.521	-5.594***	-5.558***	-5.303***
R	-1.105	-1.544	-0.784	-3.309**	-3.275*	-3.264***
EF	-2.239	-2.171	0.478	-4.530***	-4.724***	-4.538***
OPEN	-0.687	-1.261	-1.261	-4.038***	-3.992**	-3.960***
CONGDP	-2.749*	-2.642	-0.572	-7.733***	-7.564***	-7.856***
Emp/total Emp	-2.689*	-2.861	-0.971	-8.307***	-8.095***	-8.276***
ER	-1.787	-3.685**	-0.569	-4.922***	-4.782***	-6.633***
Real TR	-0.785	-2.910	0.902	-1.894	-5.964***	-1.550
B. Phillips-Perron Test						
TR	-2.643*	-2.087	0.441	-4.209***	-4.294**	-4.257***
FDI	-3.632**	-2.796	-1.165	-5.310***	-6.420***	-5.353***
LI	-0.873	-2.923	0.495	-5.890***	-6.019***	-5.279***
R	-1.273	-1.948	-0.696	-3.266**	-3.166	-3.266***
EF	-2.239	-2.171	0.472	-4.548***	-4.729***	-4.558***
OPEN	-0.687	-1.261	-0.852	-4.053***	-3.984**	-3.977***
CONGDP	-2.643*	-2.636	-0.439	-7.269***	-7.115***	-7.362***
Emp/Temp	-2.242	-2.813	-0.669	-7.833***	-7.650***	-7.732***
ER	-1.635	-3.685**	-1.187	-9.414***	-9.154***	-7.537***
RealTR	-0.904	-1.645	1.759	-5.858***	-5.779***	-5.193***
*** significant at 1%, **significant at 5%, * significant at 10%						

TR is tourism revenue /GDP; FDI refers to foreign direct investment. GDP; LI refers to local investment /GDP; R refers to interest rates; ER refers to exchange rate; EF is economic freedom; OPEN refers to economic openness (E+I)/GDP; RealTR real tourism revenue to GDP

Cointegration Analysis and long-run Relationship

To maintain the long-run information intact, the researcher runs the co-integration between the FDI, LI and TR. After examining the data stationarity for the series, presented above, the ARDL model is found to be suitable for exploring the linkages between the variables. For the accurate choice of the most suitable ARDL model that would allow examining the relationships that are established between the study variables, it is important to find the correct number of lags for endogenous parameters, current and lagged exogenous regression variables. It is necessary to

find the appropriate lag(s) so that the errors follow a standard normal error terms which are normally distributed, do not suffer from autocorrelation and heteroskedasticity. The study chooses the optimal lags length for the variables in the ARDL model based on the Akaike Information Criteria (AIC). The specification for the ARDL model implemented is depicted in the following equation:

$$Y_t = \propto_{0i} + \sum_{i=1}^{p} \vartheta_i Y_{t-1} + \sum_{i=0}^{q} \delta_i X_{t-1} + \varepsilon_{it} \quad (1)$$

Where: Y_t is the dependent variable, (X_{t-1}) the independent variables. P and q are optimal lags of both dependent and predictor variables.

As each of the underlying variables stands as a single equation, endogeneity is not considered a problem in the ARDL technique since all variables are assumed endogenous. In addition, given one cointegration vector is found, it is necessary to utilize Pesaran and Shin (1995), ARDL approach bound procedure for the long-run relationship.

The bound test uses Wald-F test statistics to confirm cointegration among the variables using ARDL methodology. The specification of the model is shown in the following equation:

$$lnTR_t = \alpha_0 + \beta_1 \ln FDI_t + \beta_2 ln\, LI_t + \beta_3 ln\, OPEN_t + \beta_4 R_t + \beta_5 \ln ER_t + \beta_6 EF_t + \varepsilon_t \quad (2)$$

ε_{t-i}

Where t refers to the time 1995-2019, and (Ln) is the natural logarithm of the variables under investigation. The other variables are as explained previously.

The current study applies the ARDL method on the first equation by following 2 steps:

First, the research examines the presence of long run co-integration. To do so, the researcher rearranges equation 2 as an unrestricted error correction model as in the following equation:

$$\Delta lnTR_t = \alpha_0 + \sum_{i=1}^{n} \beta_1 \Delta(\ln TR)_{t-1} + \sum_{i=1}^{n} \beta_2 \Delta(\ln FDI)_{t-1} + \sum_{i=1}^{n} \beta_3 \Delta(ln\ LI)_{t-1} + \sum_{i=1}^{n} \beta_4 \Delta(ln\ OPEN)_{t-1} + \sum_{i=1}^{n} \beta_5\ \Delta(R)_{t-1} + \sum_{i=1}^{n} \beta_6\ \Delta(ER)_{t-1} + \sum_{i=1}^{n} \beta_7\ \Delta(EF)_{t-1} + \beta_7 \ln TR_{t-1} + \beta_8 \ln FDI_{t-1} + \beta_9 ln\ LI_{t-1} + \beta_{10} ln\ OPEN_{t-1} + \beta_{11} R_{t-1} + \beta_{12} \ln ER_{t-1} + \beta_{13} \ln EF_{t-1} + \varepsilon_t \quad (3)$$

Where:

Δ is the change or the first difference operator which reflects the short-term dynamics, while the long-term relationship is measured by the parameters associated with one period lag variables.

Thus, the co-integration between the variables under study exists if the Wald test rejects the null hypothesis:

H0: $\beta_1 = \beta_2 = \beta_3 = \beta_4 = \beta_5 = \beta_6 = \beta_7 = 0$.

Second, the short-run dynamics is given in the following part of equation 3. The unrestricted error correction version of ARDL is given in equation (4), which is the error correction representation of equation (3). This error correction model provides the coefficients of the short-run with all the long-run variables.

$$ECM = \Delta lnTR_t - \sum_{i=1}^{n} \beta_1 \Delta(\ln TR)_{t-1} - \sum_{i=1}^{n} \beta_2 \Delta(\ln FDI)_{t-1} - \sum_{i=1}^{n} \beta_3 \Delta(\ln LI)_{t-1} - \sum_{i=1}^{n} \beta_4 \Delta(\ln OPEN)_{t-1} - \sum_{i=1}^{n} \beta_5\ \Delta(R)_{t-1} - \sum_{i=1}^{n} \beta_6\ \Delta(ER)_{t-1} + \sum_{i=1}^{n} \beta_7\ \Delta(EF)_{t-1} + \quad (4)$$

Equation (4) reflects the existence of interaction in the long-run relation between the dependent and the explanatory variables.

4. Research Results and Discussion

The dynamics of the long-run and the short-run impacts are estimated by implementing the ARDL. The study investigated the lag order by evaluating the Akaike Information Criteria (AIC) at different lags. Since the data in this study is annual, the researcher investigated up to 4 lags, then evaluated the AIC figures with different lags

and chose the AIC with the smallest figure. Table 4 outlines the AIC results with 4 different lags in addition to the LM test for serial correlation. The results from the table (4) show that at lag four the AIC is the smallest, while the results of LM indicated that at lags 2, 3 and 4, the error term is serially correlated. However, at lag one, serial correlation was not detected, therefore, cointegration analysis is run using one lag (Gujarati, D. 2011).

Table 4: Results of Lag selection

Lags	AIC	LM test for serial correlation
1	43.190979	0.354(0.462)
2	38.339326	3.149 (.02)*
3	37.073308	2.381(0.03)*
4	35.690593	0.582 (0.04)*

P values are in parenthesis. * Significant at 5% level.

Table 5 reports results of the ARDL bound test for cointegration. The F statistics for TR to GDP model is 6.342which is greater than the upper bound value at 5% significance level (4.156), which suggests the existence of long-run relationship between our variables. A similar result is found when the real tourism revenue to GDP variable was used, where the value of F-statistics of real revenue to GDP (6.237) model is greater than the upper bound value at 5% significance level. As the sample size in this study is relatively small (30 years), the critical values reported by Narayan (2004) is used. Therefore, since the F statistics is more than the upper bound, then the variables included in the current model are co-integrated of order one and a long-run relationship exists.

Table 5. Results of bounds testing

H0: No cointegration	Value	1% critical value		5% critical value	
		Lower	Upper	Lower	Upper
F-statistics	6.342	4.400	5.66	3.15	4.156

Note: the critical upper and lower values are provided by Narayan (2004)

Table 6 shows the results of the long-run relationship between the study variables using the ARDL model over the period 1995-2019. The table confirms the long-run relationship between tourist revenues and FDI, LI, and the other determinants. The ECT is -1.275 significant at 1% level, implies that 127 percent of the deviations of the short-run from long-run is adjusted in the year that follows. In the long-run, contrary to the study expectations, LI has a negative and significant impact on tourism revenue. FDI has insignificant impact (-0.046) on tourism revenue. The results suggest that a 1% increase in LI would lead to a drop in tourism revenue by approximately 26%. The long-run negative impact of LI on tourism revenue might be due to the fact that big part of local investments on tourism is done by the government, which requires high amount of capital spending therefore it does not show directly in tourism revenue. The insignificant impact of FDI may be explained by the following: First, the fact that most of the FDI, which is very modest, is not directed mainly toward the tourism sector. Second, the inability of the country to attract FDI to the tourism sector due to

regulations and procedures. Second, contrary to the industrial sector, FDI in tourism sector produces few technological carries over effects (Meschi, 2006). As expected, the increase in the country's level of openness improves tourism receipt.

Table 6. Long-run Results of ARDL for Tourist Receipts (1995-2019)

Dependent variables	TR (Panel A)
Variables/Independent	Coefficients
Ln FDI_t	-0.046 (0.282)
$LnLI_t$	-0.262 (0.002)***
$Ln(OPEN)_t$	0.816 (0.000)***
R_t	-0.613 (0.0047)***
$Ln(ER)_t$	-0.252 (-0.960)
Ln(EF)	-0.503 (0.130)
D	0.053 (0.157)
Cont Eq (-1)	-1.275 (0.000)***

***;**;* indicate statistical significance at the 1%, 5% and 10% level, respectively

The results show that the macro-economic disturbances on the tourism receipts are insignificant. Thus, the macro-determinants like the financial crisis or other macro disasters have no impact on tourism receipts.

Short-run results

Table 7 outlines the short-run dynamic relationship between FDI and LI with tourism receipts. The researcher examined the error correction model in order to confirm the reliability of the long-run coefficient and to evaluate the short-run dynamic relationship between tourism revenue and FDI and LI along with the control variables. Results show a negative and significant (at 10% level) impact of one period lag of FDI on TR. These results are consistent with Sokhanvar (2019) on a set of European countries. Furthermore, LI is also significant and negatively related to TR. This result could be due to the fact that the government projects are mostly non-for-profit projects. Although they are significant to the improvement of the sector, however, the impact could be more of an indirect rather than direct one and requires longer periods to be reflected in the tourism revenue. The level of openness is positive and significant in improving the TR. Finally, as expected, the interest rate is negative and significant in affecting the TR.

Table 7: short-run relationship

Dep. Var TR/GDP	Coefficient	p-value	
C	76.876	0.124	
LNTR(-1)	-0.23501	0.098*	
LNFDI	0.006	0.731	
LnFDI(-1)	-0.025	0.0983*	
LNLI	-0.3342	0.0044***	
R	-0.05339	0.009***	

Ln(ER)	-26.19238	-.118	
LN(OPEN)	0.3407	0.1116	
Ln(OPEN)(-1)	0.69902	0.0039***	
Ln(EF)	-0.64153	0.127	
D	0.051986	0.157	
R-squared	0.889	Mean dependent var	2.146826
Adjusted R-squared	0.796250	S.D. dependent var	0.109708
S.E. of regression	0.048617	Akaike info criterion	-1.994061
Sum squared resid	0.026442	Schwarz criterion	-2.450998
Log likelihood	45.13170	Hannan-Quinn criter.	-2.857482
F-statistic	9.61014 (0.000)***	Durbin-Watson stat	2.316844

5. Conclusions and recommendations

The main objective of this research was to examine the impact of FDI and LI on the share of tourism revenue in Jordan's GDP. The research conducted the ARDL methodology on annual data over the period 1995 to 2019.

The results indicated a negative and marginal significant short-run impact of the lag of FDI on TR. This finding could be explained given the fact that data utilized in this study is total FDI received and not the share of FDI that was allocated to the tourism sector, as the data on FDI went to tourism sector is not available. This of course constitutes one of the major shortcomings of this research. Furthermore, the share of FDI received by Jordan is insignificant as compared to FDI received by the countries in the same region, as for example Egypt and the United Arab Emirates. Although FDI is at the forefront of economic decisions by policy makers to improve economic efficiency, the amount of FDI received by the country is insignificant in general and had negative impact on tourism sector in the short-run while it exerts no long-run impact. This result by itself is important to policy makers to find a way to encourage FDI and to be more competitive in attracting FDI to the country.

LI is important determinant of the tourism revenue in Jordan. However, contrary to expectations, it is found to have negative impact on tourism revenue. Furthermore, results showed a significant but with negative impact of LI on tourism revenue. This result might refer to the fact that big part of investment in the tourism sector especially by the government is directed toward infrastructure which is capital intensive but did not provide high return. However, it also had a negative impact in the long run. This result is important to policy makers, as it might indicate that the spending on these projects were not associated with spending on complementary projects that help in attracting tourists such as better marketing of the country as a tourist destination.

The inability of the country to attract foreign investors and tourists might reflect the weak rules and regulations that govern this sector. Therefore, the government should put more effort to encourage the tourism sector through legislative reforms that provide better infrastructure, easier and more efficient procedures for investors in the sector. Given that FDI is irreversible, it is very sensitive to the country's stability and the economic environment, thus policy makers should concentrate on taking the measures that improve and to stabilize the economic environment.

Furthermore, the assessment of significant tourism industry in Jordan is based mainly on recognizing the appropriate historical concept within which a site's creation and function can be interpreted. One observation of tourism activities in Jordan shows clearly that Aqaba, Petra, Wadi Rum (South of Jordan), and Jarash and the central and southern part of Jordan in general attracted the greatest attention of the authorities as the most important places in Jordan that serve the requirements of a successful tourism program. However, the northern part of Jordan did not receive the attention it deserves in terms of financing required to develop a good infrastructure which helps to encourage investments in tourism in this area. The unbalanced tourism among the regions in Jordan might pose a problem for future sustainable tourism development. Although there have been many archaeological activities all over the country that expose many other attractive and significant structures that could be utilized to develop tourism in different areas, until now there is a lack balance in developing and in utilizing sites for tourism.

One lesson that the policy makers can learn from the COVID-19 pandemic is to improve the other sectors like the IT sector, the industrial sector and the financial sector to reduce the dependence of the economy on tourism sector which is highly sensitive to economic and political instability which has a long term decline on tourism and consequently on the whole economy.

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