

Influence of Foreign Direct Investment on Tourism Development: An evidence from Vietnam

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Abstract The purpose of this paper is to investigate the effects of Foreign Direct Investment on Tourism Development in Vietnam. Using an autoregressive distributed lag model (ARDL model) on the data during the period over 2003-2017, collected from World Development Indicators, Department of Statistics in Vietnam. Evidence from the study shows that Foreign Direct Investment and Tourism Development are co-integrated and have a long-run equilibrium relationship. Our results demonstrate that in both short run and long run, Foreign Direct Investment shows a slightly negative impact on Tourism Development in Vietnam. It is noteworthy that the Vietnamese Government share a budget from Foreign Direct Investment on Tourism Development - a lack of priority economic area from Foreign Direct Investment.

Keywords: *foreign direct investment, tourism development, autoregressive distributed lag model*

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1. Introduction

Tourism is exactly one of the most important export sectors for almost countries all over the world. It is indicated by the United Nations World Tourism Organization and World Travel and Tourism Council that 10 percent of the world's gross domestic product (around 7.2 trillion USD) and over 284 million jobs come from tourism. Tourism is forecasted to grow at an annual rate of 4 percent in the following decade (see [21,22]). Many countries, especially developing countries, well-expect tourism's expansion. Therefore tourism has been indeed an economic sector that rare government can neglect. Tourism is one of major contributors to the development of many economies, which contributes foreign exchange and income, gives new opportunities to local employments, and makes a diversification in the economy. The tourism sector has recently also been regarded as a mean for preserving the natural environment, local culture of the host destinations (see [2,13,23]). In view of the economic, sociocultural and environmental implications, tourism development has now become the sector which strengthen the local economy and improve their life quality (see [8]). Tourism development involves a long series of survival activities relating the provision of goods and services such as infrastructure, advertisement, accommodation, security, entertainment, and culinary specialties, etc. The structure of tourism industry also comprises a spread diversity of partners including global transnational corporations (TNCs) to medium-sized and

small enterprises (see [15]). Tourism prevails as an activity in which capital investment, construction, high education, and integration to global marketing and distribution chains play an important role (see [18]). One of the intensive investment for infrastructure construction, especially in developing countries, is foreign direct investment (FDI) (see [11]). Foreign direct investment plays an essential role in the tourism sector and is usually regarded as one of the most effective promotions for supporting the critical and required elements for the development (see [19]). As far as the United Nations Conference on Trade and Development (see [20]) and some empirical research (see [12]) concern about this issue, the inflow of foreign direct investment seems to innovate the tourism economic by modernizing the facilities and services such as rest-houses, restaurants, historical tours, and entertainment centers and by promoting other physical infrastructure and services such as transport, tour operations, traveling agency and vehicle rental services which may be in lack in the local country. In spite of the fact that the essential role of foreign direct investment in innovating tourism development has been recognized, there still have been moderate studies on the nexus between foreign direct investment and tourism development in the current literature review. The problem seem to be more emergent in the situation of Asian developing countries, including Vietnam.

The structure of the study is as follows. Section 2 discussed the literature review. Section 3 described the data, the research model, and methodology of this study. The empirical analysis is presented in section 4. Section 5 covers the conclusion.

2. Literature Review

Not too numerous previous studies examining the nexus of foreign direct investment and tourism development have been conducted in developing and developed countries all over the world, especially in a particular countries such as emerging market economies in Asia, including Vietnam. There exists different empirical results in the previous works consistent with the link between foreign direct investment and tourism development in various situations. The findings indicate that foreign direct investment is sometimes known as one of the key factors to support tourism development. The relationship between foreign direct investment and tourism development used to be investigated in two way interaction as in [7] or in one way influence, on one hand the impact of tourism development on foreign direct investment (see [1,16]) or on the other hand the impact of foreign direct investment on tourism development (see [3,5,12]). This paper focus in the topic in which the influence of foreign direct investment on tourism development is considered.

By analyzing in the situation of a powerful tourism country - China, the authors in [3] conducted on the ordinary least square regression technique to point out that the Chinese tourism expansion is great contributed by foreign direct investment. Again for the case of China, the author in [19] studied a time series so that the authors discovered that there existed a one-way causality relationship running from foreign direct investment to the local tourism development. And once again, support the evidence that foreign direct investment is indeed the key factor promoting tourism industry.

Followed by [17], the impact of foreign direct investment on tourism development in the leading country - United States is considered thanks to Tobit technique. The results showed that the foreign direct investment positively impact on tourism development. Similarly, [5] focused on this relationship in a sample of Mexico with a help of regression methods for time series. The finding of the author consisted with [17], that foreign direct investment had a positive influence on promotion of tourism sector.

Likewise, [4] assessed the relationship between foreign direct investment and tourism development in some selected countries in Organisation for Economic Co-operation and Development. Technique of Granger causality and co-integration for panel data were involved. Empirical results showed that there existed a long-run relationship from foreign direct investment in real estate sector to tourism flows.

Jayaraman et al. in [9] conducted on a study in a sample for Fiji with dynamic time series econometrics, that is an autoregressive distributed lag model in concrete. The authors found that there had been a positive long-run nexus between foreign direct investment and tourism earnings.

In contrast, based on the empirical study of [10], it is believed that there did not exist any relationship from foreign direct investment to tourism development.

As we can see that, foreign direct investment and tourism development have been involved in various studies, but rarely the situation of Vietnam has been considered, except for a minor research a long time ago,

such as [7]. Halley and Halley in [7] used causality analysis for time series to investigate that the development of foreign direct investment leads to increase the tourism scale. For a new situation of Vietnam, with a timeliness and novelty, we execute the study on influence of foreign direct investment on tourism development with a more modern technique as in [9] to fill the gap in empirical study.

3. Data and Methodology

3.1. Data

The study attempts to examine the causal nexus of foreign direct investment on tourism development with an evidence from Vietnam by employing a time series data spanning from 2003 to 2017 using the Autoregressive Distributed Lag (ARDL) Model. Two studied variables were employed from the World Bank which include: International tourism, receipts (% of total exports) as a proxy of tourism development, denoted by TOUR and Foreign direct investment, net inflows (% of GDP) as a proxy of foreign direct investment, denoted by FDI.

3.2. Research Model

Impact of foreign direct investment on tourism development has been investigated in a large amount of empirical studies in the world. Based on theoretical consideration, it is evident that the study is used a model for time series with Granger causality, co-integration test, panel Granger causality approach and autoregressive distributed lag model bounds testing approach, etc. In this study, we will investigate time series thanks to ARDL model. This model was proposed by Pesaran, Shin & Smith in [14].

The mathematical form of the ARDL model used in the article is as follows:

$$D(TOUR)_t = \alpha_0 + \sum_{i=1}^m \alpha_i D(TOUR)_{t-i} + \sum_{i=1}^n \beta_i D(FDI)_{t-i} + u_t, \quad (3.1)$$

where D is the difference operator; α_i, β_i are the regression coefficients, and u_t is the residual which has a simultaneous correlation but no correlation with its lags and all independent variables. So the right side of the regression equation consists of the lags of independent and dependent variables.

The ARDL model estimation process can be summarized through the following steps:

First step, the station of the TOUR and FDI is verified.

Second step, the optimal lag for the ARDL model is selected: This is an important step before estimating the ARDL model.

Third step, the best ARDL model selected in the above step is estimated.

Fourth step, the result of ARDL model estimation is back tested:

- the test in which show that the model is well specified or not: Using Ramsey RESET test;

- the test of the stability of ARDL model thanks to the cumulative sum of residuals (CUSUM: Cumulative Sum of Recursive Residuals).
- the test the residual of ARDL model without autocorrelation thanks to Lagrange Multiplier test (abbreviated as LM test).

If the estimated ARDL model is appropriate, then the ARDL model can be used to describe the impact of foreign direct investment on tourism development in the short term.

Fifth step, to see whether there exists a co-integration between foreign direct investment on tourism development or not, we implement the Bound Test.

Details of the ARDL model can be found in Chapter 17 of [6].

4. Results of Economic Modeling

4.1. Descriptive Statistics

Table 1. Descriptive Statistics

	TOUR	FDI
Mean	5.358354	5.742652
Median	5.510240	5.481799
Maximum	6.869264	9.663039
Minimum	3.903609	3.390404
Std. Dev.	0.833049	1.854971
Skewness	-0.028207	0.541226
Kurtosis	2.228595	2.635687
Jarque-Bera	0.373905	0.815267
Probability	0.829483	0.665223
Sum	80.37531	86.13978
Sum Sq. Dev.	9.715589	48.17284
Observations	15	15

Table 1 presents data description including 15 observations of each variable of Vietnam over a 15-year period from 2003 to 2017.

4.2. Correlation Analysis

It is evident that there may be an correlation existence between two variables since the correlation coefficient is rather small - 0.0881 with a not very ideal probability

value of 0.7549. That suggests a very weak negative relationship between foreign direct investment and tourism development at a significance level of 0.05. We exceed to further study the relationship in detail.

Table 2. Correlation Coefficients between Variables

	TOUR	FDI
TOUR	1	
FDI	- 0.0881 (0.7549)	1

Another test we used in the study is that the analysis needs to check the station of time series. We transform time series which are non-stationary to station ones. It means that after being transformed, times series have expectation, variance and covariance is constant over time. The time series in ARDL model must be stationary. Station character is an important concept when studying time series. However, in fact, most financial data series are non-stationary. To test the station, we use unit root tests, thanks to a common test Augmented Dicky-Fuller test (ADF test). We use the unit root test with the order of lag is automatically selected according to Schwarz criterion, with intercept is included in test equation. ADF tests for the initial time series, and their first difference will be performed. Usually, after taking the first difference, we get the stationary time series. The use of the first difference of time series is not only to obtain stationary time series, but also the first difference series provide information about increasing or decreasing trend (depending on the sign of the difference) rather than focusing on providing information about the real value of the time series.

The results in Table 3 shows that both initial TOUR and FDI are non-station at level, but their corresponding first different level series are station at a significance level of 10%. So that, we can put all first different level series in to ARDL model for investigation.

4.3. Discussion of Estimation Models

First of all, Hannan-Quin information criterion value is used to choose the most appropriate model. The traditional way to select the optimal lag is to estimate the ARDL model multiple times with descending lags to 0. Among the estimated ARDL models, we choose the one with smallest Hannan-Quin information criterion value. In this article, the authors try out up to the top 4 lags and selects the recommended model according to Hannan-Quin criterion. The image depicting Hannan-Quin's criterion value for the best six models, including the best model. Thanks to this Hannan-Quin information criterion, the best ARDL selected is that ARDL(1,1).

Table 3. ADF Stationarity test results of the time series

Variable	Augmented Dicky-Fuller test		Phillips-Perron		Conclusion
	Statistical value	Corresponding probability	Statistical value	Corresponding probability	
TOUR	- 0.7564	0.8002	- 0.5848	0.8447	Non-stationary
D(TOUR)	- 5.7121	0.0015	- 4.3192	0.0064	Stationary
FDI	- 5.2919	0.002	- 1.9452	0.3045	Non-stationary
D(FDI)	- 4.1977	0.0115	- 2.8896	0.0735	Stationary

Hannan-Quinn Criteria

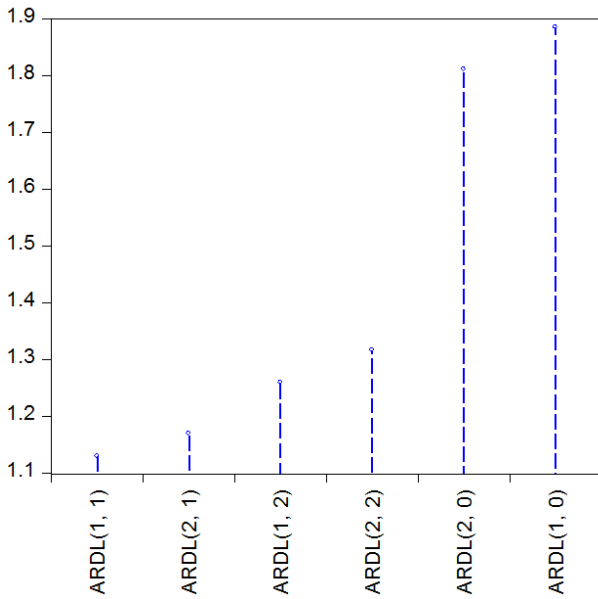


Figure 1. Hann-Quin's Criteria for the six Best Models

4.4. Results of Econometric Modeling

ARDL(1,1) is estimated as in the following Table 4.

Table 4. Results of ARDL(1,1) model estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
D(TOUR(-1))	-0.075710	0.241474	-0.313531	0.7610
D(FDI)	0.129040	0.078386	1.646208	0.1341
D(FDI(-1))	-0.233233	0.078767	-2.961039	0.0159
C	-0.122181	0.131611	-0.928354	0.3774

4.4.1. Autocorrelation Test

Based on the Breusch-Godfrey Serial Correlation LM Test, we have:

- The Null hypothesis H0: no first order autocorrelation
- The Alternative hypothesis Ha: existence of an autocorrelation

At this stage, autocorrelation test used for null hypothesis: "no first order autocorrelation", the Breusch-Godfrey Serial Correlation LM Test is used. According to the results in Table 5, the p-value of the ARDL(1,1) model is far from zero. They are all larger than 0.05 so that null hypothesis is not rejected, which indicated that there is no autocorrelation between variables in the model.

Table 5. LM test for the residual of the ARDL model

F-statistic	0.089398	Prob. F(2,7)	0.9155
Obs*R-squared	0.323778	Prob. Chi-Square(2)	0.8505

4.4.2. Model Specification Test

To test for model specification of ARDL(1,1), the Ramsey Reset test is performed. In the theory, if the test result with p-value over 0.05, so the model is well specified at the significant level at 5 percent. In a result, Table 6 indicates that the test results with p-values are all over 0.05, which proved that the model is well specified.

Table 6. Model specification Test

	Value	df	Probability
t-statistic	0.109775	8	0.9153
F-statistic	0.012050	(1, 8)	0.9153

4.4.3. Stability Test

The next back testing is that the stability of ARDL model thanks to the cumulative sum of residuals. If the cumulative sum of the residuals is within the standard range at the 5% significance level, then it can be concluded that the residual of the model is stable and thus the model is stable.

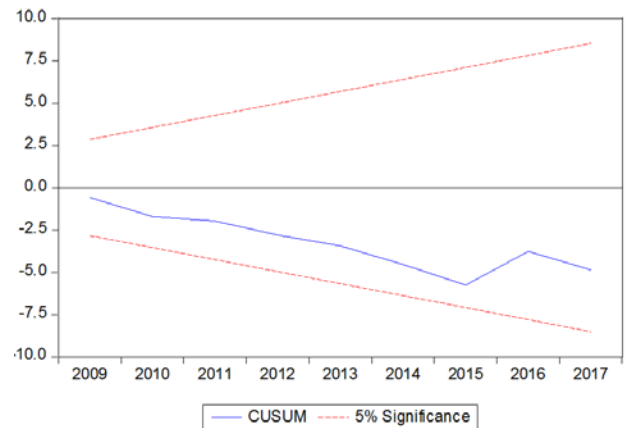


Figure 2. The cumulative sum of recursive residuals of the ARDL model at a 5% significance level

To go further to investigate the long-run relationship among the above considered variables, we use cointegration test thanks to Bound test.

Table 7. Test of long-run relationship between the variables

Null Hypothesis: No long-run relationships exist		
Test Statistic	Value	k
F-statistic	13.86323	1
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	4.04	4.78
5%	4.94	5.73
2.5%	5.77	6.68
1%	6.84	7.84

According to Table 7, the test statistic value is larger than every critical Value Bounds at every significance levels. Therefore, there exists a long run relationship between foreign direct investment and tourism development. That long-run from is presented in Table 8.

Table 8. Long-run relationship between the variables

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDI, 2)	0.129040	0.078386	1.646208	0.1341
CointEq(-1)	- 1.075710	0.241474	- 4.454760	0.0016
Cointeq = D(TOUR) - (-0.0969*D(FDI) - 0.1136)				
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FDI)	-0.096860	0.110921	-0.873233	0.4052
C	-0.113582	0.118049	-0.962157	0.3611

In the co-integration test, the co-integration regression coefficient is negative (- 1.075710) and is statistically significant at 5% (with very small probability value of 0.0016) indicating that co-integration relationship exists between variables. That is, in the long term when the system is in equilibrium, when a shock occurs, the variables in the model tend to move, "pull" the whole system "back" to the equilibrium, which means a reverse movement tendency (the negative sign of the co-integration regression coefficients) compared to those fluctuations. The co-integration equation, or equation that represents the long-run equilibrium relationship among the variables is as follows:

$$D(TOUR)_t = -0.097 * D(FDI)_t - 0.113 + u_t, \quad (4.1)$$

5. Conclusion

According to Figure 1, the estimation of the ARDL(1,1) is finally selected as the best model to discuss. Regarding the estimation results, our analysis shows the relationship of foreign direct investment and tourism development - in the case of Vietnam, we have the result in short run in the following Table 9.

Table 9. Short-run impacts of the variables on tourism development at first differential

Variables	Regression coefficients
D(TOUR(-1))	-0.075710 (0.7610)
D(FDI)	0.129040 (0.1341)
D(FDI(-1))	-0.233233 (0.0159)*
C	-0.122181 (0.3774)

Note: the number in () is the probability value of test of estimated coefficients' significance.

* indicateS significance level of 5%

Thanks to results in Table 9, we can see that foreign direct investment this year cause a reduction in international tourism proportion in total exports. In concrete, a 1 percent of net inflows foreign direct investment in GDP this year will decrease international tourism proportion in total exports in the next year by 0.23 percent. This result is not consistent with many other empirical findings. In fact, this is because, the role of foreign direct investment this period is not towards to tourism development, but the other economic sectors. So that, capital and labor force tend to concentrate on the other economic area out of tourism. This suggests a convergent of Vietnamese government to a new potential economic area like tourism.

Regarding the long-run equilibrium relationship among the variables is as in equation (4.1), in which, a 1 percent of net inflows foreign direct investment in GDP will decrease international tourism proportion in total exports in the long run by 0.1 percent, but this is insignificant.

In conclusion, this paper investigates the impact of foreign direct investment on tourism development of Vietnam between 2003 and 2017. The empirical reveals that in the short run, there is a directional relationship running from foreign direct investment to tourism development, with a slightly lag. Results even show that

there is a co-integration between variables in the long run, with a negative impact of foreign direct investment on tourism development.

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