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This paper presents work in progress in the College of Business, Hospitality and Tourism Studies, FNU.Comments are welcomed from all stakeholders and should be addressed to the corresponding author.

Contribution of Foreign Direct Investment to Tourism Sector in Fiji: An Empirical Study

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Abstract

In the midst of a declining external demand consequent to world economic downturn since 2008, tourism sector emerged to be a major source of support to the South Pacific island countries including Fiji. Tourists from region's two advanced economies, Australia and New Zealand found Fiji a more affordable tourist destination than distant European and Asian holiday resorts. The development of tourism sector in Fiji owes a great deal to foreign direct investment (FDI) in hotels, resorts and other infrastructural facilities. This paper used bounds cointegration technique and investigated FDI's contribution to Fiji's tourism sector. The analysis identified positive associations between FDI and tourism earnings as well as between currency depreciation and tourism earnings.

Keywords: Tourism sector, foreign direct investment, bounds cointegration test

JEL code: L83, F21, C54

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I. Introduction

Tourism sector has now been recognized as "one of the most important income-generating sectors in many economies of the sub-region in the Pacific, since the growth in visitor numbers and revenue earnings from tourism had strongly supported economic growth in the Cook Islands, Fiji, Niue, Palau, Samoa, Solomon Islands, Tonga and Vanuatu" (UN ESCAP 2011: 77). A critical element in the development of tourism as a service industry is the physical infrastructure, which helps taking full advantage of the unique sun, sand and surf endowments. In Fiji, foreign direct investment (FDI) over the years has contributed towards developing resort and hotel facilities of international standards, which have helped the country to emerge as a leading tourist destination in the Pacific.

Fiji, which has been the recipient of least amount of aid amongst all Pacific island countries (PICs) in terms of percentage of gross domestic product averaging 2 per cent, has traditionally laid considerable emphasis on FDI. The PICs, including Fiji, have become increasingly receptive to FDI. In a survey article, Hill and Athukorala (1998) observed that although traditionally FDI inflows were primarily of the natural resource exploiting type, since the late 1980s, there had been an increasing trend in FDI inflows in service and manufacturing sectors. Fiji is no exception. In the early years of the last century, the most notable investment in Fiji was in the sugar industry, but later in the 1970s and onwards, hotel industry and development of resorts and golf courses received greater attention by overseas investors (Jayaraman and Choong, 2006). In the late 20th century, the emerging economies including Malaysia and Singapore entered the scene for investment in tourism related activities including resorts.

The FDI inflows (as per cent of GDP) into Fiji have been on the rise, despite fluctuations during the coup years of 1987, 2000 and 2006 and in the six-year period following the latest coup of December 2006. FDI inflows were highest in the last decade with an average of 6 per cent of GDP over the period 2001-2010. Tourist arrivals have also been on an increasing trend, Four years after the December 2006 coup, tourist arrivals in 2010 reached the record number of arrivals at 632,000. Tourism is the highest foreign exchange earner for Fiji, accounting to around 25 per cent of GDP.

Although there are many studies on tourism and growth in Fiji, which include Narayan (2004, 2005a, 2005b) and Narayan *et al*. (2010), there are no studies on the contribution of FDI to tourism industry development in Fiji similar to study by Tang *et al.* (2007) on the relationship between tourism industry development and FDI in China. This paper which seeks to study on the nexus between FDI and tourism sector seeks to fill the gap.

II Methodology and Data

Our study objective is to assess the long-run impact of FDI on tourism development, which is reflected in increase in tourism earnings. There are no disaggregated data on FDI in different sectors; however it is well known that sizeable proportion of FDI inflows have been in tourism industry, which includes hotel and resort development and holiday homes and all related activities. Accordingly an assumption was made that a constant proportion of FDI inflows received by Fiji are invested in tourism sector. We hypothesize that the variable tourism earnings in Fiji dollars, duly adjusted for inflation, is positively influenced by the variable FDI inflows which are expressed as percentage of GDP. Since exchange rate (units of Fiji dollar per one US dollar) plays a major part in a tourist's own travel decision making process, one additional hypothesis for testing is a fall in exchange rate (depreciation of Fiji dollar) leads to rise in tourism earnings.

While the ratio of FDI to GDP is in percentage, the variables of real tourism earnings and exchange rate are in natural logarithm. Data series, which cover a 32 year period (1980-2011) are sourced from the World Bank's *World Development Indicators* (2013). Summary statistics of these three series are presented in Table 1.

Tables

Table 1. Summary Statistics

Period/Years	Tourism earnings (F$ million, current prices)	FDI-to-GDP ratio (%)	Nominal exchange rate (Fiji dollar per US dollar)
1980-1989	161.80	2.13	1.11
1990-1999	395.62	3.24	1.57
2000-2004	564.74	3.02	2.04
2005-2009	818.20	8.55	1.72
2010	1194.40	6.18	1.92
2011	1286.50	5.35	1.79
Mean (1980-2011)	467.81	3.85	1.54
Standard deviation (1980-2011)	310.64	3.35	0.39
Minimum (1980-2011)	108.00	-1.71	0.82
Maximum (1980-2011)	1286.50	11.93	2.28

Source: Authors' calculations based on data from World Bank (2013).

The model for estimation purposes is written as follows.

$$\ln TE_t = \alpha_0 + \alpha_1 FDIR_t + \alpha_2 \ln EXR_t + \alpha_3 Coup_t + \varepsilon_t \quad (1)$$

where

ln*TE* = natural log of tourism earnings in Fiji million dollars at 2005 constant prices;
FDIR = ratio of FDI to GDP expressed in per cent;

ln*EXR* = natural log of nominal exchange (Fiji dollars per US dollar);
Coup = a dummy variable to capture effect of military coups in 1987, 2000 and 2006; and
ε = error term.
Parameters α_1, α_2 and α_3 are parameters to be estimated.

We resort to bounds testing procedure for investigating the existence of a long run relationship[1] between the variables. Once the tests successfully establish the existence of cointegration, we proceed to test the unrestricted error correction models (UECM) as follows:

$$\Delta \ln TE_t = \alpha_{0TE} + \sum_{p=1}^{P} b_{pTE} \Delta \ln TE_{t-p} + \sum_{p=0}^{P} c_{pTE} \Delta FDIR_{t-p} + \sum_{p=0}^{P} d_{pTE} \Delta \ln EXR_{t-p} + \sigma_{1TE} \ln TE_{t-1} + \sigma_{2TE} FDIR_{t-1} + \sigma_{3TE} \ln EXR_{t-1} + \varepsilon_{t,TE} \quad (2a)$$

$$\Delta FDIR_t = \alpha_{0FDI} + \sum_{p=1}^{P} c_{pFDI} \Delta FDIR_{t-p} + \sum_{p=0}^{P} b_{pFDI} \Delta \ln TE_{t-p} + \sum_{p=0}^{P} d_{pFDI} \Delta \ln EXR_{t-p} + \sigma_{1FDI} \ln TE_{t-1} + \sigma_{2FDI} FDIR_{t-1} + \sigma_{3FDI} \ln EXR_{t-1} + \varepsilon_{t,FDI} \quad (2b)$$

$$\Delta \ln EXR_t = \alpha_{0EXR} + \sum_{p=1}^{P} d_{pEXR} \Delta \ln EXR_{t-p} + \sum_{p=0}^{P} c_{pEXR} \Delta FDIR_{t-p} + \sum_{p=0}^{P} b_{pEXR} \Delta \ln TE_{t-p} + \sigma_{1EXR} \ln TE_{t-1} + \sigma_{2EXR} FDIR_{t-1} + \sigma_{3EXR} \ln EXR_{t-1} + \varepsilon_{t,EXR} \quad (2c)$$

where Δ is the first difference operator.

The null hypotheses of no cointegration amongst $\ln TE_t$, $FDIR_t$ and $\ln EXR_t$ are respectively $H_0 : \sigma_{1TE} = \sigma_{2TE} = \sigma_{3TE} = 0$ in Equation (2a), $H_0 : \sigma_{1FDI} = \sigma_{2FDI} = \sigma_{3FDI} = 0$ in Equation (2b), and $H_0 : \sigma_{1EXR} = \sigma_{2EXR} = \sigma_{3EXR} = 0$ in Equation (2c), against the alternative hypotheses that there is at least one inequality in each test. F tests, denoted by $F_{TE}(TE|FDI,EXR)$, $F_{FDI}(FDIR|TE,EXR)$ and $F_{EXR}(EXR|TE,FDI)$ respectively, are used to test the above hypotheses. Two sets of critical values (CVs) are reported in Narayan (2005c) which generates and reports a set of CVs for sample sizes ranging from 30 observations to 80 observations. Given the relatively small sample size in the present study (32 observations), we extract CVs from Narayan (2005c).

III. Findings

For the bounds testing exercise, we use the Schwarz Bayesian criterion and find two lags are optimal for this exercise. As summarized in Table 2, calculated F-statistics are $F_{TE}(.) = 6.2138$ for Equation (2a), $F_{FDI}(.) = 1.4663$ for Equation (2b), and $F_{EXR}(.) = 0.7463$ for Equation (2c). The 5% significance level critical values of lower bound and upper bound for $k = 2$, $n = 32$ and case with unrestricted intercept and no trend are calculated by Narayan (2005c) as 4.267 and 5.473 respectively (see Table 2). Since $F_{TE}(.)$ is higher than the upper bound critical value at the 5% level, the null hypothesis of no cointegration among $\ln TE_t$, $FDIR_t$ and $\ln EXR_t$ in Equation (2a) is rejected at the 5% level. Since $F_{FDI}(.)$ and $F_{EXR}(.)$ are respectively lower than the upper bound critical value, the null hypotheses of no cointegration in Equations (2b) and (2c) are not rejected. One cointegration is, therefore, identified. The cointegration vector indicates that the causality of the relationships runs from $FDIR_t$ and $\ln EXR_t$ to $\ln TE_t$.

Table 2. F-tests for Cointegration

	Bounds' critical values for unrestricted constant and no trend (n = 32, k = 2)		
F-statistics		Lower Bound	Upper Bound
$F_{TE}(TE\|FDI,EXR) = 6.2138$	1% level:	6.183	7.873
$F_{FDI}(FDIR\|TE,EXR) = 1.4663$	5% level:	4.267	5.473
$F_{EXR}(EXR\|TE,FDI) = 0.7463$	10% level:	3.437	4.470

Note: Critical values are obtained from Narayan (2005c).

Having found one cointegration, Equation (1) is estimated using an autoregressive distributed lags (ARDL) model as follows:

$$\ln TE_t = \alpha_0 + \sum_{p=1}^{l} \alpha_{1,p} \ln TE_{t-p} + \sum_{p=0}^{m} \alpha_{2,p} FDIR_{t-p} + \sum_{p=0}^{n} \alpha_{3,p} \ln EXR_{t-p} + e_t \quad (3)$$

As indicated by the Schwarz Bayesian criterion statistic, two lags at maximum are included in the above ARDL model. The ordinary least squares (OLS) estimation of Equation (3) yields estimated parameters as summarized in Equation (4):

$$\begin{aligned} \ln \hat{TE}_t &= 21.85 + 0.04\, FDIR_t + 0.93 \ln EXR_t - 0.39\, Coup_t \\ t &= (8.52)\ (3.86)\qquad (6.26)\qquad (-2.77) \\ \hat{R}^2 &= 0.7051 \end{aligned} \quad (4)$$

It is found that a 10 percentage increase in FDIR leads to tourism earnings by around 0.49 (=EXP(0.04*10)-1) per cent, given other factors remain constant. The coefficient on lnEXR_t suggests that a 10 per cent increase in exchange rate (depreciation of Fiji dollar) would lead to 9.27 per cent (=(1+0.1)^0.93-1) increase in tourism earnings, holding other things constant. An occurrence of political unrest due to coup is associated with 0.39 per cent decline in tourism earnings, given other factors remain the same.

With the presence of cointegration, short-run relationships between lnTE_t and control factors $FDIR_t$ and lnEXR_t are assessed by the following error correction model (ECM):

$$\Delta \ln TE_t = \beta_0 + \sum_{p=1}^{P} \beta_{1,p} \Delta \ln TE_{t-p} + \sum_{p=0}^{P} \beta_{2,p} \Delta FDIR_{t-p} + \sum_{p=0}^{P} \beta_{3,p} \Delta \ln EXR_{t-p} + \lambda \hat{e}_{t-1} + v_t \quad (5)$$

where βs are parameters relating to short-run relationships, $\hat{e}_{t-1}$ is the error correction term obtained from Equation (3), and λ measures the speed of adjustment for a short-run disequilibrium goes back to equilibrium.

The OLS estimation of Equation (5) yields $\hat{\lambda}$ as -0.40 with t-statistic of -2.54. The highly significant error correction term suggests that growth of tourism earnings reacts to the cointegrating error. The coefficient of -0.40 indicates that the annual adjustment of tourism earnings will be about 40% of the deviation of tourism in previous year from its cointegrating relationship, and on average a disequilibrium will be corrected within 2.5 years.

IV. Conclusions

The paper investigated the nexus between tourism earnings and FDI in Fiji. A bounds testing procedure was employed to test the presence of a cointegration relationship between tourism earnings, FDI and exchange rate (units of Fiji dollar per one US dollar). The study results confirm the existence of cointegration between the variables. The results also establish that the relationship between tourism earnings and FDI is positive. An increase in the ratio of FDI to GDP by 10 per cent leads to an increase in tourism earnings by around 0.49 per cent. Similarly the relationship between currency depreciation and tourism earnings is found to be positive. A

depreciation of Fiji dollar by ten per cent would result in 9.27 per cent increase in tourism earnings.

The policy implications are clear and straightforward. The government will do well to continue promoting FDI in tourism related activities towards their upgrading and modernization as well as maintaining a stable political and economic environment. Furthermore, policy makers should strive to maintain a competitive exchange rate.

Endnotes

[1] Although the bounds testing procedure does not require unit root tests, we employed augmented Dickey-Fuller tests and found the variables are integrated of order one.

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Tables

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