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Research note: Contribution of foreign direct investment to the tourism sector in Fiji: an empirical study

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In the midst of declining external demand due to the world economic downturn since 2008, the tourism sector has emerged as a major source of support to the South Pacific island countries, including Fiji. Tourists from the region's two advanced economies, Australia and New Zealand, find Fiji a more affordable tourist destination than distant European and Asian holiday resorts. The development of the tourism sector in Fiji owes much to foreign direct investment (FDI) in hotels, resorts and other infrastructural facilities. This paper uses bounds cointegration technique and investigates the contribution of FDI to Fiji's tourism sector. The analysis identifies 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; Fiji

JEL classification: L83, F21, C54

The 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 supporting physical infrastructure, which helps it to take full advantage of sun, sand and surf endowments. Foreign direct investment (FDI) in Fiji over recent years has contributed towards the development of international standard resort and hotel facilities, which have helped the country to emerge as a leading tourist destination in the Pacific.

Fiji, which has been the recipient of the least amount of aid among all Pacific island countries (PICs), averaging 2% of GDP, has traditionally placed considerable emphasis on FDI. Indeed, 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 those seeking to exploit natural resources, 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 20th century, the most notable investment in the country was in the sugar industry, but later, in the 1970s and onwards, the hotel industry and the development of resorts and golf courses received greater attention from overseas investors (Jayaraman and Choong, 2006). In the late 20th century, the emerging economies, including Malaysia and Singapore, began to invest in tourism related activities, including resorts.

The FDI inflows (as a percentage 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% of GDP over the period 2001–2010. Tourist arrivals have also been on an increasing trend. Four years after the December 2006 coup, arrivals in 2010 reached the record number of 632,000. Tourism is the highest foreign exchange earner for Fiji, accounting for around 25% of GDP.

Although there are many studies on tourism and growth in Fiji – including Narayan (2004, 2005a, 2005b) and Narayan *et al* (2010) – there is none on the contribution of FDI to tourism industry development in Fiji similar to the study by Tang *et al.* (2007) on the relationship between tourism industry development and FDI in China. This paper, in focusing on the nexus between FDI and tourism sector, seeks to fill the gap.

Methodology and data

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

Table 1. Summary statistics.

Period	Tourism earnings (FJD million, current prices)	FDI-to-GDP ratio (%)	Nominal exchange rate (FJD:USD)
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	1,194.40	6.18	1.92
2011	1,286.50	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)	1,286.50	11.93	2.28

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

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

The model for estimation purposes is 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* is the natural log of tourism earnings in Fiji million dollars at 2005 constant prices; *FDIR,* the ratio of FDI to GDP expressed as a percentage; ln*EXR,* the natural log of nominal exchange (FJD per USD); *Coup*, a dummy variable to capture the effect of the military coups in 1987, 2000 and 2006; and ε the error term. Parameters α_1, α_{12} and α_{13} are parameters to be estimated.

We resort to the bounds testing procedure to investigate the existence of a long-run relationship[1] between the variables. Once the tests have successfully established 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.

Table 2. **F-tests for cointegration.**

F-statistics		**Bounds critical values for unrestricted constant and no trend (n = 32, k = 2)**	
		Lower bound value	**Upper bound value**
$F_{TE}(TE\|FDI,EXR) = 6.2138$	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).

The null hypotheses of no cointegration among $\ln TE_t$, $FDIR_t$ 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) who 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).

Findings

For the bounds testing exercise, we use the Schwarz Bayesian criterion and find that two lags are optimal for this exercise. As summarized in Table 2, the 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 $\ln TE_t$.

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

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

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):

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

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

With the presence of cointegration, short-run relationships between $\ln TE_t$ and control factors $FDIR_t$ and $\ln EXR_t$ 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 a *t*-statistic of –2.54. The highly significant error correction term suggests that the 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 the previous year from its cointegrating relationship, and that on average a disequilibrium will be corrected within 2.5 years.

Conclusion

The paper investigates the nexus between tourism earnings and FDI in Fiji. A bounds testing procedure is employed to test the presence of a cointegration relationship between tourism earnings, FDI and the exchange rate. The results confirm the existence of cointegration between the variables and establish that the relationship between tourism earnings and FDI is positive. An increase in the ratio of FDI to GDP of 10% leads to an increase in tourism earnings of around 0.49%. Similarly, the relationship between currency depreciation and tourism earnings is found to be positive. A depreciation of the Fiji dollar by 10% would result in a 9.27% increase in tourism earnings.

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

Endnote

1. Although the bounds testing procedure does not require unit root tests, we employed augmented Dickey–Fuller tests and found that the variables were integrated of order one.

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