Trade Implications of Booming Tourism Industry: Empirical Evidence from Fiji

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Abstract
Since 2010, tourism has been a billion dollar industry for Fiji’s economy and recently the government under Fijian Tourism Development Plan 2017-2021 has prioritized over strengthening the linkages to the tourism sector. The main goal of this paper is to investigate the link between international tourism and international trade in Fiji using annual time series data for the period 1970-2013. The study investigates the relationship between international tourism and international trade within a trivariate framework using economic growth as a third variable to avoid the pitfalls of a bivariate analysis. The results indicate that international tourism, economic growth and international trade are related in the long run. There is also evidence of uni-directional causality from economic growth to visitor arrivals and uni-directional causality from tourist arrivals to trade openness. The major implication of this study is that international tourism (tourist visitor arrivals) has the potential to increase trade opportunities between Fiji and source markets for tourists.

Keywords
International Tourism, International Trade, Economic Growth, Fiji
1. Introduction

Over the last few decades, the tourism industry has increasingly become an important source of foreign exchange rate earnings for Fiji’s economy. Tourist visitor arrivals have increased from 318,874 in 1994 to 692,630 in 2014, and since 2010, tourism has been a billion dollar industry. In fact, Fiji’s average tourism earnings for the period 2010-2015 has been $1.34 billion (Reserve Bank of Fiji, 2018). This positive performance has been supported by host of factors such as: increased marketing efforts by Tourism Fiji; competitive Fijian dollar following devaluation in 2009, increased flights as well as fiscal incentives by the government. By 2021, it is expected that Fiji will earn around $2.2 billion from the tourism industry as laid out in the Fijian Tourism Development Plan 2017-2021 (Government of Fiji, 2017). One of the key priority areas under this Plan is strengthening the linkages to the tourism sector.

To date, a number of studies have conducted on Fiji’s tourism industry. These include: effect of political instability on tourism (Fletcher & Morakabati, 2008; Narayan 2005a, 2005b), influence of climate change on tourism (Becken, 2005), economy - wide impact of tourism (Narayan 2004), determinants of tourism demand and tourist expenditure (Narayan, 2002; Narayan, 2003; Narayan, 2004), impact of devaluation on tourism (Pratt, 2014), relationship between tourism and poverty (Scheyvens & Russell, 2012a, 2012b), relationship between tourism and growth (Kumar & Kumar, 2012; Narayan & Prasad, 2003), and issues, challenges and performance of the tourism industry (Narayan & Prasad 2003; Rao, 2002). However, there has no major study that has examined the link between tourism and growing international trade in the economy. In this study, we fill this knowledge gap.
Theoretically, the nature of the relationship between international trade and international tourism is ambiguous. International trade can lead to international tourism. In particular, through business travel that increases awareness of the country and subsequently leads to traveling for holiday due to higher consumer interest and trade opportunities (Katircioglu, 2009; Kulendran & Wilson, 2000; Shan & Wilson, 2001). On other hand, international tourism can lead to international trade. For instance, increase in tourism will increase demand of foreign goods and services such as foreign imported raw materials and foreign investment in tourism related facilities, improve imagine of a country for its goods and services, and raise chances of trade opportunities between two countries (Katircioglu, 2009; Kulendran & Wilson, 2000; Shan & Wilson, 2001).

Our study is certainly not the first attempt in the literature to examine the link between international trade and tourism. However, results from past studies have been inconclusive. For instance, some studies focusing on China, India, Singapore, South Africa and Canary Islands have found evidence of bi-directional causality between tourism and trade (see for instance, Fry, Saayman, & Saayman, 2010; Gautam & Suresh, 2012; Santana-Gallego, Guez, & Pérez-Rodríguez, 2011; Shan & Wilson, 2001; Wong & Tang, 2010). Other studies have found evidence of uni-directional causality from trade to tourism. For instance, Lee (2012) found evidence of uni-directional causality from exports to tourism and uni-directional causality from tourism to imports in Singapore, while Kadir and Jusoff (2014) found that trade helps predict tourism in Malaysia.

Katircioglu (2009) found that international trade stimulates international tourism in Cyprus using data from 1960-2005. In other studies, Keum (2011) found evidence of causality from tourism
to trade in Korea. This is in sharp contrast with finding from Khan, Toh, and Chua (2005), that international tourism cannot be used to predict international trade as there is little evidence of cointegration and causality between the two series. Kulendran and Wilson (2000) found evidence of causality from international travel and international trade for Australia and its four important travel and trading partners. Massidda and Mattana (2013) found uni-directional long run causality from real GDP to trade and uni-directional causality from trade to tourist visitor arrivals.

Few studies have investigated the link between tourism and trade using panel data approach. Santana-Gallego et al. (2011) used heterogeneous panel data approach to examine the long run and short run relationship between tourism and trade in five (France, Spain, United States, Italy and United Kingdom) OECD countries for the period 1980-2006. They find evidence of short and long run causality, suggesting presence of a complementary relationship between tourism and trade. In another study, Narayan, Sharma, and Bannigidadmath (2013) used a bivariate panel predictive regression model to examine whether tourism predict macroeconomic variables in a group of Pacific Island Economies (Fiji, Solomon Islands, PNG, Vanuatu, Samoa, and Tonga) using data from 1985 to 2010. The panel results indicate that tourism predicts exports and money supply.

Majority of the above mentioned studies have focussed on large developed and emerging market economies, particularly large Asian countries. Such findings might be of little use for understanding the complex nature of linkage that exists in small developing economies. This study focuses on Fiji – a small developing economy that in recent years has increasing become
dependent upon tourism. This study therefore contributes to empirical literature in context of the developing economies. An important feature of our study is that we investigate the link between international trade and international tourism within a trivariate framework using economic growth as a third variable. This differs from majority of past studies that have investigated the long run and causal relationship between tourism and trade within a bivariate framework.

The rest of the paper is organised as follows. Section 2 explains the data sources, empirical model, and econometric methodology. Section 3 explains the empirical results, while Section 4 discusses conclusion and policy implications.

2. Data, Empirical Model and Econometric Methodology

Data Source, Sample Period, and Variable Description

The sample period for the study is 1970-2013. We measure trade as the sum of exports and imports as share of GDP and Real GDP in constant Fiji dollars, and obtain them from World Development Indicators (World Bank, 2014). Data on tourist arrivals was extracted from various economic reports by the World Bank (World Bank, 1977, 1980, 1990, 1991, 1995) and Fiji Islands Bureau of Statistics (Fiji Islands Bureau of Statistics, 2016). Figure 1 plots the number of tourist visitor arrivals in Fiji over the period 1970-2013. The plot clearly indicates increasing number of tourist arrivals in Fiji over time. More importantly, after 2010, Fiji attracted more than 600,000 tourists. Another important observation from Figure 1 is the decline in the tourist visitor arrivals after political coup in 1987 and 2000. The increasing trend over time indicates growing importance of tourism industry for Fiji’s economy.
Empirical Model

Following past empirical studies and theoretical discussion, the empirical model describing the bivariate relationship between international trade ($In TR_i$) and international tourism ($In TA_i$) can be described as:

$$In TR_i = f(In TA_i)$$ (1)

However, since the cointegration and causality results could be sensitive in case of a bivariate analysis, this study follows the two recent studies of Lee (2012), and Massidda and Mattana (2013) and includes real GDP ($In Y_i$). Thus, the multivariate model specification is as follows:

$$In TR_i = f(In TA_i, In Y_i)$$ (2)
Econometric Methodology

We start our empirical analysis by examining the unit root properties of the three series. While bounds testing procedure does not require all the regressors to be I(1), the critical values are unlikely to hold in case of I(2) variables (Ouattara, 2004a, 2004b). We examine the unit root properties of the three series using Augmented Dickey Fuller (ADF) (Dickey & Fuller, 1979) Unit Root Test and Phillips-Perron (Phillips & Perron, 1988) Unit Root Test. Since these two unit root tests are well known in the literature, this study does not provide detailed description of these tests.

We examine the existence of a long run economic relationship between variables with the help of autoregressive distributed lag (ARDL) bounds test for cointegration developed by Pesaran, Shin, and Smith (2001). There are several advantages of using this cointegration test. First, ARDL bounds test for cointegration performs well in small samples (Haug, 2002). Furthermore, the ARDL cointegration test can be employed regardless of whether the regressors are I(0) or I(1), and its possible to correct for problem of serial correlation and endogeneity by modifying the order of the ARDL (Pesaran & Shin, 1999; Pesaran et al., 2001). Note all the variables are defined as earlier.

\[\Delta \ln TR_i = \alpha + \sum_{i=1}^{\rho} \gamma_i \Delta \ln TR_{t-k} + \sum_{i=1}^{\rho} \delta_i \Delta \ln TA_{t-k} + \sum_{i=1}^{\rho} \phi_i \Delta \ln Y_{t-k} + \]
\[\pi_1 \ln TR_{t-1} + \pi_2 \ln TA_{t-1} + \pi_3 \ln Y_{t-1} + \nu_t\]
(3)

\[\Delta \ln TA_i = \alpha + \sum_{i=1}^{\rho} \gamma_i \Delta \ln TR_{t-k} + \sum_{i=1}^{\rho} \delta_i \Delta \ln TA_{t-k} + \sum_{i=1}^{\rho} \phi_i \Delta \ln Y_{t-k} + \]
\[\pi_4 \ln TR_{t-1} + \pi_5 \ln TA_{t-1} + \pi_6 \ln Y_{t-1} + \nu_t\]
(4)
In order to test if there is a meaningful long run economic relationship between international tourism, international trade and real GDP, equations (3-5) are estimated using ordinary least squares (OLS), whereby the lag length was decided using AIC and SBC procedure. To test for presence of cointegration when international trade is the dependent variable, the null hypothesis \( H_0 : \pi_1 = \pi_2 = \pi_3 = 0 \) is tested against the alternative hypothesis of \( H_1 : \pi_1 = \pi_2 = \pi_3 \neq 0 \). The computed F-statistics is then compared with the critical values provided by Narayan (2005). If the computed F-statistics is greater than the critical values, there is cointegration between international trade, international tourism and real GDP.

The second research objective of this study is to examine the direction of causality between international trade, real GDP and international tourism. This objective is achieved using Toda-Yamamoto-Granger Causality test by Toda and Yamamoto (1995). The main advantage of using this procedure is that it can used regardless of whether the variables are cointegrated or not. In addition, this procedure can be used regardless of whether the series are I(0), I(1) and I(2). The causality test is implemented as follows. In the first step, we decide the optimal lag length of the VAR \((k)\). In the second step, maximum order of integration \((d_{\text{max}})\) is decided. Given the sample size, the maximum order of integration is set to 1. Next, an augmented VAR in levels is estimated using seemingly unrelated regression (SURE) procedure.

\[
\Delta \ln Y_t = \alpha + \sum_{i=1}^{c} \gamma_i \Delta \ln TR_{t-k} + \sum_{i=1}^{c} \delta_i \Delta \ln TA_{t-k} + \sum_{i=1}^{c} \phi_i \Delta \ln Y_{t-k} + \\
\pi_1 \ln TR_{t+1} + \pi_2 \ln TA_{t+1} + \pi_3 \ln Y_{t+1} + \nu_t
\]
\[ In\ TR_i = \alpha_1 + \sum\limits_{i=1}^{d_{\max}} \psi_i \ln TR_{t-k} + \sum\limits_{i=1}^{d_{\max}} \varphi_i \ln TA_{t-k} + \sum\limits_{i=1}^{d_{\max}} \sigma_i \ln Y_{t-k} + e_i \]  

(6)

\[ In\ TA_i = \alpha_2 + \sum\limits_{i=1}^{d_{\max}} \delta_i \ln TA_{t-k} + \sum\limits_{i=1}^{d_{\max}} \phi_i \ln TR_{t-k} + \sum\limits_{i=1}^{d_{\max}} \mu_i \ln Y_{t-k} + e_i \]  

(7)

\[ In\ Y_i = \alpha_3 + \sum\limits_{i=1}^{d_{\max}} \delta_i \ln Y_{t-k} + \sum\limits_{i=1}^{d_{\max}} \phi_i \ln TR_{t-k} + \sum\limits_{i=1}^{d_{\max}} \eta_i \ln Y_{t-k} + e_i \]  

(8)

Note that since the equations are estimated in levels, we are able to avoid loss of long run information. If there is causality from international tourism to international trade, then the null hypothesis, \( H_o : \varphi_{11} = \varphi_{22} = 0 \), where \( i=1, 2, 3..k \) should be rejected at least 10 percent significance level. On the other hand, if there is causality from international trade to international tourism, then the null hypothesis, \( H_o : \phi_{11} = \phi_{22} = 0 \), where \( i=1, 2, 3..k \) should be rejected at least 10 percent significance level.

3. Empirical Results

Unit Root Properties of the Variables

The unit root results reported in Table 1 suggest that international trade (\( In\ TR_i \)) is a non-stationary variable. The unit root hypothesis is not rejected in levels. However, the unit root hypothesis is rejected at 1% when the international trade series is expressed in first difference. For other two variables, namely international tourism (\( In\ TA_i \)) and real GDP (\( In\ Y_i \)), the test statistics is rejected depending upon whether a trend is included while performing the unit root test. However, once the unit root test is performed in the first difference, the null hypothesis is rejected at 1 % level. The results generally indicates that all the three variables are non-stationary variables and therefore, I(1) processes.
Table 1: Unit Root Test Results

<table>
<thead>
<tr>
<th></th>
<th>ADF</th>
<th>Phillips-Perron</th>
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<tbody>
<tr>
<td></td>
<td>$\ln TR_i$</td>
<td>$\ln TA_i$</td>
</tr>
<tr>
<td>C</td>
<td>-1.533</td>
<td>0.585</td>
</tr>
<tr>
<td>C &amp; T</td>
<td>-2.878</td>
<td>-4.205***</td>
</tr>
<tr>
<td></td>
<td>$\Delta \ln TR_i$</td>
<td>$\Delta \ln TA_i$</td>
</tr>
<tr>
<td>C</td>
<td>-6.636***</td>
<td>-5.915***</td>
</tr>
</tbody>
</table>

Note: *** indicates statistical significance at 1 percent level; ** indicates statistical significance at 5 percent level. C denotes constant, C&T denotes constant and trend.

Given that Fiji’s economy has undergone economic and political shocks such as series of devaluations, political coups, and adoption of structural adjustment programmes after mid-1980s, there might be structural breaks in the data series. In a seminal study, Perron (1989) has pointed out that the unit root tests that do not account for structural breaks are likely to have low power against the alternative hypothesis. Hence, this study employs unit root test by Zivot and Andrews (1992) that allows for one-time structural break.

Following study by Sen (2003), Model C of Zivot and Andrews (1992) that allows one structural break in both the intercept and trend is adopted. Table 2 reports the Zivot-Andrews (1992) unit root test results. The unit root hypothesis is rejected for international trade ($\ln TR_i$) in levels as the test statistic is significant at 1%. The estimated break date is 1988 and corresponds to the switch from import substitution to export orientated economic strategy by the interim government after the 1987 political coup.
Table 2: Zivot-Andrews Unit Root Test Results (1970-2013)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Test-statistic</th>
<th>Estimated break date</th>
<th>Optimal Lag Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>$In , TR_t$</td>
<td>-5.150**</td>
<td>1988</td>
<td>0</td>
</tr>
<tr>
<td>$In , TA_t$</td>
<td>-6.241***</td>
<td>1987</td>
<td>0</td>
</tr>
<tr>
<td>$In , Y_t$</td>
<td>-4.075</td>
<td>1999</td>
<td>7</td>
</tr>
<tr>
<td>$\Delta In , TR_t$</td>
<td>-7.250***</td>
<td>1991</td>
<td>0</td>
</tr>
<tr>
<td>$\Delta In , TA_t$</td>
<td>-6.310***</td>
<td>2004</td>
<td>2</td>
</tr>
<tr>
<td>$\Delta In , Y_t$</td>
<td>-10.368***</td>
<td>1989</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: *** and ** denotes significance at 1 and 5 percent, respectively. The critical value at 1% is -5.570 and the critical value at 5% is -5.080. The test was implemented in RATs software.

The unit root hypothesis is also rejected for international tourism ($In \, TA_t$) in levels. The computed test-statistic is -6.241 is statistically significant at 1% significance level. The identified break date is 1987 which corresponds to political coup that resulted tourist visitor arrivals falling to 189900 from 257800 in 1986. In case of real GDP ($In \, Y_t$), the unit root hypothesis is not rejected in levels as the test statistic is not significant. However, in first difference, the unit root hypothesis is rejected and test-statistic is significant at 1% level.

In sum, the results indicates that international tourism ($In \, TA_t$) and international trade ($In \, TR_t$) are stationary processes (I(0)), while real GDP ($In \, Y_t$) is a non-stationary process (I(1)). We also test for unit root allowing for multiple structural using Lumsdaine-Papell (1997) Unit Root Test and Lee-Strazicich (2003) Unit Root Test. The results indicate that international tourism and international trade to be stationary process. However, both unit root tests indicate that real GDP is non-stationary process. The results are not reported here to conserve space but are available from the author upon request. Since the variables are integrated of mixed order, the ARDL
cointegration test is employed to investigate presence of a meaningful long run linkage between international tourism, international trade and economic growth.

**Cointegration Results**

Following the unit root analysis, we proceed to discuss the cointegration results. The empirical results from bounds test are reported in Table 3 below. Given the small sample size, the critical values are obtained from Narayan (2005). When real GDP is considered the dependent variable, the null hypothesis of no cointegration is rejected at 1% significance level. This finding indicates that international trade, international tourism and economic growth are cointegrated. When international trade is considered that dependent variable, the null hypothesis of no cointegration is not rejected. However, the null hypothesis of no cointegration cannot be rejected at 10% significance level when international tourism is considered the dependent variable. The results indicate that economic growth, international trade and international tourism are linked in the long run.

<table>
<thead>
<tr>
<th>Table 3: ARDL Cointegration Results (1970-2013)</th>
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<tr>
<td>Computed F-statistics</td>
</tr>
<tr>
<td>------------------------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>F(In TR, In TA, In Y)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>F(In TA, In TR, In Y)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>F(In Y, In TR, In TA)</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

Note: Critical values from Narayan (2005). * denotes significance at 1% level. Maximum lag length is set to 4. The ARDL test was done in EViews software 9.1. Trend is not included. Dummy for 1988 is included.

Plots of CUSUM and CUSUM of Squares indicate the relationship is stable over time when real GDP is considered the dependent variable. The plots are not presented here to conserve space but are available from the author upon request. Our findings differ from results obtained for other countries. For instance, Kadir and Jusoff (2014) found no cointegrating relationship between
tourism and trade for Malaysia. On other hand, we find evidence of cointegrating relationship between tourism and trade, as studies by Kulendran and Wilson (2000) for Australia, and Lee (2012) for Singapore and Katircioglu (2009) for Cyprus.

Causality Results

Table 4 reports the empirical evidence on the causal linkage that exists between international tourism, international trade and economic growth in Fiji. We find two cases where there is evidence of causal linkage. In the first case, the null hypothesis of no causality from international tourism to international trade is rejected in favour of the alternative hypothesis that there is causality from international tourism to international trade. The null hypothesis is rejected at 5% significance level. This result indicates that international tourism (tourist visitor arrivals) can help predict international trade.

Our finding is similar to finding by Keum (2011). However, our study does not find evidence of bi-directional causality as found in other studies (see for instance, Fry et al., 2010; Gautam & Suresh, 2012; Santana-Gallego et al., 2011; Shan & Wilson, 2001; Wong & Tang, 2010). Our finding suggests that recent reforms undertaken by the government to stimulate tourism industry is likely to boost international trade.

<table>
<thead>
<tr>
<th>Direction of causality</th>
<th>Chi-square</th>
<th>Probability value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\ln TA_t$ to $\ln TR_t$</td>
<td>4.548**</td>
<td>0.033</td>
</tr>
<tr>
<td>$\ln Y_t$ to $\ln TR_t$</td>
<td>2.149</td>
<td>0.143</td>
</tr>
<tr>
<td>$\ln TR_t$ to $\ln TA_t$</td>
<td>0.336</td>
<td>0.562</td>
</tr>
<tr>
<td>$\ln Y_t$ to $\ln TA_t$</td>
<td>4.268**</td>
<td>0.048</td>
</tr>
<tr>
<td>$\ln TR_t$ to $\ln Y_t$</td>
<td>1.271</td>
<td>0.260</td>
</tr>
<tr>
<td>$\ln TA_t$ to $\ln Y_t$</td>
<td>0.026</td>
<td>0.873</td>
</tr>
</tbody>
</table>

*Note*: ** denotes statistical significance at 5 percent significance level.
In the second case, the null hypothesis of no causality from real GDP to international tourism is rejected at 5% significance level in favour of the alternative hypothesis that there is causality from real GDP to international tourism. Thus, there is evidence of uni-directional causality from economic growth to tourism in Fiji, implying that strong economic performance helps predict growth of international tourism.

4. Conclusion and Policy Implications

The tourism industry brings more than a billion dollar of foreign exchange earnings for the Fijian economy. In light of the disappointing performance of the sugar industry, the government has strongly supported the tourism industry through allocations of millions of dollars for marketing Fiji abroad and a range of fiscal incentives. The 2017-2021 Tourism Development Plan targets to bring about $2.2 billion into Fiji’s economy and has prioritised over strengthening the linkages to the tourism sector. Motivated by this policy interest and lack of theoretical and empirical consensus over the link between international trade and tourism, the present paper has investigated the causal link between two sectors by employing contemporary econometric methods (unit root and cointegration methodology) using annual from 1970-2013.

Our main results are as follows. We find evidence that international trade, real GDP and international tourism are cointegrated. This indicates that international trade, economic growth and tourism are ultimately linked in the long run. Results from causality analysis indicate that there is evidence of uni-directional causality from economic growth to international tourism; and from international tourism to international trade. Major policy implications of these finding are as follows. We show that two sectors, namely international trade sector and international tourism
are related, and there is an important causal linkage between the two. There is evidence that international tourism helps predict international trade.

Our findings imply that international tourism (tourist visitor arrivals) helps boost international trade. Thus, measures to bring more tourists in Fiji are likely to improve the image of Fiji’s goods and services abroad and increase trade opportunities. The tourism sector can be an important means through which the policymakers can increase trade opportunities particularly related to the agricultural sector. Between the 2009-2012, the government has allocated nearly $106 million in promoting Fiji as a tourist destination in countries such as India, China, the United Arab Emirates (Government of Fiji, 2012). These measures are likely to boost trade opportunities between Fiji and these countries. This study has investigated the linkage at aggregate level. It will be useful for future studies to investigate the relationship at disaggregate level, and for other countries in the Pacific region.
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