Kasetsart Journal of Social Sciences 39 (2018) 439–447

Contents lists available at ScienceDirect

Kasetsart Journal of Social Sciences

journal homepage: http://www.elsevier.com/locate/kjss

Imports, remittances, direct foreign investment and economic growth in Republic of the Fiji Islands: An empirical analysis using ARDL approach

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ARTICLE INFO

Article history:
Received 26 January 2017
Received in revised form 22 May 2017
Accepted 5 July 2017
Available online 21 July 2017

Keywords:
economic growth,
external factors,
Republic of the Fiji Islands

ABSTRACT

This study empirically examined the effect of external factors on economic growth in the Republic of the Fiji Islands (the Fiji Islands). The economic analysis was conducted using the recent time series quantitative technique and annual data from 1980 to 2015. This is of significant concern because the Fiji Islands since independence have been struggling to achieve impressive and sustained growth episodes. From the analysis and economic growth viewpoint the external factors, namely imports, remittances, and foreign direct investment, are indeed important. Imports were found to have an adverse outcome on economic expansion in the long term. Furthermore, remittances and foreign direct investment positively influenced economic growth both in the long run and the short run for the Fiji Islands. The study proposes that the government should pursue appropriate policy actions to reduce imports and draw remittances and foreign direct investment to improve economic growth.

Introduction

The Republic of the Fiji Islands (the Fiji Islands), like most other Pacific Island Countries (PICs) and large developing economies, has been ruthlessly trying to accomplish and maintain sustainable, long term economic growth since its independence. The globalization of the world economy and at the same time the recent rise of anti-globalization sentiments in other parts of the world makes it hard for small island countries to understand what determines economic growth. However, because of the broad nature of the economic growth debate, the economic literature has indicated that there are several factors at play. Domestic determinants such as sound macroeconomic policies, good governance, human capital, political stability, and national savings are crucial for economic growth (Narayan & Smyth, 2004; Romer, 1986; Roubini & Wachtel, 1999; Solow, 1956). However, in recent times, factors outside the domestic economy, namely imports, remittances, and foreign direct investment (FDI) from overseas economies, are also becoming essential for supporting economic growth, particularly for the small developing economies (Azman-Saini, Law, & Ahmed, 2010; Barajas, Chami, Fullenkamp, Montiel, & Gapen, 2009; Chen & Jayaraman, 2016). The sustainable growth of an economy is fundamental because a healthy, growing economy has great potential to reduce unemployment and alleviate poverty relative to a poorly performing economy. Contemporary social and economic research suggests that good economic growth enables better delivery of goods and services including education and health which makes societies better off (Nourzad & Powel, 2003). A developed and prosperous society is certainly the ultimate aim of all the economic activities.

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Peer review under responsibility of Kasetsart University.

http://dx.doi.org/10.1016/j.kjss.2017.07.002

This paper looks at the economic effect of external factors on economic growth. The study will provide important empirical research analysis and add to the extant literature on the impact of import, remittances, and direct foreign investment on economic development in the context of PICs and in particular in the case of the small island economy of the Fiji Islands. To achieve its objective, the study utilized annual observation of imports, remittances, foreign direct investment, and economic growth from the Fiji Islands from 1980 to 2015 and the recently developed Autoregressive Distributed-Lag (ARDL) time series econometric technique. PICs including the Fiji Islands are receiving large remittances from the increasing number of islanders living and working overseas whose contribution has become steady and is rising. For instance, from just around 1.6 percent in the 1980s, remittances have increased to around 5 percent in 2015. The foreign direct investment to the Fiji Islands which is mostly in the tourism sector was impressive in the early 1980s. However, due to the recurring political instability, the small domestic economy and the weak world economic situation, there is lack of manufacturing-related investment leading to a decline in foreign investment. Furthermore, foreign imports such as capital goods and intermediate inputs for production purposes in particular, also play a considerable role in the domestic economy of PICs and overall economic growth.[1] In this light, it is essential to examine the long term relation among import, remittances, FDI, and economic growth which would be useful for government and policy advisers. The government should initiate appropriate policy strategies particularly in relation to these external factors by taking into consideration their relative significance to economic growth not only in the Fiji Islands but also in other similar developing island economies.

The remainder of this research article is arranged as follows: The next section presents a review of the relevant literature. The subsequent section outlines the model specification and econometric method. The results and discussions of the study are presented in next section. The last section provides the conclusion of the paper with policy recommendations.

Literature Review

The long term economic relation and the effect of external factors on economic growth particularly with respect to large developing and developed economies have been scrutinized in the economic literature by several studies. For instance, the connection between remittances and economic growth is broadly examined in the literature and the findings suggest that remittances have a strong optimistic outcome on economic growth except in some instances such as Barajas et al. (2009) who indicated that remittances inflow does not affect economic growth. Empirical panel and country specific research showing positive remittances-growth nexus; however, are numerous such as Adleman and Taylor (1990), Erik and Ruiz-Arranz (2006), Nwaogu and Ryan (2015), Stahl and Habib (1989), Page and Adams (2003), World Bank (2006) and Yang (2008). These studies suggest that remittances; (i) support the left-behind family members, thereby helping to reduce poverty; (ii) support recipients to improve their welfare and invest in farming and other small businesses; (iii) help families to cushion against income shock and pay for their education and health; and (iv) add to the foreign exchange reserves of the host economy, thereby increasing liquidity for pro-growth investment activities and projects. Furthermore, in more recent studies, Bettin and Zazzaro (2012) and Giuliano and Ruiz-Arranz (2009) in the panel of 100 developing economies excluding the Fiji Islands, investigated the outcome of remittances on economic growth. They argued that economies with a deeper financial system experience a significant, positive effect of remittances on growth. In relatively more important and recent research, Chen and Jayaraman (2016) examined the remittance-growth nexus in relation to the Fiji Islands. They found out that while remittances have a positive effect on economic growth, its interaction with the financial system is negative, implying that the marginal effect of remittances with the level of financial development on growth is decreasing. Based on these findings, the study concluded that remittances and quasi money supply are not complementary and that the financial system remains shallow in the Fiji Islands.

It has also been long debated that FDI enhances economic growth in the course of its externality and spillover, and it is a crucial external factor for long term sustainable growth (Easterly, King, Levine, & Rebelo, 1994; Grossman & Helpman, 1991; Lucas, 1988; Romer, 1986; Solow, 1956; Swan, 1956). The externality and spillover impact involves capital transfer, better and new technology, employment creation, further increases in research and development, and domestic human capital development. But a lot of small developing economies suffer from the lack of productive and development resources that would hinder countries have deficits in their productivity and overall economic growth performance. These deficits in the productive resources may explain and perhaps justify the FDI inflows to close these required deficits in small developing economies (Todaro & Smith, 2006). There are four key mechanisms through which foreign direct investment impacts economic growth according to endogenous growth theory. First, FDI fills the capital shortage gaps that many small developing countries face and supports domestic investment via investment in both physical and human capital (Todaro & Smith, 2006). Second, FDI reduces the foreign exchange deficit by the inflow of foreign capital directly, and it also helps earn foreign exchange by increasing export receipts indirectly. This raises the country's foreign exchange earnings and its ability to pay its foreign debt and enhance its export competitiveness (Pailwar, 2004). Third, FDI boosts the government revenue through foreign firms direct and indirect taxes. These taxes may be huge if there is lot of FDI inflow and government can use it to fund its development projects such as infrastructure and various other capital expenses which intuitively enhance economic growth (Todaro & Smith, 2006). Finally, FDI increases the receiving economy's productivity, enhances the body of knowledge by skill transfer and labor training, and brings new technological improvements into the host economy (Wan, 2010). Empirical

[1] See Table A1 in Appendix A for data on imports, remittances, and FDI.

studies such as Borensztein, Gregorio, and Lee (1998), Khathlan (2012) and Levine and Renelt (1992) also suggested a positive influence of FDI on economic growth. These studies also demonstrated that the impact of FDI largely depends on moderating factors such as the level of domestic human capital, trade openness, and domestic investment. A number of other recent studies are available that broadly present in relation to the FDI-growth nexus for many different countries. For instance, see Almfraji and Almsafir (2014) for further review.[2]

The literature examining trade openness and economic growth has also closely reflected on the impact of imports on economic growth (Chaudhary, Shirazi, & Chaudhary, 2007; Jawaid, 2014) although the import dimension of trade has not been discretely examined that often. The growth effect of imports is crucially subjected to a country's types of imports. Imports of capital goods, machinery, and intermediate production inputs improve the economic growth through the diffusion of new technology (Grossman & Helpman, 1991; Lawrence & Weinstein, 1999; Mazumdar, 2001). Chaudhary et al. (2007) studied the associations among exports, imports, and economic growth; they found a significant, positive effect of imports and exports on economic growth. On the other hand, Jawaid (2014) found a significant, negative impact of imports on economic growth. However, Mazumdar (2001) argued that economies that are open for trade grow faster since they can invest in required imported capital goods. Indeed certain imported goods are important for countries that are in the initial stages of development. New technologies, machinery, and essential intermediate production inputs such as oil are critical for domestic firms in the Fiji Islands, which can be only available through imports.

There are three things that stand out from the literature. First, there are very limited studies in relation to small developing island economies. Second, the literature provides mixed evidence in relation to the long term economic relationships between external factors and economic growth. Third, there is hardly a study that has scrutinized the effect of these external factors on economic growth jointly in the case of a small developing island country. Thus, it was necessary to undertake this empirical study on the external factors and economic growth.

Model and Methodology

Model Specification

The main purpose of the current study was to investigate the effect of imports, remittances, and foreign direct investment on economic growth in the Fiji Islands. On the basis of accessibility of data, aggregate imports, remittances inflow, and net inflow of foreign direct investment were utilized in the analysis. Empirical investigation was conducted using observations during the 35-year period from 1980 to 2015. The model specification for the econometric analysis is shown in Eq. (1):

$$\ln GDP_t = c_0 + \alpha_1 \ln IMP_t + \alpha_2 \ln REM_t + \alpha_3 \ln FDI_t + \varepsilon_t \quad (1)$$

where: *lnGDP* is the log of real gross domestic product (GDP) *lnIMP* is the log of imports *LnREM* is the log of remittances *lnFDI* is the log of foreign direct investment *ln* is natural logarithm.

In regression model (1), *a priori* knowledge of the real GDP is used as a dependent variable. Aggregate imports are measured in millions of US dollars. Net inflow of foreign direct investment and remittances are measured as a share of GDP. Observations on GDP, imports, remittances, and foreign direct investment series were sourced from World Development Indicators (World Bank, 2015) and the Reserve Bank of the Fiji Islands.

Estimation Methodology

In regression analysis of time series, the properties of data are crucial and need much scrutiny. Generally, they contain a unit root and tend to be non-stationary. Gujarati and Porter (2009) argued that to avoid any inconsistencies in coefficient estimation, series are required to be stationary. Therefore, it is critical to check the stationarity properties and to identify the integration order of each series. The Standard Augmented Dickey-Fuller (ADF) unit-root test is used for potential non-stationary concerns.

There are several time series econometric techniques such as LSE-Hendry's GETS, fully modified ordinary least square (FMOLS), Engle-Granger (EG), Johansen maximum likelihood (JML) and the recently designed Autoregressive Distributed-lag (ARDL) procedure. The ARDL method of cointegration was designed by Pesaran, Shin, and Smith (2001). There are several advantages of the ARDL method. First, it is possible to test the cointegrating association between the variables regardless of different orders of integration (Pesaran et al., 2001). The other improvement to the ARDL technique is that it is appropriate to test long run associations among the series if the sample period is small and it can also correct for probable endogeneity (Pesaran et al., 2001). Therefore, this paper used the ARDL procedure for long run cointegration and estimation analysis if the series were non-stationary.

Cointegration Analysis (ARDL)

The bound F-test for cointegration is within the ARDL methodology. The ARDL method is a two step technique. To examine the presence of long run cointegration, Eq. (1) is re-arranged as an unrestricted error correction model (UECM) in the ARDL framework as Eq. (2):

[2] In noting the positive impact of FDI, we are also mindful of the pessimistic opinions of early dependency theories in the 1950s which argued that FDI is a constraint to economic growth in less-developed countries (Aitken & Harrison, 1999; Papanek, 1973). They are of the view that FDI can cause a balance of payments problem by taking away profits. FDI can lead to over exploitation of domestic natural resources as well as under-use of domestic inputs. Also, FDI can lead to crowding out of domestic investment and create distortion in the domestic economy and adversely affect economic growth. Further, FDI can push for foreign communes and it can lead to sovereignty loss in the host economy.

$$\Delta \ln GDP_t = c_0 + \alpha_1(\ln GDP)_{t-1} + \alpha_2(\ln IMP)_{t-1} + \alpha_3(\ln REM)_{t-1} + \alpha_4(\ln FDI)_{t-1} + \sum_{i=1}^{n} \alpha_5 \Delta(\ln GDP)_{t-1} + \sum_{i=1}^{n} \alpha_6 \Delta(\ln IMP)_{t-1} \sum_{i=1}^{n} \alpha_7 \Delta(\ln REM)_{t-1} + \sum_{i=1}^{n} \alpha_8 \Delta(\ln FDI)_{t-1} + \varepsilon_t \quad (2)$$

where delta (Δ) is the difference operator and represents short term dynamics. The parameters attached along with one period lagged variables measure long term relationships. The null of no long run cointegration ($H_o : \alpha_1 = \alpha_2 = \alpha_3 = \alpha_4 = o$) is disputed in opposition to the alternative hypothesis which states the presence of a long run association ($H_1 : \alpha_1 \neq \alpha_2 \neq \alpha_3 \neq \alpha_4 \neq o$). If the null proposition of zero cointegration is discarded, the existence of the long term cointegration relationship is established.[3]

The bound F-test procedure is about imposing restrictions on long run parameters using the Wald coefficient restrictions check and obtaining the Wald F-statistics. This F-statistic is compared against the lower and upper band critical values calculated by Pesaran et al. (2001). There could be three probable outcomes in relation to cointegration amid the variables. When the estimated F-statistic surpasses the upper band critical value, then the null proposition can be discarded in favor of the alternative hypothesis. If the expected F-statistic is less than the lower band critical value, then the null proposition cannot be discarded. When the estimated F-statistic is in between the lower and upper band critical values, then the outcome is inconclusive. Narayan (2004) argued that a critical value of Pesaran et al. (2001) is for large sample studies and using it for small sample studies may give misleading results. Narayan (2004) calculated a new set of critical values based on small samples. Since our sample size was not very large, we used Narayan's (2004) critical values. Thus, estimated F-statistics were evaluated against the critical values that calculated by Narayan (2004) to ascertain the long term relation between the series. The succeeding step examined the ARDL model to obtain long run estimates. The long term parameters can be computed based on the ARDL unrestricted regression estimates by dividing the coefficients of individual explanatory variables with lag one coefficient of the response variable and multiplying it by minus one (Fahmida & Mazbahul, 2012). As a result, the long run imports, remittances, and foreign direct investment coefficients are computed as: $(\alpha_2/\alpha_1) - 1$, $(\alpha_3/\alpha_1) - 1$, and $(\alpha_4/\alpha_1) - 1$, respectively. Finally, the error correction short run model was estimated.

The short run error correction model is used to identify short run dynamics and to verify the robustness of the estimated coefficient of long run with respect to Eq. (2). It is specified as shown in Eq. (3):

$$\Delta \ln GDP_t = c_0 + \sum_{i=1}^{n} \alpha_5 \Delta(\ln GDP)_{t-1} + \sum_{i=1}^{n} \alpha_6 \Delta(\ln IMP)_{t-1} \sum_{i=1}^{n} \alpha_7 \Delta(\ln REM)_{t-1} + \sum_{i=1}^{n} \alpha_8 \Delta(\ln FDI)_{t-1} + (ECM)_{t-1} + \varepsilon_t \quad (3)$$

here: ECM represent the error correction item. The ECM was computed from the long term estimated parameters in Eq. (2). The error correction term was expected to be significant and negatively associated with the dependent variable.

Results and Discussion

Unit-Root Test Result

As a first step, the likely non-stationary concern was addressed using a Standard Augmented Dickey-Fuller (ADF) test. Even though the Autoregressive Distributed-lag (ARDL) technique does not necessitate prior checking of the unit root issue, in the empirical analysis it is essential to undertake this test to ascertain that variables do not have a unit root problem and their integration order is not more than one. Table 1 reports the ADF unit-root test result.

The ADF unit-root test was applied on two sets, being constant and constant with time trend. The results indicated that the variables in the levels were non-stationary except for FDI and GDP which were stationary in levels under constant and trend, and ε_t. However, in the first difference they were all stationary. The order of integration was not greater than one, which is important for long term cointegration analysis. The stationarity process of ε_t here is the initial indication that imports, remittances, foreign direct investment, and economic growth in the Fiji Islands are cointegrated in the long run.

Lags Selection

To examine the long term cointegration relationship, we used the unrestricted error correction (UEC) mechanism.

[3] A bound F-test for cointegration has the benefit of indicating which variable should be normalized among the different variables in the model. However, we proceed with *a priori* specification of GDP as the dependent variable.

Table 1
Unit root test result

Augmented Dickey-Fuller test					
In level			In first difference		
Variables	Constant	Constant with trend	Constant	Constant with trend	Conclusion
$lnGDP_t$	−1.4069	−6.7169*	−9.7519*	−9.8584*	I(1)
$lnIMP_t$	−0.4713	−3.1852	−7.0309*	−7.0674*	I(1)
$lnREM_t$	−1.1485	−1.9487	−4.9321*	−4.8448*	I(1)
$lnFDI_t$	−1.6669	−4.1421**	−10.343*	−10.183*	I(1)
ε_t	−6.0416*	−5.9433*	−7.2193*	−7.1063*	I(1)

Note: * and ** represent significance levels at one and five percent, respectively. The critical value of the constant is −3.65 at one percent. A critical value for the constant with trend is −4.26 at one percent. The lag length based on Schwarz information criterion is 2. ε_t is the residual from the unrestricted regression model

However, prior to cointegration analysis, the lag order is determined through the Akaike Information Criterion (AIC) and Schwarz Bayesian Criterion (SBC). Since the study used annual data, we began with a maximum of four lags and then reduced it to three, two, and then one (Altintas & Taban, 2011). The calculated AIC and SBC figures with different lags were than evaluated. Furthermore, the availability of cointegration relation was tested by the bounds F-test. Thus, it was important to ensure that the bounds F-test was carried out on a regression model that did not have any serial correlation issues and the respective AIC and SBC figures were the smallest. Table 2 provides the AIC and SBC figures with four different lags together with the LM test for serial correlation.

It can be observed from Table 2 that at lag four the AIC and SBC criterion are smallest. However, the LM check indicated the presence of serial correlation at lag four. Altintas and Taban (2011) suggested that subsequent lags could be judged if serial correlation is not a problem. Evidence of serial correlation also appeared in lags three and two. However, at lag one, the test for serial correlation was rejected. Therefore, cointegration analysis was carried out using the unrestricted error correction equation with one lag. The findings of the long run cointegration relation between imports, remittances, foreign direct investment, and economic growth are reported in Table 3.

The result of the estimated bounds F-test is provided in Table 3. For Eq. (2) when gross domestic product is a dependent variable, the F-statistic of 5.96 was higher than the upper band critical value of 4.156 at the five percent significance level. Hence, the null hypothesis of zero cointegration was discarded, implying that there was a single cointegration, long term, economic relation between the variables when normalized on economic growth.

Table 2
Lag order selection

Number of lags	AIC	SBC	LM test for serial correlation
1	−41	−48	0.441 (0.506)
2	−39	−45	2.032 (0.01)
3	−38	−44	4.529 (0.03)
4	−34	−40	0.633 (0.04)

Note: Figures in the parentheses are the p-values

ARDL Estimates

In the previous section, we examined cointegration and found that the series were cointegrated in the long term. The following step examined the ARDL model and the associated long term relationship between the imports, remittances, direct foreign investment, and economic growth.

Panel (A) of Table 4 presents the estimates for the ARDL model and panel (B) shows the results of a number of diagnostics checks conducted to assess the overall reliability of the estimated model. The outcome of the diagnostic checks indicated that the model did not suffer from severe econometric problems. The LM test indicated that the serial

Table 3
Bounds cointegration test

Significance level	Critical value		Calculated F statistic
	Lower band	Upper band	
1%	4.400	5.664	
5%	3.152	4.156	5.96
10%	2.622	3.506	

Note: Critical values for bounds test are from Narayan (2004), Case D: restricted intercept and no trend

Table 4
ARDL model

Variable	Coefficient	T ratio	*p*
Panel (A)			
lnGDP (−1)	0.689	2.198	.040
lnIMP(−1)	0.381	1.820	.084
lnREM(−1)	−0.714	−1.897	.072
lnFDI(−1)	−0.008	−1.602	.125
D(*lnGDP*(−1))	−0.413	−1.035	.313
D(*lnIMP*(−1))	0.195	0.154	.879
D(*lnREM*(−1))	0.602	1.189	.248
Constant	2.174	5.620	.000
Panel (B) reliability check			
R-squared		0.79	
DW statistic		1.88	
Serial correlation		0.113 (0.736)	
Functional form		0.020 (0.886)	
Normality		1.320 (0.517)	
Heteroscedasticity		3.259 (0.071)	

Note: In panel (B), figures in the parentheses are the p-values

correlation assumption should be rejected. The Ramsey and Jarque-Bera check for model specification and normality showed that the specification was correct and the errors were normally distributed. Furthermore, the autoregressive conditional heteroscedasticity (ARCH) test indicated that the regressors were independent and errors were homoskedastic. Thus, the autoregressive distributed-lag model was found to be reliable.

Next, the long term parameter of the independent variables (imports, remittances, and foreign direct investment) was calculated. The method involved dividing the estimated coefficient of individual independent variables from the ARDL estimates by the coefficient of the first lag dependent variable and then multiplying the response by minus one. The long run parameter is provided in Table 5.

Discussion on Long Run Results

The results for the long run economic relation between economic growth and its external determinants (imports, remittances, and foreign direct investment) in the Fiji Islands are illustrated in Table 5. The results revealed strong support for an inverse economic relation between the economic growth and imports in the Fiji Islands. The calculated coefficient of −0.552 indicated that foreign imports negatively impact economic growth. In theory and based on various economics course books, the inflow of imports is essential for economies that are in their initial stages of development. Thus, it is difficult to convince everyone of a negative relation between foreign imports and economic growth. One way to do this is perhaps by taking into consideration the different types of foreign imports. If a country imports more of the consumption goods, then it is not likely that this will enhance economic activity; however, if the foreign imports mostly consist of capital, intermediate, and technology type goods, then it is expected that imports would increase economic activity and the overall growth route. Mazumdar (2001) examined the relationship between growth and machinery imports and found that the transfer of machinery, capital goods, and technology increased income in the host economy. Further, it is important to note that the economic growth pattern differs from large developing and developed economies to small developing island economies. For small developing island economies, importing capital goods and technology and learning new ways of doing things is critical for economic growth. Studies such as Dollar (1992) and Jawaid (2014) also suggested that imports and exports have a positive influence on economic growth.

Table 5
Long run coefficients

Variable	Calculated long run coefficient
Dependent variable is *lnGDP*	
lnIMP	−0.552**
$lnREM_t$	1.036***
$lnFDI_t$	0.011***

Note: ** and *** represent significance at five and ten percent levels

Further, the long-run findings revealed that there is a positive and significant effect of remittances on economic growth in the Fiji Islands. The calculated coefficient suggests that a one percent increase in remittances contributes 1.036 percent to economic growth. This outcome is consistent with the results of Chen and Jayaraman (2016) and Jayaraman, Choong, and Kumar (2010). Remittances help deprived families, supplement domestic savings, and boost economic growth course in the Fiji Islands. Since remittances are in foreign currency they also add to the foreign exchange earnings which cushion the heavy import bill. The inflow of remittances particularly since the early 2000s from the increasing number of islanders plying their trades in the developed economies of Australia, New Zealand, the USA, and Europe have been greater than the financial aid to the Fiji Islands. In 2016 alone the Fiji Islands received FJD 435.4 million in remittances through formal channels (Reserve Bank of Fiji, 2016). In addition, the Fiji Islands is relatively well endowed with labor and human capital. Thus, government and policy advisers should put effort into further developing the platform for nationals to work overseas and make facilities available for existing migrants to optimistically influence the remittances inflow.

Finally, the analysis also found evidence of positive economic relation between direct foreign investment and economic growth. However, this finding was only significant at most at the ten percent level. This was perhaps because the analysis did not include human capital with FDI which is a particular characteristic of FDI (Borensztein et al., 1998) and enhances the beneficial effect of FDI. Nonetheless, the calculated coefficient provides an indicative view that a percentage point increase in FDI would enhance the growth by 0.011 percent in the capital-short Fiji Islands. Similar findings were reported in the studies of Borensztein et al. (1998) and Levine and Renelt (1992). There are various mechanisms through which the host country benefits from FDI inflows. An efficient production system and new technology in a remote country like the Fiji Islands can only be achieved and adopted by drawing FDI from developing economies that are advanced and large. The government of the Fiji Islands needs to put more effort into drawing FDI through inducement such as building confidence in the economy through political stability, legislative reforms to provide security for foreign investors, and by providing a proper physical and financial infrastructure. The Fiji Islands should consider investing more of its resources in its primary agriculture sector to fill the production gap and reduce its current account deficit. These initiatives have great potential to redirect the Fiji Islands economy to its potential path for economic recovery and growth.

Short Run Error Correction Model

The error correction model was examined to evaluate the short run dynamic relationship between economic growth and its external determinants (imports, remittances, and foreign direct investment), and to confirm the reliability of the long term coefficient. It was estimated by normalizing the long run estimates. The different

components in the ARDL equation were substituted with the ECM item. Table 6 shows the error correction model results.

In Panel (A) the results indicate that the ECM coefficient carries an inverse sign and is statistically significant at the one percent level which is preferable. Thus, the short run model was consistent. The estimated ECM coefficient (−0.320) also determines the speed (0.320) of the correction towards an equilibrium relationship. Further, the ECM also indicates that any divergence from the long run relation in the current period should be adjusted by around 32 percent in the following period—implying that adjustment is rather slow. The model shows that in the short run, imports and remittances have a positive influence on economic growth. Further, the foreign direct investment was also found to be positive and significantly associated with economic growth in the short run. The reliability check in panel (B) validated that the calculated ECM equation did not have serious estimation issues.

Table 6
Short run error correction model

Variable	Coefficient	T ratio	*p*
Panel (A)			
D(lnGDP(−1))	−0.413	−1.897	.072
D(lnIMP)	0.195	2.592	.016
D(lnIMP(−1))	1.677	1.188	.249
D(lnREM)	0.714	1.820	.084
D(lnREM(−1))	1.016	1.575	.131
D(lnFDI)	0.087	1.876	.075
ECM (−1)	−0.320	−7.736	.000*
Constant	2.174	7.867	.000
Panel (B) reliability check			
R-squared		0.63	
DW statistic		1.88	
Serial correlation		1.746 (0.132)	
Heteroscedasticity		0.062 (0.415)	

Note: * represents significance at one percent level. In panel (B), figures in the parentheses are the p-values

Stability of the Estimates

Finally, the stability of the estimates was assessed by employing the cumulative sum (CUSUM) of the recursive residuals and the cumulative sum of squares (CUSUMSQ) of the recursive residual test. Figures 1 and 2provide plots of these tests, respectively.

Figures 1 and 2 indicate that the CUSUM and CUSUMSQ test statistics, respectively, could not exceed the critical limits at the five percent significance level. Therefore, the regression models appeared to be stable.

Conclusion and Recommendation

The core objective of this article was to scrutinize the effect of external factors on economic growth, namely imports, remittances, and FDI. The paper focused on the Fiji Islands economy and used annual data from 1980 to 2015. The econometric analysis was conducted utilizing the recent time series technique of the ARDL procedure.

The study results indicated that the external factors certainly matter for long term economic growth in the Fiji Islands economy. Imports were found to have a significant negative force on economic growth. It is difficult to explain this finding; however, the fact is that the Fiji Islands is an imports-dependent country which greatly depends on foreign imports of capital goods, plant, and machinery, as well as consumables. These imports are difficult to reduce owing to the lack of local production or in some cases the complete inability to produce domestically. The composition of imports show that in 2013, nearly 35 percent of the Fiji Islands imports were made up of machinery and transport equipment followed by mineral fuels (23%) and other manufactured goods and capital goods (11%). In addition to this heavy dependence on imports, data and measurement-related issues could be potential responsible factors. Furthermore, the study found that remittances and foreign direct investment have a positive outcome on economic growth in the Fiji Islands. This might also be the

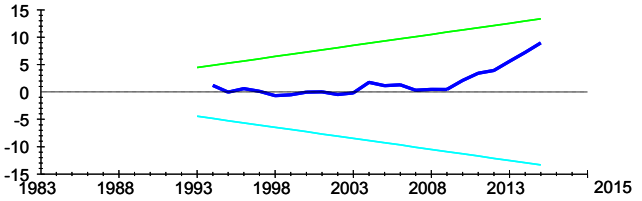

Figure 1 CUSUM test

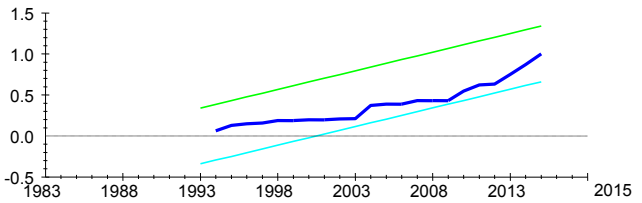

Figure 2 CUSUMSQ test

scenario in other Pacific Island countries with large numbers of Pacific islanders working overseas and sending remittances home to their families. However, the Fiji Islands has a different situation as our economic growth was closely associated with remittances inflow, and foreign direct investments are needed for social and economic progress. Therefore, the government and policy advisers in the Fiji Islands should be meticulous (as should several other Pacific Island countries) in pursuing an appropriate policy strategy to influence remittances inflow and draw more FDI.

Based on these findings we recommend that the Fiji Islands should attract more FDI to enhance its economic growth. This could be done through: building confidence in the domestic economy through political stability and cooperation with relevant stakeholders based on mutual benefits which will ultimately boost the confidence of investors; encouraging legislative reforms to better protect the investors and their investments; and upgrading the existing infrastructure to improve the connectivity and communication within the country and across the region. Like China, the Fiji Islands should also attract foreign Fijian businessmen and entrepreneurs to come back and invest as this could be the steady base for future FDI and economic growth. Appropriate policy actions should be introduced to maintain the steady inflow of remittances which stood at FJD 435.4 million in 2016 by, for example, reducing transaction costs, establishing proper information and communication technology, and liberalizing the domestic financial markets to connect remittances recipients to financial services. In addition, imports are crucial for developing economies in their initial stages of development and particularly if the imports consist more of capital goods and intermediate inputs. The Fiji Islands should ensure efficient use of imported capital goods and reduce reliance on consumables that have the potential to be produced domestically.

Conflict of Interest

There is no conflict of interest.

Appendix A

Table A1
Fiji Islands imports, remittances, and FDI (% of GDP) 1980–2013

Category	1980 –1989	1990 –1999	2000 –2004	2005 –2009	2010 –2015
Imports	49	59	68	65	64
Remittances	1.6	1.5	4.9	5.7	5.0
FDI	3.3	2.8	1.9	1.8	2.7

Source: World Development Indicators and Reserve Bank of Fiji (various)

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