Foreign direct investment in Fiji

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One feature of Fiji’s investment climate in recent times has been the increased levels of foreign direct investment. As in large developing Asia Pacific countries (United Nations 1996, Fry 1996), foreign direct investment has also made its presence felt in Fiji, increasing from US$21.8 million in 1985 to US$67.0 million in 1995 (Asian Development Bank 1997, Table 33). Such developments have been a direct result of the liberalisation of government policies toward foreign direct investment and the need for foreign capital to develop local industries.

Foreign direct investment in Fiji is a result of historic ties with Britain, Australia and New Zealand where investors from these countries traditionally had a dominant role in plantation agriculture and services. For example, the Australian-owned Colonial Sugar Refinery (CSR) was dominant for almost a century until being sold to the Fiji government in 1973. Retailers like Burns Philip and Carpenters of Australia are other examples. However, in recent times there has been increasing involvement of non-colonial countries like Japan, Korea, Singapore and Malaysia. Foreign direct investment has an important role in mineral exploration, processing of primary products, development of infrastructure, manufacturing and service industries, but the bulk of foreign direct investment has been directed towards development of the tourism industry. One major area of impact has involved foreign firms in export-related activities, that is, resource development, employment creation and skills development (Parry 1988). Since 1987, Fiji has established tax-free zones and tax-free factories (see Chandra 1989). The government has vigorously campaigned to attract foreign investment with its generous investment incentive packages and liberalised foreign investment regime. This has attracted investor interest in a range of industries in Fiji (principally from East Asia) (Elek et al. 1993).

Theoretically, the supply of foreign resources like foreign direct investment should have a positive effect on economic growth through higher labour and capital productivity, technology transfer, human capital development and supply inputs to local industries at a lower cost. Foreign direct investment also spreads risks more safely than bank debt, improves regulatory standards (Dua and Rashid 1996), and increases the recipient country’s ability to absorb external shocks (Rana and Dowling 1990). Further, foreign direct investment involves long-term commitment of foreign investors to productive sectors of developing economies and increases the productive
capacity of an economy (United Nations 1996). Foreign direct investment constitutes equity capital and as such it enhances the inflow of foreign technology which can generate beneficial externalities. Analysis of foreign direct investment–growth relationship generally shows positive impacts (Lee et al. 1986; Husain and Jun 1992; Doraisami and Leng 1995).

There are some negative perceptions of the role of foreign direct investment in economic growth: foreign firms may not generate enough linkages and may not utilise local inputs (Reuber et al. 1973); it may crowd out domestic investment through technical superiority, import advantages, domestic tax concessions, and monopolistic market power (Papanek 1973); and developing economies may be threatened in terms of potential loss of economic sovereignty if foreign owners are allowed to control a significant proportion of the domestic capital stock.

While a positive link between foreign direct investment and economic growth is well established, the direction of causation remains to be determined. For example, in so much as large foreign direct investments could raise aggregate investment and therefore raise output, a rise in output for reasons other than foreign direct investment could then attract foreign investment. Studies identifying the direction of causality for countries that have grown rapidly and where foreign direct investment has been significant are rare. This study employs data on Fiji, a country that has had very modest growth over the last three decades, yet enjoyed large foreign direct investments, to investigate the direction of causation between foreign direct investment and economic growth. The study makes use of recent theoretical developments in time-series econometrics that allow us to discern both long-run and short-run relationships between variables and the direction of causality.

Methodology, data and unit root tests

This paper establishes the time-series properties of the data before tests of economic relationships are conducted. The trend and joint integration properties of the data must be analysed to determine whether standard distribution theories can be used to interpret test statistics used in establishing causal relationships. The first step involves testing for time trends and drift in each data series. This information is valuable in determining the appropriate specification of the vector autoregression (VAR) model used to test for cointegration and causality.

Data

Annual data on GDP growth rates and total foreign direct investment for the period 1976–95 are utilised in this study. The GDP growth and foreign direct investment data were extracted from the World Tables (World Bank 1996) and Key Indicators of Developing Asian and Pacific Countries (Asian Development Bank 1997). The foreign direct investment data was deflated by the GDP deflator (1990=100), extracted from International Monetary Fund (1996).

Unit root test results

The degree of integration of each series is determined first. This is important because cointegration tests cannot be carried out if some of the variables are stationary in levels while others are stationary only after first differencing I(1). Stationarity tests of the augmented Dickey-Fuller type (Dickey and Fuller 1981) were performed on all the variables on the basis of Equation 1.

$$\Delta Y = a_0 + b_1 Y_{t-1} + \sum_{j=1}^{p} c_j \Delta Y_{t-j} + \varepsilon_t$$  \hspace{1cm} (1)$$

where, $Y$ is the variable under consideration, $p$ is the number of lags in the dependent variable set to a maximum.
lag order of $\sqrt{N}$ so as to induce a white noise term, and $\varepsilon$ is the stochastic error term. The value of $p$ was chosen by the lowest number of lags that resulted in no autocorrelation.

The results of unit root tests in levels and differences are presented in Table 1. The critical values for the ADF test can be computed using the algorithm in Mackinnon (1991). The Mackinnon critical values for a sample of 28 observations are -4.32 (1 per cent), -3.58 (5 per cent) and -3.24 (10 per cent). Using these values, and according to the results in Table 1, the null hypothesis of a unit root is rejected at the 10 per cent level of significance for the real GDP growth rate and the real foreign direct investment (FDI) growth rate. When expressed in differenced format, both series achieved stationarity in their first differences. This means that the two series are I(1).

### Cointegration and causality tests

The cointegrating properties of the principal series are investigated. The following cointegrating equations were used.

\[
\ln GDP_t = \alpha_0 + \alpha_1 \ln FDI_t + \mu_t \tag{2}
\]

\[
\ln FDI_t = \beta_0 + \beta_1 \ln GDP_t + \mu_t \tag{3}
\]

If the log of GDP and FDI are cointegrated, then the residuals from the cointegration Equations 2 and 3 must be integrated to order zero, meaning that the residuals are stationary. To ascertain whether the null hypothesis of no cointegration is rejected, the cointegrating regression Durbin-Watson (CRDW) statistic from the ordinary least squares estimation of Equations 2 and 3 is used.

The CRDW statistic indicates that it is significantly different from zero and larger than the CRDW critical value of 0.78 at the 5 per cent level (see Engle and Yoo 1987). It should be noted that the CRDW has a low power to reject the null of no cointegration, although an argument can be made for its use on the grounds that its distribution is invariant to nuisance parameters such as the constant (Banerjee et al. 1986). However, a more formal test is the ADF test on the residuals of Equations 2 and 3. The results of ADF test statistics are -3.61 and -3.76. On the basis of Mackinnon (1991) critical values, cointegration is supported. This implies that the variables real GDP growth rate and real FDI growth rate exhibit long-

### Table 1  ADF unit root test

<table>
<thead>
<tr>
<th>Variable</th>
<th>Levels</th>
<th>Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log real GDP growth rate</td>
<td>-2.90(2)</td>
<td>-3.26(4)</td>
</tr>
<tr>
<td>Log real FDI growth rate</td>
<td>-2.61(3)</td>
<td>-5.75(1)</td>
</tr>
</tbody>
</table>

*Note*: Figures in parentheses are the value of $p$ in Equation 1.

*Source*: Author’s calculations.

### Table 2  Cointegration test

<table>
<thead>
<tr>
<th>Equation</th>
<th>Slope</th>
<th>CRDW</th>
<th>ADF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1.33</td>
<td>2.16</td>
<td>-3.61</td>
</tr>
<tr>
<td>2</td>
<td>1.97</td>
<td>2.31</td>
<td>-3.76</td>
</tr>
</tbody>
</table>

*Source*: Author’s calculations.
run associations in Fiji. Since cointegration is supported, the alternative tests for Granger causality (see Granger 1969, Engle and Granger 1987) based on error correction models were formulated. The testing procedure involves testing for causality between the variables GDP and FDI. The variable FDI is said to cause GDP in Granger’s sense if the forecast for GDP improves when lagged FDI variables are included. Similarly, GDP is said to cause FDI if the forecast for FDI has a smaller mean square error by including its lags. Theoretically, the latter line of causality could be justified on the grounds that foreign direct investment could be an endogenous variable determined by the level of economic development, the rate of economic growth, the stock of human capital, the nature of physical infrastructure and foreign direct investment rules in Fiji. Hence, the following causality model using the differenced series is formulated.

\[
\Delta \ln GDP_t = \alpha_1 + \alpha_2 EC_{t-1} + \sum_{i=1}^{p} \alpha_3 \\
\Delta \ln FDI_{t-1} = \alpha_4 \Delta \ln GDP_{t-1} + \mu_t \tag{4}
\]

\[
\Delta \ln GDP_{t-1} = \beta_1 + \beta_2 EC_{t-1} + \sum_{i=1}^{p} \beta_3 \\
\Delta \ln FDI_{t-1} = \beta_4 \Delta \ln FDI_{t-1} + \mu_t \tag{5}
\]

where EC is the error correction term, \( t \) is the time, \( \mu \) is disturbances which are uncorrelated and \( \Delta \) indicates differenced series as established by the unit root test. Table 3 presents the results of the causality test presented by Equations 4 and 5.

The results of Equation 4 show that the coefficient of FDI is consistent with the theoretical expectations, being positive and significant at the 1 per cent level suggesting that foreign direct investment has positively contributed to growth of GDP and thus supporting the foreign direct investment growth hypothesis. The results of Equation 5 show that the coefficient of GDP is negative and insignificant, suggesting that growth in GDP has not caused growth in foreign direct investment. The results, in general, provide confirmation of statistically significant one-directional causality. The results obtained for Equation 5 seem to be consistent with Fiji’s long-term economic performance. For example, Fiji’s independence from Britain in 1970 meant a lower level of reliance in terms of economic support, with a consequent development of local industries, largely tourism, which involved foreign investors. Fiji at the same time did not show any superior economic performance over time since independence. A high level of economic growth is perhaps attractive to potential foreign investors, which theoretically should exert a positive impact on growth. In fact Fiji’s long-term economic performance has deteriorated. For example, real GDP growth rates declined gradually from 7.2 per cent in 1965–70 to 5.8 per cent in 1971–75 to 4.0 per cent in 1976–80 to 0.9 per cent in 1980–85 while increasing to 4 per cent in 1986–90 and declining to 2.4 per cent in 1991–95. This shows that declining economic growth together with very low growth rates in some years may not have caused foreign direct investment.

**Summary and conclusion**

This study examines the contribution of foreign direct investment in the growth process of Fiji, utilising time-series data for the period 1976–95. Tests for unit roots showed that the data series are stationary in their differences. Tests of cointegration revealed long-run association between foreign direct investment and economic growth. The Granger causality test, using the first differenced data series, showed evidence of a statistically significant, positive, one-directional causal
relationship between foreign direct investment and economic growth. The results support the theoretical contention that foreign direct investment aids economic growth, and give strong support to the hypothesis that foreign direct investment is necessary for growth. This would be particularly important for low-income countries where foreign direct investment can act as a channel for technology and human capital transfer. The policy lesson, at least for Fiji and perhaps for developing countries in general, is that an open stance towards foreign direct investment enhances economic growth.

**References**


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