

**AN ANALYSIS OF THE
DETERMINANTS OF FIJI'S IMPORTS**

Annie Rogers

Working Paper
2000/03

May 2000

Economics Department
Reserve Bank of Fiji
Suva
Fiji

The author is grateful for helpful suggestions/comments from Mr. Steven Morling. The views expressed herein are those of the author and may not necessarily reflect the views of the Reserve Bank of Fiji.

Abstract

In Fiji, imports as a share of GDP has been rising strongly, particularly over the past three decades. Over these years imports have fluctuated considerably, generally in line with fluctuations in aggregate demand.

Fiji is a small island state, heavily dependent on external trade for many of our essential goods. It is vital, therefore to always ensure that we have adequate foreign reserves to pay for our import needs. It is therefore important that we understand the factors determining import demand and underpinning its growth and fluctuations. This will facilitate balance of payments projections and allow for better forecasting of foreign reserve levels.

In this paper, the behaviour of Fiji's imports during the period 1968-1998 is studied and important factors that determine imports are identified. The estimation of an error correction model enables the separation of the short- and long-run elements of this relationship. The study shows imports and domestic demand move contemporaneously in the short-run in an almost one-for-one fashion. The real effective exchange rate is also found to be a strong determinant of imports in the short-term. In the long-run, domestic demand is the major determinant of movements in imports in Fiji.

1.0 Introduction

One of the main objectives of monetary policy in Fiji is to maintain an adequate level of foreign reserves. To forecast the level of foreign reserves requires substantive analysis of the components of the balance of payments. Improvements in the balance of payments can eventuate through changes in the current account or the capital account. Within the trade component of the current account, a positive change is determined by a reduction in imports or an expansion in exports. It is therefore important for policymakers to identify the trends in both elements of the trade account, in conjunction with other components of the current account and the capital account, in order to better predict the level of foreign reserves. This study endeavours to contribute to this task by attempting to identify factors contributing to import growth. A study carried out by Prasad (2000) analyses the determinants of exports in Fiji.

Some understanding of import demand will also help formulate policy on current and capital account liberalisation in Fiji. Knowing for example, the extent to which changes in economic activity will likely reduce or increase the amount of foreign currency flowing from the country as import payments and having at hand a model which facilitates the projection of these amounts is a useful tool to anticipate balance of payments movements. It will also facilitate foreign reserves forecasting.

Many overseas studies, including studies of developing countries, find domestic activity/income and relative prices have a strong correlation with imports, with many of these studies finding income to

be the principal determinant of imports (Krugman, 1988; Horton and Wilkinson, 1989; Wilkinson 1992; Catao and Falcetti, 1999; Reinhart, 1995; Senhadhi, 1998; Clarida, 1994; Goldstein and Khan, 1985; Yuan and Kochhar, 1994).

To date, very little empirical research has been undertaken to identify the determinants of imports in Fiji. A paper by Joynson (1997) provides some preliminary analysis. This paper found domestic demand to be the dominant influence on imports in Fiji. Movements in the real effective exchange rate were also found to play an important role.

The empirical model developed by this study will help explain movements in imports and will also be useful for forecasting. Unfortunately data on volumes of imported goods are not available, constraining this study to an examination of the behaviour of the value of imports. The study estimates the short- and long-run determinants of Fiji's imports by applying an error-correction approach to time series analysis. Section two discusses the behaviour of imports in relation to economic activity, the real effective exchange rate, tariffs and oil prices. Section 3 develops a conceptual framework for the analysis of imports. In Section 4 the data required for estimation are described, and the estimation procedure and diagnostics are discussed. Section 5 presents the results, both for the long- and short-run, and these results and their implications are discussed in the final section.

2.0 Trends in Imports

It is not surprising to note that imports has been expanding in Fiji, particularly in the past decade, given the country's move towards trade liberalisation. Trade liberalisation has continued in line with agreements Fiji has entered into with organisations such as the World Trade Organisation and has resulted in tariff rates being progressively reduced.

Analysis of the import penetration ratio confirms Fiji's outward orientation. As shown in Figure 1 imports as a share of real GDP has exhibited a trend rise, with the import penetration ratio now standing at around 60 percent, compared with around 8 percent three decades ago.

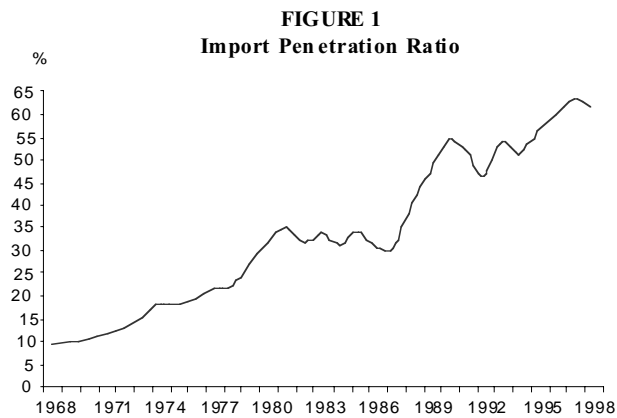
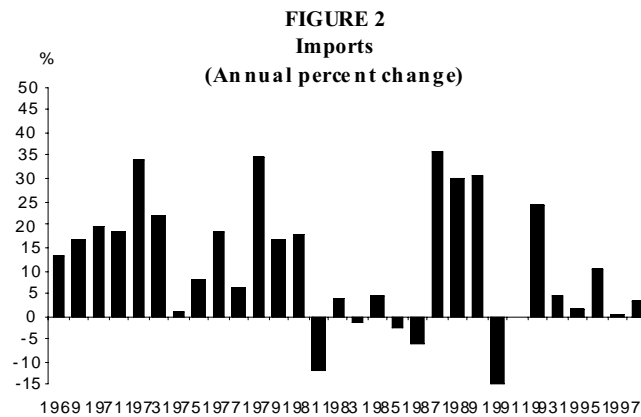


Figure 2 shows imports expanded in most years over the past three decades.¹ Fiji's imports mainly originate from Australia, followed by the United States, New Zealand, Japan and the United Kingdom.

¹ Data includes imports of aircraft.

These countries have consistently been the source of approximately 70-75 percent of all imports over the past three decades.



2.1 Domestic Activity

Theory on the marginal propensity to import suggests that a certain proportion of an increase in income will be spent on purchases of imports, suggesting that higher incomes should lead to higher imports.² If spending exceeds domestic supply, the shortfall will result in higher imports. Therefore, the most important factor expected to influence the value of imports is the pace of domestic economic activity and income changes.

² All else equal, the higher are countries' incomes per person the higher is trade (Frankel and Romer (1996); Frankel, Stein and Wei (1993)).

The relationship between economic activity and real imports is shown in Figure 3, where the annual change in real gross domestic product³ (GDP) is compared with imports.⁴ It is apparent that a strong positive correlation exists between real GDP and imports. This relationship was borne out by regression results of the study, which showed real GDP and imports moving in an almost one-for-one fashion in the short-run. The graph shows the pattern of growth in Fiji has been very volatile⁵ over the study period and that changes in growth generally move together with changes in imports. It is also evident that the change in imports is more than proportional to that in GDP and this appears to occur in most cycles of economic activity. Generally, recessions have been accompanied by a fall in imports in the corresponding and/or following year.⁶ A pickup in growth has generally been accompanied by higher imports.

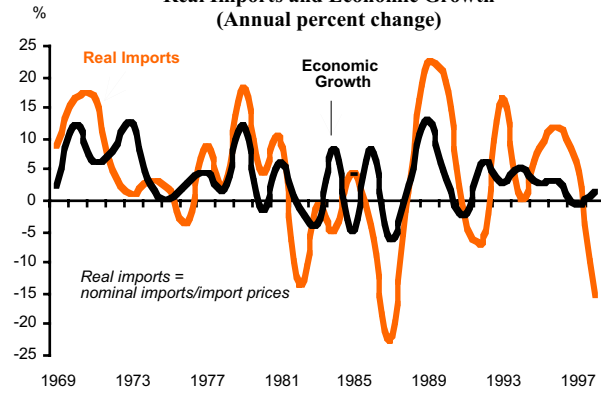
³ Real GNE was considered the appropriate activity variable as it represents domestic demand for goods. However, due to the unavailability of real GNE data spanning the entire study period, real GDP was used instead. However the explanatory power afforded to activity is generally not altered much by the choice of activity variable (Horton and Wilkinson (1989); Wilkinson (1992)).

⁴ Unless otherwise specified, imports refer to the value of imports of goods and exclude “large items” such as aircraft. These items do not typically respond to changes in domestic demand.

⁵ Williams and Morling (2000) describe more fully patterns of economic growth in Fiji over the same period.

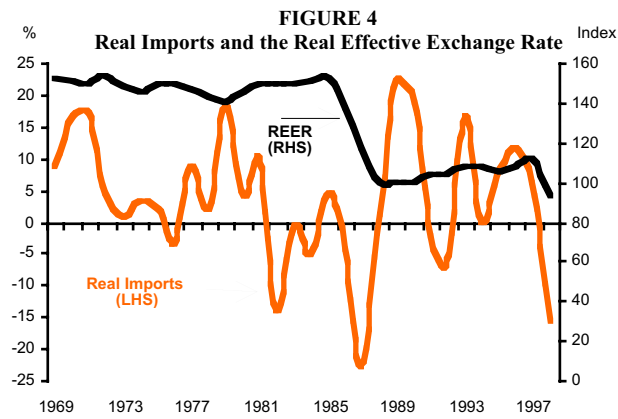
⁶ Similar results were found in Dwyer and Kent (1993).

FIGURE 3
Real Imports and Economic Growth
(Annual percent change)



2.2 The Real Effective Exchange Rate

Fiji's international trade performance is influenced, to some extent, by the maintenance of a relatively stable real effective exchange rate (REER). Its stability ensures that exporters can secure markets abroad and achieve returns without undue exchange rate risk concerns. Relative prices determine how much demand is spilled offshore.



Theoretically, movements in the REER are positively correlated with the growth in real imports. This implies that an appreciation of the REER will be a lower cost of imports, all other factors held constant. This could lead to an increase in real imports demanded. Conversely a fall or depreciation of the REER will be reflected in a higher cost for imports leading to a decline in the volume demanded.

The graph above suggests movements in the REER for most periods of the study have not particularly influenced imports. This was likely due to the relative stability of the REER over this period. However, in the devaluation years of 1987 and 1998 import volumes declined quite substantially. This suggests that the weaker REER, which has been translated into a higher cost of imports, has caused some decline in imports in these years.

2.3 Tariff Reforms

The Fiji economy is more outwardly oriented today than it was a decade or so ago, largely due to a trade liberalization policy that began around 1988. Trade deregulation and tariff reforms were undertaken in an attempt to align domestic and world prices.

Around this time over 50 percent of imports into Fiji were subject to licensing requirements. In the August 1989 mini-Budget the Government announced a major series of trade policy reforms. The centrepiece of the reforms was the complete removal of import license control on a large number of commodity imports. At the same time, tariffs were adjusted on these items to provide alternative protection to local producers. Under this move, licenses on 31 categories of goods were initially replaced with high tariffs of between 50-70 percent of the value of imported goods.

In recent years Government has progressively reduced these high tariff levels to bring down prices for consumers and as a continuing signal for local industries to become competitive. In the 1991 budget the standard fiscal tariff was reduced from 50 percent to 40 percent, and then cut further to 30 percent in the 1992 budget. 1993 saw the general tariff level reduced to 25 percent and then cut further to 22.5 percent in the 1995 budget.

In the 1998 budget, however, tariff rates on items, which were manufactured locally, were increased to a band at 35 percent. Also, tariffs on most items that were not produced locally were reduced to a standard rate of 10 percent. However, immediately after the January 1998 devaluation the government cut tariffs to reflect the change in

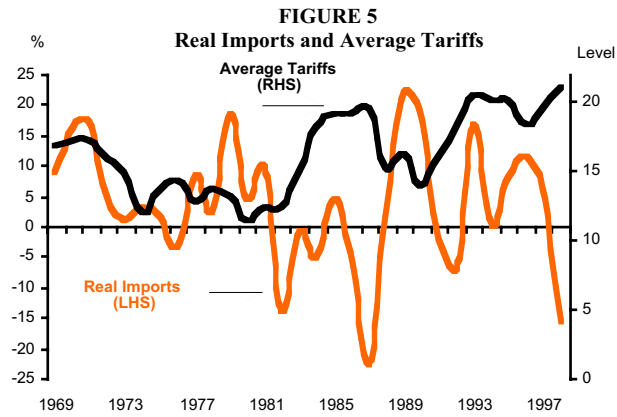
international competitiveness of domestic producers. In line with this the duty on equivalent imported items manufactured locally was reduced to 30 percent. The 1999 Budget outlined further tariff reductions. In late August 1999, reductions in tariffs on some basic and essential food items came into effect. Further reductions in fiscal duties were foreshadowed in the 2000 Budget.

For 2000, Fiji's tariff structure is divided into 3 bands for selected industries and products. The tariff rates applicable in each band are 10 percent, 15 percent and 27 percent.

Despite the considerable erosion of tariff and non-tariff barriers over recent years, growth in imports cannot automatically be attributed to this factor although theoretically a rise in imports is expected as tariffs fall. The relationship between real imports and average tariff levels⁷ is shown in Figure 6. A negative correlation, as expected, was generally observed suggesting a rise (fall) in tariff levels would result in lower (higher) imports. Regression results from the study, however, revealed only a weak negative correlation.⁸

⁷ Total duty paid on imports as a proportion of the total value of imports. Total duty comprises fiscal duty, customs duty and VAT. The introduction of VAT from 1st July 1992 led to the reduction in the level of import (fiscal) duties from 50% to 25%. Customs (and excise) duties have also been abolished from this date other than on alcohol and tobacco products.

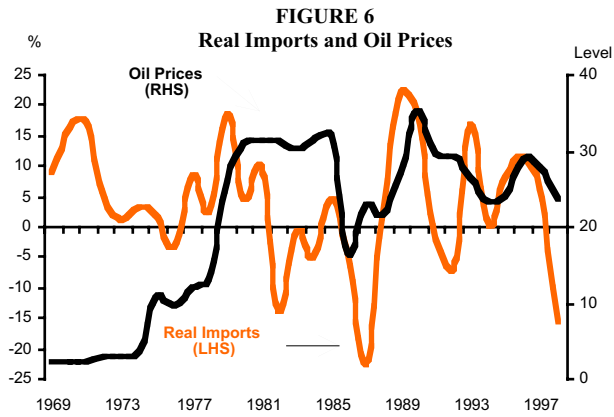
⁸ Dwyer and Kent (1993) found the effective rate of assistance, used as a proxy for openness in their study on Australia's imports did not help explain the growth in aggregate imports, however it did prove to be a significant explanator of consumption and intermediate imports which account for the bulk of Australia's total imports. It was found that a substantial share of the growth in these imports could be explained by the reduction in protection.



The apparent rise in average tariffs is due to the imposition of VAT, from July 1993 that replaced higher fiscal duties that were earlier levied, and is also likely to be influenced by better compliance and the reduction of concessions.

2.4 Oil Prices

Over the past three decades oil prices have risen quite substantially. However, as the graph below shows there has not been much correlation between oil prices and imports. In the years of the oil price shocks of 1974 and 1979/80 some decline in import volumes is evident, however, other years in which oil prices fell, such as in 1986, 1991/92 and 1998, import volumes also declined.



3.0 The Conceptual Framework

Conventionally an import function is specified as a partial adjustment model in which there is a time lag before the effect of income changes is felt on import demand. The partial adjustment model is basically a short-run model and neglects analysis of the very long-term. Error correction models, on the other hand, isolate both the long- and short-run behavioural responses while at the same time allowing for lagged adjustment towards equilibrium by incorporating an error-correction term. To allow for both long- and short-run analysis an error-correction model was therefore used in this study. It is also considered appropriate as full adjustment will likely not occur within a short time frame due to costs involved in making short-run changes in import volumes and as often trade contracts have already been entered into.

A behavioural relationship can be specified to represent the demand for imports, which in its simplest form could be a function of domestic income. This study incorporates real GDP as an explanatory variable and also takes into account changes in the real effective exchange rate, and average tariff levels on imports.

The coefficient on the domestic activity variable shows the response of imports to a change in income, or alternatively, the marginal propensity to import, which measures the fraction of an extra dollar of income earned that is spent on imports. This shows the extent to which increases in disposable income will reflect in a deterioration in the trade balance, via increases in imports, rather than in higher domestic absorption.

A real effective exchange rate variable was also included in the model. Movements in the REER affect resource allocation by changing the country's competitiveness in the international arena. A declining REER effectively increases our competitiveness and supports our exports but is reflected in higher import costs.

The import function was augmented with a term for average tariff levels.

An increase in relative prices would be expected to lead to a decline in the quantity of imports demanded. Both buoyant domestic activity and a reduction in average tariffs would likely increase the quantity of imports demanded.

The dependent variable, imports, depends upon importers' desire to purchase foreign goods as well as a shortfall in domestic supply. The equilibrium quantity of imports is the product of interaction between demand and supply in the market for importables. Demand can be

satisfied from two sources: the foreign supply of imports or the domestic supply of substitutes.

However the determinants of supply are more complex than those of demand (Leamer and Stern (1970)). A small country assumption was invoked whereby an infinite elasticity of supply is assumed so that the equilibrium quantity of imports can be related solely to changes in demand (Murray and Ginman (1976)).

An import price deflator is not available for Fiji. A proxy was constructed (see Appendix) to control for the effects of import prices on nominal import values. While the import deflator would normally be constrained to 1 in an import equation, there is a risk that if the proxy measure is a weak indicator of import prices, the other coefficients in the equation would be biased by the imposition of the unit constraint. Accordingly, the price term was unconstrained in the estimation. The estimated coefficient was significantly different from 1, confirming that the constraint would have been inappropriate. A caveat to the results, therefore, is that the price effects are only weakly controlled in the equation.

The general error-correction model adopted for the study⁹ is:

$$\begin{aligned} \Delta M_t = & \alpha_0 + \sum_{i=1}^l \beta_{1i} \Delta M_{t-i} + \sum_{i=0}^m \beta_{2i} \Delta P^M_{t-i} + \sum_{i=0}^n \beta_{3i} \Delta RGDP_{t-i} \\ & + \sum_{i=0}^o \beta_{4i} \Delta REER_{t-i} + \sum_{i=0}^p \beta_{5i} \Delta T_{t-i} \\ & + \delta_1 M_{t-1} + \delta_2 P^M_{t-1} + \delta_3 RGDP_{t-1} + v_t \end{aligned} \quad (1)$$

where M is the domestic currency value of imports of goods;¹⁰ P^M is the price of imports; $RGDP$ is real Gross Domestic Product; $REER$ is the real effective exchange rate; and T is the average tariff level.

The above specification implies a long-run solution of:

$$M = \left(\frac{\alpha_0}{\delta_1} \right) - \left(\frac{\delta_2}{\delta_1} \right) P^M - \left(\frac{\delta_3}{\delta_1} \right) Y \quad (2)$$

with the long-run constant (α_0/δ_1) and the long-run elasticities of imports with respect to import prices (δ_2/δ_1) and imports with respect to real GDP (δ_3/δ_1) .

⁹ An oil price variable was also initially included in the general model but was dropped after early testing.

¹⁰ Excluding aircraft.

4.0 Empirical Results

4.1 Data

The IMF International Financial Statistics was the main source of data used in the study, although in some cases domestic sources were used. These included the Bureau of Statistics' Current Economic Statistics and the RBF's Quarterly Reviews. Some of the series were constructed from primary data. The Appendix provides a description of data sources and details methods of construction.

Valid estimation of the model requires an examination of the time-series properties of the data. Firstly all time series used in the estimation process were tested for stationarity. Table 1 shows the results of the standard Augmented Dickey-Fuller (ADF) (Said and Dickey 1984) and the Phillips and Perron (1988) tests where a unit root null hypothesis is tested against a stationary alternative.

Empirically, (the logs of) imports, import prices, domestic output, the real effective exchange rate, tariffs and oil prices were found to be integrated of order 1.

Variable	Dickey – Fuller Test		Phillips – Perron Test	
	I(1)	I(2)	I(1)	I(2)
Value of Imports	-2.378	-2.835	-2.526	-4.745**
Import prices	-1.337	-4.434**	-1.465	- 3.243*
Gross Domestic Product	-3.066*	-3.524*	-2.775	- 6.189**
Real effective exchange rate	-0.487	-3.054*	-0.481	-2.677
Tariffs	-1.370	-3.015*	-1.474	-4.904*
Oil Prices	-2.598	-3.509*	-2.330	-5.870**

Notes: **(*) denotes significance at the one (five) per cent levels. The critical values for the Augmented Dickey – Fuller tests I(1) are -3.675 and -2.967 at the one and five percent levels respectively. The critical values for the Phillips – Perron tests are -3.666 and -2.963 at the one and five percent levels respectively.

4.2 Estimation

The model, specified in equation 1, is estimated as an unrestricted error correction model (ECM) over the period 1968 to 1998. This approach is recommended over the two-step Engle-Granger procedure, which provides an alternative way to separate the long-and short-run properties of the relationship.

This specification has an added advantage in that it isolates the speed of the adjustment parameter, δ_1 , which indicates how quickly the system returns to equilibrium following a random shock. The error correction coefficient also tests for cointegration. When variables are cointegrated, it implies that there is some adjustment process that returns variables to their long-run relationship following a shock. A

general unrestricted ECM was estimated and the results are presented in Table 3. In order to improve the accuracy of the significant coefficient estimates, those variables whose coefficients were statistically insignificant were excluded from the model.

4.3 Diagnostics

Before analysing the results, statistical properties of the model were first assessed. Diagnostic tests were carried out to test for normality, serial correlation, autoregressive conditional heteroskedasticity, heteroskedasticity, specification error and stability. The results of these diagnostic tests are reported in Table 2, and suggest that the model is reasonably well specified. These results showed the residuals are normally distributed, homoskedastic and serially uncorrelated and the parameters appear to be stable.

Table 2: *Diagnostics*

			Probability
Normality:			
Jarque-Bera statistic	χ^2 -statistic	0.877	0.645
Serial Correlation:			
Breusch-Godfrey Serial	F-statistic	4.136	0.321
Correlation LM Test	χ^2 -statistic	8.778	0.246
AR Cond. Heteroskedasticity			
ARCH LM Test	F-statistic	0.165	0.688
	χ^2 -statistic	0.176	0.675
Heteroskedasticity:			
White Heteroskedasticity Test	F-statistic	0.461	0.922
	χ^2 -statistic	9.029	0.829
Stability:			
Chow Breakpoint Test (mid sample)	F-statistics	0.925	0.525
	L-R statistic	12.730	0.121
Chow Forecast Test (1990-1998)	F-statistics	1.297	0.396
	L-R statistic	14.839	0.001
Specification Error:			
Ramsey RESET Test	F-statistics	0.812	0.458
	L-R statistic	2.342	0.310
Notes: **(*) denotes significance at the one (five) per cent levels. No terms were significant at these levels. LR is a likelihood ratio statistic.			

5.0 Results

The results presented in Table 3 suggest that domestic activity and the real effective exchange rate have an important role to play in influencing imports in Fiji. The explanatory power of the ECM model is

relatively high at around 75 percent. The results show that the value of imports depend positively on the level of GDP and the real effective exchange rate and negatively, to a small extent, on tariffs. Also, the study found that the long-run output elasticity of imports is considerably higher, almost double, than that in the short run.

Figure 7 shows that the model fits the data quite well. The equation's standard error is 0.06 percent, indicating that about two thirds of the time, the predicted value is within about 6 percentage points of the actual value.

This suggests that there is still a substantial margin of error and has important implications for any forecasting of imports which may be undertaken and which may underpin policy decisions. The model, however, can reasonably be used for predictive purposes and in forecasting expected values of imports.

Long run

The long-run coefficient for real GDP suggests a roughly two-fold increase in the value of imports in line with increases in output.¹¹ The results suggest that increased growth will likely result in a substantial increase in imports in the long run. This shows that income increases are likely to be reflected in higher consumption and given the limited range of consumption and investment goods produced domestically, the stronger demand is likely to translate into higher imports.¹²

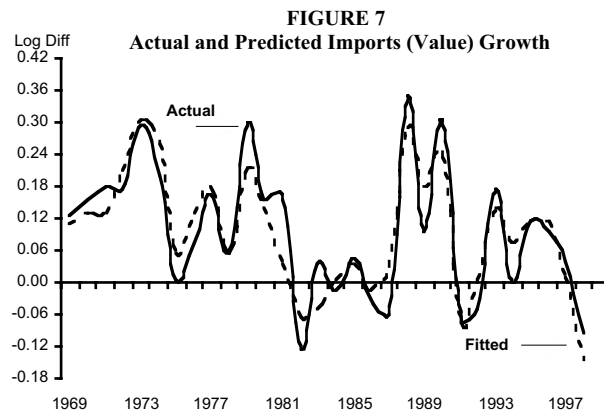
¹¹ The value of the coefficient may be understated because of the less than unit coefficient on the unrestricted price term.

Table 3: *Determinants of Imports (Unrestricted ECM)*

Dependent variable: growth in imports; estimation period 1968 - 1998		
Explanatory variables: short run	(1)	(2)
Constant	-6.6425 (-2.618)*	
Δ Import prices _t	0.5291 (2.462)*	
Δ Real Gross Domestic Product _t	0.9031 (2.941)**	
Δ Real Effective Exchange Rate _t	0.7579 (2.831)**	
Δ Tariffs _t	-0.0178 (-1.943)	
Explanatory variables: long run		
Imports value _{t-1}	-0.7331 (-3.757)**	
Real Gross Domestic Product _{t-1}	1.2908 (2.691)**	1.7608 (5.973)**
Import prices _{t-1}	0.4120 (3.800)**	0.5621 (4.655)**
Summary statistics		
Adjusted R ²	0.749	
σ	0.062	

Notes: t-values are in parentheses. **(*) denotes significance at the one (five) per cent levels. For the long-run explanatory variables, the implied long-run coefficients (column 2) were calculated as the ratio of the relevant long-run ECM coefficients to the long-run coefficient on the lagged dependent variable; the Bewley transformation was applied to obtain interpretable t-statistics. The cointegration test proposed by Kremers, Ericsson and Dolado (1992) is employed. σ is the standard error of the equation.

¹² Reinhart (1995) found an income elasticity of industrial countries' demand for imports of 2.5, compared with an elasticity of 1.22 for developing countries. See also Clarida (1994) and Marquez (1989).



Short-run

The most prominent factor determining imports in the short-run appears to be domestic income. The coefficient on the real GDP term is close to one indicating that in the short run imports have grown close to one-for-one with output growth in the Fiji economy. A one percent increase in GDP would cause imports, after controlling for prices, to increase by around 0.9 percent, confirming the pace of domestic demand as a very important factor. This is in line with various studies, which have shown domestic activity to be the principal determinant of imports in other countries.

The next most important factor determining imports was the REER. A one percent increase in the REER causes imports to rise by around 0.8 percent. Given that an increase in the REER effectively reduces the cost of imports, this result implies a rise in volumes imported.¹³

¹³ See Cerra and Dayal-Gulati (1999). Reinhart (1995) found relative prices were important determinants of imports in 11 out of 12 countries studied.

A small negative correlation between imports and average tariff levels was evident with a one percent fall in average tariffs resulting in only a marginal increase in imports. This suggests that lower average tariffs, as measured in the study, only very marginally explains the growth in imports in Fiji.¹⁴ However as imports are not a homogenous bundle of goods, aggregating imports, as done in this study, may mask important differences in the effect of falling tariff levels on the market for different categories of imports.¹⁵

Other quantitative restrictions were tested within the scope of the model, but were removed following tests, which showed a lack of significance.

6.0 Conclusions

This paper has estimated an import function for Fiji on the basis of cointegration analysis and an error correction model. It incorporates real GDP, import prices and real effective exchange rate variables, as well as a measure for average tariffs. Use of the error-correction methodology allowed the long- and the short-run elements of the relationship between the variables to be determined.

The results of the study show movements in domestic demand and the real effective exchange rate predominantly explain movements in imports.

The results emphasised the strong effect domestic activity has on imports. It also showed that a higher cost of imported goods due to a

¹⁴ An earlier study, Joynson (1997), included foreign exchange reserves and the provision of domestic credit variables but found they are not constraining factors on the value of imports in Fiji.

¹⁵ See Dwyer and Kent (1993).

depreciation of the REER will likely lead to a decline in the value of goods imported. With an exchange rate depreciation, imports would become relatively more expensive and would likely lead to lower volumes imported.

Fiji's economy is heavily dependent on a few major sectors such as sugar, garments and tourism. Fluctuations in production and earnings in these sectors lead to fluctuations in overall output of the economy and result in swings in imports and our balance of payments position. Monetary and fiscal policies, therefore, are needed to moderate swings in output and to help achieve a steady and sustainable growth in real GDP. This will also help moderate swings in imports and our foreign reserves.

In the long-term the key risk to the balance of payments is Fiji's dependence on a few commodities to support its export earnings. Limited production capacity and rising import demand, places pressure on the balance of payments. A possible downturn in the sugar industry and any weakness in the garment industry in the future would weaken the export earnings base of the economy. It is important, therefore for production to be diversified, in order to weaken this strong reliance on only a few major export industries and to decrease imports. Strategic plans also need to be put in place to increase productivity and international competitiveness in our export industries so that the export sectors of the economy can face competition as preferential access, under which most of our major exports are traded, is eroded or expires. A freeing up of the economy should also

be undertaken so that resources may be employed where there is excess demand.

More effective policy, therefore, should concentrate on expanding our export-base and limiting the inflow of imports through the development of “efficient” domestic producers where a comparative advantage exists.

Appendix*Data Sources and Construction*

Series	Sources and Construction
Imports	Import values of goods, exclusive of aircraft (fob). IMF <i>International Financial Statistics Yearbook</i> (1998); Budget 2000; Bureau of Statistics.
Import prices	Calculated as an index of export unit values of Fiji's five major trading partners (in \$US), weighted by their respective import share, converted into domestic currency at period average official exchange rates. IMF <i>International Financial Statistics Yearbook</i> (1998); IMF <i>International Financial Statistics</i> , various issues; IMF, <i>Direction of Trade Statistics</i> , various issues.
Gross Domestic Product	Gross domestic product at constant factor cost. IMF <i>International Financial Statistics Yearbook</i> (1998); Bureau of Statistics, <i>Current Economic Statistics</i> , various issues; Reserve Bank of Fiji, <i>Quarterly Review</i> (1999).
Real effective exchange rate	Real effective exchange rate as calculated by the Reserve Bank of Fiji. For the period prior to 1979 an index was constructed using the trade-weighted consumer prices indices and bilateral exchange rates of Fiji's five major trading partners. IMF <i>International Financial Statistics Yearbook</i> (1998); IMF <i>International Financial Statistics</i> , various issues; Reserve Bank of Fiji, <i>Quarterly Review</i> (1999).
Average Tariffs	Total duty paid on imports as a proportion of the total value of imports. Total duty comprises fiscal duty, customs duty and Value Added Tax. Ministry of Finance and Ministry of National Planning, <i>Budget Address; Supplement to the Budget Address</i> , various issues; Bureau of Statistics, <i>Current Economic Statistics</i> , various issues.

References

- Banerjee, A., J. Dolado, J.W. Galbraith and D.H. Hendry (1993). *Co-integration, Error-Correction, and the Econometric Analysis of Non-Stationary Data*, Oxford University Press, Oxford.
- Bewley, R.A. (1979). The Direct Estimation of the Equilibrium Response in a Linear Dynamic Model, *Economic Letters*, 3, pp. 357-361.
- Catao, L. and E. Falcetti (1999). Determinants of Argentina's External Trade, *IMF Staff Paper*, 99/121.
- Cerra, V. and A. Dayal-Gulati (1999). China's Trade Flows: Changing Price Sensitivities and the Reform Process, *IMF Working Paper* 99/1.
- Clarida, R.H. (1994). Co-integration, Aggregate Consumption, and the Demand for Imports: A Structural Econometric Investigation, *American Economic Review*, 84, pp. 298-308.
- Dwyer, J. and C. Kent (1993). A Re-examination of the Determinants of Australia's Imports, *Reserve Bank of Australia Research Discussion Paper* 9312.
- Frankel, J., E. Stein and S. Wei (1993). Trading Blocs and the Americas: The Natural and the Unnatural, and the Super-natural, *Journal of Development Economics*, 47, pp. 61-95.

- Frankel, J. and D. Romer (1996). Trade and Growth: An Empirical Investigation, *National Bureau of Economic Research Working Paper 5476*.
- Goldstein, M. and M.S. Khan (1985). Income and Price Effects in Foreign Trade, *Handbook of International Economics*, 2, pp. 1041-105.
- Horton, T. and J. Wilkinson (1989). An Analysis of the Determinants of Imports, *Reserve Bank of Australia Research Discussion Paper 8910*.
- Joynson, N. (1997). Determinants of Import Values, Reserve Bank of Fiji, *Working Paper*, unpublished.
- Kremers, J.J.M., N.R. Ericsson and J.J. Dolado (1992). The Power of Cointegration Tests, *Oxford Bulletin of Economics and Statistics*, 54(3), pp. 325-348.
- Krugman, P. (1988). Differences in Income Elasticities and Trends in Real Exchange Rates, *National Bureau of Economic Research Working Paper 2761*.
- Leamer, E.E. and R.M. Stern (1970). *Quantitative International Economics*, Allyn and Bacon, Boston, pp.2-40.

- MacKinnon, J.G. (1991). Critical Values for Cointegration Tests in R.F. Engle and C.W.J. Granger (eds.), *Modeling Long-Run Economic Relationships*, Oxford University Press.
- Marquez, J. (1989). Income and Price Elasticities of Foreign Trade Flows: Econometric Estimation and Analysis of the U.S. Trade Deficit in L.R. Klein and J. Marquez (eds.), *Economics in Theory and Practice: An Eclectic Approach*, Kluwer Academic Publishers, the Netherlands, pp.126-76.
- Mazarei, A. (1995). Imports Under a Foreign Exchange Constraint: The Case of the Islamic Republic of Iran, *IMF Working Paper 95/97*.
- Murray, T. and P.J. Ginman (1976). An Empirical Examination of the Traditional Aggregate Import Demand Model, *The Review of Economics and Statistics*, LVIII(I) pp. 75-80.
- Perron, P. (1988). Trends and Random Walks in Macroeconomic Time Series: Further Evidence from a New Approach, *Journal of Economic Dynamics and Control*, 12(2/3).
- Phillips, P. and P. Perron (1988). Testing for a Unit Root in Time Series Regression, *Biometrika*, 75, pp. 335-346.
- Prasad, S. (2000). Determinants of Exports in Fiji, Reserve Bank of Fiji, *Working Paper*, underway.
- Reinhart, C.M. (1995). Devaluation, Relative Prices and International Trade, *IMF Staff Papers*, 42(2), pp. 290-312.

- Said, S.E. and D.A. Dickey (1984). Testing for Unit Roots in Autoregressive Moving Average Models of Unknown Order, *Biometrika*, 71, pp. 599-607.
- Senhadhi, A. (1998). Time-Series Estimation of Structural Import Demand Equations, *IMF Staff Papers*, 45(2), pp. 236-268.
- Wilkinson, J. (1992). Explaining Australia's Imports: 1974-1989, *Economic Record*, 68(201), pp.151-164.
- Williams, G. and S. Morling (2000). Modelling Output Fluctuations in Fiji, Reserve Bank of Fiji, *Working Paper 00/01*.
- World Bank (1990). Fiji: Challenges for Development, *Report No 7724-Fiji*, pp. 18-34.
- Yuan, M. and K. Kochar (1994). China's Imports: An Empirical Analysis Using Johansen's Cointegration Approach, *IMF Working Paper 94/145*.