For Fiji, which has been suffering persistent deficits since independence, determining the relationships between inflation, budget deficits, money supply, output, and import prices is essential. We find that inflation, deficits and money supply are cointegrated when inflation is the endogenous variable, and the long-run elasticities confirm that money supply and deficits induce inflation. While there is a short-run, unidirectional causality running from money supply to inflation and a bi-directional causality between money supply and budget deficits, in the long run both money supply and deficits ‘Granger-cause’ inflation.

There has been considerable debate over the impact of government budget deficits on an economy, especially on key macroeconomic variables. One of the most contentious issues has been the relationship between fiscal deficits, money supply, and inflation. A fiscal-induced monetary expansion implies that the central bank is not independent of the government. This may not hold true for some developed countries but for developing countries, without well-established capital markets, persistent deficits may result in monetary expansion (De Haan and Zelhorst 1990; Siwatibau 1995).

The empirical relationship between deficits and the money supply and in turn inflation is usually weak, leading some to conclude that deficits may not be very important in determining the course of inflation. Blanchard and Fischer (1989) stated
that a cursory inspection of fiscal and price data does not suggest a strong positive relationship between the size of the budget deficit and the inflation rate. Nevertheless, an extensive theoretical literature (Metzler 1951; Patinkin 1965; Freidman 1968; and Miller 1983, among others) argued that public sector deficits are a major cause of inflation through the impact on the supply of money. Various theoretical approaches to the fiscal deficit-money supply-inflation relationship have been suggested. One such approach is concerned with the aggregate demand in the economy. Keynesians believe that an increase in the fiscal deficit will stimulate economic activity and cause aggregate demand to increase faster than aggregate supply. An increase in aggregate demand implies changes in nominal and real holdings of money. When this happens, prices rise. Another approach relates to the different means of deficit financing: monetisation, issuing of bonds, and borrowing. These forms of financing have different policy implications but it is generally believed that monetisation is the most inflationary (Soydan 2001).

Understanding the deficit-money supply-inflation relationship in Fiji is of importance for three reasons. First, the Fijian government is trying to reign in the persistent fiscal deficits. Despite these efforts, deficit levels have been increasing (Fiji 2005) the total fiscal deficit was F$404 million, approximately 10 per cent of nominal GDP. Provisional data from the Ministry of Finance indicates the gross deficit in 2005 was F$289 million. Public debt levels have also been on the rise (50 per cent of GDP in 2003 and 54 per cent of GDP in 2004). Despite concerns over the rising national debt as the result of the budget deficits, deficit financing has been a prominent policy tool in promoting and sustaining economic growth. This Keynesian romanticism has promoted consumption-based growth; however, it has adversely affected the economy by contributing to higher government debt and debt servicing costs and an oversized and inefficient public sector, limiting government resources available for public investment.

Second, financial innovation in Fiji over the past two decades has presented monetary policy with challenges in maintaining effective management of the money supply and stabilising interest rates. The persistence of budget deficits also poses challenges to monetary policy; for example, whether the central bank should buy government bonds in the primary or secondary market and what amount of money should be injected or withdrawn from the system to smooth movements in interest rates.

Third, while the Reserve Bank of Fiji is not prohibited from participating in the primary market, it buys government bonds in the secondary market to avoid direct influence on interest rates (Jayaraman and Ali 2001). Moreover, the financing of the government deficit has been through the issue of bonds (since the mid 1990s); the excess liquidity in the system has assisted this form of financing.

Persistent deficits have received much of the blame for the assorted economic ills that have restricted Fiji’s economic progress over the years (Narayan and Narayan 2003). Therefore, it is imperative to trace the links between deficits and other macroeconomic variables. Thus, our aim was to model the relationship between fiscal deficits, money supply, and inflation using annual data from 1970 to 2004. Given the policy relevance of this study, it is important to give credibility to the empirical findings. One avenue for achieving this is to ensure that the results are not contingent on a particular econometric technique. We therefore test the robustness of the long-run results by using four different estimators, namely ordinary least squares, the autoregressive distributed lag (ARDL) approach advocated by Pesaran and Pesaran (1997), the dynamic ordinary least squares
(DOLS) approach proposed by Stock and Watson (1993), and the Phillips and Hansen (1990) fully modified (PHFM) ordinary least squares approach.

This article uses the bounds testing approach to cointegration, developed by Pesaran et al. (2001), within an autoregressive distributed lag (ARDL) framework. An important advantage of the ARDL approach is that it has better small-sample properties than the widely used Johansen and Juselius (1988, 1990) and the Engle and Granger (1987) approaches. We use small sample size critical values tabulated in Narayan (2005a). This ensures that our conclusions regarding cointegration are accurate.

A literature survey

Theoretically, there are several mechanisms available to a government to determine a link between deficits and monetary expansion (Nelson 1993). The simplest of all is for central banks to provide monetary financing of the deficit. Creation of base money at a rate in excess of demand at the current level of prices has the potential to create more money than the public is willing to hold. The public gets rid of the surplus cash holdings, imposing upward pressure on the general price level. Fischer and Easterly (1990) commented that the effects of this behaviour would not be obvious nor necessarily immediate.

Fischer and Easterly (1990) also suggested the possibility of seignorage revenue accruing to the government by way of inflation from holding additional cash balances. This revenue is determined by the demand for money, the economic growth rate, and the elasticity of demand for real money with respect to inflation and income.

The above description primarily fits the concept of money-financed deficits. Contrary to this, the neoclassical school of thought suggests that monetisation of deficits is not a necessary ingredient for inflation. Miller (1983) believes that chronic deficits and government borrowings tend to push up interest rates and thus crowd out private investment. This relationship was supported by Modeste (2000), using Jamaican data for the 1964–96 period.

Dejthamrong (1993) also concluded that fiscal deficits exert pressure on monetary authorities to increase the money supply to mitigate pressure on interest rates. Hondroyiannis and Papapetrou (1997) pointed out that this has an adverse impact on the economy, lowering productivity and triggering an increase in price levels. Fiji’s case however, can be perceived to be a little different. Narayan (2004) concluded that there were no cointegrating relationships between government borrowing and private investment during the period 1976 to 2001.

The relationship between the budget deficit, the money supply, and inflation has been extensively researched in industrial countries, particularly in the United States. Buchanan and Wagner (1977) were among the very first to recognise this relationship in the United States. Hamburger and Zwick (1981), using a variation of Barro’s anticipated money supply model, examined the interrelationship between monetary and fiscal policies. Based on data for the 1961–74 period, Hamburger and Zwick concluded that deficits appeared to have a significant impact on US money supply throughout most of the period. However, they also indicated that the deficit-money relationship depends on whether government deficits place upward pressure on interest rates and whether the central bank monetises the debt in an effort to stabilise interest rates.

Allen and Smith (1983) re-estimated Barro’s money supply model, including a debt variable, on quarterly data from 1954Q1–1961Q2 and 1961Q2–1980Q4. Their results supported the budget deficit-money supply hypothesis. Darrat (1985) used the OLS approach to examine post 1960 US data and
established that federal deficits have an expansionary effect on money supply and inflation.

However, reservations to the above lines of thought exist. Barro (1977, 1978a, 1978b) using his own ‘anticipated’ money supply growth model examined the budget deficit-money supply hypothesis. Based on a rational expectations model for the United States, Barro concluded that it is not fiscal deficits but government expenditures that induce monetary expansion. Joines (1985) also studied the deficit and money growth link in the United States. His examination revealed that there was no relationship between the federal deficit (non-war) and monetary expansion. Niskanen (1978) found that in any given year, the federal deficit appeared to have no significant impact on money supply growth in the United States.

Others with similar evidence are Giannaros and Kolluri (1985), who examined the budget deficit-money supply and Barro’s government expenditure-money supply hypotheses in ten industrial countries. They found no evidence to support either of the hypotheses; money supply was found to be independent of fiscal policy. Likewise, investigations by King and Plosser (1985) and Protopapadakis and Siegel (1987) of both hypotheses in cross-country studies found no significant evidence of a government spending-money supply relationship.

De Haan and Zelhorst (1990) used vector autoregression (VAR) techniques to estimate the deficit-money relationship for 17 developing countries on annualised data for the 1961–85 period. Their results failed to support the deficit-money hypothesis.

Fres-Felix (1992), using the identity equation of money supply, studied the impact of public sector borrowing to domestic credit expansion and its implication on monetary policy in the six selected South East Asian Central Bank (SEACEN) countries. While Nepal, Philippines and Sri Lanka showed some linkage between budget deficits, money growth, and inflation, Indonesia, Malaysia and Thailand indicated little evidence of this relationship.

Dejhamrong (1993) investigated the deficit-money relationship for six Asian developing economies and found relationships for Singapore and Sri Lanka and weaker evidence for Malaysia and the Philippines. In a similar study, Nelson (1993) analysed data from ten Asian countries for the period 1970–91 to investigate several propositions about monetary policy. His results showed little systematic relationship between monetary expansion and government deficits.

Model

We estimate two versions of the inflation model. In one model, we examine the impact of budget deficits, money supply, output and import prices on prices, while in the second we examine the more standard specification of the literature; that is, we estimate the impact of only budget deficits and money supply on the Consumer Price Index (CPI). The relationships can be written as follows

\[
\ln CPI_t = \alpha_0 + \alpha_1 \ln DEFICIT_t + \alpha_2 \ln M1_t + \varepsilon_t
\]

Equation 1

\[
\ln CPI_t = \alpha_0 + \alpha_1 \ln DEFICIT_t + \alpha_2 \ln M1_t + \alpha_3 \ln Y_t + \varepsilon_t
\]

Equation 2

Here, \(\ln CPI\) is the natural log of the consumer price index, \(\ln DEFICIT\) is the natural log of budget deficits, \(\ln M1\) is real money supply, \(\ln Y\) is the natural log of real GDP, and \(\ln MP\) is the natural log of import prices. Equation 1 is a standard model specification, while Equation 2 with the inclusion of output and
import prices measures supply side conditions as well as the role of foreign prices on domestic prices.

Econometric analysis

Description of data

We use annual data for the period 1970 to 2004 due to the unavailability of quarterly data. The annual variables are government deficit/financing (a proxy for total public sector deficits),7 M1 and CPI. In examining Fiji’s data on fiscal deficits, money supply and CPI over the past 34 years, one can notice that inflation has fluctuated but changes in the money supply have more or less followed the deficit (Figure 1). We also notice that import prices and domestic prices move very closely together.

The series on government deficit/financing is from the International Finance Statistics published by the International Monetary Fund for the 1970 while for the rest of the data have been sourced from the Quarterly Reviews published by the Reserve Bank of Fiji and the State of Government Finance Reports published by the Ministry of Finance.8 Data on M1 was obtained from the International Finance Statistics for the years 1970 to 1972, while data for the remaining years were extracted from the Quarterly Reviews. Data on the CPI was extracted from the Quarterly Reviews.

Unit root tests

Elliot et al. (ERS 1996) propose two modified versions of the Dickey-Fuller t-test, the DFGLS and Point Optimal tests, which have substantially improved power over the ADF test when an unknown trend is present. The efficient unit-root test of Elliot et al. (1996) is based on the point optimal test of the alternative hypothesis \( H_1: \beta = \beta_0^* < 1 \), where \( \beta_0^* = 1 + \tilde{c}/T \), \( \tilde{c} = -7 \) and T is the sample size. The DFGLS test is based on the following equation:

\[
\Delta X_t = \delta Y_t + \sum_{j=1}^{p-1} \theta_j X_{t-j} + \nu_t
\]

where \( X_t \) is the variable under investigation, represents the locally de-meaned process obtained from

\[
X_t = X_t - \beta_0^* Y_t
\]

In this case \( \beta_0^* = (1, t) \) for a locally de-trended series with a constant and a linear trend, and \( \beta_0^* = 1 \) for a series without a linear trend. \( \beta_0^* \) is the slope coefficient from the least squares regression of \( X_t \) on \( \hat{y}_t \), where

\[
\hat{X}_t = [x_{t-1}, x_{t-2}, \ldots, (1 - \bar{p})x_{t-p}\}
\]

\[
\hat{y}_t = [y_{t-1}, (1 - \bar{p})y_{t-2}, \ldots, (1 - \bar{p})y_{t-p}\}
\]

Following Elliot et al. (1996), \( \bar{c} \) is set equal to \(-13.5\). The null hypothesis of is tested against the alternative \( H_1: \theta_0 < 0 \).

The DFGLS test statistics for CPI, deficit, M1, income, and import prices turn out to be 0.62, 0.82, 1.15, \(-1.53\), and 1.04. The critical values at the one per cent, five per cent and ten per cent levels are \(-2.64\), \(-1.95\), and \(-1.61\), respectively. That the test statistics are greater than the critical values at conventional levels of significance allows us to accept the unit root null hypothesis for all three variables in the model. In other words, we conclude that CPI, deficit, M1, income and import prices are integrated of order one.

Cointegration

To implement the bounds test procedure, it is essential to model the three variables, namely, CPI, fiscal deficit, and M1, as a conditional autoregressive distributed lag model (ARDL). For example, based on the long-run model in Equation 1, the ARDL model has the following form...
Figure 1  Natural logs of CPI, budget deficit and M1 for Fiji, 1970–2004

Source: Data obtained from the Reserve Bank of Fiji.

\[ ΔCPI_t = α_0 + θ_1 CPI_{t-1} + θ_2 DEFICIT_{t-1} + θ_3 M1_{t-1} + \sum_{j=0}^{k} α_j ΔCPI_{t-j} + \sum_{j=0}^{k} β_j ΔDEFICIT_{t-j} + \sum_{j=0}^{k} φ_j ΔM1_{t-j} + ε \]  

Here, all the variables are as previously defined. The bounds test for examining evidence for a long-run relationship can be conducted using the $F$-test. The $F$-test tests the joint significance of the coefficients on the one period lagged levels of the variables in Equation 4, that is, $H_0 : θ_1 = θ_2 = θ_3 = 0$. Similarly, we construct an ARDL model for the long-run relationship in Equation 2. The approximate critical values for the $F$-test are obtained from Narayan (2005a). The asymptotic distribution of critical values is obtained for cases in which all regressors are purely I(1) as well as when the regressors are purely I(0) or mutually cointegrated. For cointegration to exist, the value of the estimated statistic needs to be higher than the upper bound critical value. We estimate Equation 4 and test for cointegration by also taking the deficit and M1 as endogenous variables. The results are reported in Table 1. We find that when CPI is the dependent variable the calculated $F$-statistic for a long-run relationship based on Equation 1 turns out to be 4.71, which exceeds the upper bound critical value at the 5 per cent level. However, we find that when the deficit and M1 are the dependent variables the calculated $F$-statistics are less than the upper bound critical value. This leads us to conclude that there is only one cointegrating relationship among the variables when CPI is the dependent variable.

The $F$-statistic for a long-run relationship between the variables in Equation 2 is 2.99, which is lower than the upper bound critical value. This indicates that for the proposed long-run model in Equation 2, there is no long-run relationship among the variables.
Short-run elasticities
In Tables 2 and 3 we report the short-run results on the determinants of Fiji’s CPI from Equations 1 and 2, respectively. Note that since only Equation 1 is cointegrated, its short-run results are generated within an error correction framework. On the other hand, since variables in Equation 2 were not cointegrated, its short-run results are generated using only the first difference of all the variables.

Beginning with the model where we examine the impact of budget deficits and money supply on CPI (Equation 1), we find that both budget deficits and money supply are statistically insignificant. However, we find that the one period error correction term is statistically significant at the 5 per cent level, implying that after a shock to the system it returns to its equilibrium. Given the small coefficient of the error correction term, the...
speed at which the equilibrium is attained is fairly slow. The diagnostic tests are favourable and the explanatory power is reasonable.

Turning to results obtained from the model where we regress the impact of budget deficits, money supply, output and import prices on CPI, we find that the one period lagged budget deficit has a positive and statistically significant effect at the 7 per cent level, while the rest of the variables are statistically insignificant. From the diagnostic tests, we infer that unlike the short-run results based on Equation 1, the errors are not normally distributed and the model has relatively small explanatory power.

### Granger causality

Given that the diagnostic tests for the short-run favour the specification in Equation 1, we only conduct Granger causality tests based on this equation. The bounds test for cointegration revealed that when the deficit and M1 are treated as endogenous variables there was no evidence of cointegration among the variables. This implies that in testing for Granger causality error correction terms are not needed and the relationships can be modelled using a vector autoregressive (VAR) framework. However, because cointegration exists between the variables when CPI is the endogenous

### Table 3 Short-run results based on Equation 2

<table>
<thead>
<tr>
<th>Coefficient</th>
<th>t-statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>–0.0069</td>
</tr>
<tr>
<td>(\Delta \ln CPI_t)</td>
<td>0.5187***</td>
</tr>
<tr>
<td>(\Delta \ln DEFICIT_t)</td>
<td>–0.0086</td>
</tr>
<tr>
<td>(\Delta \ln DEFICIT_{t-1})</td>
<td>0.0326*</td>
</tr>
<tr>
<td>(\Delta \ln DEFICIT_{t-2})</td>
<td>0.0028</td>
</tr>
<tr>
<td>(\Delta \ln M1_t)</td>
<td>0.0709</td>
</tr>
<tr>
<td>(\Delta \ln M1_{t-1})</td>
<td>0.0494</td>
</tr>
<tr>
<td>(\Delta \ln M1_{t-2})</td>
<td>0.0978</td>
</tr>
<tr>
<td>(\Delta \ln MP_t)</td>
<td>0.0056</td>
</tr>
<tr>
<td>(\Delta \ln MP_{t-1})</td>
<td>0.0819</td>
</tr>
<tr>
<td>(\Delta \ln MP_{t-2})</td>
<td>0.0746</td>
</tr>
<tr>
<td>(\Delta \ln Y_t)</td>
<td>–0.0483</td>
</tr>
<tr>
<td>(\Delta \ln Y_{t-1})</td>
<td>–0.0541</td>
</tr>
<tr>
<td>(\Delta \ln Y_{t-2})</td>
<td>0.0278</td>
</tr>
</tbody>
</table>

Diagnostics and goodness of fit

<table>
<thead>
<tr>
<th>Statistic</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\chi^2_{Serial}(1))</td>
<td>1.7941</td>
</tr>
<tr>
<td>(\chi^2_{RESET}(1))</td>
<td>0.0278</td>
</tr>
<tr>
<td>(\chi^2_{Serial}(2))</td>
<td>25.1787</td>
</tr>
<tr>
<td>(\chi^2_{RESET}(2))</td>
<td>0.0066</td>
</tr>
<tr>
<td>(\bar{R}^2)</td>
<td>0.5961</td>
</tr>
<tr>
<td>(\bar{R}^2)</td>
<td>0.3044</td>
</tr>
</tbody>
</table>

Note: *** (*) denote statistical significance at the 1 per cent and 10 per cent levels, respectively.

Source: Authors’ calculations.
variable, the Granger causality test needs to be augmented with an error correction term. Thus, the Granger causality test involves specifying a multivariate $p$th order vector error correction mechanism (VECM)

$$\begin{vmatrix}
(1-L) \ln CPI_t \\
\ln DEFICIT_t \\
\ln M1_t \\
\end{vmatrix}
\begin{bmatrix}
\alpha_1 \\
\alpha_2 + \sum_{i=1}^{p} (1-L) \beta_{11} \beta_{21} \beta_{31} \\
\beta_{22} \beta_{22} \beta_{22} \\
\end{bmatrix}
\begin{bmatrix}
\ln CPI_{t-i} \\
\ln DEFICIT_{t-i} \\
\ln M1_{t-i} \\
\end{bmatrix}
+ \begin{bmatrix}
\theta & \text{ECT}_{t-i} \\
\beta & 0 \\
\psi & 0 \\
\end{bmatrix}
\begin{bmatrix}
\epsilon_{1t} \\
\epsilon_{2t} \\
\epsilon_{3t} \\
\end{bmatrix}
\sum_{i=1}^{p}$

In addition to the variables defined above, (I–L) is the lag operator, ECT$_{t-i}$ is the lagged error-correction term derived from the long-run cointegrating relationship (this term is not included if the variables are not cointegrated), and $\alpha$, $\beta$, and $\psi$ are serially independent random errors with mean zero and finite covariance matrix. In each case the dependent variable is regressed against past values of itself and other variables. The optimal lag length $p$ is based on the Schwarz Bayesian Criterion.

The short-run causal effects can be obtained by the Wald $\chi^2(2)$ test of the lagged explanatory variables, while the $t$-statistics on the coefficient of the lagged error-correction term indicate the significance of the long-run causal effect. The estimated signs on the impact of the variables are displayed in parenthesis in column 2. We begin with an analysis of the short-run causal effects, which are reported in Table 4. The results are organised as follows. The first column consists of the possible directions of causation among the variables. The second column reports the Wald test statistics, while the third column reports the probability values used to gauge the statistical significance of the variables. Our findings are as follows. There is a unidirectional causality running from money supply to CPI, and bidirectional causality between money supply and the deficit. This implies that in the short-run money supply Granger causes CPI, and money supply and the deficit Granger cause each other. Meanwhile, on the causality relationships among other variables, we find that there is neutrality.

<table>
<thead>
<tr>
<th>Table 4 Long-run elasticities</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>OLS</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>FMOLS</td>
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<tr>
<td></td>
</tr>
<tr>
<td>DOLS</td>
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<tr>
<td></td>
</tr>
<tr>
<td>ARDL</td>
</tr>
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<td></td>
</tr>
</tbody>
</table>

Note: *** denotes statistical significance at the 1 per cent level.
Source: Authors’ calculations.
The long-run causality result is reported in the last row of Table 4. We find that the coefficient on the lagged error correction term is significant and with the correct sign in the CPI equation at the 1 per cent level, implying that changes in CPI are a function of disequilibrium in the cointegrating relationship. Thus, in the long run both the deficit and money supply Granger cause the CPI. In other words, causality runs interactively through the error correction term from the deficit and money supply to the CPI.

**Long-run elasticities**

Given that our cointegration analysis reveals a long-run relationship among the variables only when CPI is the dependent variable, we obtain the long run elasticities by normalising on inflation. To do so we use four different estimators, namely the OLS, the FMOLS, the DOLS, and the ARDL model. The results are reported in Table 5. Given the policy relevance of estimating this relationship and the tension in the literature over the impact of the deficit and money supply on price levels, the application of more than one estimator is crucial because it allows us to ascertain the robustness of the results. We find fairly robust results on the impact of the deficit and money supply on the CPI. For instance, all estimators reveal that money supply has a positive and statistically significant effect on CPI. The coefficient on money supply ranges between 0.47 and 0.49 across the four estimators, and all estimators are statistically significant at the 1 per cent level. Meanwhile, on the impact of deficits on the CPI, we are unable to find robust results. While the OLS and the FMOLS estimators indicate that deficits have a statistically significant and positive impact on the CPI, in the ARDL and DOLS estimates the relationship is statistically insignificant.

Consistent with previous studies, money is positively related to inflation. This suggests that an increase in money supply will lead to an increase in inflation. A possible explanation for this could be that Fiji’s inflation is largely affected by import prices. Dewan et al. (1999) said that their empirical results suggested that almost 75 per cent of the long-run movement in domestic prices is fuelled by international/import prices. For a small economy like Fiji, operating under a fixed exchange rate regime, an increase in trading partner price levels could induce domestic money stock to rise in order to pay

<table>
<thead>
<tr>
<th>Direction of causation</th>
<th>Test statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEFICIT → CPI</td>
<td>2.9991</td>
<td>0.2232</td>
</tr>
<tr>
<td>M1 → CPI</td>
<td>7.1875**</td>
<td>0.0275</td>
</tr>
<tr>
<td>CPI → DEFICIT</td>
<td>2.9865</td>
<td>0.2246</td>
</tr>
<tr>
<td>M1 → DEFICIT</td>
<td>5.8512**</td>
<td>0.0536</td>
</tr>
<tr>
<td>CPI → M1</td>
<td>1.8065</td>
<td>0.4052</td>
</tr>
<tr>
<td>DEFICIT → M1</td>
<td>6.6772**</td>
<td>0.0355</td>
</tr>
<tr>
<td>DEFICIT, M1 → CPI</td>
<td>-0.0795**</td>
<td>2.3408</td>
</tr>
</tbody>
</table>

Notes: In the last row, which contains results for long-run causality, the coefficient on the one period lagged error correction term is listed in column 2 and the t-statistic is reported in column 3. ** denotes statistical significance at the 5 per cent level.

Source: Authors’ calculations.
for the rising import prices, other things being equal. This in turn would trigger an increase in domestic prices.

Dewan et al. (1999) also found that only 25 per cent of inflation in Fiji is explainable by domestic factors, among which labour costs are most important. During the 1970s and 1980s, increases in real wages significantly intensified price pressures. Therefore, the public sector deficit did not seem to play a primary role in explaining inflation in Fiji.

Conclusions and policy implications

The goal of this paper was to model the relationship between inflation, budget deficits, and money supply in Fiji. This issue has policy importance for Fiji given that deficit levels have been rising over the past couple of decades. We achieve the aim of this paper by modeling this relationship in three steps. In the first step, we investigate the unit root properties of the variables and find that CPI, deficits, money supply, output, and import prices are integrated of order one. In the second step, using the bounds tests approach to cointegration, we search for long-run relationships among CPI, deficits and M1; and CPI, deficits, M1, income, and import prices. We find one cointegrating relationship when CPI is the endogenous variable in the three variable model but not in the five variable model. In the third step, having found a long-run relationship, we estimate the long-run elasticities in order to unravel the impact of deficits and money supply on inflation. To achieve this we use four long-run estimators, namely, the OLS, the FMOLS, the DOLS and the ARDL. We find that money supply has a statistically significant positive impact on inflation in all four estimators. However, deficits have a statistically significant positive impact on inflation in only two of the four estimators. This means that we are not able to confirm the robustness of the impact of deficits on inflation in Fiji. In the fourth step, we examine the direction of causation among the variables using the Granger F-test. We find that there is unidirectional causality running from money supply to inflation, and bi-directional causality between money supply and the deficit, and that over the long run both the deficit and money supply ‘Granger cause’ inflation.

The main policy implication of our study is as follows. Government deficits and money supply are key causes of the price level in Fiji. Both the deficit and changes in the money supply positively impact on and cause inflation. Over the past couple of decades, Fiji’s budget deficit has risen sharply and money supply has also been on the rise, as shown in Figure 1. Given that one of the policy objectives in Fiji is to maintain low inflation rates, our findings suggest that controlling budget deficits is one way of achieving this objective.

Notes

1 Implications of the expansionary fiscal policy remain unexplored, in particular the impact on key macroeconomic variables.
2 An opposing view had been given by Barro (1974) and Miller and Upton (1974) who laid out conditions under which public sector borrowing did not crowd out private sector investments but elicited proportionate growth in private savings.
3 Narayan (2004) investigated whether public sector investments tend to ‘crowd in’ or ‘crowd out’ private sector investments. The results suggested that during the sample period (1950–2001) there was no evidence of government capital spending crowding out private sector investments, although during 1950 to 1975 there was evidence of crowding in.
4 They designate the era beginning in 1961, and particularly the years 1961 to 1974 as the Keynesian period, which focused on the important role of the budget deficit in
macroeconomic policymaking (Hamburger and Zwick 1981).

5 In 2000, he also analysed Greek data for the 1957–93 period and showed that fiscal deficits played a pivotal role in the Greek inflationary process. Nevertheless, subsequent inquiry of the relationship between government spending, budget deficits and money supply using UK data for a long sample period (1701–1918), Barro (1987) stated that it was difficult to disentangle the effects of government spending from the effects of budget deficits on money supply.

6 In each year, the total public sector deficit is equal to total financing.

7 This pertains to 2004 only, where data was requested from the Finance Ministry.

8 Monte Carlo evidence presented by Stock (1994) supports the superior performance of the DFGLS test. Among empirical studies testing for mean reversion in PPP, Cheung and Lai (1994) and Cheung and Lai (1997) find that the DFGLS provides more favourable evidence of PPP among industrial countries than the ADF test.

9 For a critical analysis of the use of existing critical values for the bounds $F$-test in small sample sizes, see Narayan and Narayan (2005a), and for studies that use the bounds test approach in small sample sizes such as ours, see, among others, Narayan and Narayan (2004a, 2004b, 2004c, 2005b) Narayan and Narayan (2006); Narayan and Smyth (2004, 2006a, 2006b); Narayan (2005b). Fiji’s exchange rate is tied to a basket of currencies, namely, the US, Australian and New Zealand dollars, the Japanese yen and the euro.

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