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Do Macroeconomic Fundamentals Influence External Current Account Balances?

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Cross Sectional Evidence in Pacific island Countries: 1988-2007

Abstract

In the midst of rising prices of oil and other strategic commodity imports as well as contraction in their traditional exports of primary and primary processed exports, Pacific island countries (PICs) have been facing mounting trade deficits for some time. Added to these developments, decline in official development assistance inflows since the early 1990s have given rise to current account deficits in the balance of payments, despite a steady rise in private remittance inflows. On the fiscal front, in addition to the decrease in the bilateral budgetary support, the continuing stagnation in revenues and rigidities in public expenditures have been contributing to overall budget deficits, which have been financed by public borrowing and periodical money creation. The present paper seeks to investigate by undertaking a panel data analysis covering a 20-year period for five selected PICs, namely Fiji, Samoa, Solomon Islands, Tonga and Vanuatu, whether any unsound macroeconomic fundamentals have been responsible for their current account deficits.

Keywords: budget deficit, current account deficit, panel data analysis, Pacific island countries.

I. INTRODUCTION

Ever since their independence in the mid 20th century, Pacific island countries (PICs) have been the recipients of substantial official development assistance (ODA). By providing budgetary support each year, ODA inflows which amount to transfer of resources in foreign exchange, have served as comfortable cushion against adverse balance of payment pressures. The PICs, with the exception of Papua New Guinea, which is far better endowed with mineral resources and hence is being benefited by current commodity boom, are highly dependent on imports of all categories including, food, fuel and intermediate and capital goods with a very narrow range of exports of agricultural commodities and a high export commodity concentration ratio.

Due to changes in the priorities of the donor community after the end of the Cold War in the late 1980s, there has been a general decline in external aid inflows and consequently fall in annual budgetary support. With stagnant revenues and rigidities in public expenditure, many PICs have been incurring annual fiscal deficits since early 1990s. Being open economies, PICs began to experience external current account deficits for the past few years. These annual budget deficits have been largely financed by domestic borrowing, aside from occasional monetization by borrowing from the central banks. The objective of this paper is to examine the relationship between current account deficits and macroeconomic fundamentals, with a view to obtaining a better appreciation of the relationships for formulating appropriate macroeconomic policies. The study, which is confined to five major PICs, which include three Melanesian countries (Fiji, Solomon Islands and Vanuatu) and two Polynesian countries (Samoa and Tonga), as they have consistent time series of data on national accounts as well as budget and monetary statistics, covers a 20-year period. The study, utilising panel data of 20 annual observations for each of the five countries, employs fixed and random effects models.

The paper is organised as follows: the second section presents the trends in twin deficits experienced in Fiji, Samoa, Solomon Islands, Tonga and Vanuatu, whereas the third section outlines the modeling strategy and reports the results of panel data analysis**.** The final section presents the conclusions with policy implications.

II. A BRIEF OVERVIEW OF PICs

The selected five PICs (Table 1) are highly dependent on a narrow range of commodities for exports with heavy reliance on one or two commodities, along with tourism as a major foreign exchange earner and provider of jobs. Further, they share many commonalities. These relate to structural constraints to growth: communal land tenure system, which restricts the marketability of land as an economic commodity, thereby inhibiting land related activities; isolation from major markets; proneness to natural disasters of all kinds; and external economic shocks. Foreign aid, which formed a proportion of gross domestic product (GDP) as high as 43% in Samoa and 33% in Vanuatu in the 1990s, declined over the next fifteen years to 11.5% and 12% respectively. Similarly, Fiji and Tonga in 2005 received less assistance in terms of percentages of GDP as compared to assistance received in 1990. The exception is Solomon Islands, which has been receiving substantial assistance under the Regional Assistance Mission led by Australia since a rehabilitation programme was launched in 2003 after the ethnic unrest of 2000.

With general decline in aid inflows over the ten year period (1995-2005), PICs began to experience deficits in their annual budgets (Table 2). Fiscal policies of Fiji, whose ODA

receipts never exceeded 4% of GDP, have been conservative until very recently. As a result, the country experienced modest budget deficits. However, expansionary fiscal policies after 2001, as part of countercyclical measures to offset the fall in private sector investment, led to higher levels of budget deficits (D'Hoore 2006).

Fiji, which implemented aggressive fiscal policies measures to address the decline in private investment that followed the 2000 coup, experienced fiscal deficits throughout the six-year period 2001–2006 (Jayaraman 2008). Borrowings from the public and from domestic financial institutions, including the country's pension fund financed these deficits. The prevailing excess liquidity in the banking system, since the 1990s, following the 1987 coups, initially facilitated borrowing from the publi and did not deter further private investment. Public debt rose to 54.0% of GDP in 2005 and to 58.5% of

Table 1: Key Indicators of Selected Pacific Island Countries

Pacific Island Countries	Land Area Sq.km	Population ('000) 2006	GDP Per capita PPP(US $) 2005	Aid % of GDP 1990	Aid (% of GDP) 2005	Average Growth Rate (%) 1990-1999	Average Growth Rate (%) 2000-2007
Fiji	18,300	833	6,049	3.9	2.4	3.0	1.3
PNG	463,000	6,202	2,663	12.8	7..2	5.6	2.7
Samoa	2944	184	6,170	42.6	11.5	1.2	4.1
Sol.Islands	28,900	484	2,051	21.7	66.5	3.8	0.7
Tonga	748	100	8,177	26.3	10.1	1.6	1.8
Vanuatu	12,200	221	3,225	33.0	12.0	3.9	2.5

Source: UN ESCAP (2008), ADB (2007), World Bank (2007)

GDP in 2006 (Jayaraman and Choong 2006). As private sector credit too expanded to record annual growth of 27% during 2001-2005, Fiji experienced adverse effects of a rapid rise in domestic credit, mainly within the housing market, as the demand for construction materials from overseas rose. The country's trade deficit widened in the midst of poor export performance, compounded by the decline in garment exports that followed the ending of the US quotas for Fiji's garments under the Multi-fibre Arrangement. In 2004, the current account deficit reached the equivalent of 11.0% of GDP, followed by 11.4% in 2005.

The interim government, after December 2006 coup, began to trim public expenditures in 2007. The wage bill was cut by 9.7% and public spending was slashed by 28.2%. So too

were the transfer payments by 16% and capital expenditure by 45%. Even though revenues fell due to contraction of the economy due to poor investment climate, the spending cuts produced a budget surplus of around 0.4% of GDP. Total public debt stood at 50.3% of GDP, although it is well above the targeted level of 45% of GDP. As exports performance did not improve, current account deficits were 21.1% in 2006 and 19.6 % of GDP in 2007 (UN ESCAP 2008, ADB 2008).

From the mid-1990s Samoa's successful record of reform implementation earned the country the epithet of 'the darling of donors'. Prudent policies contributed to strong performance, facilitated by the fiscal surpluses maintained during 1996–1999; these were followed by modest deficits during 2000–2004 (Leigh 2006). In 2004, the fiscal deficit reached 0.9% of GDP, despite the large public expenditure programme for staging the South Pacific Games, held in Samoa in 2007. However, the current account, which recorded surpluses in 1998-2002, experienced deficit of 7.9% of GDP in 2005, which rose further to 6.1% in 2006 and 8.1% in 2007, with the trade deficit widening as a result

Table 2: PICs: Current Account Deficits and Fundamentals

Country	Year	Current Account Deficit % of GDP	Budget Deficit % of GDP	Money Supply % of GDP	Annual Growth Rate %
Fiji	**1988-1992**	-1.5	4.0	61.0	2.3
	1993-1997	0.9	3.3	52.3	2.6
	1998-2002	2.9	2.1	40.4	2.7
	2003	3.6	6.2	45.1	0.7
	2004	11.0	3.2	46.2	5.5
	2005	11.4	3.7	50.2	1.0
	2006	21.1	3.4	54.9	3.6
	2007	19.6	-0.4	59.8	-3.9
Samoa	**1988-1992**	4.0	2.4	43.0	-0.8
	1993-1997	1.5	6.6	33.1	3.2
	1998-2002	-2.5	0.5	36.2	4.0
	2003	0.1	0.6	39.7	7.0
	2004	1.6	0.9	38.9	1.4
	2005	4.6	-0.3	41.0	5.9
	2006	6.1	0.4	43.1	1.2
	2007	8.1	0.5	45.0	3.5
Solomon Islands	**1988-1992**	13.0	6.0	30.4	5.7
	1993-1997	0.5	4.7	29.6	0.3
	1998-2002	5.8	4.0	29.0	-5.1
	2003	2.5	5.8	29.1	7.7
	2004	-3.1	-4.9	30.1	7.9
	2005	24.2	0.9	37.1	5.0
	2006	26.5	4.0	40.9	6.2
	2007	40.0	4.5	42.0	5.3
Tonga	**1988-1992**	-0.7	0.0	26.6	1.2

	1993-1997	4.5	-1.3	51.6	1.6
	1998-2002	4.6	1.2	38.4	3.5
	2003	3.1	3.1	41.1	2.7
	2004	-4.2	-0.9	45.8	1.4
	2005	2.6	-2.4	47.3	2.3
	2006	8.2	3.3	47.8	1.3
	2007	10.5	2.3	48.1	-3.5
Vanuatu	**1988-1992**	7.6	5.7	100.6	5.2
	1993-1997	4.6	2.2	109.4	4.6
	1998-2002	1.6	4.8	104.3	-2.7
	2003	10.7	1.8	101.6	-0.6
	2004	7.3	-1.3	103.5	6.6
	2005	10.0	-1.9	105.9	6.7
	2006	8.0	0.5	103.4	5.1
	2007	13.2	0.5	104.2	6.4

Sources: UN ESCAP (2008), ADB (2007, 2008).

of higher prices for petroleum imports as well as a fall in export earnings (UN ESCAP 2008, ADB 2008).

Solomon Islands experienced a slow but remarkable recovery from the aftermath of civil unrest and near-collapse of the economy during 1999–2003 (Ginting and Porter 2006). Substantial aid inflows and technical assistance to the Ministry of Finance and key industries under the ongoing Australian-led Regional Assistance Mission to Solomon Islands subsequently enabled the restoration of fiscal stability. Donors funded approximately 55% of the recurrent budget and nearly 100% of capital budgets in 2004 and 2005. In 2004, the budget was in surplus at 4.9% of GDP, subsequently moving into deficit at 0.9% of GDP in 2005. The budget position further deteriorated in 2006 and 2007, with deficits at 4.0% and 4.5% of GDP respectively. Public debt is fairly high, at 55% of GDP and most of it was external. The current account balance remained negative until 2003, with a small surplus in 2004 at 3.1% of GDP. Thereafter, it turned negative in 2005 with a large deficit estimated at 24.2% of GDP. The deficits widened to 26.5% in 2006 and 40% in 2007, mainly due to fuel imports and imports for restoring the gold-mining activities to the1990 levels (UN ESCAP 2008 and ADB 2008).

Tonga faced severe fiscal difficulties during the early 2000s. Strike action by public servants resulted in salary increases of 60%–80%, as agreed in the terms of the settlement reached in September 2005 (Singh 2006). These increases were expected to cost the equivalent of 11% of GDP. The existing inefficiencies in tax collection were reported to have resulted in the annual loss of an estimated 20 million pa'anga. Due to cuts in civil service and reduced spending, which followed the civil servants' strike action, government ran a budget surplus in 2004 and 2005, estimated at 0.9% and 2.4% of GDP in 2004 and 2005. As unprofitable state enterprises were given financial support by the Government, the budget balance turned negative at 3.3% of GDP in 2006 and 2.3% in 2007, which also led to an expansion in the money supply. Fiscal pressures such as those arising from the strike action by public servants, along with the protests by pro-democracy supporters, had diverted the country's attention away from the

implementation of the public sector reforms initiated in 2002. Tonga's public debt in 2007 was estimated at 55% of GDP. Current account balances were negative until 2003. For one year, in 2004, there was a surplus, reflecting fall in demand due to civil servants' strike, but soon the current balances turned negative beginning from 2005 for next three years. In 2007, it was at the highest at 10.5%, reflecting fall in the country's export earnings (UN ESCAP 2008).

Vanuatu's fiscal position was strained from the late 1990s until 2003. Prudent fiscal policies and monetary management, however, enabled the country to restore budgetary discipline (Creane 2006). The budget was in surplus in 2004 for the first time, which was followed by another year of surplus. The fiscal position deteriorated only very slightly in 2006 and 2007, when a small deficit of 0.5% of GDP was recorded in both the years. Annual current account deficits, meanwhile, had been rising since 2002 (Jayaraman and Choong 2008b). The current account deficit in 2003 was equivalent to 10.7% of GDP and rose to 13.2% in 2007. Country's export earning possibilities are sought to be improved by providing greater access to agricultural produce in remote rural areas in outer islands through the provision of farm roads and links to markets, and the construction of new jetties and ports are being helped by investment in infrastructure projects, which is assisted by the US $65.6 million grant from the US Millennium Challenge Corporation (UN ESCAP 2008).

Thus, the selected PICs' fiscal performance during the last two decades has not been impressive. Political instability in Fiji and Vanuatu, and ethnic and provincial rivalries in the Solomon Islands and civil disorder in Tonga not only interrupted the implementation of the ongoing fiscal reform programmes in these countries but also endangered the long term objective of achieving flexibility in terms of running budget surpluses in good years and deficits in lean years.

In regard to external accounts, all the selected PICs experienced deficits during the past 20 years. For Solomon Islands and Tonga, which are dependent on agricultural exports, deterioration in their terms of trade led to increasing trade deficits. Due to contraction in sugar production since 1996 and discontinuance of garment export quotas to the USA under the expired Multifibre Arrangement by the end of 2004, Fiji's annual current account deficits were rising in recent years. In the case of Samoa, there has been a marked decline in its limited exports of agricultural products. Although in the case of Samoa and Tonga inward remittances have been a substantial support, imports of both capital and consumer goods have been on the rise, resulting in current account deficits.

III. Modeling STRATEGY AND Empirical Results

The approach to modeling strategy begins with the standard treatment of external current account deficits, which is based on the national accounting identity (Daniel, et al., 2006).

The external current account balance is derived as follows:

$CA = (S_{priv}-I_{priv}) + (S_{pub}-I_{pub})$

Where

CA = external current account balance;
S_{priv} = private sector savings
I_{priv} = private sector investment
S_{pub} = public sector saving
I_{pub} = public sector investment

While $(S_{pub}-I_{pub})$ represents the overall fiscal balance, $(S_{priv}-I_{priv})$ is the private savings and investment balance.

Assuming private investment/savings gap remains stable overtime, external current account deficit would be equal to budget deficit. This identity provides a basis for proceeding towards modeling the hypothesized relationship between current account trade deficits and budget deficits. Since deficit financing through public borrowing and money creation through central bank monetization of deficits alters the money supply within the economies, giving rise to changes in aggregate demand spilling over into demand for imports thereby affecting current account deficits, we have to pay attention to monetary variable as well.

Since all the selected five PICs share many commonalities including small resource base, narrow range of commodity exports, high degree of dependency on imports and land tenure system as well as other social characteristics, it is considered more appropriate to undertake a panel data analysis. Such a procedure would also enable to overcome the deficiency in degrees of freedom involved in individual country regression analysis.

Although Fiji's national accounts and other macroeconomic data series are available from 1970 onwards, the corresponding data time series of other PICs are compiled only from the mid 1980s. It is acknowledged by researchers of academic institutions and bodies and official agencies, including Reserve Bank of Fiji[1], that the database of island economies are generally inadequate and weak. Given these limitations faced in the course of empirical investigation, we are constrained to use a simple model with a balanced panel data analysis, which covers a 20–year period beginning from 1988. Thus, we use 20 annual observations for each of the five PICs, providing in all 100 observations.

The simple model is written as:

CAD= f(RGDP, BD, M2)

[1] Besides the general problem of data inadequacies, frequent revisions and ad hoc adjustments have also cast serious doubts about the quality of available data (Gosarveski 2004, Hughes 2003, Morling and Williams 2000).

The functional relationship can be estimated by OLS method in the following way

$$CAD_t = \beta_t + \beta_2 RGDP_t + \beta_3 BD_t + \beta_4 M2_t + \varepsilon_t \quad (1)$$

where

CAD = current account deficit (percent of GDP);
RGDP = real GDP in index numbers;
BD = budget deficit (percent of GDP);
M2 = broad money supply (percent of GDP)
ε_t = white noise error term

RGDP is domestic absorption; *BD* as overall budget deficit represents fiscal policy actions of the government; and *M2* captures monetary influences, which would include changes in interest rate, inflation and consequent changes in real interest and investment affecting trade volume. The hypotheses, which require to be tested by the panel investigation procedures are: (i) output as domestic absorption positively affects current account deficits and the estimated coefficient of RGDP should have a positive sign; (ii) budget deficit and current account deficits are positively associated with each other; and hence the estimated coefficient of BD should have a positive sign; and (ii) an expansionary monetary policy leads to current account deficits; and hence the estimated coefficient of M2 should have a positive sign.

The data series (1988-2007) are drawn from Asian Development Bank (2007, 2008) and International Monetary Fund (2008). Equation (1) is estimated by using two models: fixed and random effects. While estimating the equations, a time trend is added to assure us that the influences of any left out variables are a smooth function of time.

Table 3 reports the results of estimation of fixed and random effects models. It is seen that the overall fits of the two estimated equations in terms of R^2 in both models are not satisfactory. Given the limitations in regard to the quality of data, as noted above, the results obtained do indicate the nature of association between the dependent variable and the explanatory variables. In the estimated equation by using the fixed effects model, we find while the coefficient of RGDP is not significant, BD and M2 have positive signs in accordance with the theoretical expectations. Further, both of them are significant: BD is significant at 5% level; and M2 at 10% level.

Table 3: Regression Results: Determinants of CAD: Panel Data Analysis		
Explanatory Variables	**Estimation Method**	
	Fixed Effects Model	**Random Effects Model**
C	1.036 (0.099)	1.481 (0.196)
RGDP	0.136(1.518)	0.040 (0.493)
BD	0.480 (2.53)*	0.621 (3.524)*
M2	0.232 (1.867)**	0.023 (0.671)
T	0.747 (2.654)*	0.535 (2.044)*
R Squared	0.268	0.171
Hausman Test : Chi Square (4)		11.974*
No. of Observations	100	100

* significant at 5% level

**significant at 10% level

In the estimated equation using the random effects model, we find only the estimated coefficient of BD which has the expected positive sign is significant, which is at 5% level. Although the estimated coefficients of M2 emerged with a positive sign, it is not found significant either at 5% or 10% level.

The Hausman test statistic (chi-sq) is significant at 5%, rejecting the random effects model in favour of the fixed effects model. Therefore, we go by the results of fixed effects model. The results confirm that budget deficits and expansionary monetary policies did indeed contribute to current account deficits of the five selected PICs in their balance of payments during last 20 years (1988-2007).

VI. SUMMARY AND CONCLUSIONS

This paper undertook an analysis of the factors responsible for current account deficits in the external accounts of five selected PICs. A panel data analysis of five island economies in respect of which consistent time series of data for 20 years (1988-2007) are available, shows that there is a significant and positive association between current account deficits and budget deficits, and current account deficits and expansionary monetary policies.

The policy implications are straightforward. In the context of persistent current account deficits in PICs, the standard remedy (Daniel *et al,* 2006) consists of fiscal adjustment in the short term and fiscal consolidation in the medium to long term. Fiscal adjustment

would mean a change in fiscal stance, either tightening or loosening, as the situation would warrant, whereas fiscal consolidation would mean reducing fiscal deficit and debt accumulation over a medium to long term in a planned manner.

Reducing government expenditure as a remedy to reduce annual fiscal imbalances and accumulation of debt is not as easy as expansionary spending. This was borne by public reactions, for example in Fiji in 2007, to the steps announced by the interim government with a view to putting an end to the six-year (2001-2006) expansionary fiscal spending (Jayaraman 2008, Jayaraman and Choong 2006). Fiji's efforts toward fiscal consolidation included a reduction in the operating expenditures through the trimming of the number of ministries, cuts in wages and salaries of civil servants by 5% and downsizing the size of the civil service and freezing vacant positions. The public reaction was that reduction in government spending would lead to recession, as it was argued that brakes on public spending would reduce aggregate demand and create unemployment.

Such fears were no doubt genuine, as fiscal consolidation in the short-run has the potential to trigger a recession. However, recent empirical investigations of fiscal expansion and consolidation experiences in industrial countries (McDermott and Westcottt, 1996a) have shown that effects of a slowdown in the short-run would be offset by gains in the long run.[2] The non-Keynesian economic literature based on neoclassical models (IMF, 1996; Alesina and Perotti,1995a, 1995b) argue that sustained fiscal adjustment in terms of budget and debt reduction would result in lower interest rates and depreciation of exchange rates, giving rise to "positive expectational effects" that would even swamp the traditional undesirable effects of fiscal contraction such as unemployment and recession (McDermott and Westcott, 1996b).

There are no studies on the impact of fiscal adjustment in PICs comparable to McDermott and Westcott (1996b). The apparent reason is that such fiscal adjustment measures were not implemented in PICs on a sustained scale as in industrialized countries. However, an important study by Gupta *et al*. (2004) taking into account fiscal adjustment episodes in 29 developing countries in different regions under IMF-supported programmes in the 1990s shows that the success of fiscal adjustment, in terms of the persistence over time of its positive effects, is (i) positively determined by factors which include the reallocation of recurrent expenditures to productive capital projects; and (ii) negatively influenced by large outlays on wages and salaries.

[2] The argument in favour of reduced government spending runs on the following lines: (i) a smaller budget would reduce the perceived risk that a government might depreciate its debt through high inflation in the future (paying off debt with cheaper money); (ii) a reduction in the perceived risk would then lead to a fall in interest rates; and (iii) this will be followed by a reduction in default risk premium interest rates, as budgetary consolidation would improve the image of government in terms of its solvency. It is further argued that a reduction of public expenditure especially through lower public salaries and wages would have an impact on the cost of labour in the private sector, engendering profitability and competitiveness (IMF, 2001; Alesina et al, 1998). Fiscal consolidation driven by lower expenditure would send out signals to households and businesses that future tax burdens would be lowered, thereby resulting in crowding-in effects on private sector demand. While noting that the non-Keynesian effects were important in those euro area countries characterized by high levels of government debt and large pubic sectors, IMF studies (1996, 2001) observed the impact of reduced fiscal spending on output in the short term is an area of some dispute.

Other measures include: (i) strengthening expenditure control and budget–monitoring; (ii) enhancing the efficiency of revenue systems; (iii) introducing measures to offset the volatility in revenues generated by non-tax revenue receipts and aid inflows; (iv) re-directing aid resources into capacity building investments by streamlining the civil service and reducing recurrent expenditures; (v) enhancing debt-management practices; and (vi) improving foreign exchange earnings and maintaining a competitive real exchange rate so that external debt servicing does not pose undue problems in the long run.

The PICs will do well to consider these remedies to reduce their budget deficits, which would eventually lessen the pressures on their balance of payments by reducing current account deficits.

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