

Discussion Paper No. 110

**AID EFFECTIVENESS IN THE SOUTH
PACIFIC ISLAND COUNTRIES
A CASE STUDY OF VANUATU**

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July 2006

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Abstract

Among all the island countries of the world, Vanuatu, a small island nation in the South Pacific with a population of 220,000 was once ranked as the most vulnerable economy on the basis of its least resilience to withstand the adverse impacts of external and internal shocks. It has been currently designated on the basis of quality of life one of the five least developed countries among the Pacific island countries. Recognizing its special circumstances, including its high dependency on strategic imports including fuel, with unstable export earnings, its proneness to natural disasters and its inadequate human resource skills, the international community has been assisting the country with generous external aid ever since its independence in 1980. Aside from the bilateral overseas development assistance, especially from the two regional metropolitan powers, in terms of pure grants on an annual basis, multilateral funding agencies including Asian Development Bank have been assisting the country with concessional loans for several projects and reform programs. Despite these annual aid inflows, Vanuatu has been performing poorly which is reflected in stagnation of its per capita income. This article seeks to examine the nexus between aid and growth in Vanuatu and investigates causes behind weak performance. Based on the analysis, the article makes recommendations with some policy implications.

Keywords: *Pacific Islands, Vanuatu, foreign aid, growth, cointegration, error-correction model.*

Paper Category: Research Paper

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1. Introduction

Vanuatu, formerly known as the New Hebrides, is one of the youngest independent countries in the Pacific region, having achieved political independence from the joint Anglo-French condominium rule in 1980. It comprises an archipelago of about 85 islands located in the Southwest Pacific, approximately 2,300 kilometres off the coast of Australia. The economy of Vanuatu with a total population of 220,000, is dual in nature with subsistence agriculture dominating in all but the two islands of Efate, on which the capital Port Vila is situated and Santo, which has the major port. The country is prone to natural disasters, which include four to seven cyclones on an average each year, affecting parts of the country and about 2000 earth tremors of varying intensity. In addition, Vanuatu's inadequacy in human resource skills to man jobs, both in public services and the private sector, has led to near permanent dependency on expatriate technical services in several areas.

On the basis of the criteria¹ by the United Nations' Committee on Development Planning, Vanuatu, along with 23 other small island and developing states (SIDS), has been designated since 1971 as the least developed country (LDC) among the developing countries (Encontre 2004). Although on the basis of threshold income level Vanuatu was found eligible for graduation from LDC status in 1997, Vanuatu was allowed to retain the LDC status on the grounds of perceived deterioration in the quality of life in Vanuatu, which was further affected by a major earthquake of 2002, measuring 7.6 on the Richter scale inflicting severe damages to public and private properties in Port Vila²

Due to LDC status, the country has been assisted with foreign aid in terms of both pure grants and technical assistance by Australia and New Zealand, the two major metropolitan powers in the region as well as from the European Union. In addition, Vanuatu has been receiving loan

¹ The criteria currently in operation are: (i) economic vulnerability index (EVI); the Augmented Physical Quality of Life Index (APQLI); and an Economic Vulnerability Index (EVI). Present requirements are: a GDP per capita less than US \$1,035; an APQLI score greater than 64; and an EVI score of less than 34. The earlier criteria did not include EVI, but included the following: threshold per capita GDP of US \$765; an augmented physical quality of life index of 47; economic classification index of 26; and threshold population of 75 million. There are currently 78 IDA-eligible countries, of which 10 are small island states (Cape Verde, Dominica, Grenada, Kiribati, Maldives, Solomon Islands, St. Lucia, St. Vincent and Vanuatu). A total of 31 countries graduated during the period 1961-1999. Because of adverse developments subsequent to their graduation, eight of these graduates, including Vanuatu, have been granted renewed access to IDA, leaving the total net graduates during these years at 23. (Kisanga 2006).

² Much before the earthquake of 2002, Vanuatu's Prime Minister pleaded in his 1997 address to the UN General Assembly for retention of LDC status. The General Assembly in its resolution: 52/210 of 18 December 1997 withheld the recommendation to graduate Vanuatu (Encontre 2004).

assistance on concessional terms from the multilateral funding agencies³ Despite the substantial annual aid inflows ever since its independence, economic performance of Vanuatu has been observed to be weak, with continuing stagnation in per capita income since early 1990s (Sugden and Tevi 2004, Gay 2004, UN ESCAP 2002). Two studies by Hughes (2003, 2004) under the auspices of the Australian think-tank, the Centre for Independent Studies, were highly critical of the effectiveness of foreign aid to the Pacific island countries, including Vanuatu. Closely on these two studies, came the announcement in March 2006 that the United States Millennium Challenge Corporation approved a five-year US \$65.69 million Compact with Vanuatu. This provoked further criticism from Hughes and Sodhi (2006) that the US Government decision was not justifiable in the light of ineffective use of aid.

There have been no studies on the nexus between aid and growth in Vanuatu. The only study available is Hughes and Sodhi (2006), utilizing data, which did not extend more than ten years. Since the sample period was so small, the analysis is unlikely to be statistically rigorous. The objective of this article is to fill the gap by undertaking an empirical study of the available data for a full period of 25 years since Vanuatu's independence in 1980 to critically examine the effectiveness of aid on growth. The remainder of the article is organized on the following lines. The second section provides a brief background of the economy of Vanuatu, reviewing the trends in growth and aid inflows. The third section outlines the model to be employed for the analysis and reports the results. The fourth and final section presents conclusions and recommendations with policy implications.

2. Vanuatu's Economy

Vanuatu, amongst the Pacific island states, has a much higher per capita income than three states of Tuvalu, Solomon Islands, and Kiribati, but lower than others in the region. However, the Pacific island countries themselves have lagged behind their counterparts in the Caribbean and Indian regions.

³ The soft loans from Asian Development Bank and the World Bank are generally for a long maturity period ranging from 30 to 40 years with an interest rate varying from 1 percent to 0.75 percent, generally referred to service charge. Hence, as these soft loans have a grant element of more than 25 percent, they are deemed to be overseas development assistance.

Table 1: Selected Key Indicators

	Population ('000)	Per Capita GDP (Current Prices) in US\$	Human Dev Index Ranking	Vulnerab ility Index Ranking	Aid per capita in US\$	Aid	
						% of GDP	% of GDP
	2002	2002	2003	1997	2002	1990	2002
Caribbean Region							
Antigua and Barbuda	76	10,449	60	2	192.1	1.2	1.9
Bahamas	314	15,797	50	4			
Barbados	270	9,423	30	38	12.8	0.2	0.1
Belize	256	3,382	91	25	88.6	7.6	2.6
Dominica	79	3,438	70	15	381.7	11.9	12.1
Dominican Republic	8745	2,514	95	91	18.2	1.4	0.7
Grenada	80	4,060	66	14	117.5	6.3	2.3
Guyana	765	937	107	16	84.9	42.6	9.0
Haiti	8132	415	153	97	8.9	5.9	4.5
Jamaica	2651	3,008	98	19	9.2	5.9	0.3
St.Kitts and Nevis	42	7,745	49	29	683.8	5.1	8.0
St.Lucia	1419	4,124	76	18	226.5	3.1	5.1
St.Vincent and Grenadines	120	4,060	87	21	40.1	7.8	1.3
Suriname	436	2,199	86	60	26.9	15.5	1.2
Trinidad and Tobago	1303	7,384	57	49	5.6	0.4	0.1
Indian Ocean							
Maldives	280	2,182	96	8	88.9	9.8	4.4
Mauritius	1211	3,740	65	26	19.8	3.7	0.5
Seychelles	82	8,320	51	24	97.8	9.8	1.1
The Pacific							
Cook Islands	19	2,651	62	NA	490.9	NA	28.0
Fiji	799	2,281	92	9	41.4	3.9	1.8
Fed States of Micronesia	114	1,864	120	NA	702.0	NA	37.4
Kiribati	85	530	129	NA	203.3	22.5	18.6
Papua New Guinea Republic of	5,099	523	137	31	36.4	12.8	7.2
Marshall Is.	51	2,008	121	NA	823.3	NA	49.6
Samoa	175	1,484	74	20	214.2	42.6	14.5
Solomon Islands	418	541	128	11	56.8	21.7	11.0
Tonga	98	1,347	54	3	217.2	26.3	16.4
Tuvalu	11	345	118	NA	260.0	47.2	45.0
Vanuatu	183	1,138	118	1	133.0	33.0	11.7

NA = Not Available

Source: ADB (2004), IMF (2004b), Jayaraman (2006), UNESCAP (2004), Sahay (2004), UNDP (2005), Commonwealth Secretariat (1997): Report on Small States by Consultative Group, London: Commonwealth Secretariat.

Vanuatu's apparently high per capita income of about US \$1200, mainly due to expatriate salaries in the private sector, hides deficiencies in basic human resource development aspects. Life expectancy is about 66 years and the adult literacy is 34 percent. About 20 percent of the population has no access to health services and 13 percent has no water supply. In terms of quality of life, taking into account the indicators including expectancy of life at birth, mortality rates, nutrition and literacy, Vanuatu is at the bottom with a Human Development Index rank: 129 in the list of all island nations and in the region just one above Papua New Guinea: 133 (United Nations 2004).

More than 20 percent of the population lives in the two urban towns of Port Vila, the country's capital and in Luganville on Santo Island. The rural population is dispersed amongst the island group with limited communications among themselves and with urban centres. Land ownership is closely related to indigenous culture, generally referred to as *kastom* in pidgin and Bislama, which is widely spoken, along with English in the urban areas. It is a unique feature of the South Pacific region under which ownership of land is vested in the community. Land, thus, is not an economic commodity, as sale is not possible to those outside the community or foreigners.

Dispersal of population along with restricted availability of land and access to basic infrastructure services, including power, and social services including health and education have contributed to disparity in incomes, despite the prevalence of the much romanticized "subsistence affluence" among the isolated rural communities (ADB 1997). Subsistence agriculture dominates land related economic activities, amounting to about 55 per cent of the primary sector's output, most of which is consumed by rural communities. Subsistence agriculture also determines the reservation wage. Under the current minimum wage law, the urban wage, which takes into account the transfer cost to Port Vila and Luganville has been fixed at vatu 20,000 per month. At the current exchange rate of US\$1 = Vatu 115, this amounts to US\$174 per month. Skilled labour in urban areas is remunerated at a much higher rate-one of the highest in the region.

In the 1980s, four major agriculture products, copra, cattle (beef), cocoa and *kava*, which were once referred to as "four Cs", supported the rural population and they continue to be the mainstay of cash incomes to pay for the children's education and medicines, kerosene and others. Copra is marketed by the state owned Vanuatu Commodities Marketing Board, which has proven over time as one of the inefficient state enterprises of the country. Cocoa, Coffee

and Kava exports are handled by the private sector. These products along with vegetables and fruits, mainly for domestic consumption, contribute 15 percent of the gross domestic product (GDP). In the 1980s, copra accounted for 35 percent of total exports, while shares of beef and cocoa were 6 percent and 4 percent. Annual cyclones severely affect steady growth in their production.

With the emergence of timber exports through middlemen acting on behalf of Malaysian and Korean companies, with concomitant environmental concerns arising out of indiscriminate logging by land owning communities, cocoa and coffee receded into the background. In recent years timber accounted for 11 percent of total exports, copra 31 percent and beef 9 percent. Other exports, besides traditional coffee and cocoa, are minerals and handicrafts. With most of the exports being primary agricultural exports competing with those of other island economies they happen to form a small proportion of total world trade, so Vanuatu is a price taker. Consequently, export earnings are subject to the effects of a high degree of variation in world prices. Since 1997, copra and cocoa prices have fallen considerably. On the other hand prices of most manufactured goods and other strategic imports, including fuel have been on the rise. The resultant effects of high variability in terms of trade are reflected in high volatility in export earnings.

A study by Yari (2003) shows that Vanuatu suffered considerably in recent years. The instability measure of export earnings (average percentage deviation of export earnings from the exponential trend level for 1998-200) for Vanuatu was 21.5 percent, which is higher than that of Nauru (20 percent), Papua New Guinea (18 percent), Solomon Islands (17 percent) and Fiji (14 percent). Aside from the negative effects of the terms of trade, production levels of the commodity exports themselves also fluctuated.

Frequent cyclones resulting in uprooting of crops have been the main reason for these variations in output. Damages to farm and hinterland roads linking marketing centres and harbours and jetties in remote islands had adverse effects. Delays in restoration of links, which sometimes took years, affected exports and rural incomes.

The tourism earnings, on the other hand, which were on the rise due to establishing new air links until late 1990s gave a big support to meet the import deficits. Nearly 60 percent of total foreign exchange earnings are contributed by tourism, which also dominates the services

sector⁴. However, most of the tourists preferred the two urban centres and hence, little of the tourism dollar trickled down to rural communities in other islands. In 1998 and subsequent two years, Vanuatu suffered heavy loss in tourism earnings due to civil unrest in the country. A hefty rise in tourist arrivals in 2000 reversed the trend but with the 9/11 terror attack of 2001 in the USA, once again tourism had a setback. In addition, the consequent recessionary conditions in the industrialised countries have also had a negative influence on tourism earnings. Added to these unforeseen circumstances, annual cyclones and frequent tremors have their own toll on resort hotels and other tourist facilities.

Internal shocks resulting in annual variability in growth rates in agricultural production due to weather conditions and civil unrest of the kind witnessed in 1998, when people took to streets to protest against abuse of pension funds held in trust by the state owned Vanuatu National Provident Fund (Jayaraman 2003), contributed to the decline in growth in recent years. In addition to these developments, external shocks including fall in terms of trade and decline in demand for domestic exports including cocoa and copra have been the main causes behind the variability in national output.

⁴ The services sector of Vanuatu is marked by a significant presence of offshore financial center. Absence of direct taxation of any kind in respect of incomes and profits earned by citizens of Vanuatu and residents and non-residents alike has made Vanuatu a pure tax haven, attracting funds from industrialized nations. However, its contribution to GDP has been observed to be on the decline, especially after the European Union and the USA, in the wake of the 2001 terror attack, successfully persuaded Vanuatu to streamline the legislation as well as tighten surveillance measures to control money laundering activities in recent years (Fossen 2002).

Table 2: The Caribbean, Indian Ocean and the Pacific Regions: Output Growth and Variability

	1990- 2003 Average Growth Rate (%)	SD	1990- 1997 Average Growth Rate (%)	SD	1998- 2003 Average Growth Rate (%)	SD
Caribbean Region						
Antigua and Barbuda	3.2	3.0	3.0	3.6	3.3	0.8
Bahamas	0.4	3.8	0.9	3.5	2.2	1.4
Barbados	0.4	3.6	0.1	4.1	1.4	2.8
Belize	6.7	4.3	5.7	4.1	7.2	4.6
Dominica	1.4	2.3	2.7	1.4	0.5	3.1
Dominican Republic	4.7	4.0	3.9	4.6	5.0	2.2
Grenada	3.6	3.0	2.8	2.7	3.9	1.8
Guyana	3.3	5.2	5.9	4.1	0.5	3.2
Haiti	-0.4	5.4	-0.4	6.5	0.6	1.7
Jamaica	1.0	2.0	0.2	2.4	1.0	0.9
St.Kitts and Nevis	3.7	2.1	4.5	2.3	2.3	1.1
St.Lucia	1.7	3.2	2.7	2.4	0.8	4.8
St.Vincent and Grenadines	3.2	2.5	3.3	3.0	2.7	1.7
Suriname	2.1	5.3	0.7	6.2	2.4	1.7
Trinidad and Tobago	2.9	2.6	2.0	2.3	4.2	1.6
Indian Ocean						
Maldives	7.7	3.1	8.4	3.6	6.7	2.3
Mauritius	4.6	2.2	4.7	2.4	4.4	2.0
Seychelles	3.6	2.9	4.0	3.3	2.7	2.1
The Pacific						
Cook Islands	3.3	4.2	2.7	4.6	3.5	5.3
Fiji	1.6	3.7	2.6	2.4	2.7	4.2
Fed States of Micronesia.	1.8	4.0	2.3	5.1	0.2	4.6
Kiribati	2.9	5.8	3.0	2.8	5.0	4.5
Papua New Guinea	3.2	6.2	5.6	8.4	-0.2	3.9
Republic of Marshall Is.	2.3	7.9	-0.9	7.7	0.3	4.6
Samoa	0.5	7.6	-8.1	11.2	3.9	2.1
Solomon Islands	0.1	5.6	2.9	3.8	-3.7	6.0
Tonga	2.5	2.8	3.3	3.5	2.3	2.1
Tuvalu	3.8	5.4	5.6	6.2	4.8	4.5
Vanuatu	2.1	3.7	4.4	4.0	0.8	3.4

Note: SD = Standard Deviation

Source: Jayaraman (2006)

On the fiscal front, Vanuatu has no direct taxation of any kind and hence there is a high degree of dependence on indirect taxation. This takes the form of high import duties, VAT and fees and charges and other forms of indirect taxation. Overall fiscal deficits have

remained sustainable, mainly because of generous external aid and pure grants from the bilateral sources, primarily Australia, New Zealand and the European Union. See Table 3. Until the early 1990s, budgetary grants from the bilateral governments were financing recurrent expenditures, which include wages and salaries of the civil service and housekeeping expenditures. Reforms in aid delivery in years after the mid 1990s have redirected aid towards projects and programs rather than for government consumption expenditures. External aid to Vanuatu amounted to 33 percent of GDP in 1990, which was the third highest in the Pacific. Due to shift in priorities of the donors, there has been a general decline in subsequent years and Vanuatu received much less aid. It was only 12 percent of GDP in 2002. Thanks to external aid, current account balance in the balance of payments has also been sustainable and overall balance has been satisfactory.

Table 3: Vanuatu: Key Economic Indicators

	1990-1997 Average	1998-2003 Average
Fiscal Balance (% of GDP)	-4.0	-1.8
Balance on Goods (%)	-26.5	-22.3
Growth of Exports (%)	0.9	-2.2
Growth of Imports (%)	4.2	2.7
Current Account Balance (% of GDP)	-7.9	-7.8
Overall Balance (% of GDP)	-0.8	-4.2
Inflation (%)	4.4	0.8
Growth Rate (%)	3.4	0.8

Source: ADB (2003), IMF (2006)

Table 4 presents details of growth in GDP of Vanuatu in both aggregate and per capita terms. The data presented relate to a 25-year period since 1980, when the country gained independence. Average per capita GDP growth rates have been negative during two successive five-year periods of 1995-1999 and 2000-2004. External aid has also declined from a high figure of US\$ 611 in constant prices during 1980-84 to US\$163. As a proportion of Gross National Income (GNI), aid also decreased to 15 percent during 2000-2004 as against 32 percent in 1980-1984.

Table 4: Vanuatu: Aid, Growth and Exports (Averages)

	1980-1984	1985-1989	1990-1994	1995-1999	2000-2004
GDP per capita in Vatu (Constant Prices of 2000)	80391.12	77292.732	82139.85	86087.522	77877.4
GDP per capita in Vatu Growth Rate (%)	2.5	-4.0	3.9	-2.1	-1.5
GDP in Vatu (Millions) in Current Prices	9867.3	14026.2	21233.6	28025.0	32780.6
GDP in Vatu (Millions) (Constant Prices of 2000)	22432.5	28217.7	25895.1	29824.3	31274.0
GDP Growth Rate (%)	5.0	-1.6	6.7	1.1	0.6
AID as percent of GNI (%)	32.5	27.7	25.0	16.3	14.8
AID per capita in US Dollars Current prices of 2000	254.1	257.2	283.1	202.7	169.4
AID per capita in US Dollars Constant prices of 2000	611.6	425.2	350.4	218.5	163.1
AID per capita in Vatu in Current prices of 2000	22127.6	28024.8	32744.6	24157.9	23071.5
AID per capita in Vatu Constant prices of 2000	52072.6	46206.2	40513.3	25982.6	22235.7
Exports in Vatu (Millions) in current prices	2963.8	2329.6	2518.4	3655.6	3089.8
Exports in Vatu (Millions) in constant prices of 2000	6752.5	3993.9	3070.2	3926.2	2963.1
Exports as percent of GDP (%)	29.9	16.8	11.9	13.0	9.4
Exports Growth Rate (%)	10.4	-6.5	3.6	3.8	1.0

Source: World Development Indicators (2004)
Asian Development Bank (2005)

While external aid to Vanuatu until mid 1990s from Australia and New Zealand and other bilateral agencies was, as noted earlier, directed largely for budgetary purposes, loans from international agencies were for both physical and social infrastructure projects. This approach appeared to be sensible. Both Asian Development Bank (ADB) and World Bank were well experienced in funding rural and agriculture development projects of the kind the island nations required, which required much larger outlays and skills in project preparation,

appraisal, monitoring and supervision at implementation stages. However, from the late 1990s the trend changed. Donors joined together and shifted their attention to strengthen governance, which became the buzzword in the mid 1990s.

Based on the IMF approach of tightening credit and government expenditures, which was part of the Washington Consensus, ADB approved in 1997 a loan of US \$20 million for comprehensive reforms aiming at governance all around. Further, it was more concentrated on improving budgetary procedures and methods and preparing manuals. The ADB was joined by Australia, which contributed technical assistance in terms of expatriate skills. At one time, Gay (2004: 30) notes, about 42 international consultants descended on Port Vila to prepare manuals for various ministries and agencies including Finance and Planning and others.⁵ Once they left, there were “few lasting results” (Gay 2004). While a major part of the loan proceeds were used for payment of expatriate salaries during their stay in the country, the government has been still paying off the loans used to pay for their salaries as “the remaining loan funds were mostly for near term consumption oriented programs, artificially giving the economy a short-term boost” (Gay 2004: 31). In fact, consumption expenditures funded by external aid give rise to “Dutch disease effect”, raising the spectre of inflation⁶ It is now increasingly recognized in hindsight that ADB and bilateral agencies should have been aware that Vanuatu’s problems were more related to balanced regional development. External aid should have been continued for growth enhancing projects and programmes, including outer island development; and such project assistance would have raised rural incomes through augmenting export-oriented commodities that would have benefited the country as well. Gay (2004) rightly noted that Vanuatu did not experience problems of persistent rise in domestic credit, or bulging and unsustainable fiscal deficits and yawning current account deficits in balance of payments of the kind faced by Latin American countries, requiring the IMF- style structural adjustment loans. Vanuatu’s fiscal and current account deficits were small and sustainable.⁷

⁵ Gay (2004:35) quotes from the personal communication from the Director, Trade, Industry and Investment: The Comprehensive Reform Program was “ a complete waste of time. It paid for the salaries of a few consultants and did nothing for the country”.

⁶ Two recent studies (Rajan and Subramanian (2005), Raghuram and Subramanian (2005) indicated that some of the aid receiving countries in Africa were under the influence of the Dutch disease, the effect of which is reflected in the appreciation of real exchange rate. Appreciation of exchange rates has been seen to adversely affect the competitiveness of exports, thereby weakening economic growth.

⁷ The same point was made by Jayaraman (2002) while evaluating the proposal made by Knapman and Saldanha (1999) for a Currency Board Arrangement (CBA) for Vanuatu. Jayaraman described CBA as an invasive procedure which was not warranted, since the island country did not experience any spiraling inflation or currency crises of the kind experienced by Latin American countries.

The problem of Vanuatu was more of a trade deficit related one, which can be solved only by export growth promotion measures. For a subsistence oriented Pacific island nation, such as Vanuatu, it is necessary to step up production through physical infrastructure projects in terms of better farm roads, roads connecting hinterland to jetties in remote islands so that surplus farm produce enters markets for cash generation, as well as processing facilities enabling the emergence of value added industries utilizing the raw materials for coconut milk, cream and oil and the like. Instead, ADB and bilateral agencies preferred big bang programmes under the “banner of governance” (Sugden and Tevi 2004: 17), No doubt, aid works in an environment of good governance. But, the time has come for the donor community to strike a balance between assistance for project construction and governance.

The next section presents the methodology for testing a long run relationship between growth and aid during the past 25-year period.

3. Data, Modeling Methodology and Results

The choice of modelling methodology for the empirical analysis of aid effectiveness in Vanuatu is highly constrained by the deficiency of reliable time series of data. Unfortunately, lack of attention to building good statistical databases has been a common feature in all the island countries⁸. Since Vanuatu gained independence only in 1980, national income data for earlier years are not available. Since aid effectiveness has to be studied over a long period spanning to 20 to 30 years, lack of data for a number of relevant variables has been a major handicap. The only longer time series data available are on gross domestic product, aid in highly aggregated form without any distinction between technical assistance and project or program aid, and exports, all from World Development Indicators (WDI), published by the World Bank (2005). Data relating to investment expenditure, projects and other budget items including recurrent government expenditure on wages and salaries are not consistently available over the period either from WDI or from the country's own official sources so as to form time series covering the period 1979-2004, for which GDP, aid and exports data are available. Therefore, only these latter three variables are employed in the following empirical analysis.

The hypotheses to be tested are: (i) aid enhances productive capacities of the country; (ii) consequently, higher production and their movements from hinterlands in rural communities and remote islands to commercial centres and ports would lead to increases in traditional exports including copra, beef and fish; and (iii) rise in export would result in growth. In our estimation procedure, we use the data in real and per capita terms, such as GDP per capita (GDPPC), exports per capita (EXPPC) and aid per capita (AIDPC).

Modeling Strategy

For examining possible long-term relationships amongst GDPPC, EXPPC, and AIDPC, we resort, in the first instance, to the autoregressive distributed lag (ARDL) bounds testing approach proposed by Pesaran, et al. (2001). The advantages of this approach are that it allows testing for the existence of a cointegrating relationship between variables in levels irrespective of whether the underlying regressors are $I(0)$ or $I(1)$, and it is more appropriate (than the Johansen-Juselius multivariate approach) for testing the long run relationship

⁸ Hughes (2006) comes down heavily upon this deficiency, by pointing out the poor personnel policies, which contribute to jobs in the Bureau of Statistics being considered as dead ends to careers. Further, governments have created an environment of suspicion that statisticians were expected "to produce politically suitable data" (Hughes 2006: 3)

amongst variables when the data are of a small sample size (Pesaran, et al., 2001). For these reasons, the ARDL procedure has become increasingly popular in recent years and we begin the empirical analysis with this procedure.

Expressing the variables in logarithmic terms, the test for cointegration is based on the following error correction version of the ARDL model pertaining to the three variables of interest:

$$\Delta\text{LGDP}PC_t = \alpha_0 + \sum_{j=1}^m \alpha_{1j} \Delta\text{LGDP}PC_{t-1} + \sum_{j=1}^m \alpha_{2j} \Delta\text{LEXPORTS}_{t-1} + \sum_{j=1}^m \alpha_{3j} \Delta\text{LAIDPC}_{t-1} \quad (1) \\ + \gamma_1 \text{LGDP}PC_{t-1} + \gamma_2 \text{LEXPORTS}_{t-1} + \gamma_3 \text{LAIDPC}_{t-1} + \varepsilon_t$$

where ε_t is the disturbance term.

In (1) the null hypothesis is that the three series are not cointegrated, which has the testable form of

$$H_0 : \gamma_1 = \gamma_2 = \gamma_3 = 0 \text{ vs } H_a : \text{Not } H_0$$

Following Pesaran and Pesaran (1997) this null may conveniently be tested with the familiar F-statistic, which, however, has a non-standard asymptotic distribution under both H_0 and H_a . Appropriate critical values are reported in Pesaran and Pesaran (1997, Appendix C) for different numbers of regressors (3 in our case), and whether the ARDL model contains intercept and/or trend terms. Two sets of critical values are given – one set assumes that all variables are I(1) and the other assumes they are all I(0) – providing a band covering all possible classifications of the variables into I(1) and I(0). Values of the calculated F-statistic above the upper level of the band indicate rejection of the null of no cointegration, whereas values below the lower level of the band support the conclusion of no cointegration. The test is inconclusive if the F-statistic falls within the band, in which case we resort to the traditional practice of conducting unit root tests followed by other tests for cointegration.

Empirical Results

Using the 26 annual observations (1979-2004) described above, we adopted a lag length of $m=2$ for the ARDL test equation (1), which was estimated with Ordinary Least Squares. As the resulting value of the F-statistic, 3.98, falls between the lower and upper bounds of 3.17

and 4.14, respectively, the results regarding cointegration are inconclusive. These results were invariant to the choice of dependent variable to use in equation (1)⁹. That is, the ARDL bounds tests did not provide any strong evidence that per capita GDP, exports and aid were tied together in a long-run relationship.

Consequently, following Kremers et al. (1992) we also carried out a test for cointegration based on the significance of the coefficient of the lagged error correction term (λ) in an error correction model¹⁰. Based on an underlying ARDL model with lag lengths (1,1,0) selected by the Hannan-Quinn criterion, the following ecm model specification was used

$$\Delta \text{LGDP}PC_t = \alpha_0 + \alpha_1 \Delta \text{LGDP}PC_t + \alpha_2 \Delta \text{LEX}PORTS_t + \alpha_3 \Delta \text{LAID}PC_t + \lambda \text{ecm}_{t-1} + \varepsilon_t \quad (2)$$

where $\text{ecm}_{t-1} = (\text{LGDP}PC - \delta_0 - \delta_1 \text{LEX}PORTS - \delta_2 \text{LAID}PC)_{t-1}$

The long run coefficients are derived from the estimated ARDL(1,1,0) as follows

Table 5: Estimated Long Run Coefficients using the ARDL Approach

ARDL(1,0,1) selected based on Hannan-Quinn Criterion				

Dependent variable is LGDP				

Regressor		Coefficient	Standard Error	T-Ratio[Prob]
C	($\hat{\delta}_0$)	9.5290	1.3469	7.0749[.000]
LEX	($\hat{\delta}_1$)	.1027	.1017	1.0098[.326]
LAID	($\hat{\delta}_2$)	.0908	.1209	.75118[.462]

Note firstly that the long run parameters are not estimated with a great deal of precision given the relatively large standard errors. Moreover, although the estimated parameters (elasticities) have the expected signs they are of small magnitude.

The resulting estimated error correction model is summarized in Table 6.

⁹ The calculated values of the F-statistics were 3.94 and 0.03 for LEXPORTS and LAIDPC, respectively.

¹⁰ We firstly conducted ADF unit root tests with the result that each variable is I(1). Details are not shown in order to conserve space but are available upon request.

Table 6: Estimated Error Correction Model

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*****
Dependent variable is Δ LGDPPC
*****
Regressor          Coefficient          Standard Error          T-Ratio[Prob]
Δ LEXPORTS         .14760                .037139                 3.9742[.001]
Δ LAIDPC           -.1561E-3             .8326E-3                -.18750[.853]
ecm(-1)           -.26186               .084658                 -3.0932[.006]
*****
R-Squared          .51437                R-Bar-Squared          .46812
S.E. of Regression .040411              F-stat.                F( 2, 21)              11.1213[.001]
Mean of Dependent Variable .0022506          S.D. of Dependent Variable .055411
Residual Sum of Squares .034295           Equation Log-likelihood 44.5552
*****

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From Table 6 we see that in the short run growth ($\Delta LGDPPC$) responds in a statistically (and economically) significant manner to the relative growth in exports, and in response to the previous year's long run disequilibrium. That is, just over 26% of last year's disequilibrium is "corrected" in the current year.

The null hypothesis of no cointegration is expressed as $H_0 : \lambda = 0$ vs $H_a : \lambda < 0$. The test statistic is $t(\hat{\lambda}) = -3.0932$, which, using the critical values tabulated in Banerjee et al., (1998), has a 10% critical value of -3.24. Hence the statistical evidence that these three series form a cointegrating relationship is not strong.

4. Summary and Conclusions

The paper undertook an empirical study on the effectiveness of aid to Vanuatu over the last 25 years. The study employed a trivariate model adopting the ARDL bounds testing and the error correction modelling approaches to investigate whether there was a long-term relationship between aid, growth and exports. Data on aid, GDP and exports, all in constant prices and on a per capita basis were utilized. Results of empirical analysis showed there was only weak evidence of the existence of a long-term relationship amongst the three variables.

The study finding on the absence of a link between aid and growth is not unusual, since the aid data of Vanuatu was in highly aggregated form. Such a result was also obtained in similar studies, when aggregated data in the absence of detailed data for projects, programmes and technical assistance were used. Islam (1992) Mbaku (1993) in their studies on Bangladesh and Cameroon respectively found out that aid did not contribute to growth. Recent studies of a cross-sectional nature in Africa (Rajan and Subramanian 2005, Raghuram and Subramanian 2005) using aggregate data came out with such a conclusion.

However, in a bivariate model analysis (details available upon request) on the relationship between exports and growth in Vanuatu, it was established that exports positively influenced growth. It was also shown in a separate analysis that aid in Vanuatu did not contribute to exports. It is apparent that aid did not lead to any increase in productive capacity of the country, thereby raising its export potential.

The results would not come as a surprise to the critics of aid to Vanuatu. By analyzing the data of a much shorter period and without employing any sophisticated analysis, Hughes and Sodhi (2006) came to the conclusion that past aid did not benefit Vanuatu. By resorting to a more detailed empirical analysis of data, which also covered a longer period, our study confirmed the finding that aid did not contribute to growth, but exports positively influenced growth. Hence, our recommendation is that external aid be re-directed towards promoting production of agricultural exports all of which are grown by rural communities. Aid should be more in the area of outer island development projects, including roads connecting farms as well as hinterland in remote, isolated islands to ports and jetties for speedy movement of exports so that rural communities are benefited through increases in their incomes as well.

Donor agencies would do well to undertake a fresh evaluation of their programmes. They should carefully review their policies to determine whether the past emphasis on governance has been overdone and strive towards striking an appropriate balance between aid for improving governance and aid for growth and income generating activities.

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