Enquiries
The Editor, Working Papers
Economics Division
Research School of Pacific Studies
The Australian National University
Canberra 0200
Australia

Tel (61-6) 249 4700
Fax (61-6) 257 2886

economics Division Working Papers

South Pacific

Saving behaviour in Vanuatu: 1983-1990

T.K. Jayaraman

93/9

Research School of Pacific Studies ANU

Published by the National Centre for Development Studies

Printed in Australia by Better Printing Service, 1 Foster Street, Queanbeyan, NSW, 2620

The Economics Division acknowledges the contribution made by the Australian International Development Assistance Bureau towards the publication of this working paper.

ISBN 0 7315 1708 3

Key to symbols used in tables

n.a.	Not applicable
..	Not available
-	Zero
.	Insignificant

T.K. Jayaraman is Senior Project Economist at the Asian Development Bank, Port Vila. The views expressed in this paper are the author's and do not reflect those of the Asian Development Bank.

Abstract

Trends in saving behaviour in Vanuatu are examined. Econometric analysis shows that

- near stagnation of the economy during the study period had no impact on saving behaviour
- foreign savings were a substitute for domestic saving
- monetisation through increased tourism contributed to saving
- recent natural disasters had a negative impact on saving
- favourable terms of trade have a positive influence on saving.

Decreasing dependency on foreign savings and mobilisation of domestic resources will be long-term goals for the government of Vanuatu. Promoting tourism is heading in the right direction. Despite a relatively open economy, monopolistic elements need to curbed and competitive conditions fostered. Further, the government cannot continue to depend on indirect taxation indefinitely and moves towards direct taxation measures must be considered. Finally, Vanuatu needs to develop and expand banking facilities, particularly in the outer islands, in order to promote domestic saving.

Saving behaviour in Vanuatu: 1983–1990

The South Pacific island countries have been the recipients of generous external aid, mainly in the form of grants from major donors, and loans and technical assistance grants from multilateral institutions. To a substantial extent, aid has supplemented national efforts to mobilise financing investment for ensuring faster economic growth in an non-inflationary manner.

External assistance has also contributed to exchange rate stability. In the absence of assistance, frequent currency adjustments would have caused consumer price level increases, because 70 to 80 per cent of consumer goods are imported. Further, because of the low magnitudes of short-run supply elasticities of primary exportables, such as copra and other tropical products, currency devaluations to correct external imbalances would not have proved as beneficial as would be normally expected.

In the context of declining foreign aid flows to the South Pacific region, it is increasingly recognised that the bulk of investment should be financed from national savings and that both this proportion and the investment rate should increase, if the countries are to move towards self-sustained growth and development. The island nation of Vanuatu, which attained political independence in 1980, has in recent years implemented several major steps towards achieving external and internal stability, including mobilisation of savings.

This paper seeks to examine the trends in savings of Vanuatu and analyse saving behaviour during the eight-year period from 1983 to 1990, for which national income data are complete and published. The paper is organised into four sections. The first two sections present a descriptive picture of trends in economic and financial savings, the third section outlines a simple econometric model for analysing saving behaviour and presents results. The final section offers conclusions for consideration by policymakers.

Savings in Vanuatu

Forms of savings

Saving can be classified into two broad categories: accumulation of real assets (storable goods, jewellery, livestock and the like) and accumulation of financial assets (financial instruments, including bank deposits, life insurance policies, and provident fund balances). In Vanuatu, as in many South Pacific island countries, a major part of the economy is non-monetised. Cultural factors also determine savings, including an extended family system based on principles of sharing and caring for members beyond the nuclear family, not only in times of distress but also throughout life. Furthermore, conspicuous consumption, particularly purchasing gifts and providing feasts for social events and family occasions such as weddings and funerals, also influences saving behaviour.

Saving in the non-monetised sector is necessarily by acquisition of real assets. Saving takes this form even within the monetised sector due partly to lack of access to information and monetary institutions and partly to inflationary influences. In these circumstances, saving is indistinguishable from investment.

Even when income flows exceeding consumption requirements are saved in surplus forms other than capital formation, it is difficult to measure savings accurately, given the limited degree of monetisation. In Vanuatu's cultural and institutional setting, measurement of savings by households is a difficult task. Government savings, on the other hand, can be measured with relative ease as the excess of current government revenue over current expenditure. Business savings can be measured in a similar fashion, however the business sector accounts for only a small proportion of total economic activities. The majority of Vanuatu's savings is likely to come from the household sector and therefore, the measurement of savings has to use national income accounts.

Definition of savings

Following an approach adopted in recent empirical studies on savings in industrial countries, the term 'savings' is used in this study to refer to national savings and includes domestic savings, net factor incomes received as interest, dividends and other similar earnings, and unrequited private transfers including remittances sent by citizens resident abroad (Asian Development Bank 1985). National savings so defined, measures the country's total efforts, whereas domestic savings data alone understate the national effort to mobilise resources (for discussion of methodological issues, see Asian Development Bank 1985).

Further, gross national savings rather than net national savings is used for the analysis. This is because of the often varying and arbitrary nature of the depreciation allowances employed to calculate net investment.

The national accounts approach to savings measurement

Using national accounting, the current account of balance of payments is equal to the sum of public and private sector saving/investment balances. Thus if public sector investment exceeds public sector saving and if private sector investment exceeds private sector saving, there must be a current account deficit in the balance of payments (Helmers 1988; Dornbusch 1988).

Thus

$$CA = Y - E = Y - (C + I + CE)$$

where,

- CA = net exports (exports minus imports) minus net factor incomes plus net remittances plus net private transfers
- Y = national income
- E = national expenditure
- C = household consumption of goods and services, purchased at home and from abroad
- I = gross domestic investment by firms as well as government
- CE = recurrent expenditures of government.

Since national income can be saved, taxed or used for consumption, CA can be expressed as

$$CA = (CR - CE) + (S - I)$$

where,

- CR = recurrent revenues of government comprising tax and non-tax revenues
- S = private savings.

Utilising Vanuatu national income accounts data covering the eight-year period from 1983 to 1990, gross national savings has been estimated by deducting foreign savings, which is the current account deficit in the balance of payments before government transfers from gross domestic investment. Foreign savings is thus calculated as the net capital inflow from abroad measured by imports minus

exports minus net factor incomes and minus net private transfers including remittances. Gross domestic savings can be determined by deducting net factor incomes and unrequited private transfers including net remittances from abroad from gross national savings. Since government savings is known, it can be subtracted from gross domestic savings to arrive at private savings.

Saving performance

Following the approach outlined above, a time series of data relating to gross domestic investment has been constructed and estimates of gross national savings and gross domestic savings calculated for the 1983–1990 period. There has been a steady increase in the ratio of gross domestic investment to gross national savings from 1983 (22.2 per cent) to 1990 (38.1 per cent) except for temporary declines in 1984 and 1988 (Table 1). The proportion of foreign savings in GNP fluctuated in the initial years and reached 31.5 per cent of GNP in 1987 (Table 2). However, foreign savings has decreased gradually since 1987 to 13.2 per cent of GNP in 1990 (Figure 1). This is reflected in improvements in domestic resource mobilisation and increases in the flows of private transfers and net factor incomes.

Table 1 **Vanuatu gross domestic investment, national savings and domestic savings, 1983–90** (vatu million)

Year	Gross domestic investment	Current account deficit before official transfers (foreign savings)	Gross national savings	Unrequited private transfers and net factor incomes	Gross domestic savings	Government savings	Private savings
1983	2,142	1,637	505	98	407	-527	934
1984	2,491	649	1,842	310	1,532	-155	1,687
1985	2,849	1,924	925	1,165	-240	-321	81
1986	3,580	2,619	961	1,290	-329	-701	-372
1987	4,417	3,955	462	-8	470	-32	502
1988	4,170	2,947	1,223	673	550	346	204
1989	5,470	2,924	2,546	1,175	1,371	211	1,160
1990	7,311	2,541	4,770	2,335	2,435	412	2,023

Source: Vanuatu, National Planning and Statistics Office, Port Vila.

Table 2 **Gross domestic investment, foreign savings, gross national savings, gross domestic savings and government savings, 1983–90** (per cent of GNP)

Year	Gross domestic investment	Foreign savings	Gross national savings	UPT and NFI	Gross domestic savings	Government savings
1983	22.19	16.96	5.23	1.01	4.21	-5.19
1984	20.86	5.44	15.43	3.22	12.83	-1.26
1985	22.02	14.87	7.15	9.01	-1.86	-2.56
1986	28.21	20.64	7.57	10.16	-2.59	-5.76
1987	35.23	31.54	3.68	-0.01	3.75	-0.24
1988	28.60	20.21	8.39	4.62	3.77	-2.31
1989	32.36	17.30	15.06	6.95	8.11	-1.29
1990	38.11	13.25	24.87	12.17	12.69	-2.39

Sources: Vanuatu, National Planning and Statistics Office, Port Vila; Asian Development Bank, *Key Indicators of Developing Member Countries, 1992*, Asian Development Bank, Manila.

Table 3 **Gross domestic investment, gross domestic savings and resource gap, 1983–90** (per cent of GDP)

Year	Gross domestic investment	Gross domestic savings	Resource gap
1983	21.03	4.01	17.02
1984	20.19	12.41	7.77
1985	22.73	-1.91	24.64
1986	29.39	-2.7	32.09
1987	32.95	3.51	29.44
1988	27.79	3.66	24.13
1989	33.45	8.38	25.07
1990	40.85	13.60	27.23

Sources: Vanuatu, National Planning and Statistics Office, Port Vila; Asian Development Bank, *Key Indicators of Developing Member Countries, 1992*, Asian Development Bank, Manila.

The resource gap, defined as the difference between gross domestic savings and gross domestic investment was largest in 1986. The resource gaps each year have been met largely by foreign savings (Table 3 and Figure 2). The domestic saving effort in the early years of independence resulted in erratic performance. The percentages of gross domestic savings to GDP fluctuated from a positive ratio of 4.0 per cent in 1983 to a negative ratio of -2.7 per cent in 1986 and then steadily recovered, reaching 8.4 per cent in 1989 and 13.7 per cent (the highest proportion) in 1990. Similarly, the proportion of gross domestic savings to gross domestic investment fluctuated widely during the first four years of the study (1983–87).

Only in later years, has there been a steadily increasing trend from 10.6 per cent of gross domestic investment in 1987 to 33.1 per cent in 1990 (Table 4). This is matched by a declining trend in foreign savings from 89.5 per cent in 1987 to 34.8 per cent of gross domestic investment in 1990 (Figure 3).

Table 4 Gross national savings, foreign savings and domestic savings (as per cent of gross domestic investment)

	Gross national savings	Foreign savings	Gross domesic savings
1983	23.58	76.42	19.01
1984	73.95	26.05	64.50
1985	32.47	67.53	-8.42
1986	26.84	73.16	-9.19
1987	10.46	89.54	10.64
1988	29.33	70.67	13.19
1989	46.54	53.45	25.06
1990	65.24	34.76	33.36

Sources: Vanuatu, National Planning and Statistics Office, Port Vila; Asian Development Bank, *Key Indicators of Developing Member Countries, 1991*, Asian Development Bank, Manila.

Figure 1 Gross domestic investment, gross national savings, foreign savirgs (as per cent of GNP

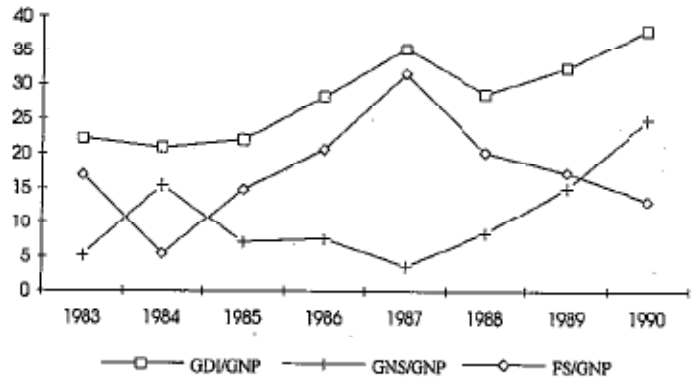


Figure 2 Resource gap (as per cent of GDP)

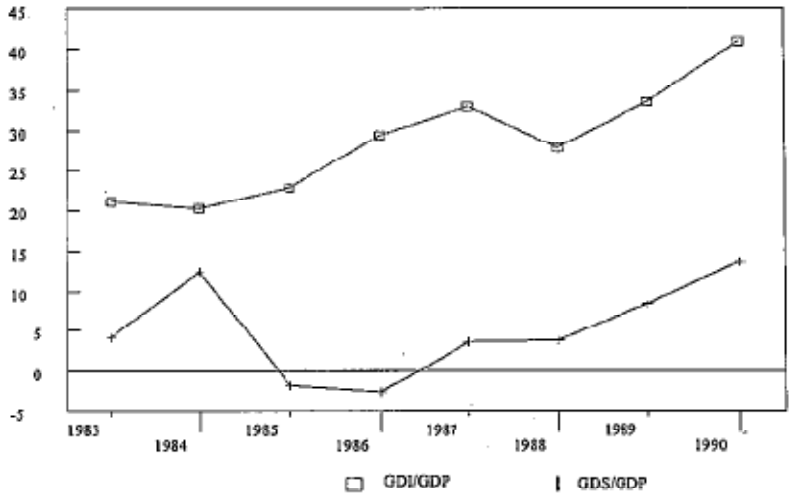
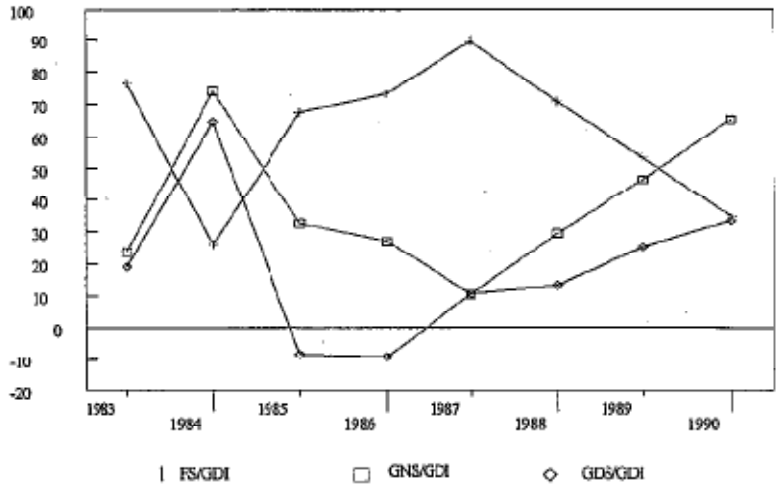


Figure 3 Gross national savings, foreign savings, gross domestic savings (as per cent of gross domestic investment)



The net flows of private transfers and factor incomes have followed a similar erratic pattern, although seemingly unconnected with domestic resource mobilisation efforts (Table 2). The proportion of private transfers and factor incomes, which was about one per cent of GNP in 1983, rose to 10.2 per cent in 1986, but dropped to a negative figure of less than one per cent the next year, partly reflecting the uncertain economic conditions resulting from political instability. However, there has been a steady improvement in subsequent years: 4.6 per cent in 1988, 6.9 per cent in 1989 and 12.2 per cent in 1990.

Government saving

Government saving is defined as the difference between internal revenue, not including foreign grants and technical assistance, and current expenditure. Development expenditures are financed by foreign grants and loans, whereas technical assistance expenditures (expatriate expert services and related expenditures) are fully borne by the bilateral donors. Current expenditure refers to salaries, wages and maintenance expenditure. As there is no direct taxation of any kind in Vanuatu, revenue is based entirely on indirect taxation and fees. Nearly 80 per cent of tax revenue is derived from duties on imports, and the rest is from taxes on the retail services of restaurants and hotels. Non-tax revenues are mainly from business licence fees, resident expatriate work permit fees and vehicle taxes.

Tax revenues, as a proportion of GDP have increased in recent years, mainly due to increases in tax rates. Tax revenues rose from 18.4 per cent of GDP in 1986 to 21.4 per cent in 1987 and 21.6 per cent in 1990. On the other hand, non-tax revenues have remained stagnant at 5.0 per cent of GDP for three consecutive years (1988–90). The fiscal balance was negative until 1987, but has been positive since 1988. Government saving, therefore, was negative during the major part of the 1983–90 period and contributed to national savings in a positive manner only from 1988 onwards. In 1990, government saving was 2.3 per cent of GDP.

Expenditures in the past five years on public sector enterprises, including the injection of substantial aid money (1.3 billion vatu) into Vanuatu Commodities Marketing Board (with no obvious real returns to the economy) and sizeable contributions to Air Vanuatu (which has accumulated losses of 2 billion vatu) fall under the category of capital or development expenditures (Fallon and Karabalis 1992). Although outside recurrent expenditures, they have implications for the current budget. In addition to the opportunity cost of such expenditures, the budgetary pressures they generate have inflationary potential which may aggravate the increase in future current expenditures.

Overall savings effort

The overall effort to improve gross national savings has had fluctuating results. The proportion of gross national savings to GNP rose from 5.2 per cent in 1983 to 15.4 per cent in 1984, only to decline steadily to a low of 3.7 per cent in 1987; it recovered over the next three years reaching 8.4 per cent in 1988, 15.1 per cent in 1989 and 24.9 per cent in 1990.

A comparative picture

Saving and investment levels in Vanuatu compare favourably to the levels of similarly placed countries in the region, Western Samoa, Tonga, Fiji and Solomon Islands (Table 5). Vanuatu's average ratio of gross domestic investment to GDP, 34.8 per cent over the five-year period 1987–91, was the highest among the five countries. The ratio of gross national savings to GDP of Western Samoa ranked first, closely followed by Tonga. This is the result of a high inflow of net private transfers, representing substantial net remittances and estimated to be around one-third of GDP. As a result, gross domestic savings in both Western Samoa and Tonga were negative. Fiji has the highest rate of domestic savings (18.1 per cent of GDP) followed by Vanuatu (11.5 per cent) and Solomon Islands (6.1 per cent). The rate of domestic resource gap to GDP is the lowest in Fiji (2.1 per cent), and the highest in Tonga (38.1 per cent). The corresponding rate for Vanuatu is 23.3 per cent.

Table 5 **Gross domestic investment and savings, 1987–91** (per cent of GDP: average)

	Fiji	Solomon Islands	Tonga	Vanuatu	Western Samoa
Gross domestic investment	16.2	30.5	27.4	34.8	29.5
Current account deficit (foreign savings)	2.4	26.1	7.3	21.4	9.5
Gross national savings	13.8	4.4	20.1	13.4	20.5
Net private transfers and factor income	-4.3	-1.7	30.8	1.9	27.4
Domestic savings	18.1	6.1	-10.7	11.5	-6.9
Domestic resource gap	2.1	24.4	38.1	23.3	36.4

Source: Asian Development Bank, *Key Indicators of Developing Asian and Pacific Countries*, Vol. xxiii, July 1992, Asian Development Bank, Manila.

Savings and economic growth

Vanuatu's real gross domestic investment grew at 11.5 per cent over the eight-year period, with similar high rates of growth in real gross national savings and real foreign savings at 18 per cent and 9.4 per cent respectively (Table 6). Although

real gross domestic investment had both a high rate of growth and consistently accounted for a large proportion of GNP (21 per cent in 1984, 35 per cent in 1987, and a high of 38.1 per cent in 1990), growth in real GNP over the eight-year period has been only about 2.6 per cent. The corresponding rate of growth in real GDP is much smaller, being less than one per cent.

Table 6 Rates of growth, 1983–90

Variable	Trend equation	Annual growth rate (per cent)
1. Real GNP	log real GNP = 3.9883 + 0.0111 t R^2 = 0.5143; F = 7.7120	2.6
2. Real GDP	log real GDP = 4.0081 + 0.0006 t R^2 = 0.8868; F = 14.6039	0.1
3. Real gross domestic investment	log real GDI = 3.2678 + 0.0473 t R^2 = 0.8868; F = 47.0376	11.5
4. Real gross national savings	log real GNS = 2.7058 + 0.0657 t R^2 = 0.2827; F = 2.3643	16.3
5. Real financial savings	log real FS = 3.0646 + 0.0390 t R^2 = 0.1924; F = 1.42961	9.4

The near stagnation of the economy during the 1983–90 period can only be attributed to the negative impact of several factors, including distortions in factor prices such as wages, interest rates and other input prices. Most of the factor and input prices were not aligned with factor endowments and did not reflect real costs of production, leading to monopoly profits. Furthermore, the natural resource base has deteriorated as a result of frequent cyclones. The weak growth in GDP can also be attributed to the low returns and long gestation periods of investment projects, to the lack of skilled labour and other supply bottlenecks, falling under the description of absorptive constraint (Little 1982). It also appears that the positive impact of increased capital formation has been offset to a substantial extent by a decline in the productivity of capital. This leads to the conclusion that it is not mobilising savings, but rather improving the allocative process which is critically important; a recurring theme in the growing literature on South Pacific island economic development (World Bank 1991; Bauer et al. 1991; Cole and Tambunlertchai 1993). The utilisation of gross national savings,

supplemented by generous external assistance—grants and loans from multilateral organisations has been receiving increasing attention.

One proposed strategy for mobilising domestic resources and increasing monetisation is to liberalise financial markets in order to remove distortions, improve incentives and facilitate information flows between potential savers and financial institutions. Upgrading the capability of the financial system is also expected to improve allocative efficiency, because some of the factor pricing distortion is expected to be eliminated in the process (Abe et al. 1977; Fry 1978; Shaw 1978; McKinnon 1973).

Financial system and savings

Vanuatu's financial system comprises four commercial banks, the nationally owned National Bank of Vanuatu and three foreign-owned banks. The commercial National Bank of Vanuatu was launched in 1991 and took over the operations of Vanuatu Cooperative Savings Bank. The non-bank institutions are the government-owned Development Bank of Vanuatu, established in 1979, and responsible for promoting rural and industrial development by providing loans for viable projects, and the National Provident Fund, set up in 1987.

While the nationally owned National Bank of Vanuatu has branches in the rural areas, especially in the outer islands, the three foreign-owned commercial banks have far fewer branches outside Port Vila (the national capital) and Luganville (the other major urban area).

Besides these institutions, there are a few small credit institutions which cater for a limited number of clients. These include a credit union managed by the Roman Catholic Church and informal groups of salaried employees of commercial enterprises. The aim of these organisations is to provide savings and credit facilities to members, who pool savings together and then borrow from the pool.

Most of the institutions of the offshore financial centre, which enjoy tax-haven status under the International Companies Act, do not engage in domestic operations and are generally outside the monetary system of the country.

As the economy is open with no exchange controls, residents are free to hold bank deposits in any currency and the four commercial banks are free to conduct deposit and loan business in both domestic and foreign currencies.

Since the expatriate population, which is highly concentrated in Port Vila and Luganville, appears to prefer to keep minimum requirements in vatu and the rest

of their savings in foreign currency, a large portion of total savings and time deposits is kept in foreign currencies. Lending is limited by a shortage of high-quality vatu-denominated assets. As a result of this and the fact that the public sector does not generally borrow from the banking system, domestic loans account for only about one-third of the deposit liabilities of the banking system.

Savings and time deposits

Vatu liquidity (vatu denominated deposits, defined as currency and demand, and savings and time deposits) which formed about 55.4 per cent of total liquidity (vatu and foreign currency denominated deposits) in 1983, declined to 33.2 per cent in 1990 (Table 7). However, in absolute terms, vatu liquidity rose to 3.4 to 5.8 billion vatu, which is an increase of about 70 per cent. Foreign currency liquidity (defined as demand and savings and time deposits) on the other hand, increased in 1983 from 2.8 billion vatu (44.6 per cent of total liquidity) to 11.6 billion vatu in 1990 (66.8 per cent of total liquidity).

Table 7 **Domestic money supply and components: annual average, 1983–90** (vatu million)

	Narrow measure currency + demand deposits in vatu	Savings and time deposits of residents in vatu	Total vatu liquidity	Demand deposits by residents in foreign currency	Savings and time deposits in foreign currency	Total foreign currency liquidity	Total vatu and foreign currency liquidity
1983	1,660.5	1,822.4	3,422.9	292.3	2,467.7	2,760.0	6,182.9
1984	1,866.0	2,240.4	4,106.4	486.0	4,677.8	5,163.8	9,270.2
1985	2,102.1	1,982.7	4,084.8	587.4	6,514.8	7,102.3	11,187.1
1986	2,072.6	2,458.3	4,530.9	558.1	6,608.8	7,166.9	11,697.8
1987	2,606.3	1,443.8	4,050.1	1,036.8	8,346.8	9,383.6	13,433.7
1988	2,279.8	2,479.0	4,776.8	858.2	6,464.8	7,323.0	12,099.8
1989	2,799.6	2,633.8	5,433.4	976.4	7,624.5	8,600.9	14,034.3
1990	2,839.0	2,965.8	5,804.8	1,224.6	10,388.8	11,643.4	17,418.2

Source: Reserve Bank of Vanuatu, *Quarterly Economic Review* (various issues).

Savings and time deposits in vatu, which amounted to 1.8 billion vatu or 42.5 per cent of total savings and time deposits in vatu and foreign currencies in 1983, rose to nearly 3.0 billion vatu in 1990 (Table 8). However, this was only about 22.2 per cent of total deposits in 1990, indicating a decline of about 50 per cent in the proportion of vatu deposits relative to foreign currency deposits. On the other

hand, savings and time deposits in foreign currencies increased by 76.2 per cent between 1983 and 1990, rising from 2.5 billion vatu in 1983 to 10.4 billion vatu in 1990. Thus, the proportion of savings and time deposits in foreign currencies to total savings and time deposits in vatu and foreign currencies increased from 57.5 per cent in 1983 to 77.8 per cent in 1990. This ratio peaked at 85.2 per cent in 1987, reflecting political and economic uncertainties and the associated preference of citizens (to a small extent) and resident expatriates (to a considerable extent) to hold deposits in currencies other than vatu.

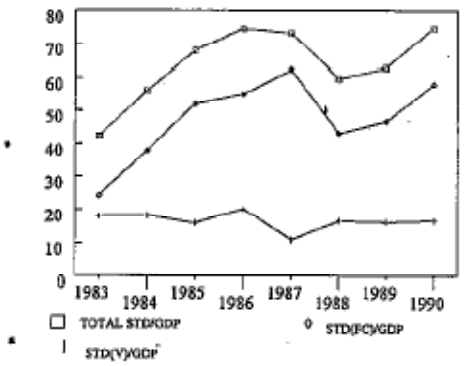
Table 8 **Savings and time deposits in vatu and foreign currency, 1983–90**

	STD (vatu)		STD (foreign currency)		Total STD	STD (vatu)	STD (foreign currency)	Total STD
	Millions of vatu	Per cent of total STD	Millions of vatu	Per cent of total STD	Millions of vatu	Per cent of GDP	Per cent of GDP	Per cent of GDP
1983	1,822.4	42.48	2,467.7	57.52	4,290.10	17.95	24.31	42.26
1984	2,240.4	32.38	4,677.8	67.62	691.82	18.16	37.91	56.07
1985	1,982.7	23.33	6,514.9	76.67	8,497.60	15.82	51.98	67.80
1986	2,458.3	27.11	6,608.8	72.89	9,067.10	20.18	54.26	74.44
1987	1,443.8	14.75	8,346.8	85.25	9,790.60	10.77	62.27	73.04
1988	2,479.0	27.71	6,464.8	72.29	8,943.8	16.52	43.08	59.60
1989	2,633.8	25.67	7,624.5	74.33	10,258.3	16.11	46.63	62.74
1990	2,965.8	22.21	10,388.8	77.79	13,354.6	16.57	58.04	74.61

Note: STD = savings and time deposits.
Source: Author's calculations.

In real terms, however, the ratio of vatu savings and time deposits to GDP has remained around 17 to 18 per cent with wide fluctuations throughout the eight-year period (Figure 4). The ratio peaked at 20.2 per cent in 1986, followed by a rapid decline to the lowest ratio of 10.8 per cent in 1987. On the other hand the ratio of savings and time deposits in foreign currencies to GDP more than doubled from 24.3 per cent in 1983 to 58.0 per cent in 1990. As a result of this substantial increase in savings and time deposits in foreign currencies, the ratio of total savings and time deposits in all currencies to GDP increased steadily from 42.3 per cent in 1983 to 74.4 per cent in 1986. Although it declined in the next few years due to adverse conditions, following the aftermath of cyclone Uma in 1987, there were signs of recovery indicated by the increase in the ratio from 62.7 per cent of GDP in 1989 to 74.6 per cent in 1990.

Figure 4 Savings and time deposits (as per cent of GDP)



Annual change in savings and time deposits

Annual changes (increases or decreases) in total savings and time deposits in all currencies in absolute terms reflect economic conditions affecting the saving environment and is calculated as: savings and time deposits in period '*t*' minus savings and time deposits in period '*t*-1'. These conditions include changes in interest rates offered by commercial banks for various types of deposits and expectations of inflation. Additional factors include the growth of the economy, which is subject to an unpredictable supply situation due to frequent cyclonic disturbances, and the external demand situation reflected in the terms of trade of exportables, notably copra and the emerging crops cocoa, coffee and beef.

In real terms, the annual changes (increases or decreases) in savings and time deposits in vatu and foreign currency expressed as percentages of GDP illustrate the ups and downs of the saving environment (Table 9 and Figure 5). The negative values of vatu savings and time deposits in 1985 and 1987 clearly reflect the downward trend in economic growth in the aftermath of the cyclones. Similarly, uncertain political conditions in 1988 seem to have caused substantial withdrawal of savings and time deposits in foreign currencies (an annual change of -12.54 per cent). However, the conditions improved in the next two years, 1989 and 1990. There was healthy growth in savings and time deposits in foreign

currencies (8.0 per cent and 17.3 per cent respectively), but the increases in vatu deposits were small (only 0.95 per cent and 1.85 per cent respectively).

Figure 5 Change in savings and true deposits (as per cent of GDP)

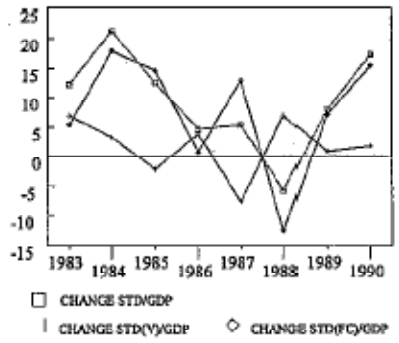


Table 9 Annual change in savings and time deposits in vatu and foreign currency, 1983–90 (million vatu)

	Change in STD (millions of vatu)	Per cent of GDP	Change in STD (foreign currency) (millions of vatu)	Per cent of GDP	Change in total STD (millions of vatu)	Change in total STD deposits (per cent of GDP
1983	700.4	6.90	549.0	5.41	1,249.1	12.31
1984	417.4	3.38	2,210.1	17.91	2,627.5	21.29
1985	-257.1	-2.05	1,837.1	14.66	1,580.0	12.61
1986	475.6	3.90	93.9	0.77	569.5	4.67
1987	-1,014.5	-7.57	1,738.0	12.97	723.5	5.40
1988	1,035.2	6.90	-1,882.0	-12.54	-846.5	-5.64
1989	154.8	0.95	1,159.7	7.10	1,314.5	8.04
1990	332.0	1.85	2,764.3	15.44	3,096.3	17.30

Note: STD = savings and time deposits.
Source: Author's calculations.

Interest rates

One of the incentives for savers, in the absence of other attractive financial instruments, is the interest rate offered by commercial banking institutions. Although there are no market interventions in the determination of interest rates in Vanuatu, savers in vatu were clearly disadvantaged. While the interest rates on foreign currency deposits moved closely in line with rates abroad, interest rates on vatu deposits remained more or less stable (Table 10). Interest rate stability has acted as a disincentive, especially during inflationary periods, when the real interest for vatu deposits has been negative. The position was even more adverse for vatu deposits mobilised through the rural branches of the National Bank of Vanuatu, which as Vanuatu Cooperative Savings Bank (prior to its conversion to a commercial bank), paid only 4 per cent on deposits from 1986 to 1989—much less than the interest rate offered by foreign-owned commercial banks. The lowest average rate of interest on time deposits represents the nominal interest rate offered by commercial banks on time deposits for six months and above, which is adjusted for inflation to calculate a real deposit rate. Due to relatively high price levels in 1984, 1987 and 1988, the real deposit rates were negative and in other years, although positive, were low.

Table 10 Nominal and real deposit rates of interest

	Nominal interest rate on deposits[a]	Real deposit rate[b]
1983	8.50	2.84
1984	7.00	-5.98
1985	6.56	6.09
1986	4.85	5.68
1987	3.00	-6.03
1988	7.50	-3.38
1989	7.50	3.10
1990	7.50	3.41

[a] This represents the lowest average rate on time deposits offered by the commercial banks on time deposits for six months and above.

[b] Real deposit rate = $\frac{(100 + \text{nominal interest rate})}{(100 + \text{GDP deflator \% change})} - 1$

Source: Author's calculations

Non-bank financial institutions

The Development Bank of Vanuatu, established in 1979, is entrusted with the responsibility of promoting industrial development and encouraging entrepreneurial skills, especially among the ni-Vanuatu citizens. The Development Bank of Vanuatu does not mobilise deposits but raises resources through credit from multilateral institutions, the European Investment Bank and bilateral grants. It provides loans and technical and managerial assistance to its clients.

The National Provident Fund, established by the government in 1987, mobilises deposits through compulsory contributions. Full-time employees in the private and public sectors are required by law to deposit 3 per cent of their pay, a contribution which is matched by their employers. While the temporary workers in the agriculture sector are exempt, participants are required to contribute until they reach the age of 55 at which time their savings can be withdrawn in a lump sum. The National Provident Fund pays 3 per cent interest on the balance of employee contributions and this interest rate has been frozen until a government loan of 39 million vatu is fully paid.

The National Provident Fund has emerged as an important agency for mobilising savings in the mainly urban organised sectors. Its membership has increased from 12,000 in 1987 to more than 19,000 in 1990. Total contributions were about 260 million vatu and accumulated assets were 867 million vatu in 1990. The investments of the National Provident Fund are mainly government bonds (40 per cent) and fixed-term bank deposits (48 per cent), the remaining being loans to private sector businesses and the housing corporation.

Rural savings

Mobilisation of rural savings is seriously hampered by the lack of an adequate number of commercial bank branches. The existing branches are largely National Bank of Vanuatu, which were the branches of the Vanuatu Cooperative Savings Bank. The larger, established and foreign-owned banks have yet to undertake serious efforts in rural areas. As a result, informal credit institutions operated by church-affiliated institutions have a large role. Their efforts are greatly influenced by cultural factors and traditional attitudes to saving. In the monetised sectors, which are dependent on export earnings for monetary injections, consumption is mainly confined to household needs, school fees, medical bills and other temporary requirements. Extra cash is either hoarded or spent away. During the boom periods of high export prices, surpluses generally are not saved for rainy days, rather (following traditional expenditure patterns) they are used for more lavish gifts, and more expensive social events such as weddings and funerals.

A simple model of saving behaviour

Factors influencing saving

Literature on saving behaviour, which is defined for the purpose of this paper as saving rate (ratio of gross national savings to GNP), has highlighted the roles of rate of growth of real income, per capita income, demographic influence, real rate of interest and foreign capital inflows (Mikesell and Zinser 1973; Gersovitz 1988). Whether one chooses the relative income, permanent income or life cycle theories of saving for explaining the saving function, the rate of growth of income is an important variable. Theoretical justifications for real per capita income range from static Keynesian consumption function analysis to risk avoidance as a luxury good, to increasing incremental capital/output ratio.

Demographic factors are usually defined in terms of dependency rate as percentage of population in the 0–14 and 65 years and above age brackets. The hypothesis is that dependency rate is expected to be negatively correlated with saving rate since current consumption is directly related to the proportion of children in the total population (Leff 1969). The real interest rate, adjusted for the negative influence of inflation on savings and signifying the real yield on money is the real deposit rate. It is postulated that the real interest rate and saving rate are positively correlated.

Foreign savings

Foreign capital inflows are considered to substitute for national savings and hence the relationship between saving rate and the ratio of foreign savings to GNP is hypothesised to be negative.[1] This hypothesised negative relationship might be surprising since it is expected that much of the foreign savings would be used to finance public investment and not consumption. One possible explanation is that the ready availability of foreign aid enables the government to increase recurrent expenditure, and reduce tax efforts thereby giving rise to fiscal deficits.

However, there has been considerable debate over the direction of the causality. Empirical studies, using a simultaneous equations model have provided support for the substitutability hypothesis in that all components of foreign saving (foreign aid, foreign private investment and all other foreign inflows) exhibited

[1] If foreign saving is a substitute for national saving, it will have a significantly negative sign in the regression equation with saving rate as a dependent variable; if it is a complement, it will have a significant positive sign; and if additive, the parameter will be around zero (see Singh 1975).

negative coefficients (see Gupta 1975; Weisskopf 1972). To ensure that no simultaneity bias arises, foreign savings ratio is entered as an exogenous variable together with other exogenous variables including rate of growth, per capita income and real rate of interest.

The model

The saving function for Vanuatu and other Pacific island countries has to account for cultural factors. The explanatory power of a dependency rate variable which only acknowledges child and elderly dependence is rather limited in a culture where communal sharing with and caring for members of the extended family system is customary. On the other hand, the degree of monetisation, as the economy grows each year has to be recognised as an important variable. Increasing use of money to settle transactions and make payments together with emerging forms of saving contribute to increased savings. The growth of tourism and resulting injection of money and increase in tourist-related activities, determine to a very sizeable extent, the monetisation process (Table 11).

Table 11 Terms of trade, tourism earnings and dummy variable for cyclones, 1983–90

	Terms of trade	Tourism earnings as per cent of GDP	Dummy variable for cyclones
1983	121.21	21.7	0
1984	183.07	19.1	1
1985	100.00	16.0	1
1986	28.83	12.5	0
1987	56.04	11.5	1
1988	68.86	12.3	0
1989	75.02	16.3	1
1990	35.31	25.1	0

Sources: Vanuatu, National Planning and Statistics Office; Jayaraman, T.K., *Tourism Sector in Vanuatu, 1981–90: an empirical investigation*, Economics Division Working Paper 93/1, National Centre for Development Studies, The Australian National University, 1993.

Due to inadequate rural infrastructure, tourism has remained an urbanised industry, confined to Port Vila and a few tourist resorts. Therefore, rural areas depend upon favourable terms of trade for copra, cocoa and other agricultural exports, not only for increased monetisation of the economy but also for incomes to pay school fees and medical expenses and to buy imported goods from the local markets. Generally these transactions have to be settled in cash; the traditional

modes of payment such as mats, pigs etc. are not recognised. Thus, the terms of trade become an important determinant of saving.

Since Vanuatu is subject to frequent cyclones and other natural disasters, the effects on saving behaviour of destruction and subsequent rehabilitation have to be taken into account. For example, following cyclone Uma in 1987 (one of the worst natural disasters in recent years), families had to spend their incomes rehabilitating houses and other property, therefore cyclones have to be recognised as a determinant in the saving function.

The saving function can be written as

$$s = f(g, pc, fs, TOT, te, D)$$

where

- s = saving rate (gross national savings/GNP
- g = rate of growth of real GDP
- pc = real per capita GDP
- fs = foreign saving rate (foreign savings/GNP)
- TOT = terms of trade
- te = tourism earnings as a ratio of GNP
- D = dummy variable for cyclones, assuming the value of unity for years in which cyclones occurred and zero for other years.

The financial saving rate (ratio of savings and time deposits to GDP) can be expressed as a function in a similar way with real rate of interest as an additional significant explanatory variable.

The data covering the eight-year period 1983–90 which were utilised for testing the model by fitting appropriate regression equations by ordinary least squares method were drawn from the published statistical information of the National Planning and Statistics Office. The limited number of observations is a major constraint to more meaningful econometric analysis as the degrees of freedom are not sufficient. The regression results are presented in Tables 12 to 14.

Saving rate

The fitted equations for saving rate with growth rate, as an explanatory variable were not satisfactory as the sign of the estimated growth rate coefficient was consistently perverse and not statistically significant. The reason appears to be the near stagnation of the economy, as signified by either very low or negative growth

rates. Similarly, the results of regression with terms of trade, as an explanatory variable, were also found unsatisfactory, as the coefficient of the variable was not consistent with theoretical expectations and not significant. However, the estimated equations with real per capita income emerged with appropriate signs for all coefficients (Table 12). But, all the parametric coefficients except time trend (T), which was included to isolate the influence of time on the dependent variable, were found statistically not significant. The non-significant variables were therefore dropped and further regression analysis conducted. The best of all the estimated equations, which also emerged with high explanatory powers in terms of adjusted R, was

$$s = \underset{(0.5280)}{3.0249} - \underset{(-3.4665)}{0.5248\,fs} + \underset{(2.1445)}{0.4809\,te} + \underset{(5.7284)}{2.0024\,T}.$$

Adj R = 0.9062 F ratio = 23.5378 DW = 2.8300

(Figures in parentheses denote calculated 't' values).

Table 12 Regression results, dependent variable: saving rate (GNS/GNP), 1983–90

Equation	Constant	PC	fs	te	D	T	R^2	Adj R^2	F ratio	DW	Degrees of freedom
1	-27.4271	0.3469	-0.4463	0.5167	-0.6949	2.1882[a]	0.9517	0.8310	7.883	3.0350	2
	(-0.3827)	(0.8119)	(-1.6846)	(-1.5944)	(-0.2607)	(3.1031)					
2	-28.3575	0.3632	-0.4534[b]	0.4685[b]	-	2.11983[a]	0.9515	0.8869	14.7213	3.1027	3
	(-0.5027)	(0.5599)	(-2.2104)	(1.859)		(4.2307)					
3	3.0185	-	-0.5167[a]	0.0535[b]	-0.5107	1.9729[a]	0.9473	0.8770	13.4815	2.7942	3
	(0.4602)		(-2.9204)	(1.8298)	(-0.2277)	(4.6900)					
4	3.0249	-	-0.5248[a]	0.4809[a]	-	2.0024[a]	0.9463	0.9062	23.5378	2.8300	4
	(0.5280)		(-3.4665)	(2.1455)		(5.7284)					

Notes: Figures in parentheses are 't' values.

[a] Significant at 0.05 level by one-tailed test.

[b] Significant at 0.10 level by one-tailed test.

The included explanatory variables, namely the ratio of foreign savings to GNP, the ratio of tourism earnings to GNP signifying the degree of monetisation and time trend were found statistically significant at 5 per cent. The coefficient of the foreign savings ratio is comparable to that reported by Chenery, Elkington and Sims (1970) in their study of 90 countries and by Abe et al. (1977:303). The

negative sign indicates that foreign saving is a substitute for domestic saving. A rise in the foreign savings ratio by one percentage point reduces the savings ratio by 0.5248 of a percentage point. An increase in the tourism earnings ratio by one percentage point would result in an increase in the savings ratio by 0.4809 of a percentage point. The time trend is positive and confirms the habit-forming aspect of saving of the country.

Financial savings

The ratio of financial savings as a dependent variable was considered in two categories: first, as total deposits in vatu and second, as annual change (increase or decrease in deposits) in vatu. (For econometric analyses, National Provident Fund deposits are not included as they are involuntary savings.) No regression analyses were conducted for financial saving ratios in respect of deposits in foreign currencies, since the motives for saving in currencies other than vatu are dictated by considerations other than economic and most of the deposits are held by expatriate residents. Regression results for the estimated equations with ratio of total deposits in vatu are reported in Table 13. The explanatory variables included in the regression analyses were per capita income, real rate of interest, terms of trade and the dummy variable for cyclones. Real rate of interest and terms of trade were found statistically not significant. These two variables were omitted from the analysis retaining only per capita income and the dummy variable. In the estimated equation, the level of significance of per capita income was only 10 per cent level while that of the dummy variable for cyclones was 5 per cent.

The estimated equation is

$$\underset{}{\text{fis}} = \underset{(-1.1351)}{-30.2887} + \underset{(1.8039)}{0.5980}\,\text{PC} - \underset{(-2.2065)}{3.5767}\,\text{D}$$

(Figures in parentheses denote 't' values)

Adj R = 0.3714 F = 3.0676 DW = 3.0424

The interpretation of the result is that a rise in the per capita income by one percentage point increases the financial saving (total deposits in vatu) ratio by 0.5980 of a percentage point. On the other hand, occurrence of a cyclone reduces financial saving ratio by 3.5767 percentage points.

Table 13 Regression results, dependent variable: STD (vatu)/GDP), 1983–90

Equation	Constant	PC	DEPR	TOT	D	R^2	Adj R^2	F ratio	DW	Degrees of freedom
1	5.7084	0.1214	0.2415	0.0286	-3.2474	0.6613	0.2097	1.4643	3.1954	3
	(0.1197)	(0.1968)	(0.9130)	(0.8791)	(-1.6379)					
2	-22.4645	0.4933	-	9.3981	-3.7796[b]	0.5672	0.2425	1.7471	2.9768	4
	(-0.6311)	(1.0876)		(0.3868)	(-2.0375)					
3	-30.2887	0.5980[b]	-	-	-3.5767[a]	0.5509	0.3714	3.0676	3.0424	5
	(-1.1351)	(1.8039)			(-2.2065)					

Notes: Figures in parentheses denote 't' values.

[a] Significant at 0.05 level by one-tailed test.

[b] Significant at 0.10 level by one-tailed test.

The regression results conducted with financial savings in terms of annual change in vatu deposits as the dependent variable, revealed that per capita income and real interest rate were not statistically significant, although they emerged with the theoretically expected signs (Table 14). Omitting these two explanatory variables, further analysis yielded the following equation, which was found most satisfactory.

$$\underset{}{\text{fis}} = \underset{(0.6245)}{1.2055} + \underset{(2.6385)}{0.0579}\,\text{TOT} - \underset{(-4.0977)}{8.5263}\,\text{D}$$

Adj R = 0.6929 F ratio = 8.8990 DW = 2.4044

(Figures in parentheses denote 't' values).

Both explanatory variables, namely, terms of trade and the dummy variable have the theoretically expected signs and are found statistically significant at the 5 per cent level. An increase in the terms of trade by one percentage point raises the financial saving rate by 0.0579 of a percentage point.

Table 14 Regression results, dependent variable: STD (vatu)/GDP), 1983–90

Equation	Constant	PC	DEPR	TOT	D	R^2	Adj R^2	F ratio	DW	Degrees of freedom
1	-40.4475	0.5708	0.1951	-	-7.8061[a]	0.5628	0.2350	1.7169	2.1897	4
	(-0.7422)	(0.8383)	(0.5598)		(-2.2244)					
2	0.308	-	0.1415	0.0602[a]	-8.2952[a]	0.7990	0.6482	5.3009	2.2729	4
	(0.2773)		(0.6037)	(2.3851)	(-3.6709)					
3	-31.4504	0.4518	-	-	6.9555[a]	0.5286	0.3407	2.0859	2.8036	5
	(-0.6503)	(0.7519)			(-2.3674)					
4	1.2055			0.0579	-8.5263[a]	0.7807	0.6929	8.899	2.4044	5
	(0.6245)			(2.6385)	(-4.0977)					

Notes: Figures in parentheses denote 't' values.
[a] Significant at 0.05 level by one-tailed test.

Conclusions

Despite the constraints of limited degrees of freedom, econometric analyses of saving behaviour revealed interesting results. First, near stagnation of the economy over the period of study had no impact on saving behaviour; second, foreign savings were a substitute for domestic savings; third, monetisation of the economy, through increased tourism positively contributed to savings; fourth, natural disasters, including cyclones did have a negative effect on financial savings; and fifth, favourable terms of trade have had a positive influence on annual financial savings.

A number of short and long-term policy issues emerge, which deserve careful consideration. Lessening dependency on foreign savings through augmentation of domestic resources can only be a long-term goal, although necessarily, a priority goal. Mobilisation of resources domestically will be a slow process, given the sociocultural dimensions. The mode and means of mobilising domestic resources have to be carefully designed and a country-wide savings campaign through radio and newspapers should be launched. The government's efforts to promote tourism are heading in the right direction, as increased monetisation of the

economy would certainly promote a positive environment as the economy becomes increasingly urbanised.

One of the priority items on the agenda of reform is to increase government revenues not only to cover the mounting recurring expenditures but also to contribute to financing government development expenditure. The present tax structure with total dependency on indirect taxation cannot be indefinitely continued. Introduction of direct taxation in one form or another has to be seriously considered as heavy reliance on imports as a tax base can be expensive in the long run.

Public expenditure control in the short run is desirable. Growth in recurrent expenditures has to be restrained. This will indirectly reduce the degree of reliance on foreign savings in the short run. Past experience indicates abundant aid inflows have financed avoidable recurring expenditures. If the rate of increase in recurrent expenditure exceeds the rate of revenue generation, government savings cannot increase. In regard to public enterprises, careful evaluation of past investments is needed to ensure appropriate rates of return.

The economy of Vanuatu is generally free from market interventions by the government. However, monopolistic elements need to be curbed and competitive conditions fostered to promote greater allocative efficiency. Although rates of interest are determined in the market place, various measures should be taken to increase private savings. These will include offering institutional facilities and attractive returns to savers. Expanding banking facilities will be difficult, however, in the far-flung outer islands. Institutional facilities such as cooperative societies for handling credit and deposits should be encouraged through enlisting the support of non-governmental organisations. The possibility of mobile banking by the National Bank of Vanuatu, which has had a head start in the rural areas, and the introduction of postal saving facilities can also be considered.

References

Abe, S. et al., 1977. 'Financial liberalization and domestic savings economic development', *Pakistan Development Review*, Autumn:293–302.

Asian Development Bank, Economics Office, 1985. *Improving Domestic Resource Mobilization through Financial Development*, Asian Development Bank, Manila: Appendix 1.

Bauer, P., Siwatibau, S. and Kasper, W. (eds), 1991. *Aid and Development in the South Pacific*, Centre for Independent Studies, St Leonards, NSW.

Chenery, H.B., Elkington, H. and Sims, C.A., 1970. *A Uniform Analysis of Development Patterns*, Harvard University, Cambridge, Mass.

Cole, R.V. and Tambunlertchai, Somsak (eds), 1993. *The Future of Asia–Pacific Economies: Pacific Islands at the Crossroads*, Asian and Pacific Development Centre and National Centre for Development Studies, The Australian National University, Canberra.

Dornbusch, Rudiger, 1988. 'Balance of payments issues', in Rudiger Dornbusch and F.C.H. Helmers (eds), *The Open Economy: tools for policy makers in developing countries*, World Bank, Washington, DC:37–57.

Fallon, J. and Karaballis, C., 1992. 'Current economic trends in the South Pacific', *Pacific Economic Bulletin*, 7(2):12.

Fry, M.J., 1978. 'Money and capital or financial deepening in economic development', *Journey of Money, Credit and Banking*, November:464–75.

Gersovitz, M., 1988. 'Savings and development', in H. Chenery and T.N. Srinivasan (eds), *Handbook of Development Economics*, Vol. 1, North Holland, Amsterdam:415–18.

Gupta, K.L., 1975. 'Foreign capital inflows, dependency burden and saving rates in developing countries: a simultaneous equation model', *Kyklos*, 28(2).

Helmers, F.C.H., 1988. 'National accounting identities', in Rudiger Dornbusch and F.C.H. Helmers (eds), *The Open Economy: tools for policy makers in developing countries*, World Bank, Washington, DC:375–404.

Leff, N., 1969. 'Dependency rates and saving rates', *American Economic Review*, 59:886–96.

Little, I.M.D., 1982. *Economic Development: theory, policy and international relations*, Basic Books, New York.

McKinnon, R.I., 1973. *Money and Capital in Economic Development*, Brookings Institution, Washington, DC.

Mikesell, R.F. and Zinser, J.E., 1973. 'The nature of savings function in developing countries: a survey of the theoretical and empirical literature', *Journal of Economic Literature*, 11:126.

Shaw, E.S., 1978. *Financial Deepening in Economic Development*, Oxford University Press, New York.

Singh, Sateesh K., 1975. *Development Economics*, Lexington Books, Lexington, Mass.:124.

Weisskopf, T.E., 1972. 'The impact of foreign capital inflow on domestic savings in underdeveloped countries', *Journal of International Economics*, 2(1).

World Bank, 1991. Towards Higher Economic Growth in Pacific Island Economies: lessons from the 1980s, World Bank, Washington, DC.

Recent publications on the South Pacific

Economics Division Working Papers

ISSN 1038-412x

South Pacific

SP93/9 *Saving behaviour in Vanuatu*
T.K. Jayaraman, 30 pp.

SP93/8 *An analysis of Papua New Guinea's medium term strategy for sustainable growth,*
John Asafu-Adjaye, 18 pp.

SP93/7 *The fiscal response of Papua New Guinea to foreign aid: 1970–88,*
Neal Forster, 28 pp.

SP93/6 *Rice self-sufficiency and the terms of trade: why rice is a good thing to import,*
J. Gibson, 38 pp.

SP93/5 *Estimating the benefits from certain structural reforms in the Papua New Guinea economy,*
J. Zeitsch, J. Fallon and A. Welsh, 22 pp.

SP 93/4 *The general equilibrium model of Papua New Guinea,* Berhanu Woldekidan, 64 pp.

SP 93/3 *Entrepreneurs in the emergent economy: migration, remittances and informal markets in the Kingdom of Tonga,*
Richard P.C. Brown and John Connell, 36 pp.

SP 93/2 *Monetary approach to Fiji's balance of payments, 1975–90,*
T.K. Jayaraman, 18 pp.

SP 93/1 *Tourism sector in Vanuatu, 1981–90: an empirical investigation,*
T.K. Jayaraman and Jimmy Andeng, 20 pp.

SP 92/9 *Industries assistance and resource misallocation: an assessment for Mauritius,*
Berhanu Woldekidan, 28 pp.

SP 92/8 *Impact of EC sugar trade liberalization on the Mauritian economy,* Berhanu Woldekidan, 28 pp.

SP 92/7 *Input/output table for the Solomon Islands,*
Matthew Powell, 20 pp.

SP 92/6 *Mauritian clothing exports without the MFA,*
Berhanu Woldekidan, 36 pp.

SP 92/5 *Welfare impact of export processing enterprises on a small island economy: Mauritius,*
Berhanu Woldekidan, 26 pp.

SP 92/4 *A CGE model for Fiji,* Chris Murphy, 22 pp.

SP 92/3 *Island economies—plans, strategies and performance: Malta,*
Lino Briguglio, 32 pp.

SP 92/2 *Sustainability, aid and remittance-dependent Pacific island economies: lessons from Africa?*
Richard P.C. Brown, 24 pp.

SP 92/1 *Population projections for Nauru, 1983–2013,*
Chris McMurray, 14 pp.

(The above working papers are A$8.00 each including postage)

National Centre for Development Studies
Islands/Australia Working Papers

ISSN 0816-5165

IA 91/11 *An econometric model of the economy of Grenada*
E. Bernard François, 71 pp.

IA 91/10 *The benefits and costs of monetary integration: the case of the East Caribbean Monetary Union*
E. Bernard François, 17 pp.

IA 91/9 *Papua New Guinea: economic recovery from the Bougainville crisis and prospects for the 1990s*
Andrew Elek, 21 pp.

IA 91/8 *Reaching small borrowers in developing countries: problems, innovations and unresolved issues*
Nimal A. Fernando, 19 pp.

IA 91/7 *An economy-wide model of Papua New Guinea: theory, data and implementation*
David Vincent, Ethan Weisman, David Pearce and Derek Quirke, 100 pp.

IA 91/6 *Housing market abnormalities in Papua New Guinea*
D.A.S. Dahanayake, 22 pp.

IA 91/5 *High stakes: mineral and petroleum developments in Papua New Guinea*
David Parsons and David Vincent, 64 pp.

IA 91/4 *A survey of the economy of French Polynesia, 1960 to 1990*
Gilles Blanchet, 50 pp.

IA 91/3 *Mangrove management issues: strategies adopted in the Pacific islands*
P.N. Lal, 22 pp.

IA 91/2 *The labour market and the Vanuatu National Institute of Technology*
Gilles Blanchet, 29 pp.

IA 91/1 *Macro-environmental standards approach to resource allocation and management: the case of Kosrae's coastal wetlands*
P.N. Lal, 29 pp.

(The above working papers are $7.00 each including postage)

Pacific Policy Papers

ISSN 0817–0444

PPP 10 *The Future of Asia–Pacific Economies: Pacific islands at the crossroads?*
Rodney V. Cole and Samsak Tambunlertchai (eds), 1993
344 pp. ISBN 0 7315 1678 8 A$25.00

PPP 9 *Pacific 2010: challenging the future*
R.V. Cole (ed.), 1993
148 pp. ISBN 0 7315 1671 0 A$25.00

PPP 8 *Agricultural Export Marketing in the South Pacific: the future role of marketing authorities*
Euan Fleming and Hugh Coulter (eds), 1992
268 pp. ISBN 0 7315 0960 9 A$25.00

PPP 7 *Remittances and their Impact: a study of Tonga and Western Samoa*
Dennis A. Ahlburg, 1991
70 pp. ISBN 0 7315 0959 5 A$25.00

PPP 6 *Education for Economic Development in the South Pacific*
K.G. Gannicott (ed.), 1990
142 pp. ISBN 0 7315 0681 2 A$25.00

PPP 5 *Growth, Structural Change and Economic Policy in Papua New Guinea: implications for agriculture*
Frank G. Jarrett and Kym Anderson, 1989
134 pp. ISBN 0 7315 0768 1 A$20.00

Pacific Research Monographs

ISSN 0155-9060

PRM 25 *Decentralization in a Developing Country: the experience of Papua New Guinea and its health service*
Jane Thomason, William C. Newbrander and Riitta-Liisa Kolehmainen-Aitken, 1991
172 pp. ISBN 0 7315 0940 5 A$25.00

PRM 24 *Migration and Development in the South Pacific*
John Connell (ed.), 1990
212 pp. ISBN 0 7315 0668 5 A$25.00

PRM 23 *The Northeast Passage: a study of Pacific islander migration to American Samoa and the United States*
Dennis Ahlburg and Michael J. Levin, 1990
102 pp. ISBN 0 7315 0678 2 A$25.00

PRM 22 *Environment, Aid and Regionalism in the South Pacific*
Jeremy Carew-Reid, 1989
198 pp. ISBN 0 7315 0673 1 A$25.00

PRM 21 *Port Vila: Transit Station or Final Stop? Recent developments in Ni-Vanuatu population mobility*
Gerald Haberkorn, 1989
176 pp. ISBN 0 7315 0669 3 A$20.00

PRM 20 *Economic Development, Migrant Labour and Indigenous Welfare in Irian Jaya, 1970–84*
Chris Manning and Michael Rumbiak, 1989
90 pp. ISBN 0 7315 0667 7 A$20.00

Pacific Economic Bulletin

Rodney V. Cole and Graeme S. Dorrance (eds)
ISSN 0817-8038

Vol 8, No. 2, December 1993.

Contents ◦ *Is Pacific island susainable development a special case?*, Gregory B. Votaw, editor ◦ *Current economic trends in the South Pacific*, Roman Grynberg and David Forsyth ◦ *South Pacific Regional Environmental Programme: implications of Agenda 21 for the Pacific*, Vili A. Fuavao ◦ *Progress since the Earth Summit*, Gerald Miles ◦ *Environmental accounting in Papua New Guinea*, John Asafu-Adjaye ◦ *Now what? Proposed forestry guidlines for Papua New Guinea*, Tahereh Nadarajah ◦ *Can small sawmills save the forests? A Vanuatu case study*, Stephen Wyatt ◦ *Pacific island commodities prices*, Matthew Powell

Vol.8, No. 1, June 1993.

Contents ◦ *Regional survey*, Richard Brown and Neil Karunaratne ◦ *Export processing zones in small island states*, Peter Warr ◦ *Fiji experience in export processing zones*, Research Department, Reserve Bank ◦ *Processing for export in the Maldives*, Mahommad Sahab, Ministry of Foreign Affairs, Maldives ◦ *The future of EPZs in Papua New Guinea*, Ila Temu ◦ *The Mauritian experience*, Berhanu Woldekidan

Subscriptions (2 issues, including postage)	
For subscribers in Australia	A$25.00
For subscribers in all other countries	US$20.00
Single issues	A$12.50
Back issues	A$10.00

South Pacific Economic and Social Database

The South Pacific Economic and Social Database provides comprehensive comparative data for the countries of the South Pacific. These data are an essential tool in the process of improving development policies and assessing commercial opportunities.

The countries covered include: Cook Islands ◦ Solomon Islands ◦ Fiji ◦ Tonga ◦ Kiribati ◦ Vanuatu ◦ Papua New Guinea ◦ Western Samoa ◦ Niue ◦ Federated States of Micronesia ◦ Tuvalu ◦ Marshall Islands

Full sets

Initial package: This package comprises the ten country databases (both hard copy and on disk). A$10,000

Updates: Updates will be available every six months on disk and annually in hard copy. A$2,000

Individual country copies

Initital package: This package comprises a country database (both hard copy and on disk). A$1,500

Updates: Updates will be available every six months on disk and annually in hard copy. A$400

Asia-Pacific Profiles 1993

A comprehensive source of data on the region, including key economic indicators, foreign investment.

- 300 pages with up-to-date statistics on GDP growth ◦ prices ◦ inflation rates ◦ exchange rates ◦ export and import trends ◦ trade flows ◦ capital flows ◦ social and political indicators ◦ savings and investment
- for China ◦ Hong Kong ◦ Indonesia ◦ Japan ◦ Korea ◦ Malaysia ◦ Papua New Guinea and the South Pacific ◦ Philippines ◦ Singapore ◦ Taiwan ◦ Thailand ◦ Vietnam ◦ Australia and New Zealand

Air express courier cost is included in the price per volume.

Within Australia	A$500.00
Overseas	US$500.00

Update 93 includes critical evaluation of Australia's economic and trade performance in East Asia as well as the individual economies of the region and Asia–Pacific diplomacy including NAFTA, and the Seattle APEC meeting.

A$50 to *Profiles* subscribers
A$100 if bought individually

Asia-Pacific Economics group: Professors Ross Garnaut, Peter Drysdale and Helen Hughes. The Profile 1993 team is led by Ross Garnaut. Maree Tait is the editor.

Orders

Books, journals and working papers are available from **Bibliotech**, Reply Paid 440, Canberra ACT 0200, Australia (FAX form follows). Standing orders for series and journals are available—insert 'SO' in the quantity column and we will invoice you.
A postage and packing charge is added to the cost of books as follows:

Australia:	1st book $4.80, each additional book $3.00
Airmail:	
Asia/Oceania:	1st book A$7.80
	each additional book A$4.00
Elsewhere:	1st book A$11.70
	each additional book A$8.50

Publications are available at 40 per cent off list price to students with proof of full-time study (e.g.copy of student card).