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Terms of Trade Shocks and the Current Account in Small Island States

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Abstract

This paper investigates the dynamic relationship between terms of trade shocks and the current account in selected small islands developing states. The findings show that the terms of trade explain a significant proportion of the variation in the current account balances. Also, the current account balances reflect a *J*-curve type reaction to terms of trade innovations. Real output also reacts negatively to changes in the terms of trade.

Keywords: terms of trade shocks, current account balance, panel data, vector autoregression (VAR)

JEL classification: C33, E21, F32

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1 Introduction

Small islands developing states (SIDS) are characterized by their significant openness to international trade. At the same time, however, they encounter low diversification in production and exports. This makes them vulnerable to adverse fluctuations and shocks in world markets, as is evident, for instance, in the terms of trade fluctuations and the volatility in the economic performance of these countries (see Briguglio 1995; Armstrong and Read 1998).

In this context, movements in the terms of trade and the consequences for the balance of payments have been widely studied. On the development standpoint, the Prebisch-Singer thesis (Prebisch 1950, and Singer 1950) suggests that the relative prices of primary commodities have a negative trend.[1] Therefore, the effect of terms of trade deterioration (that is, import prices rising faster than export prices, other things being the same) is to worsen the balance of payments at a given growth rate (Thirlwall 2003). This has two important connotations. On the one hand, there are the implications of the declining terms of trade for primary commodities relative to manufactures, and on the other, the terms of trade of developing countries relative to developed ones. Although different, there is considerable overlap between the two.

The impact of terms of trade shocks on a country's current account balance is a contended issue in international economics. The Harberger-Laursen-Metzler (Harberger 1950; Laursen and Metzler 1950) framework predicts that an adverse shock to the terms of trade will worsen the current account balance (known as the Harberger-Laursen-Metzler effect). On the contrary, in models that view the current account balance as the outcome of forward-looking dynamic savings and investment decisions, the impact depends on the duration of the shock (examples of these models include the intertemporal approach to the current account, Obstfeld and Rogoff 1995).

These frameworks, which have been extended in different ways, look at various channels in which the terms of trade affect the current account (e.g., through savings, investment, and consumption).[2] For instance, Edwards (1989) analyses how temporary terms of trade shocks influence the current account, allowing for differences between disturbances to the internal terms of trade generated by tariff changes, and instability to the external terms of trade. The author shows that changes in the (equilibrium) real exchange rate—or relative price of non-tradables—provide a crucial channel through which a change in the terms of trade will affect the current account.

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1 The Prebish-Singer hypothesis has generated a lot of empirical research. Spraos (1980), Sapsford (1985), Thirlwall and Bergevin (1985), and Grilli and Yang (1988), amongst others, confirm the historical deterioration in developing countries' terms of trade. However, the magnitude of the trend and of deterioration is an empirical matter. Maizels has undertaken a series of analyses of developing country terms of trade in manufactures with the US, the EU and Japan (Maizels, Palaskas and Crowe 1998; Maizels 1999, 2003). In each of these three cases, rapidly growing imports from developing countries meant that the falling barter terms of trade were outweighed by rising income terms of trade. Maizels observes that the degree of terms of trade deterioration for developing countries in their exchange of manufactures with developed countries reflects the level of technology embodied in their manufactured exports' (Maizels 2003: 8).

2 Important references to such models include Sachs (1981), Obstfeld (1982), Dornbusch (1983), Svensson and Razin (1983), Obstfeld and Rogoff (1995).

More recently, Cashin and McDermott (2002) examine several features of the terms of trade patterns of five commodity-exporting OECD countries and the relationship between terms of trade shocks and the current account balance. The paper shows that median shocks to the terms of trade are highly persistent, albeit with a large transitory component, and that they account for a small proportion of the variability of the current account balances in Canada, the United Kingdom and the United States. That result contrasts with the relatively large share of the variability of the current account balances in Australia and New Zealand.

This paper focuses on the international economics dimensions of links between the terms of trade and the balance of payments. Specifically, it investigates the effects of terms of trade shocks on the current account in a selection of SIDS from the Caribbean, Pacific, East Asia, and Africa. In spite of the advances on the theoretical front, existing empirical evidence is limited, particularly for developing economies. The paper contributes to our understanding of this topic by applying the panel vector autoregression (VAR) approach to model the relationship between terms of trade shocks and the current account.

The rest of the paper proceeds as follows. Section 2 discusses the evolution of the terms of trade and the current account shocks in the countries under study. Section 3 describes the empirical methodology, and discusses the empirical results, while section 4 presents the conclusions.

2 Terms of trade and the current account in SIDS

The seminal work of Singer (1950) and Prebisch (1950) expose the deterioration of developing countries' commodity or net barter terms of trade. Since then, a strand of literature finds further evidence on the declining trend in the terms of trade between commodities and manufactures. Exogenous relative price shocks associated with the external terms of trade, especially during periods of global integration (or disintegration) when commodity prices converge (or diverge) worldwide, induce large terms of trade changes and economy-wide responses (Blattman, Hwang and Williamson 2003).

Small island developing states are beset by commodity price fluctuations, which affect their terms of trade and, in turn, other economic outcomes. In general, world commodity prices are highly volatile and this volatility translates into large terms of trade fluctuations for commodity-exporting countries.

Terms of trade volatility was particularly high during the 1970s (largely reflecting the oil crises), and abated somewhat in the 1980s and more so in the 1990s, both in small island developing states and other world regions. The economic impact of terms of trade fluctuations, however, is determined not only by their magnitude, but also by the economies' degree of openness to international trade.

Servén (2000) shows that over the last two decades Latin American and the Caribbean countries suffered terms of trade disturbances that were much greater than those affecting industrial economies and the East Asian miracle countries, and concurrently with those experienced by South Asia and the Middle East and North Africa. A key factor behind the large terms of trade variability is the high share of a few primary

commodities—such as oil (e.g., Trinidad and Tobago)—in the total exports of many of the region's economies.

Thirlwall (1991) examines the export and balance of payments performance of the Pacific island economies in relation to the movements in commodity prices, and the extent to which changes in export earnings have been dominated by terms of trade volatilities. The study confirms that Pacific island economies are heavily dependent on the production and export of primary commodities. Hence, the instability of primary product prices has had detrimental consequences on the balance of payments and on the economic performance of such countries.

Terms of trade volatility in small islands could be explained by two dynamics. First, the share of trade in GDP is especially large in small states, and this may contribute to the magnitude of terms of trade shocks. Second, the exports of the small island developing states are prone to be more specialized than those of large states, both in terms of products exported and the export markets (Kuznets 1960; Armstrong and Read 1998). Consequently, the average prices of their exports and imports might be more volatile than in countries with more diversified trade patterns.

In this regard, the majority of SIDS are specialized, and export mostly primary products and resource-based manufactures, as shown in Figure 1. The countries under analysis are classified using Lall's (2000) industry taxonomy, which rank commodities according to their degree of technology. This procedure identifies export sectors which promote dynamic comparative advantages. The process is described on the basis of technology-intensity and capabilitybuilding criteria.[3] This high export concentration is also confirmed by the Herfindahl-Hirschmann index where African economies, such as Comoros, Guinea-Bissau, and Sao Tome and Principe in particular, are close to maximum concentration (i.e., the index is near by 1).[4]

Table 1 also reveals the high variability in the terms of trade experienced by the SIDS, especially in Western Africa. This phenomenon could be explained by the low levels of diversification in such countries where production and exports are concentrated in a limited range of commodities. Changes in terms of trade are also affected by reductions in the prices of manufactured goods, higher raw material prices, and exchange rate fluctuations, amongst other factors.

This pattern concurs with extremely volatile changes in their current account balances and real output, as can be noted in Figures 2 and 3. This tendency is observed in most of the countries, with the exception of Singapore which is more advanced in comparison to the other economies in the sample and also less susceptible to negative shocks resulting from primary commodities and resource based manufactures volatilities. Per capita GDP growth rates are, in turn, more volatile in small states, due to their much greater exposure to international trade and fluctuations in their terms of trade.

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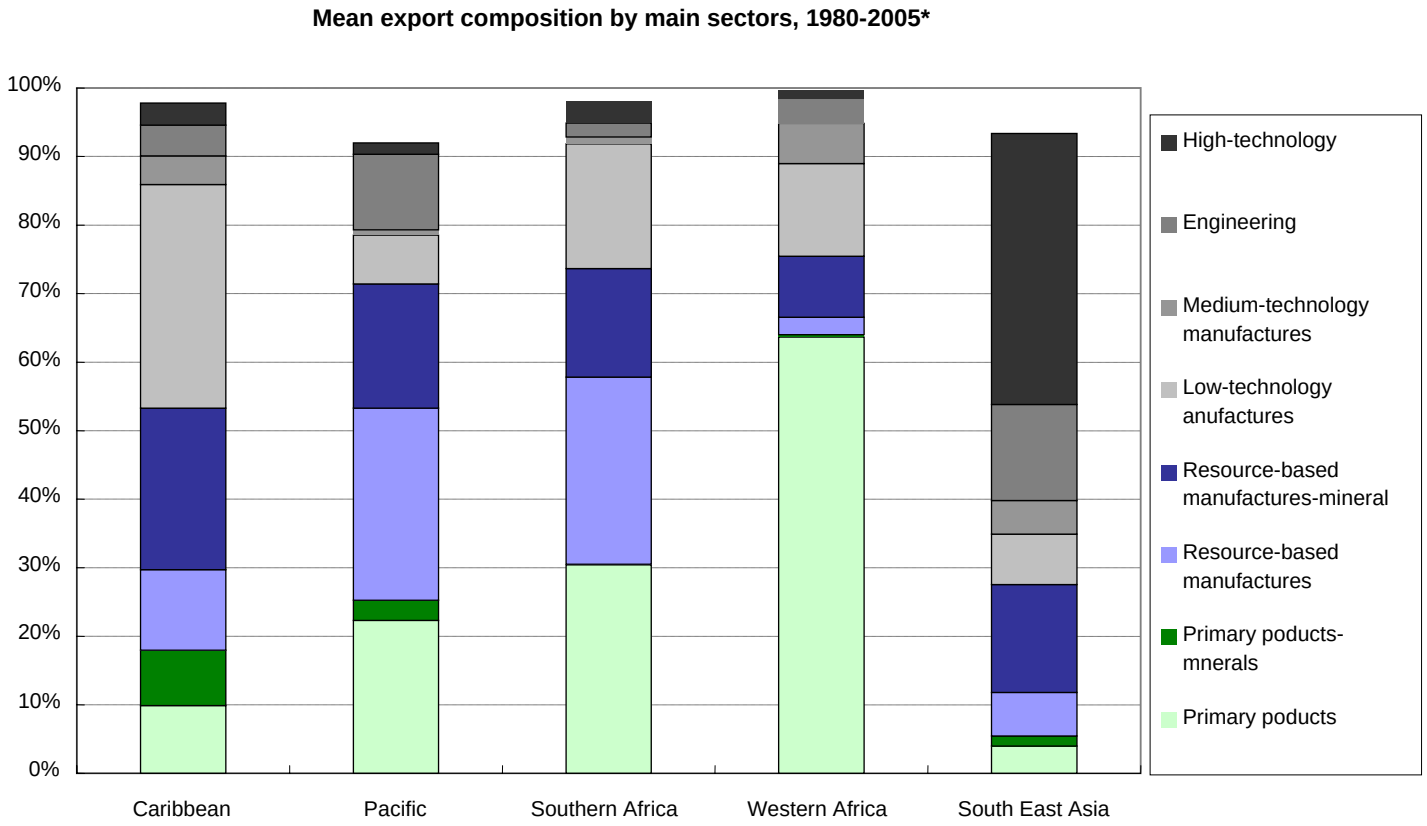
3 Using UN COMTRADE (3-digits SITC Rev2), exports composition is assessed and disaggregated in the following taxonomies: primary products; resource-based products; low-tech products; medium-tech products; high-tech products. The work also distinguishes between mineral and non-mineral primary products and resource based manufactures. See also Tables A2 and A3 in the Appendix.

4 Appendix Table A1 presents export diversification and concentration indexes for our sample of countries.

Figure 1
Export composition in small island developing states



Note: * Arithmetic mean. Data availability varies by region. Series may not add to 100% due to averages.
Source: Author's own calculations.

Table 1
Terms of trade variability in small island states, 1980-2004

	1981-89		1990-99		2000-04	
	Change	Variability	Change	Variability	Change	Variability
Caribbean						
Dominican Republic	-4.39	17.34	-8.30	19.35	9.51	18.66
Haiti	0.98	25.54	5.51	55.02	-1.14	11.75
Jamaica	-3.34	17.13	-1.91	8.88	-2.47	10.90
Trinidad and Tobago	2.00	19.97	1.78	30.91	6.29	17.97
Pacific						
Fiji	2.33	21.19	NA	NA	NA	NA
Papa New Guinea	1.56	14.09	8.19	26.46	0.02	15.50
Samoa	-2.19	26.51	7.91	46.01	-16.88	17.78
Southern Africa and Indian Ocean						
Comoros	21.94	73.40	-15.77	21.36	19.34	33.96
Mauritius	1.63	16.22	-0.25	7.63	0.67	7.88
Seychelles	2.49	25.45	7.43	26.49	16.56	33.88
Western Africa						
Cape Verde	22.14	87.25	1.91	34.48	-6.15	8.68
Guinea-Bissau	9.43	55.90	78.58	214.27	0.01	17.69
Sao Tome and Principe	-4.89	38.11	-5.55	34.48	29.89	35.69
South East Asia						
Singapore	1.29	4.16	1.49	4.78	1.24	2.99

Note: Variability is measured as the standard deviation of the annual rate of change of the net barter terms of trade.

Source: Author's own calculations based on UNCTAD (2005).

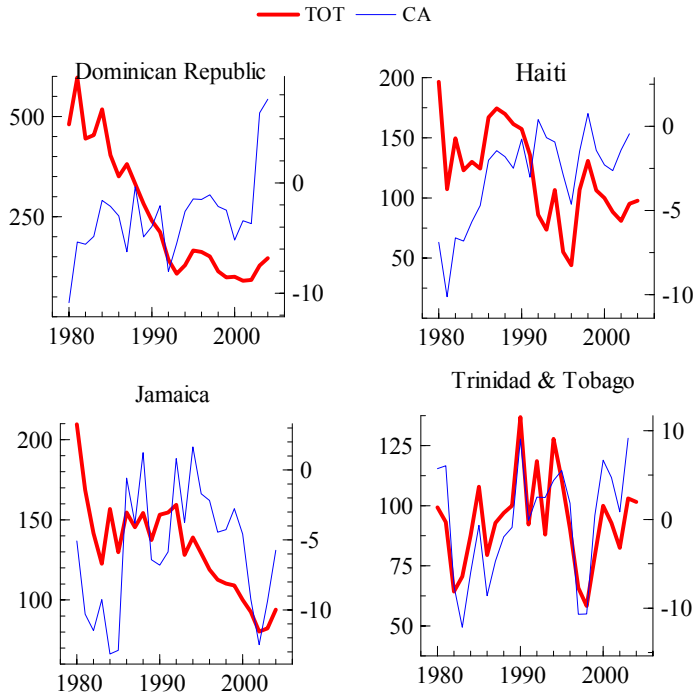
This factor, alongside other aspects such as high population growth rates, migration, and a lack of diversification in production, exacerbates the effects of terms of trade shocks in raising the variability of national incomes. For instance, Browne and Scott (1989) explain the high variability in the Pacific islands' national income mostly as a result of limited agricultural production, emigration to New Zealand and Australia, and low diversification in production.

In connection to the above, Servén (2000) outlines a set of risk management policies to deal with aggregate volatility (i.e., terms of trade, financial system, international capital flows fiscal policy, and monetary and exchange rate system policy). For the case of terms of trade, the following guidelines are proposed: *insurance*, comprising international portfolio diversification; *self-insurance*, based on stabilization funds; and *self protection*, consisting mostly of trade diversification and the appropriate trade policy package, that is, trade taxes and subsidies. Some policies address more than one source of instability, or combine two or more of the insurance, self-insurance, and self-protection aspects.

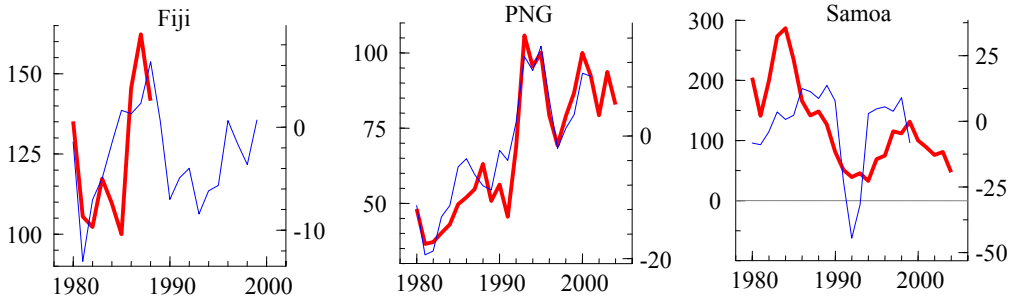
Figure 2
Terms of trade and the current account balance, 1980-2005

Terms of trade (2000=100), left scale
Current account as a share of GDP, right scale

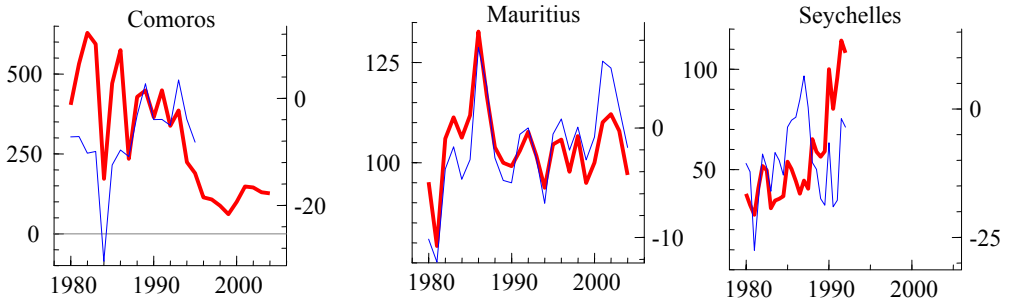
Caribbean



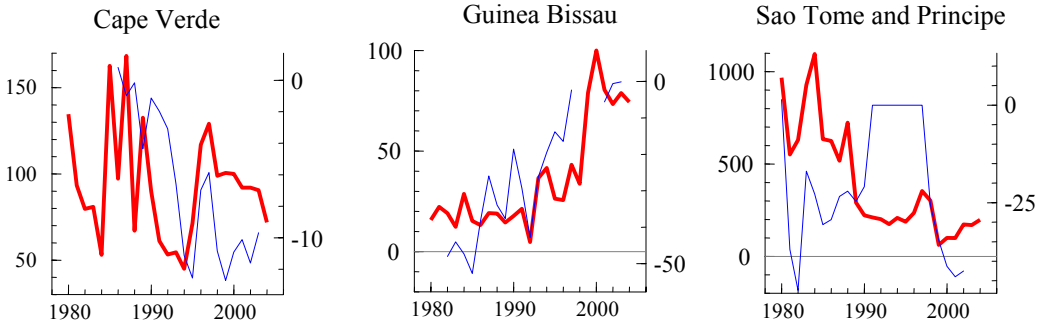
Pacific



Southern Africa



Western Africa



Southeast Asia (Singapore)

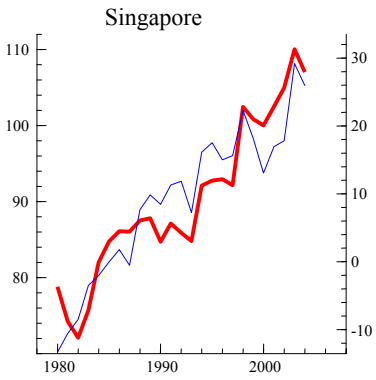
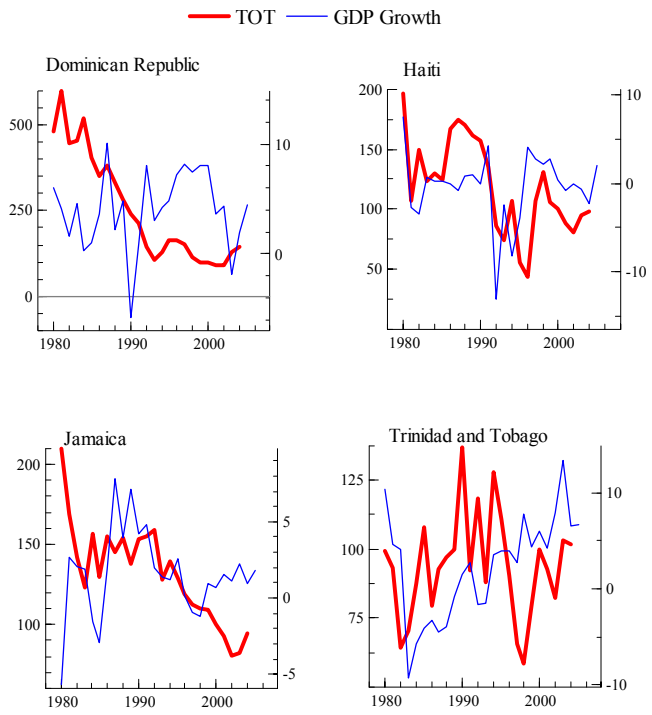


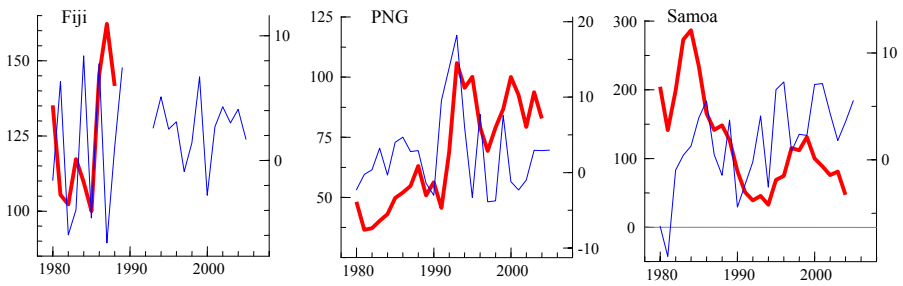
Figure 3
Terms of trade and real GDP growth, 1980-2005

Terms of trade (2000=100), left scale
GDP growth right scale

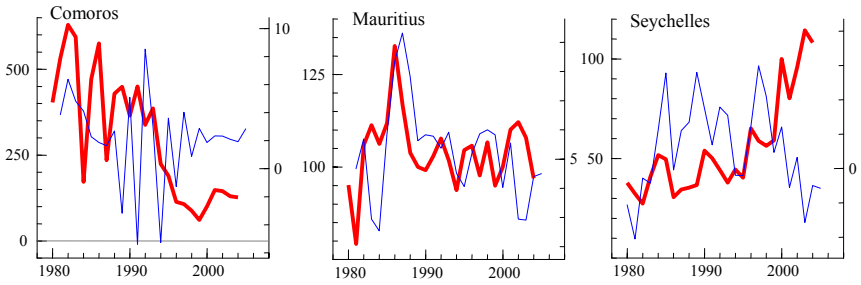
Caribbean



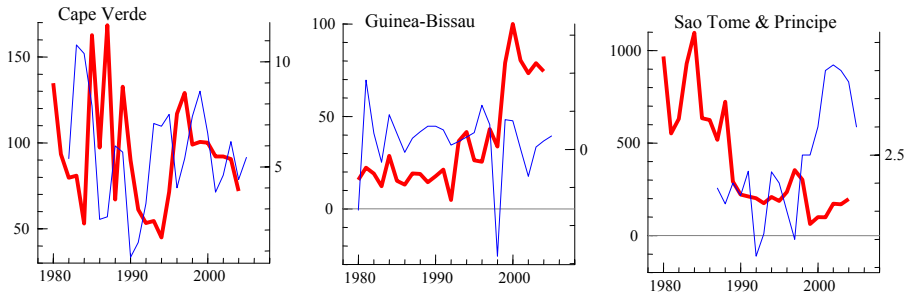
Pacific



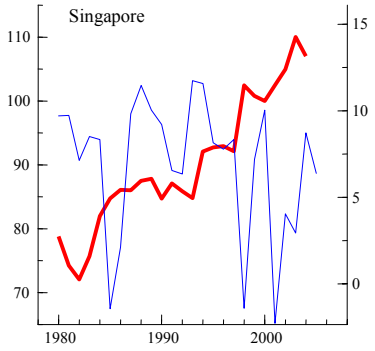
Southern Africa



Western Africa



Southeast Asia (Singapore)



The next section examines how terms of trade disturbances affect the current account balances in the economies under study.

3 Empirical analysis

3.1 Panel data vector autoregression

The paper employs the panel data vector autoregression (VAR) approach. Panel data VARs represent an interesting challenge due to the likely presence of cross-sectional heterogeneity. This methodology links the traditional VAR technique, which captures

the evolution and the interdependencies between a set of n time series (or endogenous variables) measured over the same sample period (t = 1, ..., T) as a linear function of their past evolution, with panel-data methodology, which allows for individual (country) heterogeneity. The asymptotic properties and advantages of estimating VARs with panel data are discussed by Holtz-Eakin, Newey and Harvey (1988), and Gilchrist and Himmelberg (1998).

Orthogonalized impulse response functions are used, which help to illustrate the response of one variable of interest (i.e., the current account normalized by the gross domestic product) to a shock in another variable of interest (i.e., terms of trade). Also, orthogonalized impulse-response functions allow identifying one shock at the time, while holding other innovations constant.[5]

A first-order, one lag panel VAR model can be specified as:

$$\gamma_{it} = \alpha_i + y_t + z_{it} b + + e_{it} \qquad (1)$$

where α_i and y_t are the country and time specific effects in panel data, z_{it} is a vector of lagged endogenous variables comprised of *ca* (the current account to GDP ratio), *tot* (the net barter terms of trade), *ry* (real GDP), and e_{it} is the idiosyncratic error term.

The panel VAR approach employed allows for individual heterogeneity by introducing fixed effects. The estimating procedure is the system generalized methods of moments (GMM), where lagged regressors are used as instruments.[6] The model also considers country-specific time dummies to explain aggregate shocks that may affect all countries equally.

3.2 Results

As noted by Cashin and McDermott (2002), the impact of the terms of trade and the current account is theoretically ambiguous. Specifically, an unfavourable shock in the terms of trade will have three effects: first, the *consumption smoothing effect* (or Harberger-Laursen-Metzler effect) which results from the reduction in national income relative to future natural income; second, *the consumption tilting effect* that results from the increase in the current price of imports relative to the future price of imports; and, third, *the real exchange rate effect*, consisting of the increase in the price of imported

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5 The estimations are done using the STATA programme developed by Love and Zicchino (2004). Impulse response functions and their confidence intervals are constructed from the estimated VAR coefficients, where the standard errors of the impulse response functions are computed using Monte Carlo simulations.

6 One implication is that the fixed effects are correlated with the regressors due to lags of the dependent variables, where the mean differencing procedure used to eliminate individual effects will create biased coefficients. Fixed effects are removed by the Helmert procedure or forward mean differences. This procedure removes only the forward mean, i.e., the mean of all the future observations available for each firm-year. On the other hand, time dummies are eliminated by subtracting the means of each variable calculated for each country-year. This transformation preserves the orthogonality between transformed variables and lagged regressors; therefore, lagged regressors can be used as instruments (see Arellano and Bover 1995; Love and Zicchino 2004).

goods relative to the price of non-tradables. In response to an adverse transitory shock in the terms of trade, private savings will fall if the consumption-smoothing effect dominates the saving enhancing implications of the consumption-tilting and real exchange rate effects. Otherwise, savings will rise if the consumption smoothing is weaker than the other two effects.

Tables 2 and 3 report the estimated coefficients of the VAR system presented in Equation 1. Table 2 details the results for all countries in the sample, whereas Table 3 focuses on countries that specialize in primary products, resource-based and/or low technology manufactures.[7] The impulse response functions and the 5 per cent errors bands generated by Monte Carlo simulations are presented in Figures 4 and 5.

The main concern of the present study is the response of the current account normalized by GDP to terms of trade shocks. In this regard, two different type of shocks can be identified: (i) an external shock, quantified by innovations to the terms of trade; and

Table 2
Main results of a VAR (all countries): Response

Of \ To	CA (t-1)	RY (t-1)	TOT (t-1)
CA	0.055 (0.67)*	0.153 (2.25)*	-1.911 (2.15)*
RY	0.083 (1.96)*	0.563 (10.98)*	-1.40 (1.90)**
TOT	0.009 (2.02)*	0.003 (0.13)	-0.353 (2.98)**
Number of observations	364		
Number of countries	14		

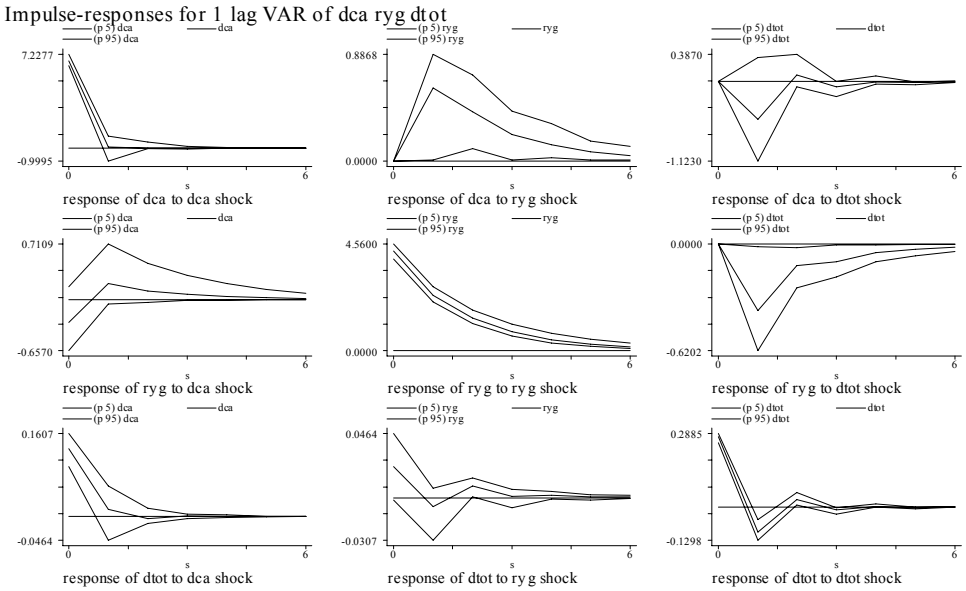
Table 3
Main results of a VAR (primary commodity-manufacturing producers): Response

Of \ To	CA (t-1)	RY (t-1)	TOT (t-1)
CA	0.065 (0.70)	0.132 (2.63)**	-1.951 (2.17)*
RY	0.063 (1.47)*	0.514 (8.99)*	-1.210 (1.61)**
TOT	0.009 (2.03)**	0.0002 (0.05)*	-0.356 (2.99)*
Number of observations	339		
Number of countries	13		

7 Singapore is excluded from the second category. Although Singapore is also vulnerable to external business cycles and other natural hazards inherent to small islands, it is less exposed to fluctuations in the terms of trade as far as the price of primary commodities is concerned. The reason is that it specializes in manufacturing and high-technology exports, in contrast to other countries in the sample.

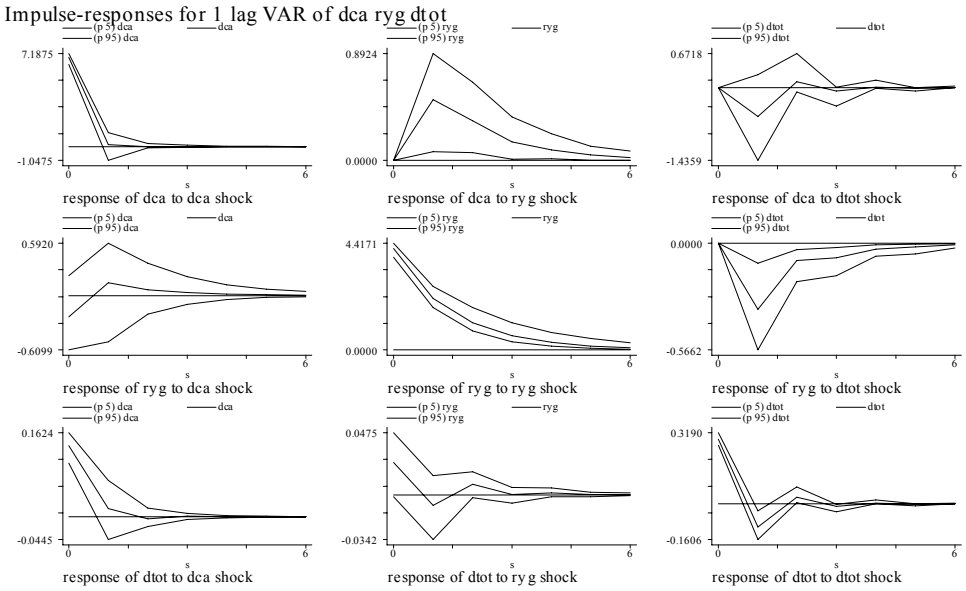
(ii) a temporary 'demand shock', identified by innovations to the current account as a share of GDP. The main underlying assumptions in identifying these shocks are that the terms of trade shocks are exogenously given, and that demand disturbances have no long-run impact on the level of real output (i.e., that the demand shock is transitory).[8]

Figure 4
Impulse responses: all countries



Errors are 5% on each side generated by Monte-Carlo with 25 reps

Figure 5
Impulse responses: Primary, resource-based, and low technology manufactures producers (without Singapore)



Errors are 5% on each side generated by Monte-Carlo with 25 reps

8 This restriction follows Blanchard and Quah (1989). They show that fluctuations in output (GNP) and unemployment are affected by supply disturbances, which have a permanent effect on output, and demand shocks, which are transitory.

As far as the external shock is concerned, the results from the panel VAR estimations imply that the response of the current account to innovations in the terms of trade is negative in the estimated coefficients and impulse responses. Thus, the Harberger-Laursen-Metzler effect appears to be an important factor in determining the dynamics of the current account balance in our sample of countries, although on a temporary basis. The impulse response analysis (Figure 4) shows an initial negative shock of the terms of trade to the current account that persists up to two year. This response is more pronounced in the second panel of countries (Figure 5), which consists of economies that produce and export mainly primary and resource-based/low technology manufactures. Also, output (GDP) shocks have a positive and significant effect on the current account fluctuations, but the initial shock dies after two years.

To complement our main analysis of how innovations in the terms of trade affect the current account balances, we also report how terms of trade and demand shocks affect changes in real output.[9] The results suggest that, in all cases, real output reacts negatively to external shocks. This finding relates to Easterly and Kraay's (2000) assertion that small states do have greater volatility of annual growth rates which is, in part, due to their greater volatility of terms of trade shocks.[10] This terms-of-trade based volatility is in turn due to small states' exposure to international trade, mainly imports.

4 Conclusions

This paper has analysed the influences of terms of trade shocks on the current account in selected small island developing states. The findings, which are consistent with previous empirical studies, suggest that the terms of trade innovations have a negative impact on the current account balances. However, this effect is transitory, as the current account balances reflect a *J*-curve type reaction to terms of trade innovations. Real output also reacts negatively to changes in the terms of trade.

The findings bring our attention to the optimal policy response to confront the repercussions of terms of trade volatility in the SIDS, the majority of which can categorized as fragile or vulnerable countries. Thus, the question is how can these countries be compensated for this, either at the national or international level? Traditionally, small islands have benefited, for example, from IMF's Compensatory Financing Facility, and the Stabex Scheme under Lomé (and Cotonou) convention granted by the EU. Whether these schemes should be further promoted and enhanced, or new efforts should be put forward remains an important research and policy agenda issue. Also, the contribution of foreign income receipts from activities such as tourism and remittances to finance the current account deficits should not be undermined. It is also worthwhile to point out the role of private foreign direct investment and official development assistance in helping to sustain the balance of payments positions in small island developing states.

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9 Cashin and McDermott (2002) also identify a permanent a permanent 'supply shock', measured by changes in the growth of real output (GDP) for OECD countries.

10 Although terms of trade fluctuations are not the only determinant of economic performance in small island states, the authors show that even after controlling for terms of trade volatility, growth rates in small states are significantly more volatile than in non-small states.

Finally, as part of a long term development strategy, it is imperative for the small island developing states to diversify their output and export structures in favour of commodities and economic activities with more advantageous production and demand characteristics.

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Appendix

A1 Country sample

Caribbean:	Dominican Republic, Haiti, Jamaica, Trinidad and Tobago
Pacific:	Fiji, Papa New Guinea, Samoa
Southern Africa:	Comoros, Mauritius, Seychelles
Western Africa:	Cape Verde, Guinea-Bissau, Sao Tome and Principe
South East Asia:	Singapore

A2 Data definition and sources

Real output (real GDP) and the current account balance as share of GDP data are taken from the World Bank *World Development Indicators (2006)*.

The net barter Terms of Trade (TOT), defined as the ratio of the export unit value index to the import unit value index data, is from the United Nations Conference on Trade and Development (UNCTAD 2005) *Handbook of Statistics.* All data are annual, generally for the period 1980-2005.

Appendix Table A1
Export diversification and concentration in small island states

	1993			2003		
	No. of commodities exported [a]	Diversification index [b]	Concentration index [c]	No. of commodities exported [a]	Diversification index [b]	Concentration index [c]
Caribbean						
Dominican Republic	100	0.50	0.17	114	0.62	0.21
Haiti	28	0.44	0.26	49	0.49	0.47
Jamaica	101	0.62	0.49	101	0.66	0.63
Trinidad and Tobago	132	0.65	0.37	144	0.72	0.36
Pacific						
Fiji	92	0.59	0.32	96	0.51	0.27
Papa New Guinea	71	0.64	0.41	80	0.65	0.37
Samoa	7	0.48	0.83	24	0.48	0.68
Southern Africa						
Comoros	5	0.48	0.81	5	0.49	0.87
Mauritius	108	0.65	0.33	157	0.70	0.28
Seychelles	14	0.44	0.57	18	0.53	0.72
Western Africa						
Cape Verde	12	0.47	0.46	12	0.47	0.48
Guinea-Bissau	16	0.45	0.49	15	0.51	0.76
Sao Tome and Principe	16	0.44	0.62	8	0.51	0.93
South East Asia						
Singapore	226	0.46	0.19	222	0.47	0.25
Developing countries	200	0.53	0.24	211	0.51	0.24

Notes: [a] Number of commodities (at SITC, Rev. 2, 3 digits group level) exported by a country. This includes only those products whose figures are greater than US$100,000 or more than the 0.3 per cent of the country's total exports.

[b] The diversification index ranges from 0 to 1, and reveals the degree of differences between the structure of the country's trade and the world average. An index value closer to 1 indicates a bigger difference from the world average.

[c] Export concentration is measured by the Herfindahl-Hirschmann market concentration index. It ranges from 0 to 1, where 1 represents maximum concentration.

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Appendix Table A2
Mean export composition (%) by main sectors, 1980-94[a]

	Primary products	Primary products-Minerals	Resource-based manufactures	Resource-based manufactures-minerals [b]	Low-technology manufactures	Medium-technology manufactures	Engineering	High technology
Caribbean	9.40	9.08	10.96	24.70	32.34	3.49	4.35	3.49
Dominican Rep.	10.10	0.14	11.98	0.35	47.12	8.72	14.35	5.18
Haiti	19.20	0.01	4.74	1.46	65.98	0.27	0.88	5.76
Jamaica	7.31	0.36	15.21	60.44	10.92	1.61	1.09	2.27
Trinidad and Tobago	1.00	35.82	11.92	36.57	5.34	3.36	1.10	0.77
Pacific	28.66	0.96	33.90	19.07	4.57	0.89	1.28	1.92
Fiji	4.46	0.09	54.55	13.48	11.69	1.41	1.16	3.09
Papua New Guinea	21.25	2.63	14.04	43.20	0.24	0.27	1.29	1.52
Samoa	60.28	0.17	33.11	0.52	1.80	0.98	1.41	1.14
Southern Africa	11.17	0.04	28.43	27.82	23.92	0.40	2.27	3.82
Comoros								
Mauritius	1.97	0.02	41.13	2.27	47.23	0.48	3.26	0.60
Seychelles	20.36	0.06	15.73	53.37	0.60	0.32	1.28	7.04
Western Africa	33.45	5.12	11.36	0.29	1.54	1.09	0.22	0.10
Cape Verde	33.45	5.12	11.36	0.29	1.54	1.09	0.22	0.10
Guinea-Bissau								
Sao Tome and Principe								
South East Asia	6.04	1.76	7.25	20.86	8.08	4.74	15.48	28.38
Singapore	6.04	1.76	7.25	20.86	8.08	4.74	15.48	28.38

Notes: [a] Arithmetic mean. Data availability vary by country;
[b] Mineral refers to precious metals, minerals, and subproducts (including oil).

Appendix Table A3
Mean export composition (%) by main sectors, 1995-2005[a]

	Primary products	Primary products-Minerals	Resource-based manufactures	Resource-based manufactures-minerals [b]	Low-technology manufactures	Medium-technology manufactures	Engineering	High technology
Caribbean	11.37	8.79	13.73	28.69	28.18	3.93	1.47	1.54
Dominican Rep.								
Haiti	23.75	0.01	8.60	0.04	63.31	0.08	0.24	2.56
Jamaica	9.06	0.33	15.96	55.62	13.09	2.57	0.88	1.30
Trinidad and Tobago	1.29	26.03	16.64	30.40	8.14	9.13	3.27	0.77
Pacific	14.21	8.03	18.23	15.66	12.83	0.53	23.17	1.13
Fiji	13.77	0.26	34.73	6.88	32.23	1.02	0.70	1.21
Papua New Guinea	10.85	23.77	12.93	39.65	0.31	0.16	1.24	1.69
Samoa	18.01	0.05	7.03	0.45	5.93	0.41	67.58	0.48
Southern Africa	27.42	0.14	32.52	10.63	21.11	1.09	1.82	3.82
Comoros	73.59	0.30	18.59	0.00	0.38	1.92	1.92	0.60
Mauritius	2.20	0.05	24.58	2.62	62.44	0.93	2.83	2.78
Seychelles	6.47	0.05	54.40	29.26	0.50	0.43	0.70	8.08
Western Africa	62.08	0.04	2.03	10.73	16.06	6.34	4.01	1.46
Cape Verde	4.84	0.06	2.10	27.62	47.26	15.28	6.87	4.16
Guinea-Bissau	86.38	0.05	1.83	4.56	0.50	2.72	3.88	0.07
Sao Tome and Principe	95.01	0.00	2.15	0.00	0.41	1.02	1.28	0.16
South East Asia	1.21	1.03	5.16	8.79	6.25	5.24	11.99	54.77
Singapore	1.21	1.03	5.16	8.79	6.25	5.24	11.99	54.77

Notes: See notes to Appendix Table A2.