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# Terms of trade shocks in Africa: are they short-lived or long-lived?

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**Abstract**

This paper examines the persistence of shocks to the terms of trade using annual data on 42 sub-Saharan African countries for the period 1960–96. Instead of using unit root tests to distinguish between stationary and random walk processes for the terms of trade, this paper characterizes the persistence of shocks using point and interval estimates of the half-lives of terms of trade shocks. Using median-unbiased (MU) estimation techniques that remove the downward bias of standard [least squares (LS)] estimators, we find that the cross-country average of the half-lives of terms of trade shocks is about 6 years. It is also found that the estimated persistence of African terms of trade shocks varies widely—for about one-half of the countries, their half-lives are short-lived (less than 4 years), while for one-third of the countries, their half-lives are long-lived (permanent). The majority of African countries are found to have terms of trade that typically experience finitely persistent (transitory) shocks, which is consistent with the reversion of terms of trade to their long-run trends.


*JEL classification:* C22; F41; O13; Q17
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## 1. Introduction

A country's terms of trade is one of the most important relative prices in economics, yet economists are largely ignorant of many of its empirical properties. The ratio of an index of a country's export prices to the prices of its imported goods defines the net barter terms of trade (NBTT), which measures the number of units of exports that can be exchanged for

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a unit of imports. Particularly for commodity-exporting developing countries, movements in the NBTT are the key determinants of a country's macroeconomic performance, are highly correlated with output fluctuations, and have an important impact on (public and private) savings (Agénor et al., 2000). For example, arabica coffee is the dominant exportable of Ethiopia. The slump in world arabica coffee prices in 1986–87, largely caused by world production in excess of consumption, resulted in a 40% fall in Ethiopia's terms of trade. As imports were about 15% of its national expenditure, this adverse movement in its terms of trade resulted in about a 6% decline in Ethiopia's real income. Such terms of trade-induced shocks to real incomes in developing countries may necessitate a domestic policy response, but in framing an appropriate response, an important question is how long-lasting are typical shocks?

This paper examines the persistence of shocks to the net barter terms of trade of 42 sub-Saharan African countries. Sub-Saharan Africa's exports are overwhelmingly comprised of primary commodities, while food items, oil, and manufactured goods are the major imports.[1] The goal of this paper is to characterize the duration of shocks to the terms of trade of sub-Saharan African countries. While there are numerous papers that detect deterministic trends in real commodity prices, and some work has been carried out on price trends in the important exports of developing countries, there has been very little research that examines the persistence of stochastic shocks to a country's terms of trade. Consistent with consumption-smoothing behavior and the intertemporal approach to the current account, if terms of trade shocks are typically short-lived, there may be scope for changes in domestic saving or (given access to foreign capital) for international borrowing and lending to smooth the path of national consumption. However, if terms of trade shocks are typically long-lived, then counter-cyclical policies have little chance of success, and countries should adjust consumption to the altered permanent income level (Obstfeld, 1982).

The export performance of African countries has deteriorated steadily since the early 1970s, with some improvements recorded since 1993. Although debated, the level and trend of the NBTT have not been identified as a major factor explaining Africa's dismal export performance. It has been argued, however, that African governments have handled terms of trade shocks extremely badly, and that an inability to cope with external shocks has contributed to Africa's debt problems and very low rate of economic growth. As a result of this mishandling, the gains obtained from positive terms of trade shocks have been small, while real losses from negative shocks have been large. For example, many governments responded to commodity price booms in the late 1970s by sharply expanding public expenditure for hastily executed, import-intensive public investment programs that they either abandoned or financed with foreign borrowing when revenues fell with subsequent steep declines in commodity prices.

Two recent studies challenge parts of the conventional wisdom that commodity price booms in Africa are generally harmful. The approach and findings of Collier et al. (1999) and Deaton and Miller (1996) differ in many respects. Both studies agree, however, that

[1] Primary commodities account for about three-fourths of total exports in most sub-Saharan African countries and exceed 90% in several countries (see World Bank, 2000).