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Savings and the terms of trade under borrowing constraints

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Abstract

This paper examines the extent to which permanent terms of trade shocks have an asymmetric effect on private savings. The first part uses a simple three-period model to show that, if households expect to face binding borrowing constraints in bad states of nature, savings rates will respond asymmetrically to favorable movements in the permanent component of the terms of trade—in contrast to what conventional consumption-smoothing models would predict. The second part tests for the existence of asymmetric effects of terms of trade disturbances while controlling for various standard determinants of private savings. The results, based on panel data for non-oil commodity exporters of sub-Saharan Africa for the period 1980–1996, indicate that periods of increases in the permanent component of the terms of trade tend indeed be associated with higher rates of private savings.

Keywords: Savings; Terms of trade shocks; Borrowing constraints; Habit formation; GMM

JEL classification: D91; F41; O55

1. Introduction

It is well recognized that the macroeconomic effects of terms of trade shocks can be very significant in developing countries. As documented, for instance, by Agénor et al. (2000), terms of trade disturbances are highly correlated with output fluctuations and can

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be a major source of aggregate economic volatility. Such disturbances tend also to have a large impact on savings (both private and public), in part because of their large income effects. Moreover, there is some informal evidence suggesting that terms of trade shocks can entail an asymmetric response in savings, as a result, for instance, of the existence of borrowing constraints on world financial markets. Specifically, the experience of the past few years suggests that households (and governments) from poor countries may be able to deposit their windfall savings on the international capital market in good times, but that they may be unable to borrow as much as they would like in bad times because of collateral problems or a (perceived) high risk of default (see World Bank, 1999, Chapter 2). As emphasized by Deaton (1992), among others, this asymmetry can create an incentive for precautionary saving, because in the case of a negative shock consumption can be smoothed only by running down previously accumulated assets.

There is relatively scant empirical evidence on whether terms of trade shocks can generate an asymmetric response in private savings. This paper attempts to fill this void by using cross-section econometric regressions for a group of countries for which movements in the terms of trade have traditionally represented a key source of macroeconomic shocks, non-oil exporters of sub-Saharan Africa. It is organized as follows. Section 2 discusses analytical issues. It reviews briefly the conventional, consumption-smoothing approach to assessing the effects of terms of trade shocks on savings, and considers the role of borrowing constraints in explaining an asymmetric consumption and savings response by private agents to this type of shocks. It elaborates, in particular, on the role of expected borrowing constraints in bad states of nature. Section 3 provides some informal evidence on the asymmetric response of private savings during recent episodes of upswings and downswings in prices of commodities exported by non-oil sub-Saharan African countries. Section 4 specifies a regression model in order to assess the existence of an asymmetric effect of terms of trade movements on private savings and describes the estimation technique. Section 5 presents the empirical results, based on panel data covering the period 1980–1996 for non-oil exporters of sub-Saharan Africa. The last section summarizes the results and provides some directions for further research.

2. Analytical issues

Early contributions to the analysis of the effect of terms of trade shocks on saving include those of Harberger (1950) and Laursen and Metzler (1950). The Harberger–Laursen–Metzler (HLM) effect predicts a positive relationship between (transitory) changes in the terms of trade and saving, as a result of consumption smoothing[1]. An adverse transitory movement in the terms of trade, for instance, leads to a decrease in a

[1] The initial formulation by Harberger (1950) and Laursen and Metzler (1950) relied on a Keynesian-type open economy framework. It was later extended to an intertemporal setting, notably by Obstfeld (1982) and Svensson and Razin (1983), and subsequently Edwards (1989) and Gavin (1990); see also Obstfeld and Rogoff (1997). These contributions also highlighted the distinction between permanent and transitory shocks, and the importance of an endogenous rate of time preference for movements in the terms of trade to generate transitory movements in savings.