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Exchange rate changes and endogenous terms of trade effects in a small open economy

Robyn Swift *

Department of Accounting, Finance and Economics, Griffith University, Nathan Campus, Brisbane Qld 4111, Australia

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Abstract

This paper shows that the small-country assumption of dependent-economy models is unlikely to hold for many of the cases in which this class of models is used, for example, in the analysis of a terms of trade shock in the "commodity currency" models. When a shock affects most or all of the small countries exporting a commodity, the combined exchange rate effects will result in endogenous terms of trade changes even for those countries too small to individually affect world markets. The paper also explores the possible implications of these secondary terms of trade changes for the dependent-economy models.

JEL classification: F41; F31
Keywords: Exchange rates; Terms of trade; Small country assumption; Dependent economy models; Commodity currency; Small open economy

1. Introduction

Macroeconomic models of small open economies usually assume that a single small country will have little influence on the determination of price and quantity

* Tel.: +61 7 3875 7765; fax: +61 7 3875 3719.
E-mail address: r.swift@griffith.edu.au

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in world markets for its goods. This "small-country" assumption forms the basis of commonly used dependent-economy models such as those of Salter (1959), Swan (1960), and Dornbusch (1980). In these models, internal and external adjustment comes about through a change in the internal relative prices of traded goods in terms of non-traded goods. In a flexible exchange rate system, if the prices of non-traded goods are fixed or sticky, adjustment will occur through a change in the nominal exchange rate.

One of the classic examples of the use of the dependent-economy models is in the analysis of a terms of trade shock in a small country that exports mainly primary commodities. This example is often used to explain why movements in the exchange rates of these countries follow changes in the prices of primary commodities, leading to the term "commodity currency". As world prices are fixed in foreign-currency terms, the exchange rate change will have no subsequent or secondary effect on the terms of trade for the small country.

This paper examines the conditions required for the small-country assumption to be maintained. It shows that the small-country assumption is unlikely to hold for many of the cases in which this class of models is used. If the exchange rate change is the result of a shock common to many small countries, as in the usual commodity currency case, the exchange rate change must be passed through to world market prices, with a subsequent endogenous change in the terms of trade.

These second-round changes in market prices indicate that a larger movement in the nominal exchange rate, and consequently a greater and more prolonged degree of internal adjustment, will be required to restore equilibrium in the small-country models. The results suggest that, firstly, the exchange rates of commodity currency countries will be more variable than previously expected. Secondly, maintaining the full flexibility of the nominal exchange rate in this case becomes particularly important, as the primary and most rapid source of the shifts in the real exchange rate that generate internal adjustment. Furthermore, whatever the method of adjustment, the joint endogeneity generated between the real exchange rate and the terms of trade implies a much closer relationship over time than previously expected in these models. This is consistent with the strong relationships found empirically in many Australian studies.

2. Modelling exchange rate changes in a global market

The dependent-economy models, in common with the Mundell–Fleming model, are essentially static models that assume perfect competition but lack explicit choice-theoretic microfoundations. [1] The analysis therefore begins with a static multi-country model of demand and supply under conditions similar to those of the dependent-economy models. The conclusions are then compared with the effects

[1] Corden (1984, p. 360) notes that the dependent-economy models can be regarded as "plain man's general equilibrium theory", and points out that "changes are generally in the intuitive direction,... well-behaved cases are being assumed and rogue income effects are excluded".