The Terms of Trade and Public Goods

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Abstract

A model of a small open economy with a non-tradable public good and two tradable private commodities is employed to consider the implications of the terms of trade on the optimal quantity of a public good. First, the Samuelson condition is developed for this three good economy. Then the effect of a terms of trade change is decomposed into supply and demand side components. Observations are made regarding the influence of terms of trade improvements. The importance of including terms of trade considerations in determining the optimal amount of public goods and in explaining the size of government is emphasized. Some interesting implications for the size of government, in absolute and relative terms, are made for industrialized economies.

1. Introduction

Two of the most phenomenal economic developments in the post-1945 period are the tremendous liberalization of international trade, and the increased relative size of government sectors. For many countries, interna-
tional trade relative to GDP is quite large. One consequence is that substantial changes in the terms of trade may force macroeconomic adjustment. Such was the case for many OPEC countries when the world price of oil fell. A more recent example is Mexico’s response to the drastic depreciation of its exchange rate in early 1995. The fast-appreciating Japanese yen may lead to macroeconomic policy adjustment in Japan as well.

Beyond macroeconomic responses, one would expect long term implications for the public sector. Shifts in the terms of trade, by affecting real national income and the domestic relative price structure, would, through both channels, influence the optimal quantity of public goods and the actual size of government. Yet, microeconomic realignment of the public sector along those lines is barely considered in the international trade literature. More generally, it is astonishing that the extensive literatures on public good provision, on the size of government and on the growth of government are almost entirely in a closed economy context.

This paper is a contribution to the resolution of those anomalies. It explores the efficiency aspects of the relationship between the terms of trade and the optimal quantity of a public good in a small open economy. Drawing on and adapting the model of Komiya [1967] and Melvin [1968] it makes explicit the interplay of forces that define that relationship. Additionally, the analysis can be applied to any produced commodity that government budgets finance; the only qualification is that the commodity be non-traded. Thus, transfers-in-kind or publicly provided private commodities, which, along with public goods, make up a large portion of government spending are not beyond the scope of what follows. On the other hand, the influence of the terms of trade on cash transfers is not considered. However, when one thinks of the composition of government spending in many coun-

1. Abe [1992] is an important exception. That interesting paper investigates the welfare implications of a tariff reduction in a model with a public good where the tariff revenue finances the public good. Michael [1994] carries out a similar analysis focusing on changes in the terms of trade in a free-trade environment where financing of the public good is through non-distortionary taxation when the public good is initially at a sub-optimal level. Also of some relevance is Feehan [1996] which examines the welfare effects of international economic integration by a small open economy given the existence of national public goods.