Chapter 4

The International Transmission of Real Business Cycles

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Abstract

This paper develops a simple one-sector, two-country equilibrium model which accounts for the relatively low cross-country consumption correlations without damaging the areas of success of existing models. This improvement arises from the modification of the consumption index in order to add public consumption to private consumption in the preferences of the agents, which allows shocks to government purchases to alter the marginal utility of consumption. This model explains quite well both the high correlation between saving and investment and the counter-cyclicality of net exports. However, only a strong cross-correlation of home and foreign technology shocks enables the model to mimic the cross-country correlation of output.

Introduction

Real business cycle models were quite rapidly extended to two-country models\(^1\) in order to evaluate their ability to mimic some open-economy aspects of the business cycle pointed out by a growing bulk of empirical studies.

\(^1\)Dellas [1986] and Cantor and Mark [1988] were the pionners of this line of research.
Indeed, there are several open-economy features in the data that a model which describes the international transmission of business cycle should account for. The studies of, e.g. Backus and Kehoe [1992], Gerlach [1988], Baxter and Stockman [1988] and more recently Blackburn and Ravn [1991], underline some international regularities such as the counter-cyclical behavior of the trade balance, or the high correlation between saving and investment in the main industrialized countries. Moreover, many co-movements are exhibited among international data: the cross-country output correlation is positive and the cross-country consumption correlation is also positive, but less than the output one.

The two-country real business cycle models pay particular attention to the statistics directly related to the allocative role of international markets. While Baxter and Crucini [1993] provide a quantitative analysis of an equilibrium model, with perfect mobility of financial capital and a very high degree of physical capital mobility, which suggests that simulated and observed correlation between saving and investment are close to each other, the other aspects of the business cycle in an open-economy setting seem much more difficult to reproduce.

First, due to the too high volatility of investment generated by this kind of model, the counter-cyclicity of the trade balance and its variability relative to output raises an issue for, e.g. Backus, Kehoe and Kydland [1992] or Baxter and Crucini [1993]. Then, there is an endogenous tendency of the two-country neoclassical model to generate outputs that move in opposite directions. This is due to resources that shift to the more productive location.

Finally, the most striking failure of these models with complete markets, whether they are one-sector or two-sector models, as in Stockman and Tesar [1990], is that they find that consumption is perfectly (or nearly perfectly) correlated across countries. The kind of preferences widely adopted in this literature, jointly with the optimal risk-sharing allowed by frictionless international financial markets, explain this discrepancy between data and theory. The two-sector, two-country model developed by Stockman and Tesar [1990], which includes non-traded goods, requires both shocks to technology and tastes to break the