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Inflation targeting and business cycle synchronization

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A B S T R A C T

Inflation targeting seems to have a small but positive effect on the synchronization of business cycles; countries that target inflation seem to have cycles that move slightly more closely with foreign cycles. Thus the advent of inflation targeting does not explain the decoupling of global business cycles, for two reasons. Indeed business cycles have not in fact become less synchronized across countries.

1. Introduction

This paper is concerned with why business cycles are synchronized across countries. We focus particularly on two inter-related phenomena. The first and less important is "decoupling," the idea that business cycles are becoming more independent and less synchronized across countries. The second is inflation targeting (IT), a recent policy that allows the monetary authority to focus on purely domestic inflation. One of the oft-cited advantages of IT is the fact that it provides insulation from foreign shocks. In this paper, we empirically investigate if the advent of inflation targeting can be linked to business cycle synchronization (BCS), and thus decoupling. We find first that the advent of IT seems to result, in both theory and fact, in higher cross-country synchronization of business cycles. Indeed, decoupling does not seem to be present at all in the data.

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2. Theory

2.1. Brief summary of the literature

Mundell first formally explored the logic of the insulation value of floating exchange rates in his famous textbook *International Economics*. While he is best known for his presentation of the small open economy comparison of fixed and flexible exchange rates with perfect capital mobility, Mundell also presents a two-country model in an appendix to chapter 18. He shows that under fixed exchange rates, monetary shocks lead to positive BCS while the effect of real shocks is theoretically ambiguous. By way of contrast, with flexible exchange rates, real shocks are associated with positive spillovers and BCS for very large countries, while monetary shocks lead to opposite effects in the domestic and foreign economies. He states explicitly "It cannot, therefore, be asserted that a country is automatically immunized by its flexible exchange rate from business cycle disturbances originating abroad." His reasoning is that a positive domestic real shock raises the domestic interest rate, attracting foreign capital and appreciating the exchange rate. Similarly, with fixed rates, business cycles cause by real shocks of large countries may or may not be transmitted abroad.

Devereux and Engel (1999, 2003) use dynamic stochastic general equilibrium models to investigate regime choice. However, their models do not easily lend themselves to the questions at hand here for a number of reasons (e.g., the models are restrictive, there are a very limited number of shocks, and the focus is on welfare and thus consumption rather than GDP). Still, such analysis usually retains the celebrated "insulation" effect in that floating exchange rates protect the domestic economy from foreign monetary shocks.

Our goal here is to provide some theoretical guidance on how we expect the monetary regime to affect the degree of business cycle synchronization. We develop a simple model of a small open economy interacting with a large economy (which can also be interpreted to be the rest of the world), assumed to be unaffected by shocks hitting the small economy. We use this to determine how cross-country business cycle coherence depends on the monetary regime.

We begin by considering a model where prices are flexible. We do this entirely because it makes the solutions to the model algebraically trivial, while giving intuitive and pleasing closed-form solutions. However, we obtain "something like" sticky-price results by letting the aggregate supply curve become flat. In the extreme, it turns out that our results are essentially identical to those obtained with prices set rigidly, based on last period's information. In this case, inflation targeting becomes irrelevant to the covariance of interest (the covariance of interest involves only output innovations and sticky prices do not allocate output innovations).

2.2. Model

The goods sector of the small open economy consists of two equations. The first is a standard Lucas/Gray supply curve where the deviation of output from trend depends on the price surprise, while the second equation defines demand for domestic output:

$$y_t = \beta(p_t - E_{t-1}p_t) + u_t, \tag{1}$$

$$y_t = E_t y_{t+1} - \delta r_t + \theta y_t^* - \kappa(p_t - p_t^* - s_t) + h_t \tag{2}$$

where: y_t is the (natural logarithm of the deviation from trend of) domestic output at time t; y^* is the analogue for foreign output; p is the domestic-currency price of domestic output; u is a productivity shock; E is the expectations operator; and Greek letters denote parameters. The surprise in demand is driven by a number of forces, including the domestic real interest rate, defined as $r_t \equiv i_t - (E_t p_{t+1} - p_t)$ where i is the domestic nominal interest rate. Foreign demand for domestic output is given by θy^*. The nominal exchange rate (defined as the domestic price of foreign exchange) is s, the foreign-currency price of foreign output is p^*, so that $(p - p^* - s)$ is the real exchange rate. The shock to demand for domestic output is h, which we take to be either a taste shock or linearization error.