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International welfare effects of monetary policy

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A B S T R A C T

In this paper, I examine the international welfare effects of monetary policy. I develop a New Keynesian two-country model, where central banks in both countries follow the Taylor rule. I show that a decrease in the domestic interest rate, under producer currency pricing, is a beggar-thyself policy that reduces domestic welfare and increases foreign welfare in the short term, regardless of whether the cross-country substitutability is high or low. In the medium term, it is a beggar-thy-neighbour (beggar-thyself) policy, if the Marshall-Lerner condition is satisfied (violated). Under local currency pricing, a decrease in the domestic interest rate is a beggar-thy-neighbour policy in the short term, but a beggar-thyself policy in the medium term. Both under producer and local currency pricing, a monetary expansion increases world welfare in the short term, but reduces it in the medium term.

1. Introduction

Monetary policies of the U.S. Federal Reserve (Fed) and the European Central Bank have notable consequences, not only on their own economies but also on the rest of the world. The Fed implemented a monetary expansion after the 2001 recession, which lowered the short-term nominal interest rate in 2003, at a time when output may have been quite close to its natural level, by more than the Taylor rule suggested. After this, the Fed gradually raised the interest rate to a level coinciding with the Taylor rule (see Taylor, 2009). Understanding the international welfare effects of this type of monetary policy is essential. This paper analyses the international welfare effects of monetary policy in a situation where the central bank unexpectedly lowers the interest rate and then gradually raises it back to the level implied by the Taylor rule.

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Analysing the international welfare effects of monetary policy has received attention in the so-called New Open Economy Macroeconomics (NOEM) literature, pioneered by Obstfeld and Rogoff (1995, 1996). This is hardly a surprise, since one advantage of the NOEM framework is that it allows an explicit utility-based welfare analysis of monetary policy. Obstfeld and Rogoff (1995) demonstrate that the benefits of a domestic monetary expansion are split equally between the home and foreign country. They focus on the case where the elasticity of substitution between domestic and foreign goods (cross-country substitutability, for short) is high, and export prices are set in the producer's currency (PCP, producer currency pricing).

The subsequent NOEM literature has shown that the international welfare effects of monetary shocks are predicated by the currency of export pricing and the cross-country substitutability. Betts and Devereux (2000) show that if export prices are set in the local currency of the consumer (LCP, local currency pricing), a monetary expansion is a beggar-thy-neighbour policy. The reason is that the domestic country can improve its terms of trade at the neighbour's expense. Corsetti and Pesenti (2001) and Tille (2001) show that expansionary monetary policy is beggar-thyself if the cross-country substitutability is lower than the elasticity of substitution between two goods produced in the same country (within-country substitutability, for short). Also in this case, gains in domestic output are offset by deteriorating terms of trade.

The studies of Betts and Devereux (2000), Corsetti and Pesenti (2001), Obstfeld and Rogoff (1995) and Tille (2001) analyse only the overall welfare effect. That is, they focus exclusively on the discounted present value of the change in utility. Engler and Tervala (2011) instead analyse the behaviour of welfare over time. They show that the models of Corsetti and Pesenti (2001), Obstfeld and Rogoff (1995) and Tille (2001) in the end generate a common result: A monetary expansion is a beggar-thyself policy in the short term, regardless of whether the cross-country substitutability is equal to or smaller than the within-country substitutability. On the other hand, in the long term, it is a beggar-thyself policy only if the Marshall-Lerner condition does not hold.

Vanhoose (2004) criticised the NOEM literature because it abstracted from much that the field of monetary economics has learnt about monetary policy modelling. On one hand, the revival of interest-rate rules, pioneered by Taylor (1993) and Woodford (2003), have become an essential part of the NOEM literature after Vanhoose wrote the critical appraisal. On the other hand, in all above-mentioned studies that address the international welfare effects of monetary policy, a monetary expansion is a simple shock to the money supply and the foreign country does not respond to it.

The main point of this paper is to analyse the international welfare effects of monetary policy in a case where the central banks in both countries follow the Taylor rule with interest rate smoothing. Monetary expansion means a negative shock to the domestic Taylor rule. Therefore, the domestic central bank unexpectedly lowers the interest rate and gradually raises it to the level implied by the Taylor rule. The central bank in the foreign country follows the Taylor rule the whole time.

One of the main findings of the paper is that the overall welfare effects of a decrease in the interest rate are completely the same as in the models by Engler and Tervala (2011), Obstfeld and Rogoff (1995), Corsetti and Pesenti (2001) and Tille (2001) in which the money supply is permanently increased. Therefore, a decrease in the interest rate can: (i) be a beggar-thy-neighbour policy (in the case of LCP); (ii) be a beggar-thyself policy (in the case of PCP with a low cross-country substitutability); or (iii) increase utility in both countries (in the case of PCP with a high cross-country substitutability).

The international welfare effects of monetary policy over time, however, depend differently on the currency of export pricing and the cross-country substitutability than overall welfare effects. In the short term, under PCP, a monetary expansion always has a beggar-thyself effect, regardless of the size of the cross-country substitutability. In the medium term, however, a monetary expansion has a beggar-thy-neighbour effect if the Marshall-Lerner condition holds, but a beggar-thyself effect if the Marshall-Lerner condition does not hold.[1]

[1] The Marshall-Lerner condition is that the sum of the elasticities of demand for exports and imports exceed one in absolute value. Under certain assumptions, this is the condition for a depreciation to improve the trade balance (Deardorff, 2011).