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Optimal monetary policy in a small open economy: The case of Korea

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Abstract

In this paper, we set up a new Keynesian model with imperfect pass-through effect to explore the effect of monetary policy in Korea. Key parameter values are estimated with Kalman filtering and a maximum likelihood estimation method. In our model, inflation-targeting rule still dominates alternative monetary rules in welfare dimension.

JEL classification : E52; F31

Keywords: Korea; Monetary policy; Small open economy; Taylor rule; Welfare

1. Introduction

Recently, monetary authors recommend to implement inflation targeting among the available monetary rules. Of course, the inflation targeting policy can result in the trade-off between inflation and output stabilization when one incorporates the cost-push shock such as an oil crisis. In the world where the domestic inflationary pressure as well as the foreign inflationary pressure coexist, it is very uncertain whether the inflationary targeting rule is desirable in the small open economy like that of Korea. In this paper, we will discuss the effect of the trade-off between the inflation stabilization and output stabilization on the monetary policy. In particular, we will explore whether the inflation targeting is still desirable in the case of imperfect pass-through effect by comparing the welfare cost of alternative monetary policy rules such as a discretionary foreign exchange policy and the inflation targeting.

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In recent years, the new Keynesian economics that incorporates imperfect competition and nominal rigidities into a dynamic general equilibrium structure for an open economy have been developed. The theoretical development in the new Keynesian literature has made it possible to analyze the dynamic effects of monetary shocks in the presence of (in)complete international capital mobility and nominal rigidities. Considering the empirical fact that the nominal rigidities are important in understanding the real effects of monetary policy, it is natural to incorporate the nominal rigidities and explore the behavior of the macroeconomic variables such as exchange rates and the current account in the open economy.

In the theoretical development of international finance, one can assume that the international markets for manufacturing goods are sufficiently segmented or not. For example, Obstfeld and Rogoff (2000) argue that the assumption of sticky prices in the producer's currency without international market segmentation is important for matching the behavior of the terms of trade. However, there is a large body of evidence against the law of one price. For this reason, we consider not only law of one price model, but also the imperfect pass-through effect model by setting up a full-fledged new Keynesian model.

With this kind of new Keynesian model, we will apply Kalman filtering and maximum likelihood estimation method to estimate some parameters and then explore the effect of real shocks on the key macroeconomic variables such as real output, price, exchange rate, trade balance. Finally, we quantify the effect of monetary policy on the welfare and compare the welfare cost of alternative monetary policy rules. In particular, we will consider the general interest rate rules to analyze the effect of alternative monetary policy rule on welfare.

The main findings of this paper can be summarized as follows. First, in spite of its simplicity, new classical model is quite successful in describing the important macroeconomic variables of Korean economy. Second, the inflation-targeting rule is still desirable even if there are imperfect pass-through of exchange rate and cost-push shocks, implying that the discretionary exchange rate policy should be dismissed. Third, the domestic price index (DPI) inflation targeting rule is better than the consumer price index inflation targeting rule in welfare respect even if one incorporates other frictions such as cost push shocks. Of course, one cannot generalize this conclusion to the model with financial market and labor market frictions that are important factors in Korean economy.

The remainder of the paper is organized as follows: Section 2 presents a small open economy model with imperfect pass-through effect. Section 3 derives equilibrium conditions, and Section 5 presents the empirical result of the monetary policy as well as the welfare cost of alternative monetary policy rules. Section 5 concludes the paper.

2. The model

We assume an open economy which consists of domestic economy and world economy that is great deal larger than the domestic one. Economic subjects of both domestic and large economy maximize their objective function under the same condition; the difference between the two subjects is the relative importance of foreign goods in domestic consumption.