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The Response of Iranian Economy to Monetary and Exchange Rate Policies Shocks Base on the Foreign Sector: A Dynamic Stochastic General Equilibrium Analysis

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EXTENDED ABSTRACT

INTRODUCTION

Emergence of the new Keynesian School and its dramatic impact on the Dynamic Stochastic General Equilibrium (DSGE) models and integration with concepts such as nominal rigidity and monopoly competition, have made these models a central focus of the monetary economist and central banks. In the framework of this school and using the literature of such models, we built an estimable DSGE model for the Iranian economy. By simulating the effects of the implementation of monetary and foreign exchange policies through the policy instruments, bank interest rate, central banks international reserves and the nominal exchange rate, are measured on the macroeconomic variables, the real trade balance, production gap, inflation rate, real exchange rate and foreign assets.

METHODOLOGY

In order to formulate an appropriate model, first the behavioral equations of economic agents have been specified according to the realities of the Iranian economy. Traditionally, an inter-period utility function and a production and profit function have been considered to explain the behavior of consumers and producers, respectively. These agents want to maximize their benefits (utility – profit) or the goal function. The foreign sector is added to the model as a trade balance (net exports) which is the key function. Policy making is operated via the optimum simple rule and under three alternative currency regimes: Managed Exchange Rate (MER), Floating Exchange Rate (FER) and Pegged Exchange Rate (PER) regime. The monetary authority (central bank) has designed four methods for applying the mentioned policies: inflation target, production target, production and inflation targets and finally inflation, production and real exchange rate targets. The analyzed variables are production gap, country's trade balance (without oil), inflation rate and real exchange rate.

policy instruments also include bank interest rate, foreign reserves of the central bank and the rate of change in the nominal exchange rate. After designing and adjusting the model for the Iranian economy and determining the necessary dynamics, the linear equation system was prepared. The effects of monetary and exchange policies on foreign sector variables was analyzed according to the mass of this sector in production and employment and based on model's dynamic relations. Furthermore, the actions, reactions and influences of these policies on country's trade balance have been measured in the format of variable fluctuations. The model is simulated by using calibrated real data and Dynare software under MATLAB.

FINDINGS

The findings indicate that in all policy rules, the scenario of the intermediate currency system has superiority over other currency systems and causes less fluctuations in model's endogenous variables comparing to the other alternative currency systems.

CONCLUSION

The results show that Managed Exchange Rate (MER) for all four methods is optimum and the loss of central bank is minimized as much as possible and compared to other systems, it has caused the fluctuations of the external sector variables of Iran's economy to be minimized. Hence, it is necessary for the

Central Bank to strictly use the intermediate currency system as the dominant scenario when setting policy packages.

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