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Investigating the Role of Housing Finance in Iranian Business Cycles, DSGE Approach

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EXTENDED ABSTRACT

INTRODUCTION

In explaining the shocks to the economy, it is important to examine the role of banks in implementing monetary and financing policies. Banks can have a significant impact on the formation of boom and bust cycles by playing the role of intermediary funds and financiers. On the other hand, the position of the housing sector in the economy, along with the importance of housing financing in changing the housing market conditions, requires that the mentioned role in the economy be examined. In this study, considering the ability of DSGE in simulating the economy and explaining the behavior of macroeconomic variables in the face of shocks to the economy, the role of housing financing in the formation or continuation of Iranian business cycles has been investigated.

METHODOLOGY

In this study based on econometric methodology, a stochastic dynamic general equilibrium model is used to investigate the role of housing financing on Iranian business cycles. To quantify the model designed in this study, the method of calibration was used. Also, to estimate some of the model parameters, the first-order vector autoregression (AR) method was used based on data from macroeconomic variables during the period 2007 to 2019.

Specify the model

In the final goods market, the equilibrium condition in the economy is obtained from the equality of total supply and total demand as follows:

$$Y_t = C_t + \left(1 + \left(\frac{I_{k,t}}{I_{k,t-1}} - 1\right)^2\right) I_{k,t} \quad (31)$$

$$I_{h,t} = H_t - (1 - \delta_h) H_{t-1} \quad (32)$$

$$S_t = I_{k,t} + (1 - \delta_k) K_t \quad (33)$$

assuming that:

$$C_t = c_{p,t} + c_{i,t} \quad (34)$$

$$H_t = h_{p,t} + h_{i,t} \quad (35)$$

$$K_{t+1} = \psi_{t+1}\left(I_{k,t} + (1 - \delta_k) K_t\right) \quad (36)$$

Solve and approximate the pattern

Since stochastic dynamic general equilibrium patterns generally consist of nonlinear equations of the endogenous variables of the pattern, it is necessary to convert them to linear equations through linearization methods. For this purpose, the linearization logarithm method was used and the sides of the equations were approximated based on Taylor expansion around the steady state of the variables, the results of the above calculations are given below.

Value parameters

To calibrate the experimental model designed in this research, the method of calibration is used. Calibration is a method for selecting model parameters in a way that is most similar to and compatible with the economy under study (Heidari & Malabahrami, 2016).

FINDINGS

Findings show that economic fluctuations are not only explained by non-financial shocks such as productivity shocks in the final products and housing and housing demand shocks, but also due to financial frictions such as capital quality shocks that in terms of housing financing factor, these effects Intensifies.

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CONCLUSION

In this study, using the framework of stochastic dynamic general equilibrium models, a DSGE model was designed in terms of housing financing simultaneously with other sectors. In terms of housing financing through the banking sector, by including the housing sector and the banking system in the design of the DSGE model and its estimation, it was observed that housing financing can have a significant impact on the business cycles of the housing market and growth and dynamics. Create the economy. The strengthening of financial shocks in this model stems from the financing of housing for banks and families with unlimited horizons. These reinforce each other and expand into business cycles over time, creating a reinforcing effect on the dynamics of financial and housing variables.

The main difference between the model designed in this study and other studies in this field, in terms of banking and housing sectors in the model with the aim of examining the role of housing financing on business cycles, taking into account the structure of the Iranian economy. Bringing new impulses to the base model, the effects of the impulses under the two scenarios of the existence of housing financing and the absence of the factor mentioned in the model were evaluated. In general, the results obtained from the instantaneous reaction functions indicate the relative success of the model in simulating the Iranian economy and the adaptation of the model to economic expectations and realities.

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