Journal website : https://pse.razi.ac.ir

Razi University

Public Sector Economics Studies 10 PSE
Qurterly
Department of Economics, Faculty of Economics and Accounting, Razi University
Vol. 3, Issue 10, Winter 2025 | Online ISSN: 2821-2681

Effect of monetary policy on output andemployment considering frictional unemployment*

Nasrollahi, H.[1] ‖ Emami, K.[2] ‖ Peykarjou, K.[3] ‖ Memarnejad, A.[4] ‖ Torabi, T.[5]

Type of Article: **Research**
10.22126/pse.2024.10853.1141
Received: 13 July 2024; Accepted: 30 November 2024
P.P: 615-646

Abstract

Monetary policy is a tool through which central banks manage the supply of money to achieve their goals, and it is one of the key elements of macroeconomic management, and its effectiveness is an important issue in the analysis of economic policies. The usual goals of monetary policy are to achieve or maintain full employment, to achieve or maintain a high rate of economic growth, and to stabilize prices. For this purpose, in this research, the effects of this policy on production and employment, which have been calibrated for the Iranian economy by considering frictional unemployment in the form of a monetary general equilibrium model, have been investigated. The results show that the effect of monetary growth on employment and production in a steady state may be non-linear depending on the two parameters of labor supply elasticity and elasticity of vacancies in job matches, so that the lower the labor supply elasticity and elasticity of vacancies in job matches, it is more likely that monetary growth will have adverse effects on employment and production. Also, in the framework of the model, the negative relationship between the unemployment rate and vacancies is calculated, and with the increase of the Quarterly monetary growth rate from zero to 5%, the employment and production values in a steady state, they increase by about 0.4%. In addition, considering the transition dynamic, with the reduction of the monetary growth rate from the level of the benchmark case to the level of 2.5%, the equilibrium values of the variables will converge to their new equilibrium values after 2.5 years. Therefore, it is suggested that the central bank should pay attention to the effectiveness of monetary policy on production and employment in order to achieve macroeconomic goals in recession and boom. And since monetary growth is not always unfavorable for production and employment, the effect of this reduction on production should be taken into account in inflation reduction policies.

Keywords: Monetary Policy, Frictional Unemployment, General Equilibrium, Calibration, Transition Dynamic.

JEL Classification: D50, J64, E52.

*. This paper is extracted from Hossein Nasrollahi's doctoral thesis, Supervised by Dr. Karim Emami and Dr. Kambiz Peykarjou and advised by Dr. Abbas Memarnejad and Dr. Taghi Torabi at The Faculty of Economics and Management, Science and Research Branch of Islamic Azad University, Tehran.

1. Ph.D student in Economics, Science and Research Branch, Islamic Azad University, Tehran, Iran. ***Email:*** nasrollahy5@gmail.com

2. Associate Professor, Department of Economics, Science and Research Branch, Islamic Azad University, Tehran, Iran (Corresponding Author). ***Email:*** k-emami@srbiau.ac.ir

3. Assistant Professor, Department of Economics, Science and Research Branch, Islamic Azad University, Tehran, Iran. ***Email:*** k.peykarjou@srbiau.ac.ir

4. Assistant Professor, Department of Economics, Science and Research Branch, Islamic Azad University, Tehran, Iran. ***Email:*** memarnejad@srbiau.ac.ir

5. Associate Professor, Department of Economics, Science and Research Branch, Islamic Azad University, Tehran, Iran. ***Email:*** taghi.torabi@gmail.com

Citations: Nasrollahi, H.; Emami, K.; Peykarjou, K.; Memarnejad, A.; Torabi, T. (2025). "Effect of monetary policy on output andemployment considering frictional unemployment". *Public Sector Economics Studies*, 3 (10), 667-646.
Homepage of this Article: https://pse.razi.ac.ir/article_3355.html?lang=en

1. Introduction

Production and employment are two important macroeconomic indicators. The amount of production and its economic value are among the most important criteria for measuring a country's economic success. The employment rate is also an important indicator that shows the health and stability of an economy. Given that monetary policy is one of the two main tools by which government officials influence the speed and direction of economic activities, assessing the impact of monetary policy on the economy is very important for its successful implementation and achievement of its goals. Monetary policy refers to the actions that a country's central bank takes to achieve its macroeconomic policy goals. the role of monetary policy is a complex and controversial issue, with different schools of thought offering different views on its effectiveness. On the other hand, today, search models are the main theoretical tools used to evaluate various economic policies and examine the issue of unemployment. Therefore, the aim of this research is to examine the effect of monetary policy on production and employment by considering frictional unemployment in the form of a monetary general equilibrium model calibrated for the Iranian economy.

2. Theoretical framework

How monetary policy affects real variables such as output and employment has been the subject of much discussion in the macroeconomic literature. In general, the classical economists emphasize the ineffectiveness of monetary policy on real variables such as output and employment, while the Keynesians emphasize the effectiveness of monetary policy on real variables such as output and employment. The Great recession of 1929 profoundly changed views on the role of money and monetary policy as a tool for stabilizing the economy. From then on, monetary policy was seen as an ineffective approach to dealing with recessions. Until the early 1960s, Keynesian thinking saw little role for money and monetary policy in determining economic activity, and fiscal policy was seen as the primary tool for stabilizing the macroeconomics. While Keynesian theory was still dominant, an intellectual challenge was emerging that later became known as the Monetarist Counter-Revolution. The core message of monetarism had a lasting impact on monetary policy and theory.

3. Methodology

In the present research, the effect of monetary policy on production and employment has been investigated using a monetary general equilibrium model and calibration. MATLAB software has also been used in data analysis. In the model, we have three different parts: household, firm, and monetary authority. A representative

Public Sector Economics Studies Qurterly 10 PSE
Vol. 3, Issue 10, Winter 2025 | Online ISSN: 2821-2851
Volume 3, Issue 10, Winter 2025

household maximizes its expected intertemporal utility due to its budget constraint. Firms produce goods using capital and labor. Labor markets are subject to friction because it takes time to match vacancies with labor searches, and finally money is introduced into the model using the cash in advance constraint (CIA).

4. Discussion

The results obtained in the calibration of the model for the Iranian economy in the steady state are: a) Within the framework of the model, by obtaining the Beveridge curve, a negative relationship between the unemployment rate and vacancies is obtained in confirmation of the existing theoretical foundations. b) Employment and production in the steady state depend on two parameters in the labor market: the labor supply elasticity and elasticity of vacancies in job matches. The lower the labor supply elasticity and elasticity of vacancies in job matches, the greater the likelihood that monetary growth will have adverse effects on employment and production. c) With an increase in the quarterly monetary growth rate from zero to 5 percent, the values of employment and production in the steady state increase by about 0.4 percent. d) Considering the transition dynamics, by reducing the quarterly monetary growth rate from 5.3% to 2.5%, the equilibrium values of the variables in the benchmark case converge to their new equilibrium values after 2.5 years.

5. Conclusion and Suggestion

In this research, the effects of monetary policy on production and employment were investigated by considering frictional unemployment in the form of a monetary general equilibrium model. parameters are first determined based on the calibration method. Then, balanced growth analysis, which occurs in macroeconomics when variables grow at a constant rate, is performed. After that, sensitivity analysis is performed to show how changes in model parameters affect the corresponding model outputs. Finally, convergence to new equilibrium values is examined by considering transition dynamics. Therefore, it is suggested that, given that the elasticity of labor supply is higher when individuals have more alternative jobs, more skills, and more flexibility to change jobs, the aforementioned issues should be considered due to their impact on employment. Also, due to the impact of monetary policies on employment and production, appropriate policies should be adopted to improve the situation of the Iranian labor market and eliminate the existing imbalances in this sector.

6. Ethical Considerations

6.1. Compliance with ethical guidelines

This paper follows the ethical guidelines of publication.

6.2. Funding

This paper has no financial support.

6.3. Author’s Contribution

The authors, while observing the publishing ethics, declare that they participated in this research with equal contribution.

6.4. Conflict of Interest

The authors declare that there are no conflicts of interest in this research.

6.5. Acknowledgments

The authors would like to thank the editor, referees, and all members of the journal for their valuable comments to improve the quality of the paper.