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The asymmetric impact of monetary policy on income distribution in Iran

Al-Oufi, R. G. M.[1] ‖ Asgharpur, H.[2] ‖ Bargi Oskouei, M. M.[3] ‖ Salmani, B.[4]

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Abstract

Income inequality is one of the fundamental challenges of human societies and has attracted the attention of economists since the emergence of economic science. Reducing income inequality has long been regarded as a key economic objective of governments, and policymakers have consistently sought to employ various instruments to achieve this goal. Among these instruments, monetary policy, as one of the main tools of economic policymaking, can play a significant role in either alleviating or exacerbating income inequality. Accordingly, the present study investigates the asymmetric effects of monetary policy on income distribution in the Iranian economy over the period 1993–2023. In this study, an income inequality index is first constructed using the Principal Component Analysis (PCA) method. Subsequently, the effects of monetary policy on the composite income inequality index are examined across different deciles using a quantile-based approach. The findings indicate that liquidity, serving as a proxy for monetary policy in this study, has adverse effects on income distribution in most deciles, leading to a deterioration in income equality. Based on the results, it is recommended that monetary policymakers pay greater attention to the distributional consequences of liquidity growth when designing and implementing monetary policies and avoid measures that may intensify income inequality. Moreover, directing liquidity toward productive activities and employment-generating sectors can help mitigate the unfavorable effects of monetary policy on income distribution. Additionally, the effects of other explanatory variables—namely economic growth (GDP per capita), the square of economic growth (GDP per capita), exchange rate, trade openness, and the degree of urbanization—are found to be positive, negative, positive, positive, and positive, respectively, across most deciles.

Keywords: Monetary policies, Income distribution, Asymmetric effects, Iran.

JEL Classification: E52, D31, D63.

1. PhD Student in Economics, Tabriz University, Faculty of Economics and Management, Tabriz, Iran.
Email: ty.ccc81@gmail.com

2. Professor, Tabriz University, Faculty of Economics and Management, Tabriz, Iran (Corresponding Author).
Email: asgharpurh@gmail.com

3. Professor, Tabriz University, Faculty of Economics and Management, Tabriz, Iran.
Email: mahdi-oskooee@yahoo.com

4. Professor, Tabriz University, Faculty of Economics and Management, Tabriz, Iran.
Email: behsalmani@gmail.com

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1. Introduction

In recent years, the issue of income and wealth inequality has attracted widespread attention among researchers and policymakers, leading to extensive debates regarding its causes and consequences. Studies have shown that rising inequality has numerous adverse effects on both the economy and society. This phenomenon undermines economic growth (Ostry et al, 2014), intensifies financial fragility (Rajan, 2010; Bordo & Meissner, 2012; Kumhof et al, 2015; Zungu & Grelling, 2022), and, through reduced social mobility, contributes to social tensions and conflicts (Wilkinson & Pickett, 2009; Corak, 2013). These conflicts can result in the destruction of infrastructure, disruptions in social services, and restrictions on economic opportunities, thereby creating a self-reinforcing cycle of rising inequality (Gurr, 1968; Krieger & Mierau, 2019; Parsons, 2023). Moreover, Canas (2020) argues that increasing inequality reduces the propensity to consume, which in turn leads to a decline in aggregate demand and investment. While numerous studies have examined the effects of monetary policy on income inequality, relatively little attention has been paid to the asymmetric nature of these effects, which can be regarded as a significant research gap. Most previous studies assume a linear and symmetric relationship between economic policies and inequality; however, in reality, inequality may respond to policy changes in a nonlinear and heterogeneous manner across different economic conditions. The main contribution of this study lies in employing a composite inequality index to measure income inequality more accurately. This index is constructed based on four key indicators: the Gini coefficient, the Atkinson index, the ratio of the top 10 percent to the bottom 10 percent of income earners, and the ratio of the top 20 percent to the bottom 20 percent of households. Subsequently, by applying the quantile regression approach, the study examines the effects of monetary policy across different segments of the income distribution.

2. Theoretical framework

The existing empirical literature on the distributional effects of conventional monetary policy indicates that an unexpected increase in interest rates can lead to higher income inequality. In one of the earliest studies examining the impact of expansionary monetary policy on poverty, Romer and Romer (1999) show that the implementation of expansionary monetary policy can temporarily reduce poverty; however, this effect is achievable only through the channels of low inflation and stable output. Mumtaz and Theophilopoulou (2017), using UK data over the period 1969–2012, find that contractionary monetary policy shocks increase inequality in income, wages, and consumption and play a significant role in the fluctuations of these variables. The authors also point out that quantitative easing policies implemented during the Great Recession were among the factors that intensified inequality. Their findings are consistent with the results reported by Fornaro et al (2018).

Unconventional monetary policy instruments primarily operate through changes in the size of the central bank's balance sheet. These instruments typically lead to increases in the prices of financial assets, which are predominantly held by wealthier households rather than low-income groups; as a result, they may exacerbate income and wealth inequality. The existing literature presents two main perspectives regarding the effects of unconventional monetary policies. The first strand argues that accommodative unconventional monetary policies can contribute to a more equitable income distribution by operating through redistribution-of-savings channels and income heterogeneity (Doepke & Schneider, 2006; Heathcote et al, 2010; Bivens, 2015; Gourlay, 2018; and Lenza & Slacalek, 2019). In contrast, the second strand maintains that such policies increase income and wealth inequality through portfolio channels, income composition effects, and financial segmentation (Amaral, 2017; Mumtaz & Theophilopoulou, 2017; Albert et al, 2019; and Taghizadeh-Hesary et al, 2018).

3. Methodology

The model studied in this study is as follows:

$$LINCOME_i = \beta_0 + \beta_1 LGDP_i + \beta_2 LGDDP_i + \beta_3 LX_i + \mu_i$$

In this equation, LINCOME represents the dependent variable of the model and represents the logarithm of income distribution. LGDP represents economic growth (logarithm of GDP per capita), LGDDP represents the logarithm of GDP to the second power, and X represents control variables including liquidity, exchange rate, degree of trade openness, and urbanization rate.

In this study, first, a composite index of income inequality was calculated, and then the effects of monetary policy on income distribution in Iran were examined using quantile regression.

4. Discussion

The logarithm of GDP per capita has positive effects and the logarithm of GDP squared has negative effects. Also, in this study, liquidity, which is included as a proxy for monetary policy in the model, and the results show that increasing liquidity has a negative and significant effect on income inequality. The reason for this effect can be multifaceted: increasing liquidity usually facilitates access to financial resources, credit, and investment, and these opportunities gradually reach the lower deciles. On the other hand, increasing liquidity can strengthen the purchasing power of low-income households and help grow their consumption and economic participation, which in turn has a direct effect on reducing inequality. Also, the exchange rate has a positive effect on income inequality. The degree of trade openness has a positive and significant effect on income inequality. In addition, the degree of urbanization also has a positive effect on inequality.

5. Conclusion and Suggestion

According to the results, the coefficients associated with GDP are positive and statistically significant across most deciles of the inequality distribution; however, the magnitude of this effect generally declines as one moves from lower to higher deciles. The coefficients of the GDDP variable are negative and statistically significant across all models and deciles, indicating the inequality-reducing effect of this variable on income inequality.

Based on the findings, the coefficients related to liquidity (as a proxy for monetary policy) are predominantly negative and statistically significant, particularly in the middle and upper deciles of the inequality distribution. This result suggests that an increase in liquidity within the economy can lead to a reduction in income inequality in the long run.

The estimation results also show that the exchange rate has a positive and statistically significant effect on income inequality across all deciles, implying that an increase in the exchange rate (i.e., a depreciation of the domestic currency) leads to higher income inequality. Trade openness exerts a positive and statistically significant impact on income inequality in all models and across all deciles. Finally, the urbanization rate exhibits a nonlinear and varying effect across the inequality distribution. Given the negative effect of liquidity on income inequality, it is suggested that monetary policymakers help achieve a more balanced income distribution and reduce inequality by directing liquidity toward productive and employment-generating activities, especially in the industrial and manufacturing sectors, while maintaining economic stability.

6. Ethical Considerations

6.1. Compliance with ethical guidelines

The present study has followed the scientific principles of research.

6.2. Funding

There is no funding support.

6.3. Authors contribution

The authors participated in this research with the same share.

6.4. Conflict of interest

The authors declare that there is no conflict of interest in this research.