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The relationship between financial access and economic growth in Iran: A PCA and copula approach

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Abstract

This study investigates the relationship between financial access and economic growth in Iran over the period 1989-2022 using a hybrid approach and copula models. Financial access indicators, including domestic credit to the private sector and broad money growth, were analyzed against economic growth (real GDP). The findings reveal no significant linear or nonlinear relationship between these variables, supported by near-zero correlation coefficients (Kendall, Spearman, Pearson) with non-significant p-values. Additionally, broad money growth, lacking real production backing, has contributed to high inflation (averaging 26%) and reduced purchasing power. This inefficiency is attributed to misallocation of resources to non-productive sectors (e.g., speculation) and unstable monetary policies. The study concludes by emphasizing the need for policy reforms to redirect resource allocation toward productive sectors.

Keywords: Financial Resources, Economic Growth, Iran, Capella Function.

JEL Classification: C33, O50.

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1. Introduction

Access to financial resources can have significant effects on economic growth in various ways. Some of these effects include: Facilitating access to credit Financial development, by increasing domestic credit to the private sector, can contribute to economic growth. This credit allows companies and entrepreneurs to make the necessary invest ments. Innovation and technological improvement: Access to finance can improve sustainable economic growth by deepening capital and technological innovation. Reducing the impact of the informal economy, controlling the size of the informal economy can strengthen the positive impact of access to finance on economic growth. This impact is limited if there is a large informal economy. Bidirectional relationship: In some cases, access to finance and economic growth can influence each other in a bidirectional way, meaning that economic growth can also contribute to access to finance, these effects indicate the importance of access to finance in facilitating sustainable economic growth. This is especially important in countries like Iran, which are facing many constraints due to economic challenges and international sanctions. In the current situation in Iran, a deep and scientific analysis of the relationship between access to financial resources and economic growth is necessary so that policymakers can better understand how these two factors affect each other. This study uses modern approaches such as principal component analysis (PCA) and the Copula model to attempt to explain the complex and nonlinear aspects of this relationship. The use of principal component analysis helps reduce the complexity of the data and create a comprehensive profile of financial development indicators, while the Copula model helps analyze the nonlinear dependencies between economic and financial variables in different economic conditions. These modern methods are distinct from other studies and can provide more accurate analyses.

2. Theoretical framework

To examine the relationship between access to financial resources and economic growth, various theories have been proposed, each of which addresses this issue from a specific angle. These theories attempt to explain whether access to financial resources is a prerequisite for economic growth, or whether economic growth is a prerequisite for access to financial resources, or whether there is a bidirectional or even indifferent relationship between these two variables. Financing hypothesis: The financing hypothesis is based on the idea that access to financial resources plays a key role in promoting economic growth. Financially driven growth hypothesis: In contrast to the financial inaction hypothesis, the financial-driven growth theory argues that economic growth increases the demand for financial services and leads to the development of the financial system. Two-way interaction hypothesis: The two-way interaction hypothesis is based on the idea that financial development and economic growth have a mutually reinforcing relationship. According to this view, access to financial resources helps economic growth, and in turn, economic growth accelerates access to financial resources. This two-way relationship means that both variables can simultaneously and mutually reinforce each other. Indifference hypothesis: The indifference hypothesis offers a different perspective and believes that there is no clear relationship between access to financial resources and economic growth.

3. Methodology

The present study, using advanced statistical models and quantitative analyses, attempts to examine the relationship between financial development and economic growth in Iran during the period 1990-2023. Since the analysis of this relationship requires the examination of multidimensional and complex factors such as the banking system, financial markets, and macroeconomic indicators, new approaches such as principal component analysis (PCA) and copula models have been selected as analytical tools. These methods provide the ability to understand nonlinear and simultaneous relationships between variables. Principal component analysis is a statistical method that helps reduce the dimensions of data and identify their internal structures.

4. Discussion

The findings of this study showed that access to financial resources in Iran, especially through indicators such as domestic credit to the private sector and broad money growth, does not have a significant and direct impact on economic growth. Credit allocated to the private sector has been mainly directed towards unproductive activities and the asset market and has failed to play an effective role in boosting production and productivity. Also, broad money growth, without the support of real production, has led to increased inflation and reduced purchasing power. The lack of a nonlinear and complex relationship between access to financial resources and economic growth also indicates a structural weakness in the Iranian economy, which is associated with inefficient allocation of resources and unstable financial and monetary policies. These results emphasize that fundamental reforms in the economic structure, proper direction of liquidity to productive sectors, and reduction of dependence on oil revenues are necessary for optimal use of financial development capacities in economic growth.

5. Conclusion and Suggestion

This study, by carefully analyzing the relationship between access to financial resources and economic growth in Iran, achieved several key achievements: Lack of significance of the direct relationship between financial development and economic growth: The results showed that indicators of access to financial resources such as domestic credit to the private sector and broad money growth do not have a significant impact on economic growth. Identification of weaknesses in the allocation of financial resources: The study emphasized that financial resources allocated to the private sector are attracted to unproductive and speculative activities instead of being directed to production and investment. Emphasis on the role of inflation in reducing the effectiveness of financial development: Broad money growth without the support of real production was identified as the main factor in increasing inflation, which has a negative impact on economic growth. Policy recommendation: Reform financial resource allocation policies: The government and policymakers should formulate policies that target financial resources to the productive and productive sectors of the economy. Reducing dependence on oil revenues: Strengthening the non-oil economy and reducing the impact of income shocks will enable more effective financial development and sustainable economic growth. Liquidity management and inflation control: Adjusting liquidity growth in proportion to real production capacity is a fundamental step towards reducing inflation and increasing economic productivity.

6. Ethical Considerations

6.1. Compliance with ethical guidelines

The present study has followed the scientific principles of research.

6.2. Funding

The article was written without financial support.

6.3. Author’s Contribution

The authors have contributed equally to the article, in accordance with publication ethics.

6.4. Conflict of Interest

There is no conflict of interest.

6.5. Acknowledgments

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