Investigating the Short-Term and Long-Term Effects of Private and Public Investments Uncertainty on Economic Growth in Iran

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Abstract

Investment is considered a most significant variable in the demand of the entire society and Determinant of economic growth. In one type of classification, investment includes two types of private and public investment that affect each other. However, the geographical, political and economic situation in developing countries, especially Iran, brings a high degree of economic uncertainty, which has a It has a lot of influence on the on economic variables, Particular the private and government investments, and Consequently It causes disruption to economic growth. Therefore, the aim of the present study was to investigate the short-term and long-term effects of private and government investments uncertainty on economic growth in Iran in the period of 1962-2021 using the ARDL approach. Also, the data of uncertainty variables of private and public investments have simulated using Vasicek's Mean Reverting Stochastic Differential Equation method. The results have shown the existence of a long-term relationship between the variables of the model. On the other hand, the error correction coefficient in the ECM model also indicates that in each period, about 56% of imbalances corrected and the model converges towards the long-term equilibrium value. In addition, the long-term model estimation results indicate that the variables uncertainty ratio of private investment to economic growth, uncertainty ratio of public investment to economic growth, active population growth rate, inflation rate, non-oil export growth rate have a negative and significant relationship with the dependent variable of the economic growth rate; While the oil revenue growth rate variable has a positive and significant relationship with the dependent variable of the economic growth rate. Also, the variable of the imposed war had a negative and significant relationship with the economic growth variable.

Keywords: Private and public investment, Uncertainty, Vasicek's mean reverting stochastic differential equation, Auto Regressive Distributed Lag, Economic Growth, Iran.

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1. Introduction

Investment is one of the most significant influential variables in the employment, progress, and success from developed countries. In one type of classification, investment includes two types of private and public investment that affect each other. Investigating the investment trend of the past decade in the country shows that the average growth of investment in those years has decreasing and around -6.8%.

On the other hand, the investments made in recent years have not even been able to cover the depreciation of previous investments due to the increase in risk and the unfavorable investment environment of the country, which had very negative consequences on the country's economic conditions, employment, and etc.

The high attractiveness of the country's non-productive markets and their higher yields in their shorter time compared to productive activities; the high cost of the business environment; currency flactuations; the problems caused by the embargo and, as a result, the sale and recieve of oil revenues; and the reduction of foreign investments has also been one of the significant factors of the reduce of investment and production in the country. The sets of mentioned conditions has made investment in the country volatile, decreasing, and with uncertainties, especially in recent years, which has been the main factor in not realizing the average economic growth targeted in the country's fifth and sixth five-year economic development plans.

In the meantime, the geographical, political and economic situation in developing countries, especially Iran, brings a high degree of economic uncertainty, which has a lot of influence on the economic variables, Particular the private and government investments, and Consequently It causes disruption to economic growth.

2. Methodology

Investment, specially private and government investments, as one of the important and influential variables on the economic growth and development of countries, is affected by several factors, which will face uncertainties as a result. Therefore, to simulate the uncertainties of the two mentioned variables, it is appropriate to use stochastic processes; which, while considering the effects of uncertainty, model the randomness of the variable with higher accuracy due to its continuous and non-derivative Wiener component.

Therefore, identifying and simulating the uncertainty of private and public investment variables will be a guide for policymakers and investors, based on this and according to the importance of the topic, in this study, simulating the uncertainties time series of private and government investments using the method of Vasicek's Mean Reverting Stochastic Differential Equation method from 1961 to 2021 based on the base year of 2011 has been addressed.

Also, the aim of the present study was to investigate the short-term and long-term effects of private and government investments uncertainty on economic growth in Iran in the period of 1962-2021 using the ARDL approach.

3. Conclusion and Suggestions

The results have shown the existence of a long-term relationship between the variables of the model. On the other hand, the error correction coefficient in the ECM model also indicates that in each period, about 56% of imbalances corrected and the model converges towards the long-term equilibrium value. In addition, the long-term model estimation results indicate that the variables uncertainty ratio of private investment to economic growth, uncertainty ratio of public investment to economic growth, active population growth rate, inflation rate, non-oil export growth rate have a negative and significant relationship with the dependent variable of the economic growth rate; While the oil revenue growth rate variable has a positive and significant relationship with the dependent variable of the economic growth rate. Also, the variable of the imposed war had a negative and significant relationship with the economic growth variable.

At the end, recommendations includes specialization and continuous updating of the skills of the active population to increase economic growth by policymakers; inflation control; Focusing on non-oil exports, upgrading production and exporting goods with high added value and sales markets abroad; the authorities' attention to the uncertainty of private and public investments in order to influence the country's economy and considering it in policy and investment decisions; Periodically simulating the amount of uncertainties of private and public investment variables using the method of Vasicek's Mean Reverting Stochastic Differential Equation and also comparing it with competing methods, in order to achieve a reliable method for estimating the mentioned variables and making them available to the public in order to guide domestic and foreign investors; Identifying factors affecting private and public investment uncertainties; Pathology of the uncertainty of private and public investments and providing solutions to reduce their effect can be presented.

4. Ethical Considerations
4.1. Compliance with ethical guidelines
The present study has followed the scientific principles of research.

4.2. Funding
This paper is an extract from a PhD thesis of the first Author at Razi university and it does not have the financial support of any organization.

4.3. Authors' Contribution
According to the authors, this paper is an extract from a PhD thesis. As a result, the first author wrote the article with the guidance and supervision of the second author and the consultation of the third author.

4.4. Conflict of Interest

The authors declare no conflict of interest.

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