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# Effects of Financial Markets Development on Growth of Agricultural Sector

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**Abstract:** Agricultural sector in Iran is one of the major sectors and it has a remarkable share in GDP. So, investigating the effects of different economic variables on agricultural sector is important. During the previous decades, the role of financial markets in economic growth process has been widely investigated. So, the main objective of this study is to investigating the role of financial markets development on growth of agriculture sector, using VAR model and Granger causality tests. The results showed that the effects of financial markets development on growth of agricultural sector are positive. In fact, the development of financial structure has played an important role in growth of value added of agricultural sector. Also according to Granger causality test results, supply side view of financial markets exists in agricultural sector.

**Key words:** Financial markets · Financial intermediation · Value added · Agricultural sector

## INTRODUCTION

In many studies, the role of financial markets on economic growth has been emphasized [1]. In fact, financial markets as one of the most important factor in economic growth process have been noticed by many economists. Importance of financial markets and its effects on economic growth has been widely investigated in the studies of recent decades [2-6].

With the development of endogenous growth theory, relationship between financial markets and economic growth has been investigated more widely in recent studies. In endogenous growth theory, effects of financial markets development on economic growth has been emphasized [7-8]. The studies of Saint-Paul [9] and Bose and Cothern [10], in the frame of endogenous growth theory, showed that how financial markets affect economic growth. Also, the positive relationship between financial markets development and economic growth has been showed by other studies [11-12 ].

After emerging the idea of effects of financial markets development on economic growth, more studies have been done in order to deeper investigation on this subject and also selecting the direction of causality between these two variables [13-17]. Conclusions of these studies showed that, development of financial markets via widening and diversifying the financial markets, lead to better allocation of resources and finally economic growth.

Economists hold different views on the existence and direction of causality between financial development and economic growth. The existence of causality from financial markets to economic growth shows the "supply-side" view of financial markets. It means that establishing and developing the financial markets, leads to more financial services and finally economic growth. This view has received considerable support from recent empirical studies [11, 18-19].

But, based on the idea of some of other economists, by increasing the level of productions, demand for financial services will increase and this will have positive effect on growth of financial markets. In other words, economic growth leads to financial markets development. So, the existence of causality from economic growth to financial markets development shows the "demand-side" view of financial markets. This view has received considerable support from recent empirical studies [7, 20-21].

Agricultural sector in Iran is one of the major sectors and it has a remarkable share in GDP. So, the main objective of this study is to investigate the effects of financial markets development on growth of agricultural sector and also investigate the existence of "supply-side" or "demand-side" views of financial markets in agricultural sector.

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## MATERIALS AND METHODS

In this study, two measures of financial development have been employed. The first is an estimate of total assets of financial intermediaries (FIA), which includes commercial banks, agricultural cooperatives and insurance companies that are Iran's most important financial institutions. Second, assets of financial intermediaries and assets of stock markets and bonds (FIAC) which is a broader measure of financial development. So, the data used in this study are: value added of agricultural sector (VAA), total assets of financial intermediaries (FIA), total assets of financial markets assets (FIAC) and currency in circulation (CC) which gathered from balance sheet of central bank of Iran for the period of 1968-2005.

Investigating the relationship between financial markets development and economic growth in this study has been done with a VAR system and granger causality test. A model of VAR takes the matrix form

$$y_t = A_1 y_{t-1} + A_2 y_{t-2} + .... + A_p y_{t-p} + U_t \quad (1)$$

Where $y_t$ and its lags and also $U_t$, are K×1 vectors and $A_i$'s are K×K matrixes. Therefore, for investigating the relationship between financial markets development and economic growth we used a model with the form

$$x_t = \alpha_0 + \sum_{i=1}^{k} \alpha_1 x_{t-i} + \sum_{i=1}^{k} \alpha_2 y_{t-i} + \sum_{i=1}^{k} \alpha_3 z_{t-i} + u_{1t} \quad (2)$$

$$y_t = \beta_0 + \sum_{i=1}^{k} \beta_1 y_{t-i} + \sum_{i=1}^{k} \beta_2 x_{t-i} + \sum_{i=1}^{k} \beta_3 z_{t-i} + u_{2t} \quad (3)$$

$$z_t = \gamma_0 + \sum_{i=1}^{k} \gamma_1 z_{t-i} + \sum_{i=1}^{k} \gamma_2 x_{t-i} + \sum_{i=1}^{k} \gamma_3 y_{t-i} + u_{3t} \quad (4)$$

Where $x_t$ is a macroeconomic indicator (value added of agricultural sector), $y_t$ is currency in circulation, and $z_t$ is a measure of financial development (FIA or FIAC).

Table 1: Results of unit roots test.

| Variables | Stationary status | Level of significance |
|---|---|---|
| VAA | Stationary | 1% |
| FIA | Stationary | 5% |
| FIAC | Stationary | 5% |
| CC | Stationary | 1% |

To determine an appropriate framework for VAR, it is important to first evaluate the stationary properties of the data. In fact in a VAR model, all the variables should be stationary. In this study we used sequential procedure for investigating the stationary of the variables. Also for investigating the causal relationship between financial markets development and economic growth we used wald test.

## RESULTS AND DISCUSSION

**Unit Roots Test:** This section presents sequential procedure for unit roots test and the results have been showed in Table 1.

The results of Table 1 show that all the variables are stationary and so we can use VAR model. Also for estimating the VAR model, it is necessary to select the optimum lag for the model. In order to select the optimum lag for the model, Akaike and Scharz Baycsian criteria was used.

Finally, the model was estimated concerning the optimum lags and different variables. Then, the causal relationship between financial markets development and economic growth was tested using wald test. The null hypothesis is that there is no causal relationship between these two variables. Table 2 and 3 shows the results of wald test.

Table 2 shows that direction of causality is from financial variables to value added of agricultural sector.

Table 3 shows that direction of causality is from financial variables to value added of agricultural sector.

According to the results of the Table 2 and 3, results of the wald test shows that there is a causal relationship

Table 2: Results of wald test with assets of financial intermediaries and value added of agricultural sector

| Direction of causality | $\chi^2$ | Level of significance | Accepting or rejecting the null hypothesis |
|---|---|---|---|
| FIA to VAA | 7.6066 | (0.055) | Rejecting the null hypothesis |
| CC to VAA | 21.9690 | (0.000) | Rejecting the null hypothesis |
| VAA to FIA | 3.4392 | (0.329) | Accepting the null hypothesis |

Table 3: Results of wald test with assets of financial markets and value added of agricultural sector

| Direction of causality | $\chi^2$ | Level of significance | Accepting or rejecting the null hypothesis |
|---|---|---|---|
| FIAC to VAA | 7.8911 | (0.048) | Rejecting the null hypothesis |
| CC to VAA | 22.0751 | (0.000) | Rejecting the null hypothesis |
| VAA to FIAC | 3.4473 | (0.328) | Accepting the null hypothesis |

from financial variables to value added of agriculture. So, we come to this conclusion that, financial markets have had a significant effect on the growth of agricultural sector in Iran. But the growth of agricultural sector has not had effect on the financial markets development. According to this, "supply-side" view of financial markets exists in agricultural sector.

## CONCLUSION

In this study the effects of financial markets development on the growth of agricultural sector were investigated using VAR model and granger causality test. Results of causality tests (wald test), showed that financial markets development have positive effects on the growth of agricultural sector. In fact, expansions of financial structure in Iran played an important role in the growth of agricultural sector.

Concerning the positive effects of financial markets development on growth of agricultural sector, development of financial markets via widening and diversifying the financial markets, can lead to more considerable growth in agricultural sector. For example development of stock markets as one of the most important part of financial market, can have an important role in financial markets development and economic growth consequently. Also agricultural cooperatives as one of the part of financial intermediaries, needs to be considered. In fact increasing the efficiency of such cooperatives can play an important role in process of growth of agricultural sector [20-23].

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