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Investigation the Potential of Investment in Agricultural Sector of Iran (Emphasizing on National Development Programs)

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Abstract: Because of various continental conditions, natural potentials and strong linkages between agricultural sector and other economic sectors, agricultural development plays an important role in the Iranian economy. Capital is one of most important components which affects on increasing the productivity of the production factors such as human resources, land, etc. This study describes the placement of agricultural sector in Iranian economy, considers the trend of investment in agricultural sector over the period of 1963-2004 emphasizing on development programs in country. It also evaluates the capability of investment procuring in this sector comparing with other economic sectors in the country. In addition, obstacles of investment in agricultural sector such as inflation and other factors are examined. Results showed that capital productivity in agricultural sector is high and this sector has potentials for extension of investments. However, capital per capita in agricultural sector is lower than other economic sectors. In addition, findings of this study confirmed a significant negative relationship between capital per capita in agricultural sector and capital productivity in the sector which indicates inappropriate capital allocation in the sector. It is recommended that the investments especially infrastructure investments are extended. Moreover, reformation the structure of agricultural production market and more emphasize on appropriate feasibility studies of projects in the agricultural sector are also recommended.

Key words: Agricultural development · Investment · ICOR · Productivity · National programs

INTRODUCTION

Since agriculture is closely related with other sectors of economy, the agricultural development is necessary to development of the sector and the other economic sectors [1-12] and also to overcome poverty [3]. Agricultural sector plays an important role in Iranian economy. During year 2004, agricultural sector provided 14% of gross domestic product (in real prices), 25% of value of non-oil exports, more than 20% of employment and 90% of processing industry's raw materials [2].

Agricultural investment is one of the most important issues in agricultural development and economic growth [4]. In the first chapter of Rules of the Fourth Economic, Social and Cultural Development of Iran which is called "developing infrastructure for rapid economic development", agricultural investment has been paid attention. Based on targets of this program, the rate of agricultural investment should rise up to 13.5%. Promotion of the agricultural productivity is considered as an important policy in this program. Therefore, it requires a comprehensive and accurate management in using capital as an important input in production of goods and services.

The following reasons lead to decrease of investments in agricultural sector: the low rate of expected return in agricultural investment, in comparison with the other investments, low price of agricultural products, high rate of inflation, low governmental investment in agriculture, governmental investment in private sector [11]; high cost of agricultural infrastructure investment [8] and any factor that lowers investment risk [1]. In fact, high rate of inflation increases the risk of production activities and makes high profits for business people and arbitragers [5]. Therefore, capitals move to markets such as gold, coin, land and building markets which hold

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higher security. Among all, the other reason for lack of appropriate allocation of capital to agricultural sector is offering loans to farmers without enough monitoring and feasibility studies which results in capital usages in non-agricultural purposes. The main objective of the present study is to describe the potentials of investment in agriculture in the Iranian economy.

MATERIALS AND METHODS

In this study, in order to examine investment capability in agricultural sector in Iran, the capital productivity criterion and measurement of the indicator of ICOR were used. In order to show the relationship between "annual capital per capita in agricultural sector" and "annual agricultural capital productivity", Pearson correlation coefficient was used. Then, in order to clarify the investment status in agricultural sector and comparing that with the whole economy, the agricultural capital per capita and the trend of its changes in comparison with the whole economy was examined. In this study, the time series data were collected for years 1963 to 2004. The sources of data were economic reports of the Central Bank of Iran and also reports published by the Organization of Management and Planning of Iran. The data were analyzed by software including Excel and SPSS.

RESULTS AND DISCUSSION

The index of annual capital per capita for every 100 employed persons was defined and analyzed to present more real picture of capital status in the sector. The results showed that the agricultural sector had the least annual average capital per capita, which was 0.20 billion Rials per 100 employed persons over 1963-1967. The amount of this index, as shown in Table 1, except the Third Economic, Social and Cultural Development Program, was between zero and one. In contrast, the highest amount of the index belongs to oil and gas sector.

Referring to the Table 1, the highest growth of the index in agricultural sector (19.07%) relates to the Fifth Development Program before the Islamic revolution, which was as a result of increasing the oil income. This index had a positive growth in agricultural sector as well as the whole economy. The average annual capital per capita in agricultural sector had a noticeable growth during the war between Iraq and Iran and the First Economic, Social and Cultural Development (ESCD), but its growth was reduced afterwards.

Based on the results, investment in agricultural sector had the highest productivity in comparison with other sectors. The results were approved by the results obtained by Salami and Shahnooshi [9]. It should be noted that oil and gas sector had higher capital

Table 1: Capital status in agricultural sector of Iran, (National Development Programs)

		Periods						
Index	Sector	3rd DPIR	4th DPIR	5th DPIR	1979-1989	1st ESCD	2thESCD	3thESCD
Annual average of capital per capita	Agricultural sector	0.20	0.30	0.64	0.62	0.49	0.76	1.06
(Billion Rials per 100 employed persons)	The economy	1.96	3.25	5.92	7.69	6.96	7.11	7.62
Annual average of capital per capita	The economy	8.24	11.32	13.41	-1.48	0.96	0.51	1.63
growth rate (percent)	Agricultural sector	5.55	11.67	19.07	-6.78	18.18	5.67	4.00

Source: Research findings based on the data collected from the Central Bank of Iran and Organization of Management and Planning of Iran.

Table 2: Capital status in agricultural sector of Iran (Emphasizing the National Development Programs)

		Periods						
Index	Sector	3rd DPIR	4th DPIR	5th DPIR	1979-1989	1st ESCD	2thESCD	3thESCD
Annual average of capital productivity	The economy	0.55	0.54	0.46	0.26	0.27	0.27	0.27
(1997=100)	Agricultural sector	1.36	1.21	0.82	1.58	2.30	1.60	1.21
ICOR	The economy	3.09	2.79	6.90	-15.87	5.03	10.18	1.21
	Agricultural sector	2.58	3.64	5.66	2.72	1.74	6.06	0.50
Annual average of growth rate	The economy	-0.36	0.37	-5.77	-2.26	3.33	0.00	0.00
of capital productivity (percent)	Agricultural sector	-1.89	-4.38	-6.20	36.57	-6.57	-4.23	-2.58

Source: Research findings based on the data collected from the Central Bank of Iran and Organization of Management and Planning of Iran.

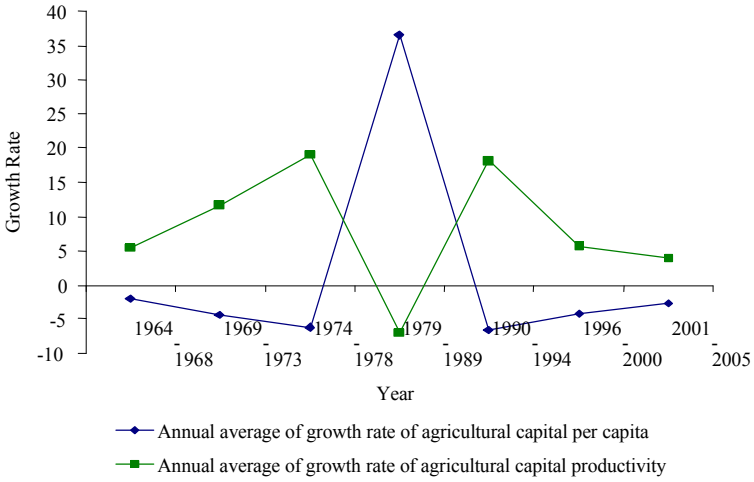

Fig. 1: Productivity growth rate and capital per capita growth rate in agricultural sector (During Development Programs)
Source: Research findings based on the data collected from the Central Bank of Iran and the Organization of Management and Planning of Iran

Table 3: The correlation between annual average growth rate of capital per capita and annual average of growth rate of capital productivity in agricultural sector

Test	Sig.	value
Pearson correlation coefficient	0.006	-0.415**

** P< 0.01 Source: Research findings

productivity during the development programs before the Islamic revolution compared to agricultural sector. However, this process had a reverse trend after the Islamic revolution and during the First ESCD (Table 2). This process was because of high crude oil price during the years 1968 to 1977 and then the increasing in oil price after the Islamic revolution and the war. Indeed, after the Islamic revolution and the oil price increasing, capital productivity in oil and gas industry as well as industries and mines sectors had a noticeable fall down. It should be mentioned that oil price rise during the years 1989-1992 led to rise of productivity in oil and gas sector, but yet it remained less efficient than agricultural sector. According to Table 2, the capital productivity in agriculture had the highest growth (36.57%) during the war.

As indicated in Figure 1, there was a negative relationship between the annual average of growth rate of capital productivity and annual average of growth rate of capital per capita in agricultural sector, so that the highest rate of growth of capital productivity was for the war period in which the average annual of growth rate of capital per capita was negative.

In the present study, in order to determine more precise relationship between two indexes, including the average annual growth rate of capital productivity in agricultural sector and average annual growth rate of capital per capita in agricultural sector, the Pearson correlation coefficient was used. The results showed a negative relationship between these two indexes (Table 3).

The result clarifies the sub-optimality of investment and the inappropriate combination of production inputs in agricultural sector. The reasons for this problem are as follows: separate and small farms, lack of necessary infrastructure, inappropriate structure of market and lack of efficient capital allocation. In fact, lack of feasibility study of projects leads to failure in implementation of projects. The mentioned issues have made inappropriate conditions for investments in the sector under which a considerable part of the government budget moved towards other sectors. In this study, ICOR indicator was also measured to determine the investment efficiency in agricultural sector and the whole economy. The amount of ICOR in agricultural sector was lower than other sectors (except gas and oil sector). This shows that creating value added unit in agricultural sector needs less capital in comparison with other sectors. As shown in Figure 2, the ICOR for sectors, except the agricultural sector was negative after the Islamic Revolution of Iran and during the war. This can be noted as a good reason for the stability of agricultural sector. According to this study and also other studies

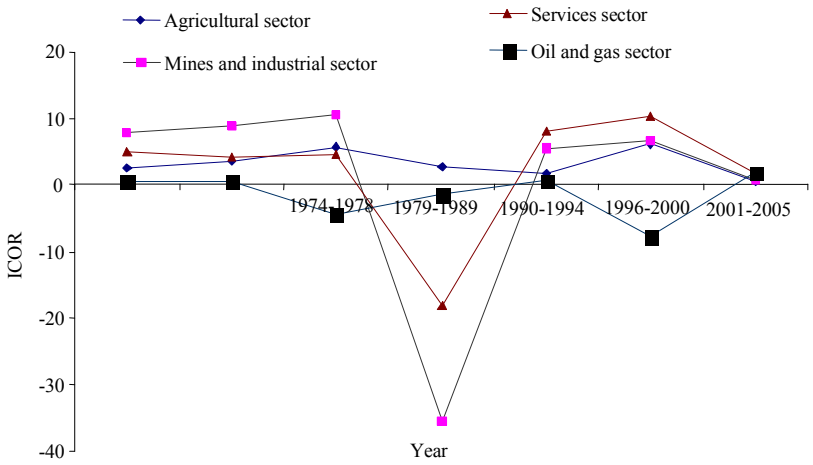

Fig. 2: Measurement of ICOR during 1964- 2005
Source: Research findings based on the data collected from the Central Bank of Iran and Organization of Management and Planning of Iran.

such as Soltani [11], it can be claimed that agricultural sector in comparison to other sectors holds better potentials; however, the efficiency of investments in agricultural sector is low.

CONCLUSIONS AND POLICY IMPLICATIONS

This study investigated the potential of investment in agricultural sector of Iran. Based on the results of the study, some recommendations are made as follows:

- The results of this study such as the calculated ICORs showed that the agricultural sector holds considerable advantages in the Iranian economy. The Fourth Economic, Social and Cultural Development emphasizes on obtaining 13.5 per cent as the growth rate of investment in the agricultural sector. It needs to make changes in the trend of investments in agricultural sector. The results of this study showed that the annual average investment per person in agriculture was much lower than the whole economy, which indicates the importance of the agricultural sector in the economy and the need for promotion of the level of investments in the sector.
- Reformation and development of infrastructures in agricultural sector: The negative relationship between "average annual investment per person" and "annual investment efficiency in agriculture" indicated inefficient use of capital in agricultural sector. There was not a suitable situation for growth of investments in agricultural sector. Therefore, it is recommended that government should make arrangements to improve infrastructure projects of the sector. It will provide better situation for increasing productivity in different sectors. This situation, in turn provides a better situation in which production and employment will be improved in both public and private sectors.
- There are also some other policies which can motivate the public and private sectors towards improving the situation of agricultural sector. Some of the main policies are recommended as follows:

  (a) Reformation of the structure of agricultural production market: It can be done by extending new marketing organizations and weakening the role of agricultural dealers in the agricultural markets.
  (b) Feasibility studies for projects are important to select the best investment alternatives [6, 10-13]. Otherwise, if projects with low returns are selected, it may lead to sub-optimal investment and inappropriate allocation of resources in the economy.

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