

THE EFFECTIVENESS OF FARM CORPORATIONS IN IRAN

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One of the consequences of land redistribution programmes is, in many cases, the creation of small and economically inefficient holdings. This short-coming is even more complicated by inheritance laws in most cultures, which require a further redistribution among heirs upon the farmers' deaths. As a consequence, land fragmentation, inadequate inputs and low managerial ability, unless prevented by subsequent measures, predominate in countries which have carried out land redistribution programmes.

Iran launched a land redistribution programme in 1962. Soon after the redistribution of land, the government attempted to support the farmer-owners by providing extension education programmes and cheap credit by establishing credit co-operatives. In order to take advantage of economies of scale, to increase total agricultural production, to increase farmers' incomes and to solve the problem of land fragmentation, the government decided, in 1968, to persuade farmers to form large-scale farms called "farm corporations".

The purpose of this study was to measure the effectiveness of a sample of farm corporations in Iran. The effectiveness of farm corporations was determined through the measurement of changes which have taken place in: agricultural production, farmers' incomes, income distribution, productivity of resources and land fragmentation. In addition to these economic aspects, some social aspects of farm corporations were studied.

Our methodology was to select a judgement sample of three of the 16 farm corporations - the Garmsar, Aryamehr

and Shahr-e-Kord Farm Corporations. In each farm corporation a random sample of 35 farmers was interviewed by the authors using an interview schedule. In addition, the executive manager of each farm corporation was interviewed to determine the business situation of the farm corporation. The data were coded, punched in data storage cards and analyzed through the computer centre of the American University of Beirut.

Economic variables

Change in Farmers' Incomes. Farmers' mean incomes have increased significantly* as a result of the formation of farm corporations. A comparison of the mean average income of the year before formation of farm corporations with that of the year after, shows that farmers' incomes have nearly doubled - from 29,464 to 53,671 Iranian rials (Table 1). Likewise, on a man equivalent basis mean average incomes increased significantly - from 42,971 to 54,766 Iranian rials (Table 2).

Table 1. Irān: Change in farmers' incomes as a result of formation of farm corporations. (rials)

Year	Mean income	Standard deviation	Z
1968-69 (before)	29,464	15,462	
1969-70 (after)	53,671	26,998	2.52*

*Z needed for significance at the 1 per cent level is 0.0059.

Change in distribution of income. The incomes of farmers before joining farm corporations were not symmetrically distributed about the mean (the distribution was skewed). That is, the majority had low incomes (around 20,000 - 40,000

* Statistically significant at the 1 per cent level.

Table 2. Irān: Change in net farm income per man equivalent as a result of formation of farm corporations. (rials)

Year	Mean net farm income/M.E.	Standard deviation	Z
1968-69 (before)	42,971	3,541	
1969-70 (after)	54,766	4,769	2.56*

*Z needed for significance at the 1 per cent level is 0.0052.

rials), and only a few had incomes in the higher income ranges (above 40,000 rials). (Table 3)

Table 3. Irān: Distribution of farmers' incomes before and after formation of farm corporations. (rials)

Family income	Number of families	
	Before	After
Under 20,000	18	3
20,000 - 29,999	22	35
30,000 - 39,999	23	2
40,000 - 49,999	19	12
50,000 - 59,999	16	17
60,000 - 69,999	5	2
70,000 - 79,999	1	4
80,000 - 89,999	0	13
90,000 - and over	0	17

In 1969-70 (Irānian year 1349), the distribution of farmers' incomes had changed. The change was due mainly to a significant difference among the distributed profits in the three farm corporations studied. They varied from a mean of 3,360 rials (plus a fixed wage of 22,000 rials a year) in the Shahr-e-Kord Farm Corporation to a mean of 37,411 rials in Garmsar and 70,636 rials in Aryamehr. Therefore, in spite of

the increase in the level of farmers' incomes, an uneven distribution of incomes still existed in farm corporations.

Change in total production of various crops. As a result of farm corporations, total production of various crops has increased substantially. In the three farm corporations studied, total production of wheat increased 4,897 tons per year (7,137 tons in 1969, compared to 2,240 tons in 1968); sugar beets, 3,430 tons; melons, 1,568 tons; potatoes, 994 tons; cotton, 596 tons; and barley, 234 tons. (Table 4)

Table 4. Iran: Change in total production of various crops as a result of the formation of farm corporations. (tons of product)

Crop	Before	After	Change in production
Wheat	2,240	7,137	+ 4,897
Sugarbeet	1,170	4,600	+ 3,430
Melons	261	1,655	+ 1,568
Potatoes	306	1,300	+ 994
Cotton	160	756	+ 596
Barley	254	488	+ 234
Vetch	77	0	- 77

This large increase in total production of various crops was not caused by organizing farm corporations only. Other things also contributed to the increase such as an increase in the cultivated area and an increase in productivity of land as a result of using new inputs and new technology. The cultivated areas for all crops, except barley and vetch were increased. The increase in the cultivated area of wheat was 664 hectares; cotton, 246; melons, 125; potatoes, 105; and sugarbeets, 60. In addition, 37 hectares were brought under cultivation for opium production, 30 hectares for clover, and ten hectares for alfalfa. The area under cultivation of vetch and barley was decreased 14 and 98 hectares, respectively. (Table 5)

Water was a scarce resource before the formation of the farm corporations. In most years, due to a limitation of water, a large amount of land was not cultivated. Three deep

wells had been drilled in two out of the three farm corporations studied. The amount of water in the Āryāmehr Farm Corporation doubled. The increase was from 500 to 650 litres per second in Shahr-e-Kord and from 790 to 1,090 litres per second in Garmsār.

Table 5. Irān: Change in land use as a result of formation of farm corporations. (hectares)

Type of land used	Before	After	Change in land use
Wheat	1,120	1,784	+ 664
Cotton	178	424	+ 246
Melons	125	250	+ 125
Potatoes	85	190	+ 105
Sugarbeet	90	150	+ 60
Opium	0	37	+ 37
Clover	0	30	+ 30
Alfalfa	0	10	+ 10
Vetch	14	0	- 14
Barley	307	209	- 98

The main source of water in the Garmsār Farm Corporation is the Garmsār River. The farmers were previously allocated a certain amount of water each year, but they could not secure their water shares due to a lack of bargaining power. Most of the time their rights were violated by those who were upstream. As a result of the formation of a farm corporation this problem was solved and water rights were secured.

Change in productivity of land. To measure change in the productivity of land the average yields of various crops before and after the formation of farm corporations were calculated. The average annual yield of sugarbeets increased 17,343 kilograms per hectare (more than doubled); melons, 4,532 (more than tripled); potatoes, 3,174 (nearly tripled); wheat, 1,956 (nearly doubled); barley, 1,501 (nearly tripled); and cotton, 874 (four per cent increase). (Table 6)

The tremendous change in the average yield of crops is

due to technology and intensive use of new inputs such as fertilizer, insecticides, improved seeds and water.

Table 6. Irān: Change in the average yields of various crops as result of the formation of farm corporations. (kilograms per hectare)

Crop	Before	After	Change in yield
Sugarbeet	13,323	30,666	+ 17,343
Melons	2,090	6,622	+ 4,532
Potatoes	1,868	5,042	+ 3,174
Wheat	2,044	4,001	+ 1,956
Barley	837	2,338	+ 1,501
Cotton	1,726	1,800	+ 874

Change in productivity of capital. Productivity of capital increased significantly as a result of the formation of farm corporations. The mean average return to capital increased from 27 per cent to 55 per cent. (Table 7)

Table 7. Irān: Change in per cent earning on capital as a result of the formation of farm corporations.

Year	Mean per cent earning on capital	Standard deviation	Z
1968-69 (before)	27%	0.31	
1969-70 (after)	55%	0.43	2.69*

*Z needed for significance at the 1 per cent level is 0.0047.

Lack of access to capital for developing water resources and for using new inputs such as fertilizer and pesticides, and lack of knowledge of modern farming techniques were the main causes of low productivity of capital before formation of farm corporations. In the first year after formation

of farm corporations, each farm corporation received a seven million rial loan at one per cent interest. The borrowed capital was invested in the development of water resources, land improvements, and purchasing new inputs such as machinery, fertilizer and pesticides. The government provided agricultural technical experts to run the farm corporations. Thus, with access to capital and technology, available resources were used more efficiently and, as a result, the productivity of capital increased significantly.

Change in productivity of labour. The productivity of labour has increased as a result of the formation of farm corporations. The productivity of labour was measured in terms of net farm income per man equivalent and net farm income per productive man work unit (P.M.W.U.). The mean net farm income per man equivalent increased from 42,971 rials to 54,766 rials (Table 2) and the mean net farm income per P.M.W.U. increased from 120 rials to 161 rials (Table 8).

Table 8. Irān: Change in net farm income per productive man work unit as a result of the formation of farm corporations. (rials)

Year	Mean net farm income/P.M.W.U.	Standard deviation	Z
1968-69 (before)	120.12	46	
1969-70 (after)	160.86	57	5.55*

* Z needed for significance at 1 per cent level is 0.001.

Change in land fragmentation. Farm corporations were successful in solving the problem of land fragmentation. The number of fragments of land was reduced from 4,236 to 18 as a result of formation of the three farm corporations studied. Innerheritance is usually the main cause of fragmentation. However, in the farm corporations inheritance is not a problem. In case of death of any shareholder, the land of the deceased is managed by the corporation but the heirs enjoy the benefits of that land in proportion to the number of shares they have inherited.

Farmers' awareness and attitudes

Farmers' awareness of the objectives of farm corporations. The farmers' awareness and acceptance of the objectives of farm corporations is necessary for their success. This farm survey showed that only 70 per cent of the respondents indicated knowledge of one or two objectives of the farm corporation and no member was fully aware of the most important objectives as stated in the law of formation of farm corporations.

Farmers' attitudes towards crops planted. The respondents had favourable attitudes toward crop planning under the farm corporations. The reason was that the Board of Directors did not substitute any traditional crop for new ones. The only change was the addition of new crops to the traditional crops. The new crops added were opium, alfalfa and clover.

Farmers' attitudes towards farm corporations as compared to individual farming. The farmers were asked, "Do you prefer to belong to a farm corporation or farm individually?" Forty-three per cent answered that they prefer to farm individually while 42 per cent said that they prefer to belong to a farm corporation. Twelve per cent did not answer the question and 3 per cent were indifferent.

The farmers were asked why they had that preference. Among those who preferred individual farming (43 per cent) 24 per cent said it was because they had more freedom and independence, 7 per cent said that they were better off when they farmed individually, 5 per cent said that they had more leisure time, 2 per cent said they worked harder and got more profit and five per cent did not give any reason.

Among those who preferred farm corporations (42 per cent), 21 per cent said that they had more access to capital, 7 per cent said that they expected to have more profit in the farm corporation, 4 per cent said that, they had better management, 2 per cent said that the government helped farm corporations, 2 per cent said that the farm corporations had provided enough water, 2 per cent said that it was too early to judge, and no reason was given by 4 per cent of the

respondents.

Farmers' identification of problems facing farm corporations

Any change in the organization of production units brings about some problems. The farmers were asked, "What are the problems facing your farm corporation at present"? Twenty-one per cent of the respondents replied that land evaluation was the biggest problem. This issue was raised only in the Shahr-e-Kord Farm Corporation. Four per cent said that managers were neither polite nor well informed. Four per cent said that they did not have enough money for buying necessary things for consumption. Three per cent said that some of the other farmer-members did not work hard in farm corporations.

Some problems were associated with the wage system. Three per cent of the farmers said that the wages were low compared to the average wage in the area. One per cent complained that some members worked outside the farm corporations and got higher wages and received the same profit as those who were working in farm corporations. Four per cent complained that wages were different and not paid according to work done.

Nine per cent of the farmers said that the managers did not pay attention to their views. Three per cent complained that they were charged for grazing their livestock.

Because the survey was conducted before the distribution of profits, some farmers were not sure that the farm corporations would make profit at the end of the year and some of them were not sure that the profit would be distributed among the members. This accounts for the 2 per cent who said that the problem was that profits had not been distributed. Forty-one per cent of the respondents said that they did not have any problem or they could not think of any problem at the time of the interview. Five per cent did not know.

There was a general feeling among the farmers that the

Board of Directors is strongly influenced by the executive manager who was a government employee. They felt that major decisions come from the Land Reform Department and as a result they did not consider the Board of Directors as a representative body which could solve their problems.

The farmers were asked, "Who do you think is responsible for solving these problems"? Forty-three per cent said that the government could solve these problems, 8 per cent said that the Board of Directors and only one per cent said that the farmers themselves could solve these problems. The rest of the respondents were those who gave "no problem" or "do not know" answers to this question.

Implications of the study

On the basis of the results of the study, we can conclude that farm corporations have been successful in solving the problems of land fragmentation. Total production of various crops, productivity of land, labour and capital and farmers' incomes have been increased. Therefore, most of the economic goals as stated in the law of establishment of farm corporations have been achieved in the first year after the formation of farm corporations.

Regarding social goals, farm corporations have been less successful. Some members of farm corporations still do not have favourable attitudes towards group work and work in farm corporations. It should be noted that farmers are traditionally individualistic and, in order to change the farmers' attitudes, more time is needed.

Land reform has become a major policy issue in economically underdeveloped areas. The enactment of a land policy law, particularly radical land reform and the distribution of land among landless peasants, is comparatively easier than its effective implementation. It is the experience of several countries that redistribution of land ownership by itself cannot solve the problem of farmers' poverty and cannot increase agricultural production. Small holdings and uneconomic units of production which are created by redistribution of land probably cannot serve the goals of agricultural

economic development.

In order to take advantage of economics of scale, several alternatives such as collective farms in Russia and Israel, communal farms (Ejido) in Mexico, and farm corporations in Iran, are open to economically underdeveloped countries. There are some similarities and some differences among various forms of large scale farms. The main similarity is that all farmers work under the supervision of a management committee and daily work is organized and, to some extent, the general plan of the farms is prepared by the elected committee. In varying degrees and forms they are supported by the government or other outside agencies especially at the initial stages of development.

The main difference among the forms mentioned is in the form of payment and distribution of profits. In the collective farms of Russia payment is made and profits are distributed according to the labour contribution of members. In the Israeli kibbutz, payment is made on the basis of family needs. In the Iranian farm corporations members receive wages according to their labour contribution and profit on the basis of the amount of their shares.

The choice of an alternative depends mainly upon the political, social and economic structure of the country. It is worthwhile for land reform planners in countries which have or plan to carry out a land redistribution programme, to study various alternative solutions to the problem of land fragmentation and choose one which is most compatible to their social and economic conditions.

Notes

Najafi, Bahaoldin. *The Effectiveness of Farm Corporations in Iran*. M.S. Thesis, Faculty of Agricultural Sciences, The American University of Beirut, Beirut, Lebanon, 1970.