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Research article

STUDY ON FACTORS AFFECTING FARMERS' TENDENCY TO ESTABLISH PRODUCTION COOPERATIVES BY FACTOR ANALYSIS IN MAHABAD (WEST AZARBAIJAN PROVINCE, IRAN)

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ABSTRACT: The purpose of this study was to assess the factors affecting farmers' tendency to establish agricultural production cooperatives in Mahabad County (West Azarbaijan Province, Iran). The statistical society includes 140 excellent farmers living in Mahabad and sample size was estimated 100 by Cochran method. The data was collected through a questionnaire. The correlation between variables and factor analysis was used to recognize the factors affecting farmers' tendency. The results showed that there were positive and significant correlation between farmers' tendency to establish production cooperatives and social factors, extension-educational factors, the role of government and farmers' tendency to participate in group activities, statistically. Data analysis based on factor analysis indicated that social factors, economic factors, administrative factors, the familiarity to cooperation and extension-educational factors were the important effective factors on the farmers' tendency to establish production cooperatives in Mahabad County and these five major factors explained 80.83 % of cumulative variances.
Keywords: Rural Cooperative Production, Tendency, Factor Analysis, Mahabad County

INTRODUCTION

About 40 percent of the Iranian population lives in rural areas where agriculture is the most common jobs. Therefore, agriculture is very important in the rural economy of Iran and its contribution to rural people's livelihoods, is important for especially farmers that often have no other source of income [1].Also, the agriculture section is so widespread and it is impossible to reach goals and high levels of development without farmer participation [2]. Production cooperatives have an important role in rural development and such as active and dynamic environments enable them as a window to the world of agriculture [4]. Production cooperatives can cause training of self-help mentality, improvement of the rural life quality, promotion of saving and deposit habits, more investment in rural areas and industrial development. Therefore, the rural development will be accelerated [4]. Researches has shown that in many developing countries, one of the main obstacles to agricultural development in particular and to rural development in general, is the operating system, the small and the distribution of agricultural land, the existence of a large number of farmers and the existence of inappropriate cooperatives and institutions in this section. These problems can be solved by aggregated and organized farmers in the context of rural production cooperatives [5]. The cooperative and its goals, how public participation in it and the role of cooperatives in poverty reduction, are the broad subjects of numerous investigations that have been done in rural communities in developing countries. In this section we will review the main results of the studies on factors affecting farmers' tendency to form production cooperatives. The effective factors on farmers' membership in rural production cooperatives in the frame of an integrated model of innovation dissemination. He stated that farmers' membership in a cooperative had a significant relationship with demographic characteristics (except the experience of agricultural jobs), economic characteristics (except the amount of land under cultivation and the amount of family participation in agriculture) and social status of respondents [6].

In a study of rural women's demographic and economic variables affecting their participation in the production cooperative, noted that there was a significant and positive relationship between women's participation and demographic-economic components and path analysis revealed that the amount of membership history, improved economic condition of family and management experience (among thirteen demographic-economic components) had the highest positive effect on rural women's participation in production cooperatives, respectively [3]. Evaluated the factors affecting the formation of production cooperatives in Pars Abad (Ardabil Province, Iran) and mentioned that extension factors had showed the highest effect on the formation of production cooperatives in rural areas and then social, economic and environmental factors influence the formation of production cooperatives, respectively. Many researchers believe that the most important factors affecting farmers' participation in cooperatives by demographic, economic, social and psychological variables [3]. Over time, it is felt that organizations and cooperatives have failed in their actual responsibilities and their missions to play in Mahabad (West Azarbaijan Province, Iran). According to the importance of employment in rural areas, the establishment of production cooperatives could be a desirable option for job creation in this city. In this regard, there is no correct recognition of farmers' tendency to establish cooperatives. This present study was conducted to assess factors affecting farmers' tendency to establish production cooperatives by factor analysis in Mahabad.

MATERIALS AND METHODS

This applied and scientific research was conducted in Mahabad County (West Azerbaijan Province, Iran). The statistical society includes 140 excellent farmers living in Mahabad and sample size was estimated 100 by Cochran method. The method of gathering data was based on studies accomplished inside and outside of country, domestic and international papers, and searching scientific resources through internet. The data was collected from farmers through a questionnaire. The first part of the questionnaire was related to demographic characteristics of farmers. The second part of the questionnaire measured independent and dependent variable. Independent variables of the paper included: the familiarity to cooperation, economic factors, social factors, extension-educational factors, the role of government and farmers' tendency to participate in the group activities and the dependent variable included the farmers' tendency to establish production cooperatives. To determine the reliability of the above mentioned questionnaire, a pilot and preliminary test was given from 30 farmers in the near city, Bokan County (West Azarbaijan Province, Iran), which had the same economic-social and cultural features similar and closer to Mahabad. After extracting data, the Cronbague alpha coefficient was obtained for all sections of the questionnaire (α=0.76). Statistical analysis was carried out with the SPSS 22 software (SPSS, Inc., Chicago, IL).

RESULTS

The results of correlation analysis are shown in Table-1. The results showed that there were positive and significant correlation between farmers' tendency to establish production cooperatives and variables such as social factors, extension-educational factors, the role of government and farmers' tendency to participate in the group activities. In the present study, the highest correlation was between social factors and extension-educational factors and the lowest correlation was between the role of government and farmers' tendency to establish production cooperatives. In a study of the formation of production cooperatives, the most important step in preventing rural migration in Bangladesh, mentioned that the formation of production cooperatives in rural areas had significant relationships with the rate of social participation, extension contacts and institutional-social trust [8].

Table 1. The correlations coefficients between studied factors.

Variables	Familiarity to cooperative corporation	Economic factors	Social factors	Extension-educational factors	The role of government	Tendency to participate in group activities
Economic factors	0.45**					
Social factors	0.30**	0.44**				
Extension-educational factors	0.11ns	0.33**	0.62**			
The role of government	0.14ns	0.23*	0.29**	0.41**		
Tendency to participate in group activities	0.20**	0.11ns	0.27**	0.17**	0.005ns	
Tendency to establish production cooperatives	0.16ns	0.14ns	0.37**	0.30**	0.25**	0.23**

**: Significant at 1% levels of probability, *: Significant at 5% levels of probability

Due to the numerous advantages of multivariate statistical analysis and for deep understanding the data structure, the factor analysis was used in this study. As shown in Table 2, considering specific values more than 1 in factor analysis, five factors explained in total 80.83% of the data changes. It should be noted that the KMO value was 0.65. Also, significant Bartlett's test indicates adequate correlation coefficients of initial variables for factor analysis. To study the correlation between traits with five components, loading matrix was used and according to the conditions of correlations and the deformation of loading matrix that obtained from specific vectors corresponding to each specific value, varimax rotation was used for better change of traits correlation with principal components.

Table 2. The results of factor analysis.

	Specific values	Specific values	Cumulative % of Specific values
The first component (PC_1)	2.5	23.13	23.13
The second component (PC_2)	1.92	19.51	42.64
The third component (PC_3)	1.55	17.2	59.84
The forth component (PC_4)	1.30	11.19	71.01
The fifth component (PC_5)	1.11	9.82	80.83

The first factor explained the most amount of data changes (23.13%) and there were large and positive coefficients among first factor and variables including: job satisfaction with achieving the goals of the cooperative, social performance of cooperatives, unwillingness of farmers to migrate to cities, solution of employment crisis, lack of adequate education or educational mismatch of cooperative members and differences between cooperative members. This factor can be called social factor influencing farmers' tendency to establish production cooperatives. Between these variables, job satisfaction with achieving the goals of the cooperative had the highest coefficient and internal correlation with social factor, table-3.

The second factor that explained 19.51% of the data variance had large and positive correlation with the variables including: members' access to credit facilities, the increases of members' income and the limitation of financial resources. This factor can be called economic factor affecting farmers' tendency to form production cooperatives. There was the highest internal correlation among access to credit facilities and economic factor.

The third factor that justified 17.2% of the data variance had large correlation with the variables including: the existence of inspection and control system of cooperative, the collaboration of provincial and civic executive organizations to solve problems in cooperatives, the time-consuming administrative regulations and the failure of the Ministry of Cooperatives to inform. This factor was administrative factor affecting farmers' tendency to establish cooperatives of agricultural production. This factor had the highest internal correlation with the collaboration of provincial and civic executive organizations to solve problems in cooperatives.

In this present study the forth factor that has devoted itself 11.19 percent of the data variation, had very large coefficient for variables including: the familiarity to philosophy, objectives and principles of cooperation, the familiarity to the characteristics of cooperative and accurate information by relevant organizations. It can be named farmers' familiarity to form agricultural production cooperatives. The mentioned factor had the highest internal correlation with the familiarity to necessary conditions for the formation of a cooperative.

Finally, the fifth factor explained about 9.82 percent of data variation, had the high and positive coefficient for traits including: the participation in educational courses and classes, at least one professional extension specialist in each production cooperative for technical and management guidance for farmers and the belief in teamwork. So, this factor was named as extension-educational factor affecting farmers' tendency to establish agricultural production cooperatives. There was the highest internal correlation among this factor and the participation in educational courses and classes.

Table 3. The results of factor analysis after varimax rotation.

Factor		Variables	coefficient
Social factors	X_{13}	Job satisfaction with achieving the goals of the cooperative	0.75
	X_{14}	Social performance of cooperatives	0.65
	X_{16}	Unwillingness of farmers to migrate to cities	0.67
	X_{18}	Solution of employment crisis	0.68
	X_{26}	Differences between cooperative members	0.58
	X_{35}	Adequate education or educational mismatch of cooperative members	0.56
Economic factors	X_5	Member access to credit facilities	0.79
	X_7	The increases of members income	0.63
	X_{30}	The limitation of financial resources	0.62
	X_{31}	Inability to make use of governmental assistance	0.53
Administrative factors	X_{24}	The existence of inspection and control system	0.61
	X_{27}	The collaboration of provincial and civic executive organizations to solve problems in cooperatives	0.71
	X_{29}	The time-consuming administrative regulations	0.64
	X_{34}	The failure of the Ministry of Cooperatives to inform	0.52
Farmers' familiarity to form cooperatives of agricultural production	X_3	The familiarity to the necessary characteristics of a cooperative	0.68
	X_1	The familiarity to philosophy, objectives and principles of cooperation	0.53
	X_{20}	Accurate information by relevant organizations	0.65
	X_{33}	Lack of familiarity to the field of economic activities of cooperative members	0.53
Extension-educational factor	X_{19}	The participation in educational courses and classes	0.69
	X_{22}	At least one professional extension specialist in each production cooperative for technical and management guidance for farmers	051
	X_{21}	The increase of knowledge	0.51
	X_{36}	The belief in teamwork	0.56

DISCUSSION

In this present study, there were positive and significant correlation between farmers' tendency to establish production cooperatives in Mahabad and variables including: social factors, extension-educational factors, the role of government and farmers' tendency to participate in the group activities. It can be stated that social improvement of rural communities, more attention to extension and education, the positive role in the formation of production cooperatives by relevant organizations and the role of government in planning and to provide favorable conditions for the establishment of rural production cooperatives can play an important role in attracting local farmers to form cooperatives in Mahabad. Data analysis based on factor analysis indicated that five factors including: social factors, economic factors, administrative factors, the familiarity to cooperation and extension-educational factors were justified 80.83% of the data variance. Among the factors, social factors, that explained the maximum size of the data changes more than other factors, were identified as the most influential factor in the farmers' tendency to form production cooperatives. Among the social factors, job satisfaction with achieving the goals of the cooperative showed the highest correlation with social factors and was identified as the most variable. Farmers, a member of agricultural production cooperatives, could provide many agricultural inputs through cooperatives without mediation and very inexpensively. Also, the role of mediation was removed in the sale through cooperative marketing or guaranteed purchase by cooperative and farmer can hope their future career. In our study economic factors were of secondary importance. Among the economic factors, there was the highest correlation between member access to credit facilities and economic factors. It demonstrated that easy access to credit facilities could play a fundamental role in farmers' tendency to establish cooperatives to produce.

The factors affecting the formation of rural cooperatives in Ethiopia and reported that number of pieces of agricultural land and the extent of agricultural land have no effect on the formation of rural cooperatives. But, the amount and availability of inputs and credit facilities is affective in the form of production cooperatives [9].
In a study of cooperation and rural development in Gambia, that receiving and providing of bank credit for members by cooperatives was the most important factor in farmers' tendency to form cooperatives [9].
The third factor in farmers' tendency to form a production cooperative was named administrative factor that has devoted itself 17.2 percent of the data variation in this present study. The collaboration of provincial and civic executive organizations to solve problems in cooperatives showed the highest internal correlation with administrative factor that stated the farmers' tendency to establish production cooperatives will be increased with the increasing of collaboration of provincial and civic executive organizations to solve problems in cooperatives.
The fourth factor that had the most of the internal correlation with the familiarity to necessary characteristics of a cooperative was named as the familiarity to cooperative. It can be stated that, unfamiliarity to philosophy, objectives and principles of cooperation and unfamiliarity to necessary characteristics of a cooperative are important factors affecting low farmers' tendency to form production cooperatives.
Finally, the fifth factor explained the least amount of data changes in our study, was called as extension-educational factor. This factor had the highest correlation with the participation in educational courses and classes. It implies that the farmer' knowledge and the familiarity to production cooperatives corporations will be increased with the formation of educational courses and classes and famers' participation and as a results, the farmers' tendency to establish production cooperatives will be increased. In view of respondents, extension-educational factor played a key role in attracting farmers to form production cooperatives. Extension-cooperation and participation culture leads to a better understanding of the people and increase their awareness of the cooperatives and thus it can play a major role in the development of the cooperatives [10].
studied showed the factors affecting the formation of production cooperatives in Pars Abad (Ardabil Province, Iran) and noted that extension-educational factor had the highest effect on the formation of production cooperatives in rural areas and then social, economic and environmental factors influencing the formation, respectively [4].

CONCLUSION

In the present study, at the respondents' opinions, the most important factor affecting farmers' tendency to establish production cooperatives is social factor. It is suggested that providing and optimizing the social conditions of rural areas by the relevant office and organizations could provide more farmers' tendency to form production cooperatives.
It is recommended that the bank laws and regulations related to endowment of facilities and its reimbursement must be changed and it will provide easier condition for the reception of facilities.
Due to the impact of government supports on the development of agricultural production cooperatives, the government must make more efforts in supporting such cooperatives through relevant organizations in the early stages of establishing cooperative. This support, especially in the early stages of establishing cooperatives, could take place by the timely payment of loans, the improvement of its reimbursement, the imposition of tax relief, the payment of workers' premiums in cooperative companies and the guaranteed purchase products.
According to our results about variables, administrative and structural factor affecting farmers' tendency to form production cooperative in Mahabad, it is recommended that the collaboration of provincial and civic executive organizations must solve problems in cooperatives and the provincial and civic executive organizations must identify factors hindering farmers' tendency to establish production cooperative and eliminate or reduce these factors.

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