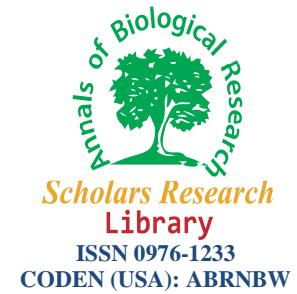




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An Investigation of Effective Elements on Investment Behavior of Cooperative Members (Tybad Livestock Production Cooperatives)

Alireza Karbasi and Azita Sarvari

Department of Agricultural Economics, Ferdowsi University of Mashhad

ABSTRACT

Rural production cooperative is one of the advanced stages of cooperative that has an important role in sustainable rural development and the government has spent a lot to encourage it. The aims of these cooperatives are: 1) Integrating all pieces of lands possessed by cooperative members. 2) Providing the condition to maximize the use of water and soil resources. 3) Expanding the methods of working and livelihood. 4) Appropriate use of agricultural machines. 5) Barren farms reproduction. 6) Increasing production and income of farmers and villagers. The current research aims at evaluating the effective elements on investment behavior of members of Tybad Livestock production cooperative. The data was gathered using questionnaire and making use of random sampling, from 50 cooperative members in 2011. In order to evaluate investment behaviour of members, logit model and shazam software was used. The results show that the distance between habitancy and cooperative, and average monthly income and members' fund were statistically significant and that average income had negative effect while the other two had a positive effect on the desire to invest on a cooperative. Thus, for promoting the level of cooperatives such as production cooperative, the government aid is essential for cooperatives to help them represent good services. Moreover, cooperatives should prepare members with all the facilities and services to promote their participation and farmers as well as ranchmen's condition and to increase others' tendency toward membership.

INTRODUCTION

Regarding the inefficiency of petty peasant in producing mobility in agriculture. Cooperatives , especially production tool cooperatives, are appropriate means to promote the situation. Production cooperatives play a significant role in redistributing the benefits of agricultural growth, creating a dynamic and productive employment, extending popular participation in agricultural development, reducing agricultural investment risk ,etc. The literature confirms that productivity of capital is rather more in cooperatives than private service sector(vice chancellor for research, education and promote cooperation, 2000).

Historical studies show that Iran was the first nation to make use of cooperative. Traditional cooperative is a sign since it aims at cooperation and reducing life problems .The emersion of traditional cooperation does not follow any certain rules resulting in various forms of it [5].The history of traditional cooperation shows a sort of transformation in form, content and organization. Indeed, they are the basis Of agricultural production cooperatives(APCS) formation.Various researches demonstrate that agricultural cooperative system is one of the most prominent operation systems. This is in accordance with global results [1].

APC is a kind of operation system based on cooperation in which operators produce and farm collectively with regard to integrated farming and personal property [9].

The system was formed in early 1350s after land reform in Iran aiming at increasing production, integrating lands, infrastructural services and making optimum use of available institutions.

Villagers are able to promote their performance and situation making use of professional activities based on cooperation. In this regard, fixing failures, production cooperatives could play an important role in Villagers development [30].The important mission of cooperatives could be summarized as: promoting villagers, knowledge and improving rural resource productivity, preventing uncontrolled rural migration to cities, and establishing rural development. So, cooperatives are appropriate tools for public cooperation and play a significant role in achieving sustainable development; They attempt to guide public ability in rural development [32].

Cooperatives seek long-term interests because of the long-term planning[6]. APCs in Iran were formed in 1970 in order to fix villagers production failures and to support them as well.

With shifting sands and changing winds of cooperatives a decade before and some years after Islamic Revolution, recent years have witnessed their Promotion. Statistically, there were 39 APCs from 1972 to 1978 and 90 cooperatives had been formed till 2009. Today, employment, production and investment are considered as ways to achieve economic goals in cooperative sector. Cooperative formation is the source of various services and products and has an important role in economic, social and cultural development goals and programs. Thus, constitution has considered cooperative sector as one of three main economic-social activities.

In order to successfully Manage a production unit and to overcome problems, correct applications of principles and standards, is essential.

Formed in 1972, Livestock and poultry production cooperative is one of agricultural organizations [11]. These cooperatives are based on social and economic aspects. Thus, to follow their economic goals by using alternative ways of achieving production and marketing, livestock and poultry production cooperatives have to earnestly engage in business and marketing.

Rural Production cooperatives (RPC) establishmen in Iran In 1970, RPCs were established to reduce advere effects of land reforms of 1961s. The article 1 of the cooperative production act states:

Integrating pieces of land of members in rural areas in each the cooperatives, APCs were forward to maximize the water and soil resources utilization through:

- Establishing new irrigation networks
- Farm land leveling
- Constructing roads between villages and familiarizing the members with the principles and methods of planting and harvesting and proper use of agricultural equipment and machinery in accordance with local condition considering cooperation and wasteland reclamation.

Providing more facilities for development improvement and creation of crafts and for agricultural and livestock products conversion

- Expanding non-agricultural activities
- Providing the ground to increase production and income of villagers, to ensure the countrys continued economic growth[3].
- So, RPCs establishment seeks these goal:
- Efficient use of agricultural machinery and mechanization
- Integrating lands
- Development of new technologies
- Maximum exploitation of the soil and water resources through construvtion of new irrigation networks
- Increasing farmers ,income
- Raising the yield per unit area
- Implementation of infrastructural services

Subsequently, production cooperative can be defined as: a set of interconnected components in which land, water, capital, man power and management are to goal realization and promotion of knowledge and skill and social and personal resources preservation[13]. The current study tries to evaluate investment behavior of members using logit econometric model to help production cooperatives improve their investment.

Analyzing agricultural cooperatives formation, Diamong (2007) considers rural cooperatives one at development strategies. Sandali (2009) believes that agricultural cooperatives formation has lead to reduction in regional disparities, urban inequalities adjustment and especially reducing the distance between rural and urban areas. skrimjour etal(2006) introduces effective elements on agricultural cooperatives performance and success as: state agents, commercial factors, technological factors, perceptual factors and social ones. social norms, expectations, interactions and values, among social factor, were effective. The effect of age, gender, income, education and membership record was found to be significant. Considering production cooperatives, raymon (2009) regards rural employment as the most important development component in cooperatives policies. Zaymel (2005) claims that cooperatives have lead to a sort of balanced social organization in rural settlements. Through his studies on cooperatives performance and structure in india, raman(2005) showed that there is a direct relationship between increased facilities and increased production and income. Considering RPC benefits, mondani(2006) mentions optimum use of machinery and integration of farm lands.

In a study on RPC in Gambia, Pampel (2007) has resulted that they have been seriously engaged in providing seeds, fertilizer, machinery and bank credit to members and that thus, 95 percent of members were satisfied. Sano(2008) investigated the role of social capital in production management (production cooperatives, NGOs, groups of fishermen and coastal villagers) in coastal areas of fiji. He found that one's social capita, including social norms, cohesion, trust, solidarity awarness and participation, had an impact on the performance of economic groups management. According to above variable, lack of social participation in individuals or members of economic groups had the highest impact in coastal regions. social capital promotion to improve local people's income and application of appropriate technologies in the region are essential. Norouzi (1975)'s findings have confirmed the success of rural cooperatives concerning production rate, average income and use of machinery. Anousirvani and taha (1993) outlined land ownership and agricultural inputs and credit as inhibiting factors of RPCs formation in iran. Evaluating problems of production cooperatives, javanmardi (2004) introduces the 2 factors of income limits and inexperienced managers as the source of problems in iran. Amini (1996) knows rural cooperative as an appropriate tool to increase rural income, to provide rural and financial requirements and to buy and sell villagers' products. Conducting a research in fars province, najafi (1978) has concluded that cooperative formation resulted in members increased income, mean increase in acreage and an increase in main products yield. Asna ashari (1990) recorded easier input distribution and easier relationship between government and farmers as production cooperatives adwantages. Considering RPCs' benefits, barani (1990) has reminded the importance of optimum use of machinery and farm and integration. Analyzing economic factors effective in women's cooperatives performance in iran, fami et.al.(2008) accounts for some variables to have the most impact on cooperative success: loan repayment ability, working capital, current assets, cooperative income and credit. Moreover, one cannot ignore the important role of cooperatives financial management in promoting their performance.

The current research includes some variables effective in cooperatives performance namely, income, sales, the cooperative's shares, number of members, knowledge and participation.

MATERIALS AND METHODS

So participant was selected randomy, all of them members of tybad livestock production cooperative. They had to fill out a questionnaire. Then, logit model was used to investigate effective factors in cooperative members' investment behavior. The model has the capacity to analyse choice behavior of individuals when confronted with two options one of which should be selected. The regression model is a qualitative binary variable which takes the values at zero and one. Furthermore, members' individual, social and economic characteristics and cooperatives physical one are effective structures. In this case, to investigate effective elements in members' investment behavior, regression models are used with qualitative variables. linear probability model, logit model and probit model are some examples. In this study, logit model is used. This model possesses qualitative dependent variables which take values of zero and one. Its structure is as follows:

$$Z_i^* = \alpha + \beta X_i + \eta_i \quad (1)$$

Z_i^* = is members' behaviour against investment

X_i = is a vector of member i's individual, social, economic and geographical characteristics.

If Z_i is a variable composed of values of zero and one and $Z_i^* > 0$, Z has value of one, otherwise its value is zero.

Thus, here dependant variable is a zero and one variable in which $Z_i=1$ is considered for those members tend to invest in cooperative an $Z_i=0$ for those who dont. so, member i's tendency to invest is defined as:

$$P_i = F(Z_i) = F(\alpha + \beta X_i + \gamma D_j) = \frac{1}{1 + e^{-Z_i}} = \frac{1}{1 + e^{-(\alpha + \beta X_i + \gamma D_j)}}$$

Dividing investment tendency probability by investment an willingness probability and then taking the natural logarithm of both sides, following equation is achieved:

$$L_i = \ln\left(\frac{P_i}{1 - P_i}\right) = \alpha + \beta X_i + \gamma D_j$$

in which L is logarithm of acceptance to rejection ratio and D and parameters are linear in terms of X.

Table 1. explanatory variables influencing members behaviour for investment in cooperative.

definition	variable
Age	X1
Number of members	X2
Average monthly cost of members	X3
Educational level	X4
Number of family members	X5
join type(virtual variable active member=1 inactive member=2)	X6
sex (virtual variable men=1 women=2)	X7
Single or married	X8
distance between members habitancy and cooperative	X9
Experience(join history in cooperative)	X10
Monthly income	X11
Members capital	X12
Cooperatives technology level	X13

Final effect (ME) is believed to be the change in probability that a change in independent variable causes a member to be put among those tend to invest ($WTM_i = 1$)

$$ME = \frac{\partial P_i}{\partial X_i} = \frac{e^{\beta' X_i}}{(1 + e^{\beta' X_i})^2} \beta_i$$

The tension of i^{th} explanatory variable is achieved through:

$$E_{xi} = \frac{\partial \Lambda(\beta' X_i)}{\partial X_i} \frac{X_i}{\Lambda(\beta' X_i)} = \frac{e^{\beta' xi}}{(1 + e^{\beta' xi})^2} \frac{X_i}{\Lambda(\beta' X_i)}$$

E_{xi} shows that a one- percent change in independent variable causes what percent of change in probability of a farmer's membership ($WTM_i = 1$).

RESULTS AND DISCUSSION

Maximum likelihood estimation (MLE) and shazam software was used to estimate logit model. But before the logit estimation and initial estimates, Correlation at variables and anisotropy variance of disturb and said of sentences was considered and there was no problem.

Logit model estimation results are as bellow:

Marginal effect	ELASTICITY at		T statistic	Coefficient	variable
	Total weight	Means			
	36.330	30.015	0.0000531	139.27	intercept
-0.00053797	-0.041900	-0.033245	-0.0863	-0.003182	age
0.00039233	0.16382	0.13898	0.57427	0.0023206	Average monthly cost of members
0.049271	0.11242	0.095466	0.43252	0.29143	Educational level
0.024420	0.14943	0.12327	0.66017	0.14444	Number of family members
0.023201	0.0255506	0.020045	0.12533	0.13288	join type(virtual variable active member=1 inactive member=2)
-0.074656	-0.12919	-0.10527	-0.30484	-0.51966	Single or married
0.018570	0.30009	0.27127	1.4969	0.10984	distance between members habitancy and cooperative
-4.7023	-36.276	-29.851	-0.000053	-27.814	Experience(join history in cooperative)
-0.00000069	-0.63502	-0.49344	-1.9131	-0.0000040	Monthly income
-0.0000081786	0.40352	0.34091	1.7257	0.000048	Members capital
-0.14945	-0.30230	-0.24384	-0.94042	-0.88397	Cooperatives technology level

LR=16.50
 ESTRELLA R-SQUARE=0.314
 MADDALA R-SQUARE=0.281
 CRAGG-UHLER R-SQUARE=0.374
 MCFADDEN R-SQUARE =0.238
 PERCENTAGE OF RIGHT PREDICTIONS=84.00
 LM2=11.77 P-value=0.38

Based on the table2, of all independent variables, the distance between habitancy and cooperative, capital, average monthly income were statistically significant at % 10 while others were not. The total weight elasticity for age equals -% 41, i-e. one percent increase in age(all other factors remain unchanged) decreases the probability of tendency to investment. It seems logical since aging decreases farmers' risk – taking. Moreover, the variables final effect shows that a unit increase in age brings about a 0.00053 decrease in tendency to investment probability (TIP). Average monthly cost is another variable with positive and insignificant effect an TIP; the more members average cost is the more TIP will be. The, variables find effect tells that a unit increase in average monthly cost would result in 0.00039 increase in TIP.

Though statistically insignificant, education has a positive effect. Indeed, TPI increases with an increase in educational level since it education contributes to culture and space needed to use the cooperative services. The total weigh elasticity, here, is 0.112. that means a unit increase in education causes A 0.0112 percent increase in TIP it seems logical, too. The habitancy distance (HD) form cooperative is significant at 10% and has positive effect on TIP. Increase by 0.3 percent. The final effect of 0.0185 is the indicator of 0.0185 unit increase unit increase in TIP by a unit increase in HD.

Another significant variable is average monthly income which has a negative effect on TIP. Its -0.635 total weight tension points that one percent increase in income brings about 0.635 percent decrease in TIP.

In adittion, the estimated forecasting accuracy percentage for logit model is 84 which is acceptable(the closer it is to reality, the better the good fit will be).

LM2 test confirms homogeneity of variance (since p-value>0.05 and the null hypothesis that variance is homogneous is accepted).

Based on results, these suggestions are presented to improve production cooperatives:

1. since higher education causes more TIP, cooperative managers can gad some training classes to promote members education & skills.
2. For easier and more convenient access to cooperatives and their services, it is more preferable to locate cooperatives in town and village centers.
3. credit and government grants for membership and investment can promote production cooperatives, farmers and ranchers.
4. cooperatives various to people can increase their tendency to investment on the condition that their don't limit their action just to this activity. A change in peoples outlook is needed (the current views point is a governmental one and that cooperatives should offer services. Without an absolute tendency toward service, cooperatives should diversify and intensify their services to people. They should find ways to solve villagers problems like continually reffering to city, administrative ect, In other words people should look at cooperative as an active and useful organization that can contribute to their problem solution.
5. production cooperatives are based on principles similar to those of other cooperatives. It is obvious that a cooperative can more toward its goal when adhering to its principles listed in statute. Regular session under whatever condition, considering regulations in sessions especially the members presence, giving annual financial reports, detailed description of duties of members and chief executive officers, board of directors and other organs ect... can provide opportunity for other activities to be done.

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