

Factors influencing the success of animal husbandry cooperatives: A case study in Southwest Iran

Hossein Azadi ^{a,*}, Gholamhossein Hosseininia ^b, Kiumars Zarafshani ^c,
Aligholi Heydari ^d, Frank Witlox ^a

^aDepartment of Geography, Ghent University, Belgium

^bDepartment of Entrepreneurship Extension & Education, Teheran University, Iran

^cDepartment of Agricultural Extension and Rural Development, Razi University, Kermanshah, Iran

^dDeputy of Research, Education and Entrepreneurship Extension, Ministry of Cooperative, Tehran, Iran

Abstract

This survey study aimed at identifying the factors influencing the success of animal husbandry cooperatives in Southwest Iran. Using a questionnaire, the data were collected from 95 managing directors of the cooperatives who were chosen through a multi-stage stratified random sampling method. This study showed an essential need for a systemic framework to analyze the cooperatives' success. The results showed that the "Honey Bee", "Cattle (dairy)", and "Lamb" cooperatives were the most successful among different kinds of the cooperatives. Also, among individual attributes, "interest", "technical knowledge", and "understanding the concept of cooperative"; among economic variables, "income" and "current investment"; and among external factors, "market access" have significant correlation with the success while structural variables have no significant relation. Furthermore, among all the factors, four variables ("interest", "understanding the concept of cooperative", "market access", and "other incomes") can explain the variations of the success.

Keywords: agricultural cooperative, animal husbandry, success, Southwest Iran

1 Introduction

It is generally believed that successfully managed agricultural cooperatives have great potential in rural development in general, and agricultural development in particular. The most important agricultural cooperative types in Iran are agricultural production cooperatives. These cooperatives have nearly a forty-year history and were established to increase the production of a large number of small-scale and fragmented farmlands which are the consequences of the 1962 Land Reform in Iran (Karami & Rezaei-Moghaddam, 2005). Despite their growth in number, some of the agricultural production cooperatives have been successful while others have been faced with a number of emerging problems. Literature on the impacts of agricultural production cooperatives in Iran clearly indicates that these cooperatives have been effective in satisfying economic

and technical needs of member-producers (Niazi *et al.*, 1975), land consolidation (Masoomi, 1988), distribution of agricultural inputs, and promoting industrial agriculture (Rouhani, 1997; Darvishinia, 2000). However, a more recent study by Amini & Ramezani (2008) among poultry growers shows that these cooperatives have failed to keep their member-producers satisfied. To further explore these problem areas, this article investigates factors contributing to the success of Animal Husbandry Cooperatives (AHCs) in Southwest Iran in the view of managing directors. This analysis is important, as Torgerson (2001) has pointed out, research is essential to learning about the success and failure of cooperatives. Moreover, an examination of the link between factors influencing the success of the AHCs is expected to reveal information that is crucial to improving the management of cooperative membership.

Accordingly, the novel contribution of this article is 'analyzing factors influencing the success of AHCs, pertaining to different multi-dimensional aspects; i. e. "individual", "economic", "organizational", and "external". The novelty of the study can also be understood

*Corresponding author

E-mail: hossein.azadi@ugent.be

Tel. +32 (0)9 264 46 95; Fax +32 (0)9 264 49 85

since such a comprehensive investigation for the success factors of the AHCs has never been done in Iran formerly.

1.1 Factors influencing the success of cooperatives

With diversity in method as well as subject matter, understandably from country to country (Azadi & Karami, 2001), a growing body of literature seeks for factors influencing the success of cooperatives. Due to the origin of researchers, the literature has focused on some special factors and neglected others. Indeed, there is no systematic framework to comprehensively assess factors influencing the success of cooperatives. Here, we review the literature aiming at developing a theoretical framework for our study.

Different studies have considered the 'demographic' attributes of the directing board and members of cooperatives, their active participation, loyalty to the cooperatives, and trust to each other (Hakelius, 1996; Azadi & Karami, 1999). In a study of farmer-owned cooperative organizations, Wadsworth (2001) concluded that the demographic attributes of the managing directors are essential for the cooperatives' success. Oosterhof *et al.* (2009) consider individuals' differences for understanding the cooperatives' behavior and Kirkman *et al.* (2004) report the results of an investigation on how demographic heterogeneity in team working influences team empowerment and team effectiveness. Dakurah *et al.* (2005) also noted that the attitude of the managing directors towards their cooperatives is a significant predictor of their patronization behavior. Bhuyan (2007) determined the human factor in cooperatives and argued that without having an active board of directors, cooperatives cannot survive in long-run. Moreover, his analysis indicated that a good understanding of the managing directors' attitude and the members' behavior is necessary because the success of cooperatives may sleep on it.

In line with cooperative principles, Gunn (2006) revealed that the impact of competition among agricultural cooperatives may be mitigated by the attachment that members have to cooperative principles and cooperation among cooperatives. The performance of a business is often related to the commitment of its employees to collective values, which itself is a prerequisite for the cooperatives' behavior (Tremblay *et al.*, 2000). Costa (2003) found that trust between members in team working is positively related to the cooperatives' behavior and negatively to monitoring colleagues, indicating that the trust can work as a substitute for such a monitoring task. Managers also need to hold team members accountable for their behaviors (e.g. participative, cooperative, communicative, and forgiving) that encourage a high quality exchange relationship (Cole *et al.*, 2002). Teams that develop cooperative works appear to be in

a good position to reflect successfully on their performance (Tjosvold *et al.*, 2004). Such actions reflect the degree of cooperative interactions between partnering. Past researches have documented that cooperative actions enhance alliance outcomes (Lui & Ngo, 2005). In sum, understanding the cooperation concept in cooperative relations, fostering or maintenance of social interactions should be considered as a goal (du Plessis, 2008) and an instrument for the survival of a cooperative (Brislin *et al.*, 2006).

Furthermore, the cooperative principles have also been challenged by the heterogeneity of cooperatives' members in farm size, cultural background, and farm technology and practices. This heterogeneous membership, according to Hovelaque *et al.* (2009), affects the relationship between agricultural cooperatives and their members, which in turn, influences members' satisfaction toward cooperative management. Karantininis & Zago (2001) suggest that if managing directors do not develop new approaches to cope with the members' heterogeneity and disengagement, they will only attract unsatisfied and inefficient producers. Consequently, the low level of satisfaction among the members may demotivate them in collective actions and thus causes cooperatives to fail. This is the case in Abdelrahman & Smith's (1996) study which shows some agricultural cooperatives in Sudan have not been successful because of the lack of the members' motivation in collective actions.

Esman & Uphoff (1988) have generally discussed that local membership organizations are often overlooked for the contributions they have and can make toward rural development. According to them, the success should be assessed based on the "human" contributions of cooperatives to rural development interventions. The contributions have already received much attention from researchers who have tried to find out how human attributes manipulate the 'success'. The main reason for such a common focus, according to Arthur & Cook (2009), is that the managing directors of cooperatives are under an increasing pressure to demonstrate a link between human resource functions and the financial performance of their firm.

Factors contributing to the success and failure of cooperatives are not limited to those mentioned above; other explanations have also been offered. In a qualitative analysis of the success and failure determinants of agricultural cooperatives in Central Kenya, Nyoro & Ngugi (2007) noted that economic, organizational, and individual attributes such as high-quality products, appropriate skills, and education of management committee and staff members contribute to the success of cooperatives. In addition, debt burden, wrangles, hostilities, and vulnerability to competition are associated closely with unsuccessful cooperatives. The findings of a study conducted by Unal *et al.* (2009) among fishery coop-

eratives in Turkey introduce a few financial, organizational, educational, and legislative problems as the reasons for failure of almost all the fishery cooperatives. They concluded that such a multi-functional complex organization as 'cooperative', should be assessed by using a more comprehensive framework. According to Prichard *et al.* (2007), a cooperative, as a harmonized organization, needs a holistic framework and therefore, a set of attributes to be analyzed. In the next section we have tried to develop such an inclusive framework.

1.2 Theoretical framework

As thus far discussed, most of scholars have focused on micro level of analysis and therefore have measured some individual and organizational attributes (Baugh & Graen, 1997; Kirchmeyer, 1995; Lichtenstein *et al.*, 1997; Hobman *et al.*, 2004; Zeuli, 2003) while neglected the importance of other factors. Indeed, cooperatives' behavior is a multi-dimensional concept that may be manifested in a number of domains (Buckley & Casson, 1988). Thereby, a set of variables should be taken into account when assessing a cooperative. According to the general goal of this study, we have classified the variables into four categories (Fig. 1).

As shown in Figure 1, theoretically, there are four main categories which can (in)directly contribute to the success; i.e. "individual", "economic", "structural", and "external". The definition of and some examples for each category are presented as following:

Individual. According to Suber (2002), an individual attribute is a variable ranging over individual objects from the domain of a system. It is a personal attribute which changes from one person to another. Such attributes can therefore be different among individuals. In this study, we consider this attribute as both demographic features (e.g. age and education level) and personal values or attitudes (e.g. interest and knowledge).

Economic. According to (Taylor & Frost, 2008), an economic variable includes any economic measurement that can vary over a range of values. In the view of Black (2002), an economic variable measured in money terms. Examples include national income data, price, and wages levels. In this study, we mainly consider this attribute as cost, incomes, and investments of a cooperative.

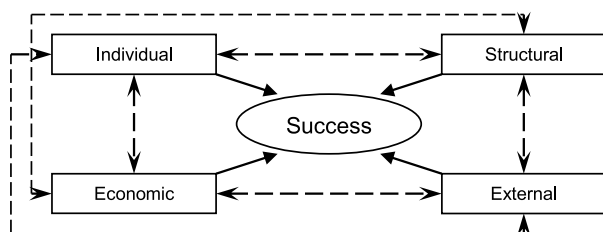


Fig. 1: Theoretical framework: factors influencing the success of AHCs.

Structural. Esman & Uphoff (1988) in their famed book "Local Organizations, Intermediaries in Rural Development" considered a structural variable as an attribute which shows the structural feature of a rural organization. Due to them, structural attributes can change from one organization to another. Here, we consider this attribute as a variable which draws the structure of a cooperative (e.g. no. of members, workers, and facilities).

External. Shah (1995) explained that all cooperatives work in a complex external atmosphere which cannot easily be controlled by them. According to him, several external factors affect cooperatives while they should react internally. The external actions could for example, be lack of a resource while internal reactions might be an internal decision on minimizing the resource utilization. In this study, we consider an external attribute as an aspect that may (in)directly affect the performance of a cooperative (e.g. development levels of the region where a cooperative is located as well as market access).

1.3 Objectives and hypotheses

The general purpose of this study is to explore factors influencing the success of AHCs in Southwest Iran. Accordingly, the specific objectives are: i) to determine the success rate¹ of the AHCs; ii) to understand the association between the success and different individual, economic, structural, and external factors; and iii) to discover the main predictors of the success.

Due to the objectives and theoretical framework, the following hypotheses can be formulated:

- Hypothesis 1: The success rate is different among the AHCs.
- Hypothesis 2: Some of the (individual, economic, structural, and external) factors have significant associations with the success.
- Hypothesis 3: Some of the factors determine the success rate.

2 Research methods

This study was conducted through a survey research. Using a questionnaire, the data were collected through several personal interviews with the managing directors of the AHCs in Southwest Iran.

2.1 Study site

This study was conducted in Kohgiluyeh-Boyer-Ahmad located in Southwest Iran. The province is one of the thirty one provinces of Iran which covers an area of 15,563 square kilometers, with a population

¹The 'success rate' is defined in the section "2.3. Data analysis".

of 634,000 inhabitants in 2006 (the latest published population census in the country). Yasooj (the capital), Dena, and Gachsaran are the main cities of the province that include 323 AHCs (Figure 2).



Fig. 2: The geographical view of the study site. (Main cities: Y: Yasooj (the capital); D: Dena; G: Gachsaran)

The main reason to study this province was the vast investments of the Iranian government on the cooperatives in order to create more job opportunities in this province that suffers deeply from inequity and low levels of social participation of the local people.

2.2 Study sample

The population of this study includes all the 323 AHCs in the province. The cooperatives are classified in seven categories due to their productions which are "Egg", "Goat", "Lamb", "Cattle (dairy)", "Chicken", "Honey Bee", and "Cattle (beef)". In total, 95 cooperatives were selected through a multi-stage stratified random sampling method. To derive a representative sample, and as Crowley *et al.* (2005) discussed that the success cannot immediately be evaluated after establishing a cooperative, the sample of this study includes those cooperatives which were established, at least, three years ago. This means that 95 interviews were conducted with managing directors of the cooperatives. The response rate (see Baruch & Holtom (2008, p.1155) was complete (RR = 100%) since all the interviews were personally conducted by the first author lasted 3 months (Table 1).

2.3 Data analysis

The data were analyzed using SPSS software (version 16). To understand the behavior of cooperatives,

Table 1: The study sample.

Cooperatives	Sample	
	Frequency	Percentage
Egg	19	19.9
Goat	14	14.8
Lamb	14	14.8
Cattle (dairy)	13	13.6
Chicken	11	11.6
Honey bee	10	10.5
Cattle (beef)	14	14.8
Total	95	100
Response Rate = 100%		

38 questions in four different categories, which are "individual" (8 questions), "economic" (10 questions), "structural" (12 questions), and "external" (8 questions), were asked from the managing directors and considered as independent factors influencing the success.

In this study, "success", as the main dependent variable, is defined as the function of maximizing three different developmental goals; i.e. "income", "participation", and "equity" that could potentially be gained by the cooperatives (see Esman & Uphoff (1988)). In other word, a successful cooperative should be able to: increase the "income" of the members; promote their "participation" in the rural activities, and enhance the "equity" among the members². To estimate the success rate, 50 questions in the three dependent indexes (14, 20, and 16 questions, respectively for income, participation, and equity) were asked from the managing directors.

The questions were formulated using a 5-point Likert's continuum (very low, low, moderate, high, and very high). The validity of the questionnaire was approved through face validity and the reliability was confirmed by the estimation of Cronbach's alpha coefficients for the following indexes (Table 2):

$$\alpha_{(income)} = 0.71$$

$$\alpha_{(participation)} = 0.81$$

$$\alpha_{(equity)} = 0.77$$

²It should be noted that such a comprehensive definition of success is novel that was not previously used in other studies. Indeed, the success has often been defined based upon one or a limited number of such developmental goals. Accordingly, the results of this study are comparable with other studies in a way that it covers most of the assessed factors in previous studies.

Table 2: Descriptive statistics, reliability and correlation between the indicators of dependent variable.

Success	Mean #	SD	Cronbach's α	Success		
				Income	Participation	Equity
Income	2.03	0.38	0.71	1.00		
Participation	2.81	1.05	0.81	0.22*	1.00	
Equity	3.33	0.54	0.77	0.18	0.34**	1.00

*: $P \leq 0.05$; **: $P \leq 0.01$; # Range: 0 – 4

3 Results and discussion

3.1 AHCs' success

ANOVA estimation was run to test the first hypothesis. As shown in Table 3, there are differences among the cooperatives addressing different degree of success where the "Honey Bee", "Cattle (dairy)", and "Lamb" are significantly estimated as the most successful (157.15, 135.85, and 122.50 respectively) and "Goat", "Chicken", and "Cattle (beef)" as the least (25.22, 40.10, and 52.45, respectively). Mean success of the "Egg" cooperatives (63.75) stands between these two groups showing no significant difference with the most and least successful groups.

Table 3: Means comparison of the success among the cooperatives (ANOVA); $F = 86.59$; $Sig. = 0.03$

Cooperative	Mean # [†]
Egg	63.75 ab
Goat	25.22 a
Lamb	122.50 b
Cattle (dairy)	135.85 b
Chicken	40.10 a
Honey Bee	157.15 b
Cattle (beef)	52.45 a

[†] Uncommon letters show significantly different means (estimated by LSD; $P \leq 0.05$); # Range: 0 – 200

Although theoretical predictions and empirical evidences support this opinion that agricultural collective activities are much less efficient than independent family farms (Deininger, 1997), Gripsrud *et al.* (2000) state that the production type of an agricultural cooperative can also be important on the success rate.

But which factors contribute to the success? In the next sections, we will first try to explore whether there are some associations between the main factors and the success (the second hypothesis), and then find out the main factors contributing to the success of cooperatives (the third hypothesis).

3.2 Individual factors and success

To explore the association between the individual attributes of the managing directors and the success of the AHCs, both Spearman and Pearson coefficients are estimated in Table 4. As shown in the table, among the individual attributes, three factors have significant correlation with the success which are "understanding the concept of cooperative" ($R = 0.39$), "technical knowledge" ($R = 0.27$), and "interest" ($R = 0.42$). As all the coefficients are positive, when the interest of the managing director, his technical knowledge, and his understanding about the concept of cooperative increase, the success rate of his cooperative also increases. It shows the importance of the individual attributes of the managing directors on the success of cooperatives.

Table 4: Correlations between the individual factors and the success (Spearman and Pearson coefficients)

Individual factors of the managing director	R
Age	0.04
Education	0.02
Experience	0.07
Understanding the concept of cooperative	0.39**
Technical knowledge	0.27*
Personal (economic) benefits	-0.08
Interest	0.42**

*: $P \leq 0.05$; **: $P \leq 0.01$

Several studies support this finding. Milliken & Martins (1996) emphasized on individual heterogeneity, defined as the extent to which directing board members are different with respect to individual characteristics. Purvis (2007) believes that a cooperative manager needs a lot of expertise and understanding of the collective work. He argues that like other businesses, the manager has to challenge with different dilemmas which need high technical knowledge and understanding of the collective work.

Like Gripsrud *et al.*'s (2000) study, in our study, age differences and education level have no significant asso-

ciations with the success of the cooperatives. Although Scribner (2007) discusses that the experienced managing directors and directing board members can better realize the key points of the success, our findings show that 'experience' has no significant correlation with the success.

3.3 Economic factors and success

Economic factors always play a crucial role in every business, especially in collaborative firms like cooperatives. To explore the association between the economic factors and the success, several Pearson coefficients are estimated. As shown in Table 5, most of the factors have significant correlations with the success. While 'earned income'³ from selling the cooperative's productions', 'other incomes', and 'current investment' have significant positive coefficients ($R = 0.22, 0.32, \text{ and } 0.27$, respectively), 'cost' has negative ($R = -0.25$). This means when the income and current investments increase, the success rate will also increase. On the contrary, the more the costs are, the less the rate will be.

Table 5: Correlations between the economic factors and the success (Pearson coefficients)

Economic factors	R
Costs	- 0.25*
Earned income from selling the cooperative's productions	0.22*
Other incomes	0.32*
Foundation investment	0.03
Current investment	0.27*

*: $P \leq 0.05$

This finding is supported by several studies. Campbell (2001) observed that the most successful livestock cooperatives cannot survive without current investments. Carlberg *et al.* (2003) also believe that cooperatives need large investment injections to deal properly with market fluctuations. Prakash (2000a) believes that agricultural cooperatives, to be effective, need to deliver adequate and timely credit facilities leading to higher productivity. According to him (Prakash, 2000b) some of the problems faced by agricultural cooperatives have, among others, been lack of capital resources and credit. Due to Brislin *et al.* (2006), the reality of limited

³Please note that the 'earned income of a cooperative' does not necessarily result in the 'increased income of members'. The former can be invested again in cooperatives while the latter is responsible directly for the members' incomes and contributes therefore to the success rate. Here, we have tried to find out whether there is an association between the success and 'earned income' of the AHCs (and not necessarily members).

resources can sometimes discourage the cooperatives' behavior and actually promote contentious and hard tactics (Deutsch, 1990) up to and including deliberate deception and omission during interactions and negotiation. Tremblay *et al.* (2000) generally discuss that the resources play a crucial role in their success and can influence both own and others' outcomes, as according to Wageman (1995), their interdependency is very high.

3.4 Structural factors and success

Structural factors are the features of a cooperative which often define shape and the composition of a cooperative. In other words, they show how a cooperative is configured. To understand whether or not these features (which are here "no. of members", "members' relationships", "no. of workers", "facilities", and "years of operation" of the AHCs, have any significant association with the success), both Spearman and Pearson correlations are employed. As Table 6 shows, none of these factors showed any significant relation with the success. It means the variations of the success cannot be predicted by the structural factors.

Table 6: Correlations between the structural factors and the success (Spearman and Pearson coefficients)

Structural factors	R
No. of members	0.09
Members' relationships	0.16
No. of workers	0.06
Facilities	0.10
Years of operation	0.14

This finding rejects the results of the study by Wadsworth (2001) who found that the members' relations are essential to the cooperatives' success. In this regard, Carlberg *et al.* (2003) outlined how facilities can help a cooperative to become successful. As 'years of operation' shows no significant correlation with the success, the finding also rejects the results of the study by Crowley *et al.* (2005) who believe that "success" means sustained, rather than short-term, tactical or temporal achievement.

3.5 External factors and success

External factors are defined in this study as those traits which can be found not inside but outside of a cooperative. Such factors can influence the cooperative functions in different direct and indirect ways. Table 7 shows the correlation between the external factors and the success. Based on the table, among different factors, only "market access" has significant positive correlation ($R = 0.36$) with the success. It means when a cooperative has more access to the market, its more success rate can be expected.

Table 7: Correlations between the external factors and the success (Spearman and Pearson coefficients)

External factors	R
Development level of the region	0.18
Duration of the project's execution	-0.18
No. of cooperatives in the region	-0.14
Market access	0.36**

** $: P \leq 0.01$

This finding is supported by Prakash (2000a) who believes that agricultural cooperatives, to be effective, need high levels of market accessibility. Ollila & Nilsson (1997) also believe no matter what type and nationality a cooperative holds, the success of agricultural cooperatives is contingent upon their ability to access to market and adapt to the market signals. The importance of the market access is also shown by Wickremarachchi (2003) who believes that people are generally motivated to form cooperatives to obtain or provide goods and/or services to themselves or to the public community through market.

3.6 Factors influencing the success

In order to understand the interactions between the main individual, economic, structural, and external factors which can influence the success rate of the AHCs (the third hypothesis) and predicting their influence on the variations of the success, a multi-variable linear regression is estimated. In this analysis, all the factors are entered by stepwise method. As shown in Table 8, among all, four factors which are "interest", "understanding the concept of cooperative", "market access", and "other incomes" are entered to the equation. In other words, among the economic factors, one variable; among the individual factors, two variables; and among external factors, one variable are entered to the equation that can totally explain 73% of the variations of the dependent variable (success) ($R^2 = 0.73$). As shown in the table, none of the structural factors are entered to the equation and therefore have no influence on the success. Beta coefficients show that increasing one unit to the standard deviation of "interest", "understanding the concept of cooperative", and "other incomes", will respectively cause 0.61, 0.48, 0.47, and 0.39 of the increase in the standard deviation of the success⁴.

⁴Please note that the mentioned variables have already showed significant associations with the success (see Tables 4-7). However, as the correlation analysis does not detect any interaction between the independent variables, we have further analyzed the interactions by estimation of a regression equation and their influence on the 'success' (as shown by R^2 and Beta coefficients).

The Durbin-Watson statistic was run to find whether autocorrelations in the residuals exist. The result of this test detects no autocorrelation in the residuals of the estimated equation ($DW = 1.91$)⁵ in the table. This means between the variables entered to the equation, there is no autocorrelation and therefore we can trust that they have independent influence on the success.

Accordingly, the results of Table 8 confirm the third and main hypothesis of this study. The above-estimated factors have already been confirmed in different studies. For example, lack of interest from members to work cooperatively was found by Unal *et al.* (2009) as an essential factor in the success of cooperatives. Ozdemir (2005) compared three types of agricultural cooperatives in Turkey and concluded that the attitude of managing directors toward the cooperative principles is a key determinant for the success. Trechter *et al.* (1997) discussed that the success of a cooperative depends largely on the commitment of its members and how members well understand the meaning of "cooperation". It also depends heavily on the manager's own motivation to do a good job.

Bruynis *et al.* (2001) emphasize the importance of having effective board of directors to the success of cooperatives. Their position of managing director as the link between members and management has also been emphasized by the USDA's (2002) study. A good relationship between directors and members requires a good understanding of the 'cooperation' concept from both (USDA, 2001). Due to Yee Ng & van Dyne (2005, p. 519), when a managing director has strong norms for cooperation, members will be encouraged to share their information and consequently expect from each other to enhance task completion. These shared expectations create obligations for members to help each other. Conversely, groups with weak cooperative norms tend to emphasize independence rather than cooperation leading to greater differentiation among members which, in turn, may discourage helping behavior.

Also, to be successful, cooperatives need to access to market (Sexton & Iskow, 1988; Harris *et al.*, 1996) which, depends on their size, could be niche markets or larger. In the supply chain from farmers to consumers, access to market is very crucial (Ortman & King, 2007) as such accessibility let both farmers and consumers meet and deal with each other. Due to Pinto (2009), access to market is one of the main six areas of intervention that needs to be addressed by different stakeholders in the development of agri-rural cooperatives. According to the USDA's (2002) study, to be successful in fulfilling the needs of farmers, agricultural cooperatives must be able to provide an appropriate eco-

⁵The Durbin-Watson statistic ranges from 0 to 4. A value near 2 (1.80 to 2.20) indicates non-autocorrelation; a value toward 0 indicates positive autocorrelation; a value toward 4 indicates negative autocorrelation.

Table 8: Multi-variable regression analysis of factors influencing the cooperative success (Method: stepwise)

<i>Included variables</i>				
<i>Variable</i>	<i>B</i>	<i>SE B</i>	<i>Beta</i>	<i>Sig.T</i>
Interest	2.27	0.50	0.61	0.000
Understanding the concept of cooperative	2.96	0.82	0.48	0.001
Market access	3.16	0.98	0.47	0.000
Other incomes	7.36	2.15	0.39	0.002
Constant = 11.89 ; F = 12.55 ; Sig. F = 0.0001 ; D.W. = 1.91				
<i>Step</i>	<i>Multiple R</i>	<i>R²</i>	<i>R² adjust</i>	<i>R² changed</i>
1. Interest	0.54	0.29	0.25	0.29
2. Understanding the concept of cooperative	0.67	0.55	0.40	0.25
3. Market access	0.81	0.66	0.61	0.11
4. Other incomes	0.89	0.73	0.69	0.07

conomic response to the market signals realized by members. Accordingly, the USDA (1997) has already established MAP (Market Access Program) to help agricultural cooperatives in the country to increase their access to market.

Finally, the strength of a cooperative depends, in part, upon its ability to mobilize its resources and members not only in gaining market share and achieving economic growth, but also in maintaining members' commitment, satisfaction and retaining them (Dakurah *et al.*, 2005). Carlberg *et al.* (2003) discuss that the success of new generation cooperatives is mostly predictable by income. Von Pischke & Rouse (2004) believe that like every business, agricultural cooperatives require capital and economic profits to be successful. They believe agricultural cooperatives in developing countries increasingly find themselves with lower levels of financial supports while they are obliged to compete in the open market.

4 Conclusion

Compared with the previous studies on 'agricultural cooperatives' in general, and the AHCs in particular, this study has two main implications:

Theoretically, it showed an essential need for a comprehensive framework to analyze the cooperatives' performance. In this study, we tried to get closer to such a systemic framework. However, the proposed framework should further be tested empirically by some other study areas in order to explore more variables that might contribute to the success of agricultural cooperatives. More studies will also be required in non-agricultural fields to critically adjust the framework. Furthermore, as this study focused only on the managing directors as the respondents, future studies should also include the visions of the AHCs' members.

The studies may also improve the four sets of proposed variables (e.g.) by reframing the four applied categories ("individual", "economic", "structural", and "external") in this study to three levels including "micro", "meso", and "macro"⁶. Additionally, in the future studies, it would be interesting to see whether the composite definition of the success (including "income", "participation", and "equity" maximization) can be improved. This is since one could assume that these elements of success may enter conflict with each other, in the sense that a cooperative has been able to raise income, but at the detriment of participation and/or equity. The aforementioned discussions show that we are aware that the proposed framework is the first step.

Managerially, the study showed that although there are many factors which have significant correlations with the success of the AHCs, the most important determinants of the success are the interest of managing directors and their understanding of the concept of cooperative, market access, and having other incomes for the AHCs. The first determinant can be taken into consideration when choosing a managing director by board members. This means, they should elect someone who knows the different dimensions of this challenging job and is therefore consciously interested in doing it. This is also regarded to the second determinant; i.e. 'understanding the concept of cooperative'. As previously discussed, many studies show that without understanding this fundamental concept, it would really be hard to collaborate cooperatively. In fact, some studies show that if a managing director does not act cooperatively, s/he will gradually lose the main goal of cooperative and this collaborative business will transform to other non-collaborative systems and therefore the success cannot

⁶To understand how such a three-level framework may work, see Azadi & Filson (2009).

be approached. The third determinant was identified as 'market access' which is quite solid in achieving the success in any business including cooperative. This factor might be seen more importantly when considering a production cooperative like an AHC. In fact and as other studies showed, having an easy access to market can potentially increase the chance of the members to keep their authority in defining the price and bargaining power. Finally, it is important to consider different sources of income for a cooperative as long as it does not lose its 'cooperation' identity. Having income's alternatives can increase the maneuvering power of the cooperative to survive when facing financial crises.

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