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Predictions of Small-Farmers' Empowerment to Success in Farm Operations in Lorestan Province, Iran

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Abstract: This study was carried out to identify and analyze factors that contribute to small farmers' empowerment to success in their operations from lorestan Province, Iran. A sample of 220 small farmers were randomly selected through multistage cluster sampling technique. This study is a kind of descriptive-correlation research which has been accomplished through questionnaire. For determining the validity of questionnaire, the face and content validity was used. Reliability for the instrument was estimated at 0.81. According to factor analysis, the effective factors for the success of small farm operations were categorized into five groups that those factors explained 68.953% of the total variance of the research variables. The results also indicated that input supply, use and management practices, research, extension and education needs and marketing tools and strategies had the most effects on the success of small farmers' operations, respectively.

Key words: Effective Factors · Small farmer · Empowerment · Small Farm Operations

INTRUDUCTION

The agricultural sector continues to be a central element in the economies of most developing countries. At the same time it continues to be a sector in which poverty, marginalisation and exclusion remain prevalent [1]. Small farms, which are diverse, represent an important segment of the agricultural sector and rural communities in developing countries [2]. These farms are numerous, contributing to agricultural output and controlling a substantial share of assets. According to the most Census of Agriculture, about 80% of the total farms in the Iran fall in this category [3]. Despite these facts, small farms have been facing a number of problems over the years that continue to challenge their viability [4]. FAO [5] defined the term " small farmer" as poor farmer, both men and women, having a small area of land. Small farmer is operating less than 12.5 acres of irrigated land or less than 25 acres of un-irrigated land [6], This article considered small farmers, as those with farms of less than 5 hectare.

The government policies have an important bearing on the timing and the success of small farm [6]. The predominance of small farmer (over 90%) is a critical factor in agricultural development of South Asian countries. They contribute 30-35% to total agricultural output. Thus, small farmers are a significant and vital sector of agriculture [6]. The key problem faced by small farmers is to increase their income by increasing profitability of their operations. Achievement of the latter requires identification and analysis of factors that contribute to success. In most developing countries the agricultural sector has the potential to initiate and fuel economic development and growth through increased productivity and efficient utilisation of available resources. Moreover, agriculture is the biggest productive sector, provides most employment and significant export earning already now. Despite this important contribution to the economy and the untapped potential for boosting the economic growth, farmers and farmer organisation have practical no influence on national policies – contrary to the situation [2].

If rural poverty is to be alleviated it is necessary to create growth in market oriented agriculture, remembering that small holders are the backbone of agriculture in developing countries. It is necessary to increase production, create employment, increase flow of funds and demand for services in rural areas to kick-start the economic development process in the now industrialised countries, when they developed. Farmer empowerment

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is a prerequisite for the farming community to participate as a partner in discussions with government. The opportunities for agricultural growth in developing countries are greater now than for decades. However to exploit this potential we have to draw upon past experiences in order to provide insights in to what enables small holders to organise and how development agencies can best support this process to be sustainable, contributing to the empowerment of farmers and farming communities. During recent years the concept of farmer empowerment has been put on the agenda and is now an integral part of many international development organizations', bilateral donors' and international NGOs' policies for supporting agricultural and rural development. Farmers' organisations may be important instruments for empowerment of farmers. It is generally accepted that some form of organisation of the farming community is required if the farmers are to engage successfully in policy debates, to improve their ability to demand and access services from outside agencies and to negotiate with greater strength in agricultural input and output markets [2].

The study defines farmer empowerment as:"a process that increases the capabilities of smallholder farmers and farmer groups to make choices and to influence collective decisions towards desired actions and outcomes on the basis of those choices"

Recently, empowerment has assumed a prominent role in rural and agricultural development with support to farmer groups and organisations entering the dialogue between donors and governments in Asia and Africa. A central argument used by donors for supporting farmer empowerment is that there is a strong relation between farmer empowerment and such development outcomes as poverty reduction, improved agricultural opportunities for growth and better governance. Here is a pyramid for farmer empowerment process as follows [2]:

The farmer empowerment pyramid

I

I + TA

I + TA + FO

I + TA + FO + RBA

I + TA + FO + RBA + D

I – agricultural inputs, TA – technical advice, FO – farmer organisations, RBA – rights based approach, D - democratisation

Empowerment can give greater ownership to a project and to a particular direction in development. A recent UNDP document states that *ownership* is the acceptance of *responsibility* through the process of stakeholder *participation, empowerment* and *consensus"* [7]. Here the importance of empowerment within the broader process of democratisation is apparent. The transition towards more democratic political systems requires that citizens play a greater role within the political system. Hollup [8] believed that this approach emphasizes that recourse have to be involved in the management process and participate in regulatory decision-making, implementation and enforcement [9]. This approach has great advantages, too. Its advantage is that the farmers can influence the decisions made, while governments can ensure that long-term management objectives are met. Participation in decision-making gains the support of the farmers, confers legitimacy on the regulations and fosters compliance, which may also reduce the costs of monitoring and surveillance [8, 10-12]. However, farmer participation is a means of building trust and empowering stakeholders to participate in the shared governance of farmers [12-14].

There are very few studies dealing with success of small farmers. Perry and Johnson [15] conducted a study using data from the Agricultural Resource Management Survey (ARMS). The study focused on small farms (annual gross sales under $250,000) where the primary occupation of the operator is farming. The study showed that top-performing farms used three management practices: production strategies that control costs, actively marketing their products and adopting financial strategies such as maintaining cash and credit reserves. The study also suggests that experiences may provide strategies for success in small farm operations.

A study showed that factors contributing to success are good management practices, knowledge and early adoption of new technology, a strong work ethic, love of farming, size of operation, participation in government programs and strong family support. Important areas for change include improved education, emphasis on high-return enterprises (fruits and vegetables), restructuring of USDA programs (including the guarantee of acceptable returns for fruits and vegetables producers), expansion of off-farm employment opportunities and improved access to credit [16].

Another study characterized successful small farmers as those maintaining economic viability through use of old equipment instead of new

purchases; relying on contractors to carry out capital-intensive activities; producing specialty products; using diverse marketing outlets; seeking these small farm operations [4].

In another study, success was measured in terms of financial information to reduce production and marketing risks; and diversifying their income sources to include off-farm income. The authors found that access to credit appears to be a major difficulty for many of gains (profitability). A negative relationship between success and farmer's age and positive relationship for education, yield, machinery and labor efficiency, rented acres and contribution to total revenue from livestock production. The study suggests that diversifying their operation between crop and livestock production will help to achieve success [17].

The primary purpose of the present study was to identify the factors affecting the small farmers' empowerment to success of small farm in their operations as perceived by Lorestanian`s small farmers, Iran. The specific objectives of this study were to: (1) describe the demographic profile of Lorestan Province small farmers and (2) identify Predictions to success in small farm operations.

MATERIALS AND METHODS

This study was conducted in the province of Lorestan, located in the South part of Iran. A sample of 220 small farmers were randomly selected through multistage cluster sampling technique based on their land usage characteristics. The research design for this study was a survey design. The survey was divided into two sections. The first section was designed to gather data on personal characteristics of farmers included gender, age, income, years of work experience, level of education etc. The second section was designed to gather data about the extent of their success in small farm operations. Farmers were asked to classify themselves on a continuum to show the degree of success in their farm operations. A scale of 1 to 8 was used, where 1 = Not Successful and 8 = Very Successful. Farmers with responses between 1-5 were categorized as less successful and 6-8 as very successful. Respondents were also asked to rank various factors that affect their level of success using the Likert-type scale :(5 = very much, 4 = much, 3 = moderate, 2 = low and 1 = very low). Factors included in the survey were size and type of farm operation, participation, importance of off-farm income, use of information technology, perception about different statements, marketing practices and research, extension and education needs.

Face and content validity of the questionnaire were established using a panel of experts consisting of extensionists. Questionnaire reliability was estimated by calculating Cronbach's alpha coefficient. Reliability for the instrument was estimated at 0.81. The data were collected between March, 2012 and Juan, 2012. After gathering and encoding information from the questionnaires, data was obtained for analysis. Data collected were analyzed using the statistical package for the social sciences (SPSS, 14). Beside descriptive statistics, factor analysis was employed for detailed analysis.

RESULTS

Descriptive Statistics: The first objective was to describe the demographic profile and socio demographic characteristics of small farmers of Lorestan Province, Iran. The findings showed that average age of all respondents (less and very successful) was 54.05 years. The minimum age of respondents was 18 and the maximum age was 87. Majority of the all respondents were male. Eighty-seven percent (87%) of them were married. Data showed that average household size in study area was 5 members in a family. Study also revealed that principal occupation of the 53.6% of the less successful and 39.4% of the very successful farmers was farming. Regarding respondents' education levels majority of the less successful (80%) and two-thirds of the very successful farmers(64%) were under High School . Sixty-eight percent of the all farmers had more than 20 years of work experience. Their average work experience was 25 years. The average of their total monthly income was 3 million Rial per month. 78.7% of the all respondents(less and very successful) had less than 3.5 million Rial income monthly and 90% had less than 4.75 million Rial income monthly. Findings of the study also showed that their average of farming land holding was 3.9 ha. Nearly 80% of them had less than 5 ha farming land holding (Table 1).

A continuum (a scale of 1 to 8) was used to show the degree of success in their farm operations and results indicated that 65.5% of small farmers were less successful compared to only 34.5% who rated themselves as very successful.

Table 1: Some characteristics of respondents demographic

	Less Successful	Very Successful
Feature	Percentage	Percentage
Gender		
Male	93.8	84.6
Female	6.2	15.4
Age (years)		
Up to 40	16.1	14.8
41-60	61.3	44.4
Over 60	22.6	40.7
Average	51.1	57.0
Level of Education		
Illiterate	24	18
< High School	56	46
High School/GED	18	30
College	2	6
Farming as Principal Occupation		
Yes	53.6	39.4
No	46.4	60.6
Off-Farm Work		
Yes	63.6	44.4
No	36.4	55.6
Percent Household		
Income from Off-Farm Work	59.2	65.7

Analytical Statistics: The second objective was to identify effective factors to success of small farmers in their operations with regard to empowerment process. Exploratory Principal Component Analysis (PCA) was conducted to summarize the variables of the research to a smaller quantity and to determine the factors affecting the success of small farmers in their operations and the obtained factors were subjected to VARIMAX rotation. PCA is a form of factor analysis**,** which first looks for a linear combination of variables that extracts maximum variance from variables and then identifies a second linear combination to explain the remaining variance, leading to orthogonal, or uncorrelated, factors [15]. The value of the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) was 0.92. Nelson and Thompson (2005) reported that KMO values of 0.6 and above are required for good factor analysis. Using the eigenvalue greater than one rule, the PCA suggested the presence of five factors, which accounted for 68.953% variance in scores. The five factors extracted and named in this study as follow: (1) input supply, use and management practices, (2) research, extension and education needs, (3) marketing tools and strategies, (4) participation in problem solving, (5) economic (Table, 2).

The first factor was called the input supply, use and management practices. This factor had the most eigenvalue (5.208) among the other factors. Also this factor explained 19.208% of the total variances of the variables. Access to credits and loan was the most important input supply and use (M = 4.66) for small farmers to success in farm operations. Nanhou and Duffy, (2002) concluded that access to inputs such as credits and loan appears to be a major difficulty for many of gains (profitability). Access to insurance and Establish farmer organization were the other inputs and management practices that encouraged empowerment process to help small farmers to success in their farm operations. Farmers' organisations may be important instruments for empowerment of farmers[6].

The second factor was called the research, extension and education needs. This factor that its eigenvalue was 3.968 explained 14.720% of the total variances of the variables. Through using participatory approaches such as participatory technology research and development, participatory agricultural extension and education services in terms of specified needs of small farmers the empowerment process should be encouraged and strengthened. Therefore, extension services must plan and deliver more useful educational courses to increase small farmers' knowledge and awareness regarding the most important needs.

The third factor was called Marketing tools and strategies. This factor that its eigenvalue was 3.457 explained 12.760% of the total variances of the variables. The existence of needed and good markets and strategies such as market advisors and marketing cooperatives facilitate a better trades for small farmers and enabling them to access higher levels of income.

ANOVA tests were used to determine if significant differences existed between factor scores of the effective factors to success of small farm operations when grouped by selected attributes of respondents. Small farmer`s view regarding the affective factors to success differed significantly by small farmer`s age for the factors input supply, use and management practices ($F = 2.65$; $p \leq 0.05$), marketing tools and strategies ($F = 3.77$; $p \leq 0.01$) and economic ($F = 2.78$; $p \leq 0.05$). The findings indicated that the factor scores of the effective factors to promote success of small farm operations differed significantly when examined by their level of education for the factors marketing tools and strategies ($F = 3.13$; $p \leq 0.05$) and economic ($F = 2.93$; $p \leq 0.05$). In addition, both two factors marketing tools and strategies and economic were affected by respondents` age, level of education and years of experience (Table 3).

Table, 2: Results of factor analysis for effective factors to success of small farmers in farm operations and the variable of each factor

Effective factors to success small farmers in relation to farm operations	Mean± SD	Factor Loading	Eigenvalues	Variance (%)	Cum (%)
Input supply, Use and Management Practices			5.208	19.208	19.208
Access to credits and loan	4.66±0.92	0.755			
Access to insurance	4.07±1.28	0.738			
Establish farmer organization	4.68±0.84	0.750			
Minimum use of hired labor	4.58±0.84	0.683			
Keep debt low	4.54±0.99	0.633			
Record keeping	4.44±1.04	0.624			
Hard work ethic	4.55±0.88	0.606			
Timing	4.64±0.77	0.564			
Off-farm employment	4.48±1.025	0.520			
Government policies	4.54±0.87	0.623			
Access to a computer with Internet	4.09±1.33	0.683			
Research, Extension and Education Needs			3.968	14.720	33.928
Research on Production, Marketing and Assessment of technology	4.38±1.82	0.540			
Educating Marketing skills	3.90±1.35	0.901			
Educating Risk management	3.85±1.36	0.832			
Educating Record keeping & Planning	3.83±1.48	0.648			
Educating use of information technology (IT)	3.88±1.36	0.810			
Marketing tools and strategies			3.457	12.760	46.688
Forward cash contracts	3.97±1.30	0.799			
Price later contracts	4.04±1.30	0.677			
Minimum price contracts	4.35±0.97	0.841			
Market advisors	4.35±1.047	0.802			
Marketing cooperatives	4.10±1.19	0.789			
Niche marketing	4.10±0.713	0.526			
Farmer markets	4.60±0.792	0.511			
Participation in problem solving			3.247	12.003	58.691
Participation for identifying problem	2.60±1.61	0.454			
Participation for solving problem	4.47±1.02	0.434			
Participation for decision-making	4.29±1.13	0.726			
Economic			2.776	10.262	68.953
Earning more interest and benefit	4.38±1.01	0.734			

Source: results of research

Table, 3: F-test results o compare individual effective factors on the success of small farm operations with regard to small farmer empowerment by small farmers` demographic characteristics

	F-Values			
Effective factors	Age	Level of education	Years of experience	Second job
Input Supply, Use and Management Practices	2.65*	0.150	0.46	5.85**
Research, Education and Extension Needs	2.13	0.501	0.37	0.46
Marketing Tools and Strategies	3.77**	3.130*	5.12**	0.19
Participation in Problem Solving	1.06	0.460	0.32	0.61
Economic	2.78*	2.930*	2.56*	0.11

*P≤0.05,**P≤0.01

CONCLUSIONS

Small farmers are a significant and vital sector of agriculture. The key problem faced by small farmers is to increase their income by increasing profitability of their operations [16]. Farmer empowerment to promote success of small farmers has been achieved in Asia, but it has not always been sufficient to bring about substantive change for farmers, it has not always been able to sustain whatever gains have been achieved and it has not always been poor farmers, women, agricultural labourers, those at the economic, social and political margins of a society that have gained [6]. This study was intended to draw the factors affecting the success of small farmers operations

as perceived by Lorestanian`s farmers, Iran. An important finding of the study was that several factors dealing with the success of small farmers operations process. Factors were extracted from PCA including the first factor were called input supply, use and management practices and explained 19.208% of the total variance and were considered as the most effective factor. Based on the findings of the present study access to credits and loans was the most important input and motivator factor to improve small farm operations. In addition, different types of insurance and social security and establish farmer organizations were the other most important factors in this area. It is recommended that government should establish more effective and equitable methods of delivering farm inputs and providing services and enabling access to inputs.

Government in Iran should determine and establish stable and definite economic policies for agriculture, for example about exports, imports, subsidizes, credits, loans, insurance and so on. Governmental institution should forecast and estimate prices of inputs and products based on these policies and publish enough information about prices and markets to the farmers and the users, so they can plan for their agricultural activities and get more outcomes [1]. Also, farmer organisations have a strong potential for building linkages to interventions/ programmes in other sectors. The inter-sector linkages can enable the collective improvement of farmers' livelihoods from a number of government- and donor-supported interventions. Farmer organisations can facilitate a vertical exchange of information, be enabling farmers to access higher levels of management and contribution in decision-making process.

Based on the mentioned results, it is also recommended improving and learning management practices such as record keeping, etc to better use of resources by small farmers and broaden views of potentials and opportunities for changes in their farming practice.

The results also indicated that research, extension and education needs and marketing tools and strategies was the second and third factors to promote small farmer's empowerment process to success in farm operations, respectively. Research, extension and education provision as well as access to financial markets remains a major problem. It is recommended that government should increase delivering more needed extension services to an increased technical knowledge and increased appreciation of value and costs of technical learning, decentralisation reforms, changes in credit markets, cooperatives sectors regarding farmer markets and other direct market outlets to create a more enabling environment for farmer empowerment with of better opportunity structures for farmers and farmer organisations.

Factors identified in this study that contribute to success will help less successful small farmers in Lorestan to modify their production and management practices to become more successful. The operators of small farms in other states in Iran can also adopt similar strategies to be successful. The findings can also assist in formulating policies and strategies involving research, education and extension to enhance success of small farm operations.

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