A Study of the Factors Affecting the Insurance Acceptance by Ornamental Plants Producers: A Case Study of Kohgiluyeh and Boyer Ahmad Province

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Abstract

Crop insurance is an appropriate way to overcome the risk in agricultural production sector and increase farmer's peace of mind for their future income. In the agricultural sector of Kohgiluyeh and Boyer Ahmad, the risk of production is high due to the substantial losses of crops and other diseases and so is the income risk. Since most local farmers have low incomes and livelihoods, natural disasters and diseases can cause irreparable damages on their livelihood. In this regard, crop insurance is one of the most supportive mechanisms to reduce instability and confronting to the unpredictable nature of these risks. But insurance can be effective on the production and income only if factors affecting insurance demand by farmers are identified and it covers a wide range of farmers. The aim of this study is to investigate factors affecting the development of insurance acceptance by ornamental flowers producers in Kohgiluyeh and Boyer Ahmad province. In this study, data were collected by a questionnaire randomly and logit model was evaluated with an emphasis on the production of ornamental flowers. Results reflect the influence of multiple economic and social factors on demand and acceptance of insurance by farmers.

Keywords: Insurance demand, Logit model, Ornamental flowers, Risk.

INTRODUCTION

Iran is a vast country with diverse climates. From fourteen types of known climates in the world, Iran has twelve types in different parts of the country; therefore, Iran has a natural talent for growing a variety of plants, including ornamental plants (Omidbeigy, 1995). Moreover, it is possible to produce ornamental flowers and plants with export quality and economic feasibility in Iran because of its climate variability, young, educated and active manpower, lower exchange intensity, and high yield per unit area. The elasticity of the consumer market and appropriate postharvest life due to favorable weather and light are other advantages of the production and marketing of ornamental flowers and plants in Iran (Soleymanipour, 2005)

Given Iran's unique potential for the production of the ornamental flowers, In iran many years followed a policy of export diversification and in this case the programs, policies have been implemented (Nekouee and Torkamani, 2002). In general, it can be said that one of the objectives of the developing countries is to achieve sustainable economic growth. In this regard, it is of crucial important to understand the factors affecting economic growth. So, the importance of reducing economic dependence on currency earnings from the export of oil on the one hand and constraints on economic issues on the other hand is quite tangible (Estakhr and Esmaeili, 2010). An option that has a high exchange technology and can be used as one of the major non-oil products in the non-oil exports is ornamental flowers and plants. The most important cut flowers produced in Iran are narcissus, gladiolus, tuberose, carnation, chrysanthemum, lilium, marguerite and ornamental sunflower need for coherent planning and risk mitigation production (Chizari *et al.*, 2006).

Unstable nature and unpredictable natural disasters create certain conditions for the agricultural sector and affect farmers' decisions and beneficiaries' actions (Faraji and Mirdamadi, 2006). In this section, the activity has always been accompanied with risk and farmers are unsure about their future income. To deal with these risks, rural communities as well as planners of different countries have created a range of risk mitigation programs including the involvement of the government in risk mitigation through crop insurance to protect farmers against losses caused by natural disasters and thus its contribution to safeguarding their income levels and productivity (Najafi and Ahmadpour Borazjani, 2001). Farmers are always worried about loan repayment and the payment for the necessary costs of production and even their families because of the lack of confidence in their annual income. These risks cause concern for the agricultural credit institutions. On the other hand, investors often prefer to use their investments in low-risk areas even if they have lower benefit for them and for community. Therefore, crop insurance has been proposed as a means of risk reduction and incentives for agricultural investment. If crop insurance is used as well, it can reduce the entrepreneurs' risk in the agricultural sector and ensure investors that want to help agricultural development of the country by the use of inputs (Daneshvar Ameri and Yazdani, 2007), capital, labor and innovation. So, considering the necessity of crop insurance in Iran and in Kohgiluyeh and Boyer Ahmad Province, it is essential to identify factors influencing the development, acceptance and demand of crop insurance.

Bhende (2002) found that income of the farm households in semi-arid tropics engaged predominantly in rain-fed farming was positively associated with the level of risk. Hence, the availability of formal instrument for diffusion of risk like crop insurance will facilitate farmers to adopt risky but remunerative technology and farm activities, resulting in increased income. Some of the studies confirm the conventional view that moral hazard incentive lead insured farmers to use fewer chemical inputs (Smith and Goodwin, 1996). Babcock and Hennessy (1996) found that at reasonable levels of risk aversion, nitrogen fertilizer and insurance are substitutes, suggesting that those who purchase insurance are likely to decrease nitrogen fertilizer applications.

Rastgou and Rezvanfar (2007) studied the factors affecting the development of insurance of strategic products in Khudabandah County. According to the results of the three variables, loan receptions number to amount of land estimates 76 percent in the development changes of insurance of strategic products. Karbasi and Kambozia (2003) investigated the factors affecting demand for

crop insurance in Sistan-Baluchistan Province using logit model to analyze factors affecting farmers' demand and attitudes towards insurance. They indicated that agricultural insurance services have been accompanied by leaps and bounds and socio-economic factors in recent years, consequently affecting insurance demand and acceptance by farmers (Tahmasebi and Moghadasi, 2010). Therefore, structural changes in the agricultural sector and policy-making of the government can be very useful in the development of agricultural insurance.

In general, the aim of the present study was to identify the factors affecting demand for and acceptance of insurance by farmers of Kohgiluyeh and Boyer-Ahmad Province with an emphasis on the role of ornamental flowers to plan a suitable policy in this area.

MATERIALS AND METHODS

The studied population was 120, and the data were collected from 92 people as sample, who were randomly selected farmers of Kohgiluyeh and Boyer-Ahmad based on the Morgan method. After collecting the necessary data, the factors affecting the demand for insurance were investigated by EViews Software Package and logit model. This model is as follows:

$$P_i = F(Z_i)$$
$$Z_i = \alpha + \sum_{j=1}^{n} \beta_j X_{ji} \Rightarrow P_i = F\left(\alpha + \sum_{j=1}^{n} \beta_j X_{ji}\right) = \frac{1}{1 + \exp^{-Z_i}}$$

where, **exp** is natural logarithm and **Pi** as non-linear is related to **Zi**. It should be noted about the estimation of this model that **Pi** is not only in terms of X but also in terms of is non-linear and Ols common methods to estimate the parameters of this model not applicable. The model is estimated by using maximum likelihood method (Karbasi and Kambozia, 2003).

If *Pi* is the probability of an insurance demand, 1-*Pi* is lack of demand for insurance:

$$\frac{P_i}{1 - P_i} = \frac{1 + e^{z_i}}{1 + e^{-z_i}} = e^{z_i}$$

The above equation indicates ratio of the probability of an insurance demand to probability of lack of demand:

$$L_i = \ln \frac{P_i}{1 - P_i} = F(Z_i) = \alpha + \sum_{j=1}^{n} \beta_j X_{ji}$$

By estimating the above function ,the relative impact of each variable can be seen on insurance demand.in addition its tensions to change any of the variables included in the model are calculated and determined by using the following formula:

$$c_i = \left[\frac{e^{z_i}}{(1 + e^{z_i})^2} \beta_j \right] \frac{X_{ij}}{P_i}$$

where, *βj* is independent variable parameter of *J* (Karbasi and Kambozia, 2003). Having partial derivatives from the above equation, explanatory variable elasticity of *J* can be obtained from the following equation:

$$\frac{\partial P_i}{\partial X_{ij}} = \frac{e^{z_i}}{(1 + e^{z_i})^2} \beta_j$$

where, elasticities are not fixed and depend on the values of the explanatory variables used in the model (Karbasi and Kambozia, 2003):

Categorical dependent variables in this model are:

Y = 1 farmers' positive attitude towards insurance;

Y = 0 farmers' attitude towards insurance was not positive.

The independent variables are:

X1: Insurance rates;

X2: Loan taking numbers;

X3: Risk experience;

X4: farmer's two jobs;

X5: Farmer's education level;

X6: Farmer's age;

X7: Ornamental flowers production;

X8: Production diversity;

X9: Job experience;

X10: Activity scale;

X11: Type of ownership;

X12: Use of promotion activities (online).

RESULTS AND DISCUSSION

Accordingly the above model was fitted. Table 1 expresses the impact of various factors on the insurance demand for agricultural products by local farmers. The results show that there is a positive relationship between the participation in promotion classes or contact with promotion agents and insurance experts and insurance acceptance by farmers. Also, the results show a significant negative relationship between insurance rates and insurance demand by a farmer.

Table 1. Results of the estimation of effective factors on farmer's insurance demand

Variable	Variable type	The estimated coefficient
X1	Product insurance rates	0.891*
		(2.73)
X2	Loan taking number	1.96
		(0.94)
X3	Risk experience	0.63*
		(3.451)
X4	Farmer's Two jobs	0.342
		(.0651)
X5	Farmer's education level	0.871*
		(2.214)
X6	Farmer's age	-0.278*
		(3.451)
X7	Plant pathology	1.125*
		(1.93)
X8	Production diversity	-0.078*
		(1.83)
X9	Job experience	0.117
		(0.256)
X10	Activity scale	0.92*
		1.432*
X11	Type of ownership	1.52*
		0.052
X12	Use promotion activities	(0.476)
X13	Fixed	

* Significant mark is on of the levels 10, 5 and 1 percent.

Table 1 shows that there is no significant relationship between the number of loans taken by farmer, farmers secondary job and farmers job experience with the acceptance and demand of crop insurance by farmer. The results of risk background variable show a significant positive relationship between the variable and insurance acceptance by farmer. In other words, if the crops are already faced with risks and natural disasters, farmers will be more motivated to get insurance for their products.

According to the results, there is a significant positive relationship between the level of farmer's education and farmers' demand for insurance of their products. That means the the more educated the farmers are, the more positive attitude they have towards insurance acceptance and the more demand they have for getting insurance to ther products. But as farmers get older, the demand for insurance decreases. In other words, there is an inverse relationship between age and insurance demand. This suggests that younger farmers have greater motivation to accept the insurance because of higher risk-taking power and also factors such as higher educational levels, as well as more information and knowledge about the innovations.

Results of farmer's ownership type indicate a positive and significant impact of personal ownership on insurance acceptance by farmers that may be due to the lack of renting cost. So, they are more able to pay for crop insurance.

Variable of production diversity has a significant negative effect on crop insurance demand by farmers which can be related to the fact that farmers who produce more than one type of product face lower risk of product income. Also results show that the production of ornamental flowers and the farm size have a significant positive relationship with the insurance demand. In other words, higher farm size increases farmer's motivation and demand for crop insurance.

CONCLUSION

Due to the impact of awareness and promotional activities on the farmer's willingness and motivation in insurance acceptance it is necessary to do cultural changes in the behavior of farmers to develop agricultural insurance using the promotion activity of the Ministry of Agriculture. Moreover, since the scale has a positive effect on insurance demand and agriculture scale is often small, the government needs to expand the scale of production and take a policy like using benefits of increasing scale such as costs reduction and specialization of production influence on the motivation and the willingness of farmers insurance acceptance. It is obvious that the policies of encouraging young people with high education to participate in agriculture and also increasing the level of insurance cover of products as well as expanding the production of ornamental flowers affect the amount of insurance acceptance by farmers.

Literature Cited

Babcock, B.A. and Hennessy, D.A. 1996. Input demand under yield and revenue insurance. American Journal of Agricultural Economics, 78(2): 416-427.

Bhende, M.J. 2002. Flow of credit to small and marginal farmers: A case study of Karnataka, agricultural development and rural transformation unit, ISEC, Bangalore, Ministry of Agriculture, Government of India, New Delhi.

Chizari, A., Yousefi, A. and Mousavi, H. 2006. The study of the export target markets of Iran's ornamental plants. Agricultural Economics and Development. 55: 66-47.

Daneshvar Ameri, J. and Yazdani, S. 2007. The study of factors affecting the marketing margin of shrimp marketing. Journal of Agricultural Science, 13 (2): 275-282.

Estakhr, M. and Esmaeili, A. 2010. Economic analysis of internal marketing of Kabkab dates of Kazerun city. Journal of Agricultural Economics. 2 (2): 175-185.

Faraji, A. and Mirdamadi, V.M. 2006. The study of the role of promotion on the insurance acceptance by the gardeners of city of Damavand. Journal of Agricultural Sciences, 30: 489-499.

Halcrow, H.G. 1949. Actuarial structures for crop insurance. Journal of Farm and Economy, 31:

418-443.

Hojjati, B. and Bocksteal, N. 1988. Modeling the demand for multiple crop insurance, southern cooperative series. Bulletin No. 339. PP: 153-179.

Karbasi, A. and Kambozia, V.N. 2003. The study of effective factors on demand for crop insurance, Sistan and Baluchestan province. Journal of Agricultural Economics and Development, 11 (41): 67-80.

Najafi, B. and Ahmadpour Borazjani, V.M. 2001. Evaluating the performance of crop insurance program. Journal of Agricultural Economics and Development, 9 (35): 14-19.

Nekouee, A. and Torkamani, V.J. 2002. Wheat insurance with a view at the moral hazard and adverse selection: A case study of Fars province, Iran. Journal of Agricultural Science, 33: 57-169.

Omidbeigy, A. 1995. Approaches to production and processing of medicinal plants. Fekre rooz Publishing. p: 288.

Rastgou, H. and Rezvanfar, V.A. 2007. The study of effective factors on crop insurance development strategy in the city of Khodabande. Journal of Agricultural Economics and Development, 15 (58): 45-55.

Shajari, Sh. 2002. The study of marketing and exports of Shahani dates, case study of Fars province. Journal of Agricultural Economics and Development. 10 (39): 167-141.

Smith, V.H. and Goodwin, B.K. 1996. Crop insurance, moral hazard, and agricultural chemical use. American Journal of Agricultural Economics, 78(2): 428-438.

Soleymanipour, A. and Nekouee, A. 2005. The study of marketing issues of rose and its products in the city of Kashan. Science and Technology of Agriculture and Natural Resources, 9 (1): 73-88.

Tahmasebi, A. and Moghadasi, R. 2010. Factors effective on marketing margin of chicken meat in Iran. Journal of Agricultural Economics and Development. 71: 163-187.