

THE EFFECT OF KNOWLEDGE FACTORS & CHALLENGES ON DEVELOPING ENTREPRENEURIAL SKILLS OF VEGETABLE FARMERS IN POLGAHAWELA DS DIVISION

Kuruppu Ralalage Manuja Dulanjani^{1✉}, Sudu Hakuruge Pushpa Malkanthi¹,
Atapattu Mudiyansele Chandrawansa Premakumara Atapattu²

¹Sabaragamuwa University of Sri Lanka, Sri Lanka

²University of Colombo, Sri Lanka

Abstract. Agriculture is a dominant field in Sri Lanka, with vegetable cultivation accounting for a large portion of it. Improving agri-entrepreneurship is a good solution for increasing farm efficiency and effectiveness, reducing youth unemployment, and alleviating poverty in rural Sri Lanka. The purpose of this study was to identify the factors influencing farmers' entrepreneurial skills and the challenges that farmer-entrepreneurs face. The study area was chosen as Polgahawela DS division in Kurunegala district. One hundred vegetable farmers (50 young and 50 old) were chosen at random. A questionnaire survey was used to collect data. The data was analyzed using reliability analysis, multiple regression models, and one-way ANOVA. According to the findings, education level, farming experience, and extension services all have a significant impact on the development of farmers' entrepreneurial skills, which have a positive effect on farmer performance. The most significant challenges for vegetable farmers are marketing risk and finance. To develop farmers' entrepreneurial skills, projects and programs may focus on education level, farming experience, and extension services, with the support of successful and more experienced old farmers.

Keywords: agriculture, challenges, entrepreneurial skills, factors, farmers, Sri Lanka

INTRODUCTION

Agriculture is one of the most important industries in Sri Lanka, as well as being the primary source of income for many people (Rosairo and Potts, 2016). Many traditional, small farmers in developing countries are attempting to commercialize their farming activities. An increase in agricultural entrepreneurial culture has been identified as an important tool for economic development. Sri Lankan farmers' entrepreneurial skills are lower than those in other countries (Mahindaratne and Gunaratne, 2015). This research study attempted to investigate the knowledge-based factors that influence the development of entrepreneurial skills and the challenges faced by vegetable farmers in the Polgahawela DS division. The findings are important for responsible parties because they allow them to identify factors that influence higher entrepreneurial skills and use them to improve the skills of other farmers in the area.

RESEARCH METHODOLOGY

To assess the effects of knowledge sources on the entrepreneurial skills of vegetable farmers, ICT, farmers' education level, farming experience, and extension

✉Kuruppu Ralalage Manuja Dulanjani, Department of Agribusiness Management, Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, Sri Lanka, e-mail: manujadsusl@gmail.com, <https://orcid.org/0000-0003-3411-8851>

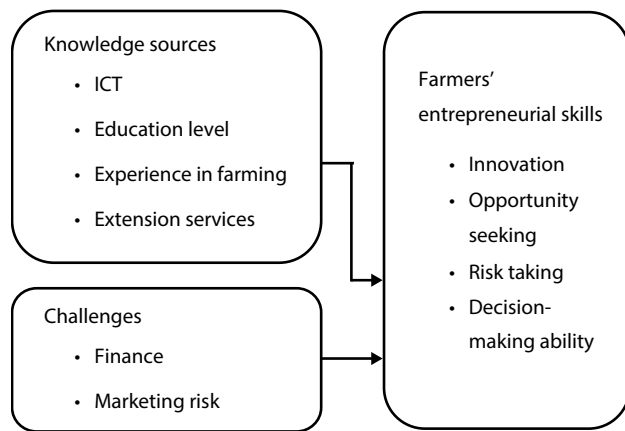


Fig. 1. Conceptual framework of the study

services were chosen. Financial issues and marketing risk were chosen to assess the impact of challenges on these farmers' entrepreneurial skills. To assess the farmers' entrepreneurial skills, innovation, opportunity seeking, risk taking, and decision-making abilities were chosen as variables of entrepreneurial skills. To assess the level of each entrepreneurial skill and the overall level of entrepreneurial skills of the farmers, four determinants for innovation, six determinants for opportunity seeking, four determinants for risk taking, and eleven determinants for decision-making ability were identified and chosen (Rosairo and Potts, 2016).

Determinants of innovation include "growing new crop varieties; experimenting with new inputs; adopting new value-added methods; and adopting new farming methods." Determinants of opportunity seeking include "using market information for key farming decisions; looking for new markets; gathering farming information from media; discussing farming issues with farmer friends; attending farmer training programs; and taking advantage of opportunities provided by development projects." Risk factors include "investing in new farm equipment; obtaining credit to expand the farm business; shifting to controlled environment agriculture; and being among the first to experiment with new crops" (Rosairo and Potts, 2016). Decision-making ability determinants include the ability to "evaluate the risks associated with each alternative before making a decision; determine the true issue before beginning a decision-making process; and achieve good results with my decisions" (www.emeraldworks.com); "If there are doubts

about a decision, go back and recheck the assumptions and process; take the time needed to choose the best decision-making tool for each specific decision; consider a variety of potential solutions before making the decision; always create an implementation plan for my decisions; prefer to make decisions based on personal experience or knowledge and get knowledgeable person's support when needed; determine the factors most important to the decision, and then use those factors to evaluate choices; evaluate strengths, weaknesses, opportunities & threats and related environment before making the decision; after decision-making, look at whether it is working & the results" (www.emeraldworks.com, <https://www.mindtools.com> > Decision Making > Start Here).

Research strategy and selecting the sample

This is a quantitative study that employed a deductive approach. The method involved using a questionnaire survey. The sampling technique used was simple random sampling. This research focuses on the Polgahawela DS division in the Kurunegala district. The target population was vegetable farmers in the Polgahawela DS division, and five Grama Niladari divisions (GN) were chosen at random from the study area. A total of one hundred vegetable farmers were chosen, with twenty (20) farmers from each GN division.

Data collection and data analysis methods

The questionnaire was pre-tested. One hundred vegetable farmers were chosen at random. Five GN divisions were chosen at random, with twenty vegetable farmers chosen from each division. For the analytical techniques, SPSS statistical software was used, as well as Reliability Analysis, multiple regression models, and one way ANOVA. The effect of challenges on skills was tested using a regression model, and the effect of knowledge factors was tested using a one-way ANOVA.

RESULTS AND DISCUSSION

According to the reliability analysis, all the Cronbach's Alpha values are more than 0.7, and these items have high internal consistencies among them.

Effects of challenges on entrepreneurial skills

According to the multiple regression results, model summaries are provided in Table 1.

Table 1. Model summaries

Model	R	R Square	Adjusted R Square	Std. error of the estimate	Durbin-Watson
1	.831 ^a	.691	.684	.43014	1.536

The coefficient of determination in the model summaries shown in table 4.2 was 0.691. This means that the regression model explained 69.1% of the entrepreneurial skills. The model is well fitted because the value exceeds 60%. Multiple correlations were 0.831, indicating that financial and marketing risk challenges are strongly correlated with entrepreneurial skills. The Durbin-Watson test statistic was 1.536, representing residual independence. As a result, the regression results are appropriate for decision-making. Table 2 shows the model’s overall significance.

Table 2. Regressions ANOVA

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	40.085	2	20.043	108.326	.000 ^a
Residual	17.947	97	.185		
Total	58.033	99			

The F test statistic had a probability of 0.000, indicating that the result is highly significant. This means that financial and marketing risk challenges have an impact on farmers’ entrepreneurial skills. The model is valid because the regression ANOVA results were significant. Individual beta values were used to analyze the

individual effects of these two variables, and the results are shown in Table 3.

The probability of the financial challenge was 0.073, yielding a marginally significant result. The beta value for each individual was 0.131. This suggests that financial difficulty has a marginally significant positive effect on entrepreneurial abilities. Because the P value was 0.000, marketing risk is extremely significant. The marketing risk’s individual beta value was 0.701. As a result, marketing risk has a significant positive impact on entrepreneurial skills. According to the standard beta coefficients, the most influential challenge is marketing risk, followed by financial risk. The variation inflation factor (VIF) was less than ten. As a result, the regression model does not suffer from multicollinearity, and the results are highly valid.

Figure 2 depicts the residuals behavior.

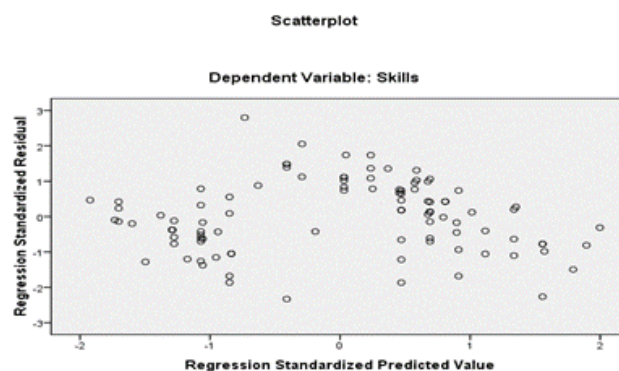


Fig. 2. Residuals behavior

The scatter plot compares standardized residuals to standardized predicted values. They are distributed

Table 3. Individual effects of challenges

Model	Unstandardized coefficients		Standardized coefficients	t	Sig.	Collinearity statistics	
	B	Std. error	Beta			Tolerance	VIF
1 (Constant)	.797	.236		3.381	.001		
Finance	.131	.072	.128	1.815	.073	.645	1.549
Marketing risk	.701	.066	.749	10.654	.000	.645	1.549

at random, with no systematic pattern. This indicates that the linear model's residuals do not exhibit funnel shape behavior. The residual variance is constant, and the regression model does not have a heteroscedasticity problem. The mathematical approach was used to test normality, and the results are shown in Table 4.

Table 4. Normality of residuals

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
Standardized residual	.052	100	.200*	.995	100	.967

According to the Kolmogorov-Smirnov, probability was 0.2. At 5%, this is insignificant, and the residuals are normally distributed with a mean of zero. The P value for the Shapiro-Wilk test was also 0.967. This also shows that the residuals are normally distributed with a zero mean and that the results are highly valid.

Effects of knowledge factors on entrepreneurial skills

The effects of knowledge factors on entrepreneurial skills was analyzed using one way ANOVA, and the results are provided by Table 5.

Table 5. One Way ANOVA for knowledge factors

Knowledge factors	F	Sig.
ICT	0.474	0.701
Education	4.629	0.002
Experience	6.337	0.000
Extension Courses	213.237	0.000

According to the one-way ANOVA results in Table 5, the probabilities of education, experience, and extension courses were all highly significant, with ICT being the only insignificant factor. According to these findings, there is a difference in entrepreneurial skills between educational qualifications, experience, and extension courses, but ICT has no significant effect. Multiple

Table 6. Multiple comparison for education

Educational qualification		Sig.
Less than O/L	Up to O/L	0.877
	Up to A/L	1.000
	Diploma	0.719
	Degree	0.281
Up to O/L	Up to A/L	0.239
	Diploma	0.045
	Degree	0.005
Up to A/L	Diploma	0.485
	Degree	0.097
Diploma	Degree	0.908

comparisons were made to the factors with significant differences. Table 6 is about educational qualifications.

There were significant differences in entrepreneurial skills between the levels of educational qualification up to O/L, Diploma, and Degree level qualifications, according to multiple comparisons. To determine these significant differences, descriptive statistics for entrepreneurial skills were calculated, and the results are shown in Table 7.

Table 7. Descriptive statistics for educational qualification

Educational qualifications	Mean	Std. deviation
Less than O/L	3.5600	.57411
Up to O/L	3.2630	.75569
Up to A/L	3.5950	.77256
Diploma	4.0450	.40536
Degree	4.3800	.20976

According to the descriptive statistics in Table 7, educational qualifications of Diploma and Degree level represented high mean values of entrepreneurial skills. As a result of the findings, it can be concluded that higher educational qualifications are associated with higher entrepreneurial skills. Tables 8 and 9 provide multiple comparison and descriptive statistics for experience.

Table 8. Multiple comparison for experience

Experience		Sig.
Less than 1	Less than 2	0.000
	2–5	0.000
	5–10	0.239
	10–20	0.001
	above 20	0.000
Less than 2	2–5	1.000
	5–10	0.565
	10–20	0.989
	above 20	0.963
2–5	5–10	0.502
	10–20	0.968
	above 20	0.988
5–10	10–20	0.809
	above 20	0.291
10–20	above 20	0.760

Table 9. Descriptive statistics for experience

Experience	Mean	Std. deviation
less than 1 year	2.5491	.29290
less than 2 years	3.7113	.74012
2–5 years	3.7516	.65164
5–10 years	3.2500	.83488
10–20 years	3.5914	.74947
Above 20 years	3.9164	.52959

According to multiple comparisons, there were significant differences in entrepreneurial skills between those with less than one year of experience and those with more than one year of experience. There were no significant differences in other experience levels.

According to Table 9, those with less than 2 years of experience, 2–5 years of experience, 10–20 years of experience, and more than 20 years of experience have higher mean values for entrepreneurial skills. Farmers' entrepreneurial skills gradually developed as they

gained experience. Tables 10 and 11 show the variety of comparison and descriptive statistics for extension services.

Table 10. Multiple comparison for extension services

Extension services		Sig
Not at all	Rarely	0.596
	One per month	0.000
	More than one per month	0.000
Rarely	One per month	0.000
	More than one per month	0.000
One per month	More than one per month	0.000

Table 11. Descriptive statistics for extension services

Extension services	Mean	Std. deviation
Not at all	2.5742	.37232
Rarely	2.7867	.24111
one per month	3.6075	.30189
More than one per month	4.1688	.19849

There was no difference in entrepreneurial skills between those who do not use extension services at all and those who use them only occasionally. All other factors had significant differences in entrepreneurial skills when it came to extension services. According to descriptive statistics, those who use extension services one or more times per month have higher mean values of entrepreneurial skills. As a result, the extension services have helped to develop entrepreneurial skills.

CONCLUSIONS

Farmers' entrepreneurial skills are heavily influenced by the challenges of marketing risk and finance. According to the findings, marketing risk is the most influential challenge, followed by finance.

The research study's analyses revealed that education level, farming experience, and extension services are knowledge factors that have a significant impact on the development of entrepreneurial skills. ICT, on the

other hand, has no effect on the development of entrepreneurial skills among vegetable farmers in the Polgahawela D.S. division.

Higher educational qualifications are associated with a higher level of entrepreneurial skills.

According to the study's findings, those with more years of experience demonstrate a higher level of entrepreneurial skills. Farmers' entrepreneurial skills gradually develop as they gain more experience.

Farmers who use extension services are more likely than other farmers to be entrepreneurs.

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