

## SUCCESSFUL ENTREPRENEUR: A DISCRIMINANT ANALYSIS

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**ABSTRACT:** Since an entrepreneur is a vital person in business World characteristics for entrepreneurs have to developed for the success of the entrepreneurship. This study tries to identify predictors that differentiate between unsuccessful and successful entrepreneur groups and to know the impact of these predictors on the selection of entrepreneur. This study collected data from 145 entrepreneurs in ADSL. They were asked about the characteristics for selecting an entrepreneur. This study adopted a non-probability sampling technique i.e. Convenience sampling. Results of this study reveal that values of Wilky's  $\lambda$  for all predictors in the discriminant function vary between 0.468 to 0.970. Specially speaking, age, product or market experience, venture or work experience, risk- taking period, and investment motive period of the discriminant function plays an important role in determining the entrepreneur than innovative mind period. Thus, these predictors significantly differentiate between two groups such as unsuccessful and successful entrepreneur groups. These indicators explain around 73% of the variance in the selection of entrepreneur. Based on the results of the study, a standardized canonical discriminant function has also been developed.

**Keywords:** Discriminant Analysis, Success Entrepreneur.

### 1. INTRODUCTION

Entrepreneurship has been a crucial focus of study in today's environment. Field of entrepreneurship has important focuses in the fields of management, economics, and psychology. On this basis, since an entrepreneur is a vital person in business World characteristics for entrepreneurs have to developed for the success of the entrepreneurs. There are studies that have found characteristics and determinants of entrepreneurs. Likewise, prominent academic scholars have also done studies on the determinants of entrepreneurs. Ismail (2012) studied about demographic profile of micro, small and medium entrepreneurs in South Eastern Region using 121 entrepreneurs and found that age, gender, family size, income, occupation and education as determinants for an entrepreneur. These studies, academicians and theories state about different characteristics for entrepreneurs. Similarly, there are theories on accelerating development of entrepreneurship. Any businessman can be an entrepreneur. But, to become a successful entrepreneur is the toughest task of an entrepreneur. Therefore, identifying the characteristics of a successful entrepreneur is a vital aspect. Thus, this study focuses on the determination of characteristics of a successful entrepreneur.

### STATEMENT OF THE PROBLEM

There are sufficient studies that studied the relationship between entrepreneurial characteristics with some other variables. For instance, Ismail (2010) studied about product mix and sales maximization of rice mill entrepreneurs in Ampara Coastal Area, Eastern Province of Sri Lanka. It was found that there are strong and moderate relationship between product mix and sales maximization. Some other studies have linked entrepreneurs with social development. Ismail (2012) studied about contribution of entrepreneurship towards social development on a special focus on micro and small entrepreneurs. Long ago, studies have been conducted in entrepreneurial characteristics and performance along with

mediating role of motivation. Herron and Richard (1993) studied about a structural model of the effects of entrepreneurial characteristics on venture performance mediated by motivation. This relationship is modeled as how entrepreneurial characteristics lead to new venture performance relationship along with a mediating role of motivation. It was found that entrepreneurial characteristics have relationship with new venture performance with a mediating role of motivation that includes motivations, abilities, skills, aptitudes, and training for entrepreneurs. There are enough studies on the relationship testing of entrepreneurship with some other variables. Further, there are studies on entrepreneurial market. Ismail & Gunapalan (2012) studied about identification of micro, small and medium entrepreneurial marketers in South Eastern Region. However, there are not enough evidences for determining the characteristics of successful entrepreneur. Previous studies have been done in different methodologies and different analytical techniques. Earlier studies tested the relationship between entrepreneurship and other variables using correlation and regression. Entrepreneurial factors were determined using factor analysis. This study focuses on a different methodological and analytical technique for successful entrepreneurs. To fill this research gap, this study is undertaken in knowing the characteristics of a successful entrepreneurs using discriminant analysis.

### RESEARCH QUESTIONS AND OBJECTIVES

Empirical evidences stated in the statement of the problem assist to derive the following research questions which are, in turn, translated into research objectives. Research questions and objectives are tabulated in Table.

*Table 1. Research questions and objectives*

Research questions	Research objectives
What predictors differentiate between unsuccessful and successful entrepreneur groups?	To identify predictors that differentiate between unsuccessful and successful entrepreneur groups
What is the impact of these predictors on the selection of entrepreneur?	To know the impact of these predictors on the selection of entrepreneur

### SIGNIFICANCE OF THE STUDY

This study signifies in several ways. They are; (1) this study fills the research gap. This study deviates from previous studies by filling research gap. Previous studies used correlation and regression analyses. But, this study uses discriminant analysis. (2) Previous studies were conducted in different context, in different countries and in different point in time. But, this study is conducted in Sri Lanka during the period of 2015. This study is useful to know the characteristics of successful entrepreneurs who may adopt these characteristics for becoming a successful entrepreneur. (3) Previous studies emphasise about entrepreneurship education. For instance, Gürol & Atsan (2006) found that study provides insight into entrepreneurship education, as to which entrepreneurial characteristics can be developed to raise good entrepreneurs.

## REVIEW OF LITERATURE

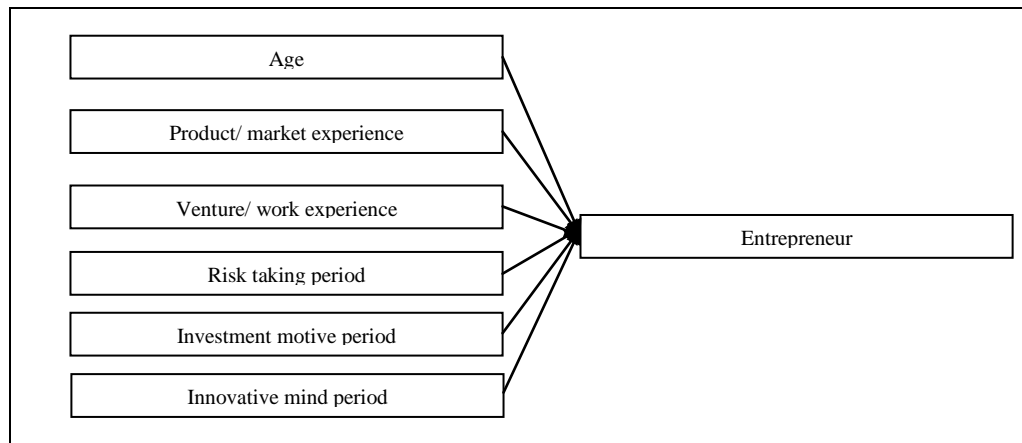
Ismail & Velnampy (2014) studied about ranking entrepreneurial characteristics in South Eastern Region of Sri Lanka. [Koh](#) (1996) tested about hypotheses of entrepreneurial characteristics in Hong Kong. This study investigated about entrepreneurial inclination and association with psychological characteristics like need for achievement, locus of control, propensity to take risk, tolerance of ambiguity, self-confidence and innovativeness. A self-administered, fixed-alternative questionnaire is administered to 100 MBA students in Hong Kong. Although not statistically significant, descriptive statistics suggest that the entrepreneurially inclined also possess a higher need for achievement, greater (internal) locus of control and more self-confidence.

[Gürol](#) & [Atsan](#) (2006) studied about entrepreneurial characteristics amongst university students. In this study, six traits, namely need for achievement, locus of control, risk taking propensity, tolerance for ambiguity, innovativeness and self-confidence, are used to define the entrepreneurial profile of students. The study is conducted on a random sample of fourth year university students ( $n = 400$ ) from two Turkish universities. In short, a 40-item questionnaire is administered to students, with questions related to demographic variables, entrepreneurial inclination, and six entrepreneurial traits above cited (with Likert type items). Findings The results of the *t*-tests showed that, except for tolerance for ambiguity and self-confidence, all entrepreneurial traits are found to be higher in entrepreneurially inclined students, as compared to entrepreneurially non-inclined students. That is, these students are found to have higher risk taking propensity, internal locus of control, higher need for achievement and higher innovativeness.

Ismail (2012) studied about contribution of entrepreneurship towards social development on a special focus on micro and small entrepreneurs. Ismail & Gunapalan (2012) studied about identification of micro, small and medium entrepreneurial marketers in South Eastern Region. Ismail (2010) studied about product mix and sales maximization of rice mill entrepreneurs in Ampara Coastal Area, Eastern Province of Sri Lanka. It was found that values of Pearson correlation between sales of most types of brands and weights of the brands show that there is a strong positive correlation. There is weak correlation between the sales of few types of brands and the weights of those brands. Ismail (2012) studied about demographic profile of micro, small and medium entrepreneurs in South Eastern Region. It is concluded that age, gender, family size, income, occupation and education have been identified as demographic profile of micro, small and medium entrepreneurs in south eastern region of Sri Lanka.

## CONCEPTUALISATION AND OPERATIONALISATION

Conceptualisation is depicted in Figure 1. Characteristics of entrepreneurs are age, product/ market experience emerges from 15 year old since their birth, work/ venture experience starts from after product/ market experience, risk taking period and investment motive period also stems from 15 year old and innovative period stems from after product/ market experience. Similarly, entrepreneurs are successful entrepreneur and unsuccessful entrepreneurs.



*Figure 1. Characteristics of entrepreneurs*

## 2. METHODOLOGY

### Population and sample

Population refers to all entrepreneurs who undertake entrepreneurship in Ampara District of Sri Lanka (ADSL). This study collected data from 145 entrepreneurs in ADSL. They were asked about the characteristics for selecting an entrepreneur. A simple questionnaire was designed and issued to collect the data using Final Year Undergraduates from Faculty of Management and Commerce, South Eastern University of Sri Lanka. Data were collected during the third quarter of the 2015. Response rate was 77% of the issued questionnaire.

### Sampling technique

Researcher tried to collect the population size of entrepreneurs in ADSL. But, it was impossible due to time constraint and accuracy of data. Thus, this study adopted a non-probability sampling technique i.e. convenience sampling.

### Analytical techniques

Previous studies followed different analytical techniques such as correlation and regression. But, this study used a discriminant analysis as a new technique for selecting successful entrepreneur. Descriptive statistics such as mean, standard deviation and coefficient of variation were used in this study. Wilky's Lambda and discriminant functional analysis were also carried out in this study. SPSS with the version of 22.0 was used in this study.

## 3. RESULTS AND DISCUSSION OF FINDINGS

### Descriptive statistics

This is a two-group discriminant analysis. From the group statistics, it is understood that two groups such as successful entrepreneurs and unsuccessful entrepreneurs are separated in terms of entrepreneurial characteristics such as age, product or market experience, venture or work experience, risk-taking period, investment motive period and innovative mind period. All these variables have lower standard deviations of all. Mean and standard deviation of group statistics are revealed in Table 2.

*Table 2. Mean and Standard deviation of Group Statistics*

Entrepreneur	Group 1 (Successful entrepreneur)			Group 2 (Successful entrepreneur)			Total		
	Mean	Std. Deviation	N	Mean	Std. Deviation	N	Mean	Std. Deviation	N
Age	45.8222	7.80173	90	42.6000	2.14821	55	44.6000	6.46615	145
Product or market experience	30.8667	7.75061	90	27.3818	2.93441	55	29.5448	6.57540	145
Venture or work experience	28.4667	8.10077	90	26.0727	3.01143	55	27.5586	6.73184	145
Risk-taking period	30.0667	7.93626	90	26.5455	2.60923	55	28.7310	6.66485	145
Investment motive period	30.7889	7.85900	90	26.7091	2.62941	55	29.2414	6.68672	145
Innovative mind period	23.4889	8.14509	90	7.3818	5.92074	55	17.3793	10.75424	145

Structure matrix shows the correlation between individual predictors with the discriminant function. Structure matrix has an optimal function. This function orders innovative mind period, investment motive period, product or market experience, risk-taking period, age and venture or work experience. Structure matrix is shown in Table 3.

*Table 3. Structure Matrix*

	Function
	1
Innovative mind period	0.650
Investment motive period	0.190
Product or market experience	0.163
Risk-taking period	0.162
Age	0.153
Venture or work experience	0.107
Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions	
Variables ordered by absolute size of correlation within function.	

Group centroids are the mean values for the discriminant scores for a particular group. In this study, there are two groups successful entrepreneur and unsuccessful entrepreneur. There are two group centroids. Group centroid for the first group in the function is positive. This is because standard deviations for innovative mind period, investment motive period, product or market experience, risk-taking period, age and venture or work experience has smaller variation than those of second group. Group centroids are shown in Table 4.

*Table 4. Functions at Group Centroids*

Entrepreneur	Function
	1
1	1.273
2	-2.083
Unstandardized canonical discriminant functions evaluated at group means	

Pooled within - group correlation matrices shows the correlation between predictors such as innovative mind period, investment motive period, product or market experience, risk-taking period, age and venture or work experience. Correlation between predictors is enough. Thus, there is no multi-collinearity problem. Table 5 shows the correlation between predictors.

Tests of Equality of Group Means incorporate Wilky's  $\lambda$  and F statistics. Wilky's  $\lambda$  for each predictor is the ratio of the within- group sums of squares (SS residual/SS error) to the total sums of squares (SSTotal). Thus, its value can vary between 0 to 1. The more closer to the zero there may be difference between two groups. In this study, values of Wilky's  $\lambda$  for all predictors in the discriminant function vary between 0.468 to 0.970. Specially speaking, age, product or market experience, venture or work experience, risk- taking period, and investment motive period of the discriminant function plays an important role in determining the entrepreneur than innovative mind period. Univariate F statistics for age, product or market experience, venture or work experience, risk- taking period, investment motive period and innovative mind period of the discriminant function are 8.945, 10.201, 4.420, 10.133, 13.842 and 162.425 respectively. df1 is the degree of freedom for numerator. This is C – 1 that equals 1 (2 - 1) for all predictors. df2 is the degrees of freedom for denominator. This is n – k -1 that equals 143 for all predictors. p (sig.) values for all predictors of the discriminant function are less than 0.05. Thus, these predictors significantly differentiate between two groups such as unsuccessful and successful entrepreneur groups. Tests of Equality of Group Means are shown in Table 6.

*Table 5: Pooled Within-Groups Matrices*

		Age	Product or market experience	Venture or work experience	Risk-taking period	Investment motive period	Innovative mind period
Correlation	Age	1.000	.983	.952	.970	.970	.790
	Product or market experience	.983	1.000	.937	.956	.958	.754
	Venture or work experience	.952	.937	1.000	.951	.935	.800

	Risk-taking period	.970	.956	.951	1.000	.988	.771
	Investment motive period	.970	.958	.935	.988	1.000	.772
	Innovative mind period	.790	.754	.800	.771	.772	1.000

*Table 6. Tests of Equality of Group Means*

	Wilks' Lambda	F	df1	df2	Sig.
Age	0.941	8.945	1	143	0.003
Product or market experience	0.933	10.201	1	143	0.002
Venture or work experience	0.970	4.420	1	143	0.037
Risk- taking period	0.934	10.133	1	143	0.002
Investment motive period	.912	13.842	1	143	.000
Innovative mind period	.468	162.425	1	143	.000

Canonical Discriminant Function shows the eigenvalues. Since there are two groups like successful and unsuccessful entrepreneurs one discriminant function is estimated. The eigenvalue of this discriminant function is 2.689. This function explains 100 percent of the explained variance. The more higher eigenvalue is the more better. Canonical correlations associated with these discriminant functions are 0.854. The square of this correlations equals 0.729316 which indicates around 73% of the variance in the dependent variable (selection of entrepreneur) is explained by this model that consists of age, product or market experience, venture or work experience, risk- taking period, investment motive period and innovative mind period of this function. Thus, there is a research gap for finding the remaining 27% of the variance in the selection of entrepreneur that may be accounted by one or more unknown predictors. Canonical Discriminant Function is depicted in Table 7.

*Table 7. Eigenvalues of Canonical Discriminant Functions*

Function	Eigenvalue	% of Variance	Cumulative %	Canonical Correlation
1	2.689 <sup>a</sup>	100.0	100.0	0.854
a. First 1 canonical discriminant functions were used in the analysis.				

### **Hypothesis testing and Wilks' Lambda**

Researcher set the hypothesis of testing whether group means are equal. Hypotheses are stated as denoted below.

Null hypothesis: Means of discriminant function in all groups are not different  
i.e. group means are equal.

Alternative hypothesis: Means of discriminant function in all groups are different  
i.e. groups means are not equal.

Wilks' Lambda is used to test the null hypothesis that means of discriminant function in all groups are different. Value of Wilks' Lambda is 0.271 for this discriminant function which is estimated on the basis of the Chi-square transformation and degrees of freedom. In this study, Wilks' Lambda is significant with the Sig. value of 0.000. p value (Sig. value) is less than significance level (5%). Thus, researcher rejects null and accept alternative hypothesis. Accepting alternative hypothesis refers to means that discriminant function in all groups is different. Successful and unsuccessful entrepreneur groups differ in terms of age, product or market experience, venture or work experience, risk-taking period, investment motive period and innovative mind period of the discriminant function. Value of Wilks' Lambda, Chi-square, degrees of freedom and Sig. values are tabulated in Table 8.

*Table 8. Wilks' Lambda*

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1	0.271	182.755	6	0.000

### **Discriminant model**

Based on the results of the study, standardized canonical discriminant function can be formulated using standardized canonical discriminant function coefficient that is shown in Table 8.

*Table 8. Standardized Canonical Discriminant Function Coefficients*

	Function
	1
Age	-2.001
Product or market experience	1.462
Venture or work experience	-1.425
Risk-taking period	0.374
Investment motive period	0.408
Innovative mind period	1.664

This study formulated a standardized canonical discriminant function that is denoted in Formula (01).

$D = -0.2001 \text{ Age} + 1.462 \text{ Product or market experience} + (-1.425) \text{ Venture or work experience} + 0.374 \text{ Risk-taking period} + 0.408 \text{ Investment motive period} + 1.664 \text{ Innovative mind period}$   
.....Formulae (01)



#### 4. CONCLUSIONS

From the group statistics, it is understood that two groups such as successful entrepreneurs and unsuccessful entrepreneurs are separated in terms of entrepreneurial characteristics such as age, product or market experience, venture or work experience, risk-taking period, investment motive period and innovative mind period. However, function in structure matrix orders innovative mind period, investment motive period, product or market experience, risk-taking period, age and venture or work experience. In this study, values of Wilky's  $\lambda$  for all predictors in the discriminant function vary between 0.468 to 0.970. Specially speaking, age, product or market experience, venture or work experience, risk-taking period, and investment motive period of the discriminant function plays an important role in determining the entrepreneur than innovative mind period. Univariate F statistics for age, product or market experience, venture or work experience, risk- taking period, investment motive period and innovative mind period of the discriminant function are 8.945, 10.201, 4.420, 10.133, 13.842 and 162.425 respectively. p (sig.) values for all predictors of the discriminant function are less than 0.05. Thus, these predictors significantly differentiate between two groups such as unsuccessful and successful entrepreneur groups. The eigenvalue of this discriminant function is 2.689. The more higher eigenvalue is the more better. Canonical correlations associated with these discriminant functions are 0.854. The square of this correlations equals 0.729316 which indicates around 73% of the variance in the dependent variable (selection of entrepreneur) is explained by this model that consists of age, product or market experience, venture or work experience, risk- taking period, investment motive period and innovative mind period of this function. Thus, there is a research gap for finding the remaining 27% of the variance in the selection of entrepreneur that may be accounted by one or more unknown predictors. In this study, Wilks' Lambda is significant with the Sig. value of 0.000. p value (Sig. value) is less than significance level (5%). Thus, researcher rejects null and accept alternative hypothesis. Accepting alternative hypothesis refers to means that discriminant function in all groups is different. Successful and unsuccessful entrepreneur groups differ in terms of age, product or market experience, venture or work experience, risk- taking period, investment motive period and innovative mind period of the discriminant function. Based on the results of the study, developed standardized canonical discriminant function is;  $D = -0.2.001 \text{ Age} + 1.462 \text{ Product or market experience} + (-1.425) \text{ Venture or work experience} + 0.374 \text{ Risk-taking period} + 0.408 \text{ Investment motive period} + 1.664 \text{ Innovative mind period}$ .

#### LIMITATIONS AND FUTURE RESEARCH OPPORTUNITIES OF THE STUDY

Factors considered in this study may be limited to few factors. This study adopted a non-probability sampling technique. The sample size may not be sufficient. This study is geographically limited to ADSL. Since this study is limited to these constraints research allows other researchers to continue further studies by eliminating these shortcomings.

#### 5. REFERENCES

BARKHAM, R. J. (1994) Entrepreneurial characteristics and the size of the new firm: A model and an econometric test. *Small Business Economics*. 6(2). pp.117-125.

BOEKER, W. (1988) Organizational Origins: Entrepreneurial and Environmental Imprinting of the Time of Founding. *Ecological Models of Organizations*. 1(2). pp.33-51.

CROMIE, S. & JOHNS, S. (1983) Irish entrepreneurs: Some personal characteristics. *Journal of Occupational Behaviour*. 4(4). pp.317-324.

[GÜROL](#), Y. & [ATSAN](#), N. (2006) Entrepreneurial characteristics amongst university students: Some insights for entrepreneurship education and training in Turkey. *Education and Training*. 48(1). pp.25-38.

[HERRON](#), L. & [RICHARD, B. R.](#) (1993) A structural model of the effects of entrepreneurial characteristics on venture performance. [Journal of Business Venturing](#). 8(3). pp. 281-294.

ISMAIL, M. B. M. & VELNAMPY, T. (2014) Ranking entrepreneurial characteristics in South Eastern Region of Sri Lanka. *SMART Journal of Business Management Studies*. 10(1). pp.1-8.

ISMAIL, M. B. M. (2012) Contribution of entrepreneurship towards social development on a special focus on Micro and Small Entrepreneurs. *Paper presented in Emerging Entrepreneurial & Economic Environment (NCEEEE-2012): Proceedings of the National Conference, Alagappa University, India*. p.22.

ISMAIL, M. B. M. & GUNAPALAN, S. (2012). Identification of Micro, Small and Medium Entrepreneurial Marketers in South Eastern Region. *Paper presented in Innovative Marketing- Trends, Issues and Challenges organized: Proceedings of National Conference, SRM University, India*. pp. 114-6.

ISMAIL, M. B. M. (2010) Product Mix and Sales Maximization of Rice Mill Entrepreneurs in Ampara Coastal Area, Eastern Province of Sri Lanka. *Journal of Management*. VI(1). pp.13-27.

ISMAIL, M. B. M. (2012) Demographic Profile of Micro, Small and Medium Entrepreneurs in South Eastern Region -SER- of Sri Lanka. *Paper presented in Management Conference: Proceedings of International Research Conference, University of Jaffna, Sri Lanka*, p.40.

KOH, H. C. (1996) Testing hypotheses of entrepreneurial characteristics: A study of Hong Kong MBA students. *Journal of Managerial Psychology*. 11(3)