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Determinants of Start-up in Agriculture Industry: A Study Using GEM Data

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1. Introduction

Entrepreneurship is considered as an important tool pertaining to economic development that generates employment at every level, creativity and innovation with regard to opportunity and socio-economic welfare in economy. Reynolds et al (2004) contends that entrepreneurship helps in adjusting to economic system mainly by following course of actions: ‘creating new businesses’, ‘refocusing of the present businesses’ and ‘reorientation of national institutions’.

The academic discourse supports the argument that entry-exit behaviours including goals and objectives of these entrepreneurial activities are affected by entrepreneurs’ characteristics and the external environment (Autio, Kenney, Mustar, Siegel, and Wright, 2014). Therefore, studying the internal and external environmental perspective of entrepreneurship process has become a central issue in the domain of entrepreneurship research (Welter 2011). Hence, keeping in mind the importance of the entrepreneurial process, Arafat and Saleem (2017) have suggested studying entrepreneurship with reference to specific sector that will provide a better understanding of the phenomenon. Therefore, in this study authors attempt to explain early stage entrepreneurial activity in the agriculture sector. Particularly, this research aims to understand the determinants of new venture creation in agriculture sector. In other words, authors will investigate the relative importance of the factors affecting venture creation decision (VCD) in agriculture industry. The

agricultural sector lays down an attractive premise to explore the basic questions in entrepreneurship research. One of the propositions to study in this direction may include how rural and family embeddedness influence the creation of new venture and its survival (Korsgaard, Muller & Tanvig 2015).

There are various specific characteristics in agriculture sector which makes it an attractive sector to explore. These specific characteristics may include but not limited to 1) the innate lack of certainty in biological processes, 2) structural change, 3) regulatory environment 4) growing markets, and 5) financial support to startup (Grande, Madsen & Borch, 2011). Thus, to survive in this unstable situation it is imperative to understand the resource configuration of start-up process in this industry (Alsos, Carter, and Ljunggren, 2011; Deakins, Bensemman & Battisti 2016; Grande et al. 2011).

Accordingly, investigators and policy-makers deliberate that developing a better understanding of start-up process in the agricultural industry will help to promote entrepreneurial activities in agriculture sector and in rural areas (EIP-AGRI, 2016).

2. Research Gap and Research Problem

The existing literature in area of entrepreneurial behaviour suggest that there is dearth of studies focusing on agricultural sector and much of the literature is biased towards generic entrepreneurial behavior, and not focusing any specific industry (Alsos et al. 2011). It is also maintained that a number of studies in entrepreneurship domain are inclined towards diversification and corporate entrepreneurship intended for generating revenue, inspired by

instabilities in the prices of market and aspiration to get the advantage of marketing opportunities (Barbieri and Mahoney 2009; Hansson, Ferguson, Olofsson, & Rantamäki-Lahtinen, 2013).

Although, a number of studies have been conducted in the area of agriculture entrepreneurship, but many of them have focused only on performance of the existing ventures in agriculture sector (Ali, 2016). It has been pointed out earlier that researchers should study venture creation in different sectors. However, to the best of our knowledge only a few studies are sector specific. For example, Ramoz-Rodriguez et al. (2012) focused on Hotel and Restaurant entrepreneurship at aggregate level. Pindado and Sanchez (2017) have studied early stage entrepreneurial activity in agriculture sector in the European context. They have studied only European countries. This study uses the data of 1470 respondents collected from 67 countries.

Changes in economic environment foster a more market-oriented agriculture. Therefore, the entrepreneurial behavior of the farmers has to be enhanced (Vesala and Vesala2010). Nevertheless, some specific features of agriculture sector make agri-entrepreneurship different it from other economic activities.

3. Objectives of the Study

The objective of this study is to describe agri-entrepreneurship defined as early stage entrepreneurs of agriculture sector. The current work also explores the factors influencing propensity to start an agriculture business. In other words, the work aims to explore and explain individuals' propensity to create an agriculture business. In this way, authors bring to light the significance of researching an industry specific perspective to examine the venture creation

process, and how it is affected by perceptual and social capital factors. Moreover, in this study authors intend to assess the how various factors namely demographic, perceptual factors and social capital factors influence venture creation decision. Furthermore, this study is an addition to the entrepreneurship literature as it uses the framework, adapted from cognitive and social psychology, which is widely used in entrepreneurship literature.

Entrepreneurship as domain understands through intention to create a new business, because it is the best predictor of entrepreneurship (Krueger et al., 2000). The intention or propensity to start a new business cannot be explained using demographic factors only (age, gender, income, etc.). There are some other factors such as individuals' motivation, perceptions about their close environment and social relations which have a significant role in this process. Thus, in this study we add attitudes, perceptions and personality traits to the analysis. This perspective is entirely new to this sector, and consistent with the seminal work of Arenius and Minniti (2005), which included demographic and economic, and perceptual factors in their study on nascent entrepreneur.

4. Research Methodology

The Global Entrepreneurship Monitor (GEM) project collects data on entrepreneurship worldwide and for this study the panel data published by GEM projects has been used. The GEM is the world's foremost study of entrepreneurship. The questionnaire used by GEM in the data collection, includes a number of items which measure the perception, social capital, intellectual capital and demographic that may allow the analysis of entrepreneurial propensity of the respondents in agriculture industry. The 2013 Adult population Survey (APS) data was downloaded from the GEM webpage (<http://gemconsortium.org/data/sets>). This data set includes

a total of 244471 observations for all the countries and all type of business recorded and categorized. Authors have selected only those respondents who are early stage entrepreneur in agriculture industry. From the GEM panel data, a set of 1470 sample of adults (18-64 years old) was found. Data collection procedure of GEM has been discussed by Reynolds et al. (2005). Moreover, the survey provides data on 488 variables; for this study data on variables which are coherent to the objectives were selected.

5. Description of variables

5.1 Dependent variable

In this study one dependent variable is used. Agriculture entrepreneurship binary variable is used which has a value of 1 for agriculture entrepreneur and 0 for other cases. This variable is based on the TEA (total early stage entrepreneurial activity) the key indicator of the GEM project, that defines those individuals who are in the process of starting up a business.

5.2 Independent variables

As independent variables, this paper uses various perceptual factors such as perception of opportunities, fear of failure, and self-efficacy, and also some social capital factors such as knowing other entrepreneurs and having invested another business as business angel.

6. Data Analysis

Logistic regression is the econometric technique for modeling the dependency of dichotomous response variable on one or more explanatory variables. It analyzes a set of data consisting of independent variables or predictors that determine an outcome. Logistic regression establishes the best-fitting model that depicts the relationship between the characteristics of dependent

variables with the predictors. The coefficients generated by the logistic regression predict a logit transformation of the probability of presence of relationship characteristics. In addition, logit model does not consider the distribution of data (Greene, 2002). In this empirical work, therefore, we are using logit model considering two reasons mentioned below:

- 1- The dependent variable (early stage entrepreneur) is dichotomous.
- 2- The great majority of independent variables are also dichotomous or categorical.

7. Findings of the Study

Table 1

Descriptive Statistics

	N	Min	Max	Mean	SD
Agri-entrepreneurship	1470	0	1	0.54	0.499
Age	1456	18	86	39.17	12.317
Gender	1470	1	2	1.3	0.46
Education level	1461	0	1720	793.98	613.908
Income level	1323	33	68100	23972.9	31563.49
Work status	1401	1	6	1.45	1.261
Opportunity perception	1369	0	1	0.6	0.49
Risk perception	1449	0	1	0.27	0.443
Self-efficacy	1455	0	1	0.82	0.384
Social network	1459	0	1	0.58	0.494
Business angel	1466	0	1	0.14	0.349

Descriptive statistics shows that 60 percent individuals see good opportunities in their area, 27 percent feel fear of failure will prevent them from their entrepreneurial activity, 82 percent are confident in their entrepreneurial ability, 73 per cent consider entrepreneurship as desirable career, 77 percent individuals see entrepreneurship as a prestigious career, 58 percent know existing entrepreneurs, and only 14 percent have investment experience.

Among all the perceptual factors only risk perception is not significant. Thus, this result does not provide support for the hypothesized relationship between early stage entrepreneurial activity and risk perception. This result indicates that the risk perception behaves differently in agriculture sector, since other studies consulted show a negative relation between these two variables. Nevertheless, this finding is also consistent with the findings for other types of entrepreneur (Arafat and Saleem 2017).

In turn, opportunity perception is positively related to being an agriculture entrepreneur. The odds ratio for this variable is 1.693, which indicates that individuals who see opportunities are 69 per cent more likely to be agribusiness entrepreneur than those who don't perceive opportunities.

This result is coherent with the results of other studies examining this relation for other types of entrepreneur (Arenius and Minniti, 2005; Linan et al. 2011; Ramos-Rodriguez et al. 2012; Ahmad et al. 2014; Tsai et al. 2016; Arafat and Saleem, 2017).

Table 2

Results of logistic regression (dependent variable: New agri-entrepreneur)

	B	S.E.	Wald	df	Sig.	Exp(B)
Demographic Factors						
Age	-.003	.006	.279	1	.597	.997
Gender	-.085	.160	.282	1	.595	.918
Household Income			2.578	2	.276	
-Middle 33 percentile	-.227	.185	1.506	1	.220	.797
-Upper 33 percentile	-.295	.191	2.375	1	.123	.744
Work status			22.239	5	.000	
-Part time	-1.897	.487	15.144	1	.000	.150
-Retired	-.952	.651	2.139	1	.144	.386
-Homemaker	-1.477	.742	3.962	1	.047	.228
-Student	-.006	1.175	.000	1	.996	.994
Education level			29.019	4	.000	
-Some secondary	-.177	.439	.162	1	.687	.838
-Secondary degree	-.187	.442	.179	1	.672	.830
-Post secondary	.374	.431	.754	1	.385	1.454
-Bachelor's degree or higher	.882	.437	4.064	1	.044	2.415
Perceptual factors						
	.494	.158	9.757	1	.002	1.639
Opportunity perception						
	.160	.167	.917	1	.338	1.173
Risk perception						
	.555	.188	8.761	1	.003	1.742
Self-efficacy						
Social capital factors						
	.339	.150	5.095	1	.024	1.403
Social network						
	.395	.209	3.564	1	.059	1.485
Business angel						
Constant	1.854	.759	5.970	1	.015	6.384

Self-efficacy or confidence in one's own skills and ability to start a new business has a significant influence on the entrepreneurial propensity of the individuals. The odds ratio for this variable is 1.742, indicating that people who are confident in their own skill are 74 per cent more likely to be agri-business entrepreneur. This result is consistent with the findings of previous studies (Arenius and Minniti 2005; Ramos-Rodriguez et al. 2012; Tsai et al. 2016; Arafat and Saleem 2017).

Both the social capital factors – knowing other entrepreneurs' and financing or having financed another business as business angel - are significant in predicting entrepreneurial propensity of agri-business entrepreneur. These results corroborate the other findings involving other types of entrepreneur (Arenius and Minniti 2005; Ramos-Rodriguez et al. 2012).

8. Implications of the Study

The findings show that individuals who see good opportunities in the area where they live are more likely to start their own business in agriculture sector. A clear implication for the policymakers can be drawn from this finding. They should focus on developing entrepreneurial alertness that will help spot opportunities which other miss (Kirzner 1979).

According to the result, individuals who are confident in their own skills and knowledge are to be an agriculture entrepreneur. Again practical implication for the policy makers in the area of training, entrepreneurship orientation and new starts up in the sector derive from this result. They should focus their efforts on helping the population to develop the skills needed to create a new venture.

Finally, the two social capital factors- ‘social networks’ and ‘having invested in another business as business angel’ have positive and significant influence on agriculture start up propensity of the individuals. In addition, this also suggests implications for the policymakers in the area of networking. Government should encourage and facilitate the relationship between existing and early stage entrepreneurs that will reduce uncertainty and ambiguity, advance exchange of ideas and mobilization of resource necessary for new venture creation.

These results also have a series of implications for researchers. Researchers should confirm these findings on the different data set, and a comparison between agriculture entrepreneurs and rest of the entrepreneur can also be made that will provide a better understanding of the entrepreneurial phenomenon.

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