



## THE IMPACT OF PSYCHOLOGICAL CAPITAL ON ENTREPRENEURSHIP IN AGRICULTURE

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**ABSTRACT:** *The aim of this study is to identify the psychological capital characteristics of agricultural entrepreneurship. Different factors influencing entrepreneurial behaviour were gathered from the relevant literature and were formulated as hypotheses to be tested based on an analysis of data obtained from a survey of 516 respondents, directly involved in agricultural ventures. These psychological capital factors, considered to be important in early-stage entrepreneurial activity, were evaluated using Partial Least Squares (PLS). The results show that Hope, Self-efficacy and Resilience were significant factors influencing Entrepreneurship, although the influence of resilience was indirect rather than direct. To the researcher's knowledge, no previous study has specifically adopted an integrated approach demonstrating the effects of psychological capital on agricultural entrepreneurship.*

**KEYWORDS:** Entrepreneur, Self-efficacy, Hope, Resilience, Agriculture.



## INTRODUCTION

Entrepreneurship in agriculture is considered as an important business activity pertaining to economic development that is profitable and which generates employment at many levels, as it can enhance creativity and innovation with regard to opportunity and socio-economic welfare in the wider economy (Acs, Desai & Hessels, 2008). Reynolds, Bygrave, Autio, Cox, and Hay (2004) argue that entrepreneurship helps in adjusting the economic system mainly by following courses of action such as creating new businesses, refocusing of the present businesses and the reorientation of national institutions. Moreover, the future and well-being of society may well depend on current and future entrepreneurial activities (Sieger, Fueglistaller & Zellweger, 2016).

Entrepreneurship needs to be encouraged because it is important for every sector of the economy. Therefore, it is important to consider the factors that mobilise individuals to start their own businesses as well as considering what issues may impede entrepreneurship. Failure to gain an adequate understanding of this phenomenon "may result in the under-use of human resources, thereby maintaining lower living standards and implementing costly and ineffective policies" (Langowitz & Minniti, 2007, p. 341).

In the context of agriculture, recent research has thus been carried out on the impact of entrepreneurial process farming (Afandi, Kermani & Mammadov, 2017; Arafat & Saleem, 2017; Pindado & Sánchez, 2017). Further, general business approaches can also be applied in agriculture) (Carter, 1998; Carter & Rosa, 1998; McNally, 2001; Borsch & Forsman, 2001).

However, in the current study, we concentrate on early-stage entrepreneurial activity in agriculture, in particular the determinants of new agro-enterprises. There will, therefore, be a focus, in this study, on the relative importance of the factors influencing the development of entrepreneurship in agriculture. In the agricultural field, the fundamental problems in entrepreneurship research are set as a challenging but enticing endeavour. In agriculture, the issues which may impede entrepreneurship include, but are not limited to: 1) processes, 2) institutional changes, 3) regulatory structure, 4) increasing markets and 5) start-up financial assistance (Grande, Madsen & Borch, 2011). Moreover, recent Global Entrepreneurship Monitor (GEM) studies (2015/16 and 2016/17) indicate a decline in the number of agricultural start-ups in economies which may also signal a decline in agricultural entrepreneurship at a time when food security has become an urgent issue globally.

In this unpredictable situation, it is, therefore, important to understand the configuration of resources necessary for the start-up phase of agricultural entrepreneurship (Grande, Madsen, & Borch, 2011; Alsos, Carter & Ljunggren, 2011; Deakins, Bensemann & Battisti, 2016). Accordingly, researchers and policymakers are investigating what factors help to foster entrepreneurial development in agriculture and rural areas by creating a deeper understanding of start-up processes in the agricultural sector. Moreover, economic developments promote more market-oriented farming. The business conduct of farmers must, therefore, be improved (Vesala & Vesala, 2010). However, some characteristics of the farming sector differentiate between agri-entrepreneurship and other economic activities. Nevertheless, the value of farm businesses has been the subject of considerable controversy among scholars (Vik & McElwee, 2011; Frewer et al., 2013). Some researchers considered what can be learned from studying the concept of farming entrepreneurship that might be informative for farmers to grow non-farming companies (Seuneke, Lans & Wiskerke, 2013). Many authors have described agriculture as



offering entrepreneurial opportunities, such as new product creation and business process innovative goods, distribution and marketing (McElwee, 2008; Vik & McElwee, 2011). Pindado and Sánchez (2017) describe farm enterprises as individuals' decisions to start new farm companies. It also represents the GEM's conceptualisation and enables the entrepreneurial inclination of individuals to start a new business in the agricultural sector to be measured. There is a lack of studies of entrepreneurship in the agricultural sector (McElwee, 2006; Brunjes & Revilla, 2013) and much of the literature is skewed towards generic business results, not concentrating on particular industries. However, studies of entrepreneurial behaviour in general are already available (Alsos, Carter & Ljunggren, 2011). It is also maintained that a series of research studies in the field of entrepreneurship seek to diversify and generate business profits, motivated by market price volatility and a desire to benefit from the marketing opportunities (Barbieri & Mahoney, 2009; Hansson, Ferguson, Olofsson & Rantamäki-Lahtinen, 2013).

A series of studies in the field of agricultural entrepreneurship was published after McElwee's (2006), but several of these focused only on the success of current agricultural businesses (Grande, 2011; Barnes & Kilding, 2015; Lans, Tynjälä, Biemans, Ratinho & Karimi, 2017; Pindado & Sánchez, 2017). Moreover, much of the existing literature (Grande, Madsen & Borch, 2011; Lans et al., 2014; Barnes & Kilding, 2015; Ali, 2016; Senger, Borges & Machado, 2017) and reveals that they were principally focused on the company's success and took less account of how new companies were formed and how new firms were established. Researchers should research the development of new business opportunities in various sectors in order to establish policies to encourage entrepreneurship. It was previously noted, however, that only a few studies, that have primarily focused on this sector, have described risks in the development processes in a particular industry, to the best of our knowledge. In other words, studies that have mentioned agricultural entrepreneurship have been generic rather than specific to this sector. The emphasis in recent studies was, for example, on hotel and restaurant companies at the international level on the basis of GEM data (Ramos-Rodríguez et al., 2012).

Nonetheless, Ahmad and Yaseen (2018) did conduct research into Pakistan's start-up trends in agriculture, but their study did not consider the impact of psychological capital factor on business activities due to the small sample size ( $n = 174$ ). They also encouraged researchers, using cross-border sampling, to confirm their results. McElwee (2008) classified farm entrepreneurs into four groups, but he was, nevertheless, unable to provide empirical evidence of what factors motivated people to start their own farm businesses. The aim of Seuneke, Lans and Wiskerke (2013) was to study farm enterprise and the learning of entrepreneurial competencies instead of developing new projects and showing how such skills influenced new entrepreneurial development. Another study by Yaseen, Somogyi and Bryceson (2018) explained how farmers could be entrepreneurs and showed that perceived desire, viability, and preparedness led to new enterprises. However, these researchers admitted that, despite conducting a quantitative study in the context of a developing country, its findings might not be generalizable to other developing countries and recommended further similar studies in other developing countries. Consequently, there is a need for studies to investigate the start-up phase in agricultural entrepreneurship and its determinants, especially those related to psychological capital. Nevertheless, Pindado and Sánchez (2017) have researched entrepreneurship at an early stage by taking broad data from the farming industry but only one dimension of social capital was used by the researchers who suggested the use of more proxy variables and the inclusion of more countries.



## **Aim of this Research**

The academic literature supported the argument that the entry-exit actions of entrepreneurs in general (Mitchell, 2002; Baron, 2004; Baron, 2007) and their external social-environmental resources (Afandi, Kermani & Mammadov, 2017; Autio, 2017) influenced their internal environmental recognition (Mitchell, 2002; Baron, 2004; Baron, 2007). As a result, the study of the psychological capital and relationship perspective of entrepreneurship has become an important topic in the market research field (Welter, 2011).

This study is intended to provide an identification and explanation of the determinants of agricultural enterprise among farmers in the early stages of business start-up. The paper also discusses the factors that affect the intention to start a business in farming. In other words, the purpose of the work is to research and highlight the intention of individuals to develop a farm company. In this endeavour, the author demonstrates the meaning of studying a particular business viewpoint in order to explore the risk development process and how different perceptual and psychological capital variables influence it. In addition, the authors attempt to determine how the decision on venture formation is affected by various factors such as self-efficacy, resilience and hope. Moreover, the research adds to the literature on entrepreneurship, as it uses the paradigm, adapted from cognitive and social science, commonly used in the literature on entrepreneurship.

Enterprise as a concept is clarified by the intention to develop a new company, since it is the best predictor of entrepreneurship (Krueger, 2000). No demographic factors may explain the intent or the inclination to set up a new company (age, gender, income, etc.). Some other factors, such as motivation of individuals and views of their environment and social relations, play an important role in this process. In this study, we therefore add to the research behaviours, beliefs and personality characteristics. This is completely in line with Arenius and Minniti (2005) who included demographic, economic and perceptive variables in their study of nascent entrepreneurs. This viewpoint is totally new to this field. Nevertheless, a survey of the existing literature is important in order to clarify the aims of this study in addressing the relatively negligible attention which has been given to psychological entrepreneurial factors in agriculture.

## **LITERATURE REVIEW**

### **Entrepreneurial Intention**

Intention, in the context of agricultural entrepreneurship, is a highly charged feeling to carry out entrepreneurial activities in the agricultural sector (Wach & Bilan, 2021). This intention is closely related to attitude toward the behaviour, subjective norm and perceived behaviour control (Ajzen & Fishbein, 1974). The importance of knowing intention, even as early as during the first year of an enterprise project, is important for the avoidance of programme failures.

Factors of entrepreneurial intention can be categorized by three groups of factors that might have an influence on the intention of the agriculturally educated youth to establish their own business. These categories are personal characteristics, family background and rurality and quality of life (Bednaříková, Bavorová & Ponkina, 2016).



Personal and family background is one of the factors of the entrepreneurial intention in agriculture because it plays a major role in the entrepreneur's life. The culture of the family determines the type of agriculture activities they should undertake and what the mindsets of the other family members are about the products and services and their perceptions related to it. Moreover, personal thoughts are equally important regarding the business which is about to be undertaken in agricultural goods and services, what ideas can be generated about the enterprise and what innovations can be pursued to implement it. Sometimes, family background imposes considerable pressure to conduct agricultural activities in certain areas in which there is no interest of the entrepreneur or no scope in the market. Therefore, it is important to handle such people with sensitivity so that an entrepreneur can take out best of the ideas in the business and to better implement and execute them Bhide (1994).

Rurality and quality of life is another category of factors influencing entrepreneurial intention in agriculture because it also plays an essential role in the entrepreneur's life (Bednarikova, Bavorova & Ponkina, 2020). Standard and quality of life can only be maintained if entrepreneurs use their maximum intelligence to start their businesses and to expand them not only in rural areas but also in urban areas. Although this research focuses on improved standard and quality of life in the context of rural agriculture, it may also have some implications for urban projects. Nevertheless, it is important for the entrepreneur to initiate the idea in rural areas first, maintain the quality of life and then to shift to the urban areas so that the entrepreneur could have sufficient knowledge to execute the business in a similar way in urban areas as well. It is necessary to shift so that they can achieve an expanded version of their business in order to generate increased sales and revenue.

To expedite such entrepreneurial activities, however, demands great personal qualities among start-up entrepreneurs. In this study, we examine the psychological capital which are identified in the literature as important determinants of entrepreneurial intention and which are grouped under the three independent variables of hope, self-efficacy and resilience.

### **Psychological Capital**

The concept of psychological capital refers to the positive psychological state of an individual that is typified by high levels of hope, self-efficacy, resilience and optimism (Luthans & Avolio, 2014). It is not suggested that these characteristics are fixed, as in trait theory, but are rather characteristics of entrepreneurial individuals which can be promoted and developed. In the current study, the first three of these psychological capitals are the independent variables. Optimism is closely associated with the variables hope, resilience and self-efficacy; a study by Harunavamwe (2018) found that its contribution to explaining the variance in the dependent variable was only 6% whereas hope accounted for 59% of the variance when the other independent variables were controlled. Accordingly, optimism will be included in items related to the other three independent variables and this study will consider 1 hope, 2 self-efficacy and 3 resilience as the principal independent variables to be tested for their respective influences on entrepreneurship. This leads to the Theoretical Framework of this study.



## THEORETICAL FRAMEWORK

### Hope

Hope is defined as the feeling of trust, want, desire and expectation for a particular thing or a situation to happen in future; it is always positive in nature (Luthans, Avey, Avolio & Peterson, 2010). Entrepreneurs characteristically are people of hope which is manifested by their self-confidence and aspirations. It consists of confidence in the future in terms of achieving targets and goals, what Bloch, Plaice, Plaice and Knight (1986, p. 26) refer to as a “never closed” attitude towards what is possible in the future. Traditionally, hope was considered to be a virtue in contra-distinction to despair which reflected a gloomy and foreboding attitude toward the future. An entire school of psychotherapy, developed by Frankl who survived the holocaust, is called logotherapy and is built around the important psychological capital of hope (Frankl, 1985).

In the context of entrepreneurship, there are basically two types of hopes that an entrepreneur can face during the life of their business. The first is ‘good fortune hope’ (Gottschalk, 1974) which means that an entrepreneur must wait for their desire to come true in their life; it is said that the more patiently they wait, they can gain the best in their life. The second is the ‘storm breaks’ (Boyle & Altimier, 2020) which means that an entrepreneur does not have to wait for their wish to come true; it happens immediately and serendipitously. Therefore, it is said to be active in nature whilst the ‘good fortune’ hope is said to be passive in nature.

As already stated, hope is principally manifested as confidence and aspirations. However, there is a much wider range of its manifestations which include acceptance, anticipation, courage, desire and enthusiasm. Thus, due to its pivotal role in entrepreneurial activities, the following hypothesis is formulated:

H<sub>1</sub>: Hope positively and directly influences Entrepreneurship.

Hope, as a principal factor, is measured by a number of variables:

### Confidence

This is a psychological capital which is an element of the principal factor of ‘hope’. In the context of agricultural entrepreneurship, it refers to the self-assurance and self-reliance of the entrepreneur which is characteristic of a person who engages in innovative activities leading to successful outcomes. It is a psychological capital which means that until entrepreneurs can gain self-confidence in carrying out their business, they cannot go on to be successful because it is an essential capital to initiate an agriculture business (Dias & Rodrigues, 2019).

### Aspirations

This is another psychological capital aspect of hope which is closely related to an individual who is ambitious in their pursuit of achieving their perceived goals and targets (Mohammadinezhad & Sharifzadeh, 2017). Accordingly, aspirations are indispensable manifestations of hope and are characteristic of entrepreneurs who are strongly goal-directed. It is this goal-directed aspect of hope which drives entrepreneurs to aim at success in their business endeavours. Thus, an investigation of the determinants of entrepreneurship needs to include aspirations as a manifestation of hope.



## **Optimism**

A final psychological capital which characterizes resilient individuals is that of optimism which is also closely related to hope and self-confidence as it is forward looking in its belief that remaining goal-orientated will eventually lead to favourable outcomes. Thus, entrepreneurs are essentially optimistic individuals who believe that their personal resilience and tenacity will ensure that they are successful in their ventures (Wong, Lin & Kou, 2021).

## **Self-efficacy**

Self-efficacy is the trust a person has in their own abilities to conduct a business (Bandura, 1997). The self-efficacy of a person is exhibited by their perception as to whether goals can be accomplished or not, according to Cromie (2000). The formation of entrepreneurs is highly characterised by the degree of faith they have in their own skills (Krueger & Brazeal, 1994; Segal et al., 2002). Persons with a high degree of entrepreneurial productivity assume that their entrepreneurial concept is feasible. Boyd and Vozikis (1994) indicated that entrepreneurship contributed to new projects, and the success of such projects was found to be positively connected to entrepreneurship and entrepreneurs (Chen et al., 1998). Similarly, autonomy has been rigorously evaluated in several studies of entrepreneurial ambitions (Shapiro & Sokol, 1982; Krueger, 1993; Krueger et al., 2000; Arenius & Minniti, 2005; Langowitz & Minniti, 2007; Liñán & Chen, 2009; Roy et al., 2017). Many meta-analyses have also been seen (such as Schlaegel and Koenig, 2014) which confirm its solidity in predicting the formation of a corporation.

Self-efficacy beliefs are built from four main data sources: performance results, vicarious experience, verbal influence and psychological states. As previously mentioned, it is closely related to the psychological capital of knowledge, trust and reliability, decision-making ability and innovativeness and creativity. Bandura (1997) suggests that the results of the enterprise are the strongest source of relevant data, as they provide the most convincing proof of a person's ability to successfully complete a business. Thus, evidence of a prior track record of Self-efficacy in other contexts, would indicate the psychological state of an individual to engage in entrepreneurial activities. This is supported by Liang and Chen (2021) in a Taiwanese agri-entrepreneurial context who find that self-efficacy, as a mediator variable, was positively associated with entrepreneurial efficiency.

Many elements are suggested to influence the performance of self-efficacy. For example, academic performance in various contexts has been found to be linked to self-efficacy (Honicke & Broadbent, 2016). The notion of self-confidence makes it particularly attractive as a variable to establish activated transitions, as it is flexible and influenced by the intellectual preparation of situational factors. Bandura described self-confidence as "a belief in one's ability to coordinate and implement strategies necessary to deliver specific results" (Bandura, 1997).

Due to the pivotal role played by self-efficacy in entrepreneurial activities and ventures, the following hypothesis is formulated:

H<sub>2</sub>: Self-efficacy positively and directly influences Entrepreneurship.

Self-efficacy is measured by the following variables:



## **Knowledge**

This is one of the psychological capitals essential for the entrepreneur in agriculture and is one of the manifestations of self-efficacy. However, knowledge is a broad term and needs to be understood as not simply theoretical knowledge but a more pragmatic type of knowledge which embraces “knowing how” in addition to “knowing what”. In the context of this study, knowledge refers especially to entrepreneurial knowledge. Thus, this type of knowledge is of a practical kind. It often embraces “tacit knowledge” (Polanyi, 2007) and because of its very personal nature, it can often be a distinguishing characteristic of an entrepreneur. It is closely linked to self-efficacy due to the entrepreneur’s acquisition of the knowledge related to the concepts of the agriculture, its merits, demerits, scope, opportunities and threats so that they can carry out the business in an effective and efficacious manner. Basing their research on the theory of planned behavior, Renaningtyas, Wahyudin and Khafid (2021) and an earlier study by Bharanti (2012) find empirical evidence for effect of entrepreneurial knowledge on the mediating effect of self-efficacy on entrepreneurial efficiency, thereby lending support to the important role played by knowledge in Bandura’s (1997) social cognitive theory.

## **Trust and reliability**

Self-efficacy is also characterised by trust and reliability. In the first place, trust refers to a person’s sense of trust in themselves and their abilities. However, it also implies having faith in one’s stakeholders or colleagues and being reliable in terms of fulfilling responsibilities towards them. Since entrepreneurial activities are often built on collaborative ventures, trust and reliability are essential forms of psychological capital (Clapp-Smith, Vogelgesang & Avey, 2009).

## **Decision making ability**

The ability to make prudent decisions is a psychological capital which is based on the discernment necessary to identify the crucial elements of a problem to reach a considered decision. Self-efficacious entrepreneurs do not prevaricate but are decisive in managing a successful enterprise, as this requires solving problems in a resolute manner (Tang, 2020).

## **Innovative and creative**

Successful managers of agricultural ventures tend to be innovative and creative. These psychological capitals are also manifestations of self-efficacious individuals. Innovation and creativity have been recognized as important characteristics of entrepreneurs as these are the characteristics which mark those individuals who are able to gain a competitive advantage over their market rivals (Asbari, Prasetya, Santoso & Purwanto, 2021).

### **1. Resilience:**

Resilience refers to the ability to bear stress in a positive way. There are some negative situations in life which are characterised by frustration or fear which could discourage an individual; nevertheless, some individuals have the capacity to withstand such situations and to overcome adversity (Thompson, Lemmon & Walter, 2015). Resilience endows people with the capacity to tackle problems and to decide on quick, workable options. As discussed above, resilience is closely related to both risk-taking and optimism.



In the agrarian context, there is a number of dangers such as periods of drought, floods and environmental threats which can have a significant impact on profits. The effects of such contingencies have been examined by psychotherapists such as Kelly (1955) who explored the situation of US farmers who were facing economic ruin during the Great Depression of the 1930s. Kelly wanted to understand how some farmers, confronted with this reality, committed suicide while others found inner resources to withstand such adversity which he called the 'personal construct theory' (Shapiro, 1991). Essentially this was seen to depend on how the individual construed the circumstances and the meaning it held for them (Van Breda, 2018).

Essentially, resilience refers to the ability which some individuals have which enables them to quickly overcome or recover from their difficulties in life or in their business. It is a combination of mental and physical processes which means that the mental process demonstrates the cognitive behaviour in a person and the physical process depicts the actions taken against those difficulties.

There are basically seven skills which comes under the umbrella of resilience; resilient persons tend to be autonomous, realistic, adaptable, optimistic, are socially connected, are self-compassionate and possess self-understanding of their situation and recovery from it (Reivich & Shatte, 2002).

There are six domains of resilience such as vision which means the person has a sense of purpose, goals and personal vision for themselves. The second is composure which refers to how the person regulates their emotions in hardship or in difficult times. The third domain is reasoning which refers to how the person is anticipating and planning their business in agriculture. Fourthly is tenacity which means that a person has the key to overcoming adversity which is known as persistence. The fifth domain is collaboration which means that the person's mindset is that of being socially related to other people. Finally, the sixth domain is health which signifies that the person is conscious of their health in order to stay fit not only in a physical manner but also in their emotional, mental and social states.

Resilience is thus an intrinsic function of entrepreneurs which includes psychological resilience that strengthens enterprise intentions, enterprise conduct fostering organisational resilience and enterprise (and individuals) as enhancing regional economic or community resilience. Some researchers have looked at resilience after disruption and at the events that follow; this is resilience that allows entrepreneurs to rebound from failure or to survive hard times (Hayward et al., 2010). Resilience has also had the connotation of a complex process of a person or company coping with macroeconomic changes to new circumstances (Dewald & Bowen, 2010).

Clearly, resilience is a most important independent variable which is postulated to have both direct and indirect effects on entrepreneurship. Accordingly, the following hypotheses are stated:

H<sub>3</sub>: Resilience positively and directly influences Entrepreneurship

H<sub>4</sub>: Resilience positively and directly influences Hope

H<sub>5</sub>: Resilience positively and directly influences Self-Efficacy

Resilience is measured by the following variables:

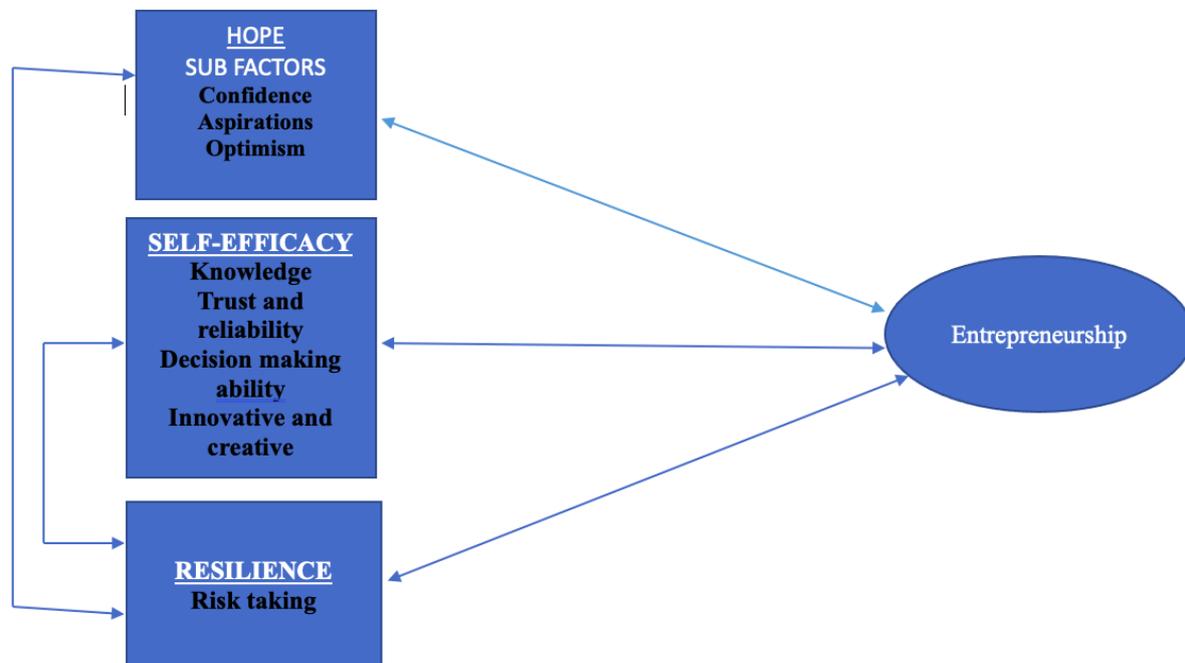


## Risk taking

Resilience is manifested by another entrepreneurial psychological capital that is referred to as risk taking. This is because there are often unknown and unpredictable aspects of running a business. However, risk taking in this context does not have connotations of wild speculation but is based on taking calculated risks. Resilient individuals do not fear situations which involve taking calculated risks, but this usually also involves contingency planning for dealing with the situation that may arise when the taking of a risk does not have a favourable outcome. Essentially, resilient individuals do not avoid risk taking when this is required but they have the inner strength to manage risks (Al Issa, 2021).

## CONCEPTUAL FRAMEWORK

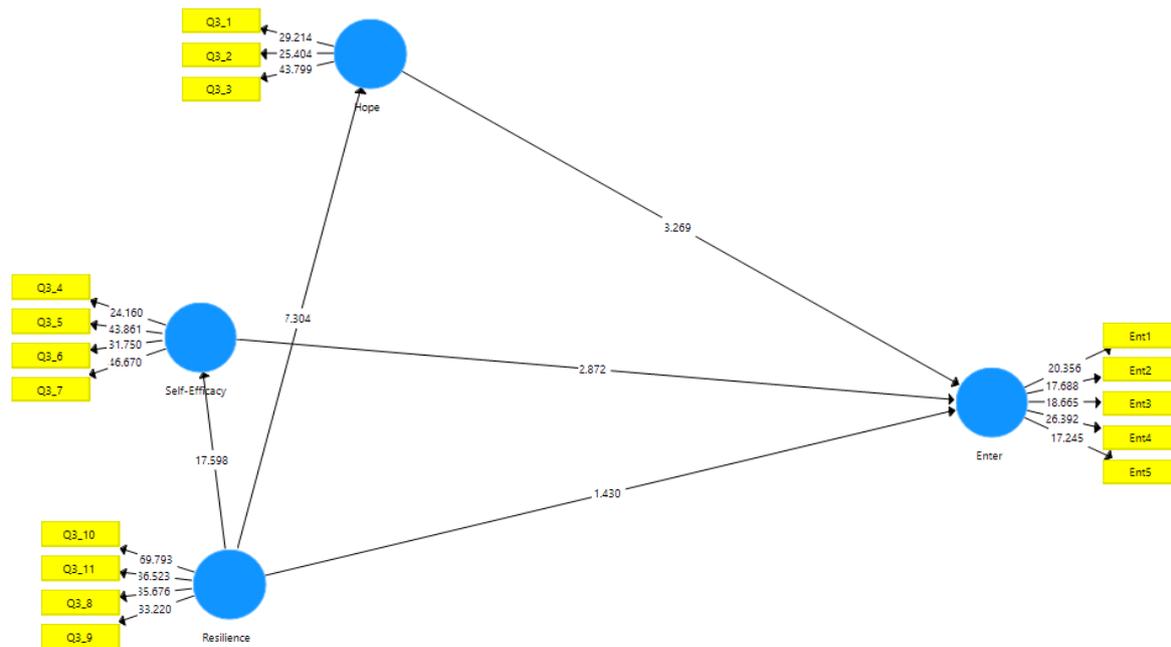
The conceptual framework for this study is presented in Figure 1:



Source: Authors

PLS is selected as an analytical method due to its usefulness for establishing the relative effects on the dependent variable (Entrepreneurial) of the independent predictor variables (hope, self-efficacy and resilience) which are collinear as shown in the conceptual model.

These hypotheses form the basis of the conceptual model based on SmartPLS (Partial Least Squares) presented in Figure 2:



**Research model. Source: Authors**

Figure 2.1 shows the hypothesised relationships between the independent variables and the dependent variable mapped to the different statements in the questionnaire. These statements incorporate the associated elements of each variable as outlined under Psychological Capital earlier in this section.

## METHODOLOGY AND RESEARCH DESIGN

A deductive approach was adopted in this study of the determinants of entrepreneurship. Essentially, this is a top-down approach based on pre-existing theories which are purported to explain the phenomenon. Accordingly, this approach assumes that entrepreneurship is an existential phenomenon which can be studied objectively. Therefore, a realist ontology was adopted and an epistemology based on the conviction that a random and sufficient sample of farmers and others in the Libyan agriculture sector can provide reliable information collectively which casts light on the phenomenon under investigation. It is, therefore, proposed that the findings of this study may be generalizable to other contexts, particularly that of the Middle East and North Africa, particularly in those countries undergoing political strife.



Secondly, a sample size survey data is available from Libya. In order to improve the perception of entrepreneurship and also to promote measures of relationships between hope, self-efficacy, resilience and entrepreneurship; this is the biggest and most detailed data collected from 516 respondents.

Thus, this study focuses on quantitative information collected by means of a survey questionnaire of farmers and others involved in the agriculture sector in Libya. Quantitative strategies rely on information that can be measured objectively. The information is analysed through mathematical and statistical tests.

### **Population and Sample Selection**

In order to validly conduct a PLS analysis, the minimum sample size must be carefully calculated. The minimum sample size, in a population of unknown size, is usually based on the number of questions in the questionnaire multiplied by 10 (Pallant, 2013). In this study, the material number of questions was 16; therefore, a minimum sample size of 160 was required. The questionnaire has been distributed among 750 respondents, out of which only 625 responded, a most satisfactory response rate of over 82%. After the deletion of invalid responses, 516 responses have been considered valid and accurate. However, this number was more than sufficient to be a representative sample.

The questionnaire was first written in English and later translated to Arabic, as most farmers only read Arabic. Following information-sharing during piloting, the questionnaire was re-translated into English using a back-end interpretation strategy, with the aim of the specialist being able to evaluate the information effectively in English. Furthermore, the validity of the content has been checked by another professional. The questionnaire was managed in a self-directed manner.

In the following section, the results of various tests are presented. Tests of validity, reliability and average variance extracted are first presented before proceeding to testing the hypotheses.

## **DATA ANALYSIS**

### **Investigation of Validity, Reliability and Common Bias**

The dataset was prepared and cleaned for loading into SPSS and for testing the conceptual model by Partial Least Squares (PLS). SPSS and SmartPLS 2.0 were used to analyse the results. A multivariate analysis method, partial least squares (PLS), is the statistical instrument which was used to evaluate the model and the hypotheses. PLS is a causal-predictive analytical approach that contains complex problems and a narrow theoretical understanding (Wold, 1985; Chin, 1998). PLS, as a structural equation model (SEM), is the technique of the second generation which has overcome some of the key restrictions of techniques of first generation, for example regression (multiple regression analysis, discrimination, logistic regression, analysis of variance) and factor or cluster analysis (Haenlein & Kaplan, 2004, pp. 283—284); PLS enables the simultaneous modelling of relationships between many independent and dependent variables and allows the researcher to construct unsearchable indicator calculated variables (items).



Instead of a covariance dependent technique, PLS was chosen because it outperforms structural equation covariance-based models with parameter precision when the sample comprises from 100 to 250 observations (Reinartz, Haenlein & Henseler, 2009), as in this review. A two-stage approach was taken to examine and interpret the PLS model (e.g., Hair Jr, Hult, Ringle & Sarstedt, 2017).

### Measurement and Structural Model

Assessing the latent variables used in calculating the output, the survey examined the reliability, internal consistency, convergent validity and discriminant validity of individual indicators (Hair et al., 2017). The Table of Loadings provides the results of the item loadings and t-values, the average variance derived (AVE) and the CR. This Table is in the Appendix. The uniform loads were above a minimum of 0.00 and were in fact above the preferred level of 0.7 for all indicators. These findings show the reliability of each predictor (Hair Jr et al., 2017). Internal reliability for all variables and items loading on them has been verified because the composite (CR) reliability was greater than 0.7 (Hair Jr et al., 2017). The validity of the convergent depends on these criteria: 1) positive and relevant loadings; 2) stable composite.

The average variance (AVE) derived should be  $> 0.5$  representing a good explanatory model where over 50% of the variance in the data has been explained by the model (Bagozzi & Yi, 2012; Hair Jr et al., 2017).

Tests for validity and reliability were first conducted. The appropriate test was Cronbach's  $\alpha$  and the appropriate threshold was 0.70 for the variables. Results are shown in Table 3.1:

**Table 4.1: Tests for Validity and Reliability**

	Cronbach's	rho_A	Composit	Average Variance Extracted (AVE)			
Enter	0.814	0.818	0.87	0.574			
Hope	0.767	0.777	0.865	0.681			
Resilience	0.856	0.861	0.903	0.699			
Self-Efficacy	0.825	0.831	0.884	0.656			

As can be seen from the Table, all variables have reached the threshold of 0.70 and the Average Variance Extracted (AVE) for the variables was greater than 0.5. Thus, there is confidence that the model has good explanatory power.

For unified validity, the analysis used three standards for evaluation: (1) stack of objects  $\lambda$  and its margin range is more specific than 0.70, (2) improves dependence, its properties were more basic when it was more pronounced than 0.80 and (3) a change in the standard deviation must be more pronounced than 0.50.

The test for discriminatory values (HTMT) satisfied the criterion suggest by Hair Jr. et al. (2017) and this table is included in the appendix



## Hypothesis Testing

A build state model was used to establish the relative influences, whether direct or indirect on the dependent variable 'Entrepreneurship'. PLS was conducted to assess the structural equation modelling (SEM). Thus, in this study, theories were tested based on the five hypotheses. The results of the hypotheses tests are presented in Table 4.2

**Table 4.2: Results of Hypotheses Tests based on PLS**

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics ( O/STDEV )	P Values
Hope -> Enter	0.2	0.202	0.061	3.269	0.001
Resilience -> Enter	0.095	0.092	0.066	1.43	0.153
Resilience -> Hope	0.384	0.39	0.053	7.304	0
Resilience -> Self-Efficacy	0.647	0.65	0.037	17.598	0
Self-Efficacy -> Enter	0.194	0.203	0.068	2.872	0.004

An examination of Table 4.2 raises no concerns about the variables based on sample means and standard deviations. However, the P Values for the five hypotheses shows that one is not significant, i.e. the hypothesised direct influence of Resilience on Entrepreneurship ( $p = 0.153$ ). Hence,  $H_3$  is rejected as there is insufficient evidence to support it. However, the other four hypotheses are accepted on the basis of these highly significant P values.

## Structural Model

We used a variety of parameters to test the structural model. The  $R^2$  value was used as a measure of predictive accuracy of the model for each endogenous variable, the Stone Geisser  $Q^2$  was used as a predictive relevance measure for the model, the variation inflation factor (VIF) was used to investigate collinearity and to analyse sign, magnitude and importance of structural trajectory coefficients (Hair Jr et al., 2017). Results of these tests are in the appendix.

Therefore, we have concluded that in our model there were no serious collinearity problems.

Table 4 shows the results and the assessment of all relationships of the structural model estimate. The significance of the path coefficients was assessed through a bootstrapping procedure (with 5000 samples and 102 bootstrappers using No Sign Change option) (Hair Jr et al., 2017).

## DISCUSSION AND FINDINGS

The results demonstrate, first of all, that the impact of psychological capital on entrepreneurship in agriculture is explained in accordance with hypothesis 1, that the psychological state called 'Hope' is an attitude that positively and directly influences entrepreneurship. The effect on growth, however, is much greater when Resilience positively and directly influences Self-Efficacy (hypothesis 2) than when Self-Efficacy alone positively and directly influences entrepreneurship (hypothesis 2). However, a direct effect for Resilience on Entrepreneurship was not established in this study (hypothesis 3). Nevertheless, Resilience



was found to have an indirect effect by its influence in enhancing Hope and Self-efficacy (Hypotheses 4 and 5).

In the present century, any organisation failing to establish the space and structure needed to cultivate spontaneous people and innovators would eventually fall short of its targets, given the growing number of rivals and the dominant complexity of contemporary business. Managers can play a significant role in encouraging employees to draw on their psychological capital. They can influence their employees by using resources and power effectively (Mollahoseini & Kahnoji, 2007) and providing adequate space and conditions for employees' psychological capital to improve entrepreneurship and to gain an advantage for their organisation in today's aggressively competitive world. Most organisations now realise that human capital is the key factor in the performance and survival of the company. The more effectively driven and willing these resources are, the greater the organisation's adaptability within an unpredictable business environment. The success and life of the company would also be assured.

The study of the status of the variables reveals that the impact of psychological capital, Hope, Self-efficacy and Resilience on entrepreneurship in agriculture. In other words, managers are ideally placed to guide and influence the actions of subordinates especially by providing scope for their psychological capital to be effective.

Successful managers, by exercising their legitimate power based on self-efficacy, possess qualities such as personal attraction, the ability to deliver what people want, and practical knowledge including the know-how and appropriate organisational skills.

With reference to other agricultural employees, the results on entrepreneurship also indicate that employee psychological characteristics can lead to emphasising the need to be successful and the confidence that this can be achieved by engaging in entrepreneurial activities. Thus, it is recommended that the maximum tolerance and scope be applied to Hope, Self-Efficacy, and Resilience. It was found that most employees of the population investigated were highly successful. This means they were inspired by challenging tasks and they preferred to overcome these challenges and to personally determine goals to accomplish them in order to achieve success.

Overall, the findings indicate that Entrepreneurial in agriculture was agreed by most respondents to be highly influenced by the psychological characteristics of their employees and that these characteristics were appropriately manifested in their staff. In addition, some results similar to those found in these investigations were obtained by Mosharraf, Papi, Zare Farashbandi, Samouei and Hasanzadeh (2015), but there were some differences in the psychological capital aspect.

The findings of the research were also largely in line with those of Pourvaghaz and Mohammadi (2011) since they also concluded that employee entrepreneurial characteristics were influenced by their psychological capital which was manifested appropriately within the population being studied.

Taking into consideration the connection between management and employee entrepreneurship and the impact of the psychological capital power, it is concluded that, following the analytical approaches proposed by Hair et al. (2011), there was a strong association between entrepreneurship and psychological capital characteristics.



There were other findings that demonstrated a substantial positive relationship between entrepreneurship in agriculture and Hope, and Self-Efficacy but no direct influence for Resilience. However, Resilience is important since it directly affects Hope and Self-Efficacy. Thus, an indirect effect for Resilience is a key finding of this study.

In addition, the researcher proposed a conceptual model which demonstrated the relationships between psychological capital and entrepreneurship in agriculture as well as indicating the relative strengths of the impact of the independent variables on entrepreneurial characteristics. Consonant with the findings of Harunavamwe (2018) in relation to work engagement, where psychological capital was found to have explained 62% of the variance in the independent variable, our study found that psychological capital explained 75.7% of the variance in entrepreneurship. Hope was found to have exerted the strongest influence on Entrepreneurial, while Resilience was found to have an indirect effect on Hope and Self-efficacy but a non-significant direct effect on the dependent variable. The researcher analysed the relative strengths of the independent variables in the proposed conceptual model bearing in mind that the study was in the context of agricultural entrepreneurship. Thus, there is some caution about its generalisability. Nevertheless, the structural model which was tested in this study can be generalised in similar contexts and its results can be used with confidence especially for Middle Eastern or North African populations operating in situations of political uncertainty.

## CONCLUSION AND RECOMMENDATIONS

Results showed a significantly positive correlation between psychological capital on entrepreneurship in agriculture. The findings of the structural model have also shown that Hope and Self-Efficacy have a substantial positive impact on employee entrepreneurial psychology. The importance of Resilience is underlined not only for its direct effect on Entrepreneurial but also for its collinear effect in enhancing Hope and Self-Efficacy. With this in mind, agricultural workers will improve and enhance the entrepreneurship and entrepreneurial characteristics of their workers by drawing upon the results of the study and properly leveraging their strengths and thus guaranteeing the success and prosperity of their organisation.

The implications of these findings can therefore be stated with the following suggestions:

In view of the results of the survey and the impact of psychological capital on entrepreneurship in agriculture, it is recommended to develop the three factors and that concrete efforts should be made to give scope to these factors of psychological capital.

Based on the entrepreneurship status of psychological characteristics of employees, it is proposed that employees should have considerable experience in uncertain circumstances and improve their intrinsic power through predictive and conditional study.

Given the findings related to the variables and the impact on the psychological characteristics of Entrepreneurship, it is recommended that agriculture managers in the Middle East and North Africa should focus on how Hope and Self-Efficacy can be improved among employees. It is interesting that despite the political and economic uncertainty of Libya, that Resilience was not found to have a direct impact on Entrepreneurship. However, because of its direct effects in enhancing Hope and Self-Efficacy, it is, nonetheless, an important variable. Its removal from the model would have lessened the influence of the other two explanatory variables.



## CONTRIBUTIONS

Thus, this study contributes by clarifying the moderating effect of Resilience, even though it did not significantly influence Entrepreneurship directly. To the researcher's knowledge, this is the first study to identify a subtle but important collinear role for Resilience on Entrepreneurship.

There are several further contributions to be derived from the findings of this analysis. First of all, this study demonstrates the value of looking at an industrial context in order to explore the process of risk development. This study therefore calls for a better understanding of why some people choose to be entrepreneurs, and others, particularly in the field of farming, do not. In this context, a future study could include some control variables such as entrepreneurial passion to further refine the findings of this study.

This study also contributes to theory by addressing the shortcomings of previous studies by considering the broader regional perspective and by showing a broad range of variations on the impact of psychological capital on entrepreneurship. This study also assesses how the determination of individuals to establish a company in rural and highly governed environments could affect cognitive, perceptual and social capital factors. In addition, through an integrated approach to entrepreneurial psychological capital and social networking, it also contributes to established literature on agricultural entrepreneurship in general. The results of this study clarify the contentious question as to why individuals choose to become entrepreneurs and how this decision is made, especially in the farming sector, in different contexts. Finally, the results of this study provide a roadmap to facilitate entrepreneurship in agricultural business by illustrating the driving forces behind entrepreneurship in agricultural business.

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