

# THE INTERNATIONAL JOURNAL OF HUMANITIES & SOCIAL STUDIES

## Analysis of Enterpreneurial Behaviour among Small-Scale Rice Farmers in Niono Zone, Mali

**Mahamadou Soumaila Konte**

Assistant Lecturer, Faculty of Agriculture and Animal Medecine (FAMA),  
University of Segou, Mali, Africa

### **Abstract:**

*The globalization of Malian economy and recent improvement in business environment require small-scale farmers shifting from traditional farming of subsistence towards entrepreneurial farming. Little is known on farmers' entrepreneurial behaviour (EB) in Mali. The purpose of this paper is to assess the level of EB among small-scale rice farmers in Niono zone at Office du Niger. The multistage sampling procedure was used to interview 236 respondents having less than 5 hectares. Descriptive statistics was used to determine socio-economic and institutional characteristics of farmers while confirmatory factor analysis was conducted to analyse farmers' EB. The post-estimation tests such as Kaiser-Meyer-Olkin sampling adequacy, Bartlett' sphericity test and Cronbach's alpha indicated adequate sample size and fitness of model to the data, thus both reliability and validity of the instruments. The results of analysis showed that 51% of respondents are solo farmers and 31% of family property. There is high dominance of male-headed household with 982%, and 89% being native of the area. Among respondents, 51% are illiterate, 4% reached high school level and 31% dropped at primary school level. The results also showed good scores for all EB except reluctance and proactiveness. The study concluded that farming business is not enthusiastic occupation, and lack tools for risk prediction and management leads to a passive adaption of farmers to their business environment. Therefore, the study recommended efforts towards improvement of EB and attractiveness of farming towards stakeholders through trainings, improved infrastructures, better risk management tools and adequate institutional environment.*

**Keywords:** *Entrepreneurial behaviour, small-scale farmers, confirmatory factor analysis*

### **1. Introduction**

Commercial-orientation of agriculture is undeniable pathway to economic development and growth for agricultural based countries (Jaleta et al., 2009). In Mali, the agriculture sector with the dominance of small-scale farmers is source of employment for around 80% of the population, a contribution of 40-45% of GDP and 30% to Export Earning (MAAF, 2014). It is approved that underperforming agriculture of the country (annual growth of 3.6) is source of weakened economy, fragile food security and livelihood of farmers (Stevenson and St-Onge, 2011). According John et al. (2011), these challenges are worsened with exponential demography, climate adversity, unstable production systems, irrelevant policies and lack of adequate institutions. In the strategies of facing these challenges, small-scale farmers have been the cornerstones of the different policies such Agricultural Orientation Law (LOA), Agriculture Development Policy (PDA), and National Programme of Agriculture Sector Investment (PNISA1 and PNISA 2).

The globalization of Malian economy and recent improvement of business environment have influenced the traditional way of business start-up, sustainability and management of in agriculture area (World Bank, 2011). Though small size of land, small-scale farmers in developing countries like Mali are believed to be the vector of economic change if attention paid to their isolation, access to market to market, adequate information as well as financial and institutional factor (Boohene et al, 2012). Business-orientation of small-scale farmers is seen as key factors of implementing both stability and economic growth of the country (GoM, 2014). According to Jaleta et al. (2009), the impacts of commercial-orientation can be categorized at three different levels: employment and income effects on actors, nutrition and health effects, and lastly environmental and macro-economic effects on the country. The authors classified farming business into three main groups: subsistence farming, semi-commercial-oriented and full commercial-oriented.

For many Sub-Sahara African countries like Mali, entrepreneurial behaviour (EB) of small-scale of farmers is the key factors of transition to commercial-orientated production (MAAF, 2014). This transition as targeted by the different recent reforms in the country necessitates start-up of new enterprises, efficiency of the current ones as well the formalization (Diallo, 2012). Kirzner defined entrepreneur as someone who recognized opportunities of making profit and introduced action to meet unsatisfied needs of a current situation (Misra and Kumar, 2000). The EB is a showcase of skills, particular qualities and characteristics for both business initiation and successful management (Muhammad and Junaid, 2016). This level of entrepreneurship is framed by policies, individuals' insight, willingness and achievement (Krueger and Brazeal, 1994). The EB is significantly important for the growth of any enterprise since it is the impulse to the performance

of the latter (Gajanayake, 2012). Therefore, the EB of smallholder farmers matters in policy decision-making (Albrizio et al., 2014).

Different policies in Mali have focussed on decision-making and neglected ability of small-scale farmers to recognize, identify and exploit the business opportunities. This ability is expressed in farmers' EB, which is important mean of revitalization of agricultural sector and farmers' transition from subsistence to commercial-oriented farming systems. This EB is expressed in farmers' ability to maximize on market opportunities, farm decisions, and efficient use of resources. Understanding EB is one of the important things to be considered in any policy decisions and strategies that target promotion of business activities (Chidi et al., 2015). Muhammad and Junaid (2016) found that EB leads to improvement of personality traits that are most essential conditions to efficient outcome of any socio-economic policy. This paper seeks to determine the level of entrepreneurial behaviour among small-scale rice farmers in Niono zone, Mali. The results in turn can be used in policy decision-making, promotion of agricultural investments and modernization of the sector in the country. The paper will particularly serve as a gauge of small scale farmers' ability regarding the implementation of Agricultural Orientation Law (AOL), Agricultural Development Policy of Mali (PDA) and National Programme of Investment in Agricultural Sector in Mali (PNISA).

The paper is divided into five sections as follows. The first is about introduction of the study while the second section is on literature review related to EB. The third section of the paper represents the methodology adopted by the study. The fourth and the fifth sections are about discussion of the findings, conclusion and recommendations.

## 2. Characteristics of Entrepreneurial Behaviour

Endres and Woods (2009) defined EB as reasons and actions that allow entrepreneurs to implement decisions in their responsibility of creating profitable opportunities and exploiting them. The entrepreneurs themselves are people who make change by novel exploitation of new ideas leading to new products (Mueller and Thomas, 2001). In Schumpeterian view, the entrepreneurial process starts with introduction of a product and ends when the profit is made (Richard, 2007). In other word, in Schumpeterian view there is no entrepreneurship in the absence of gaining profit. According to Bula (2012), the process of discovering as well as exploiting the opportunities can be categorized as "solo venture" when it involves one person and "homophile" when concerning a group.

Opportunity discovery process is process of entrepreneur's alertness of unnoticed or under-exploited opportunity, and combining the resources that yield profit (Lins and Doktor, 2014). In this line, Lins and Doktor (2014) distinguish "replica entrepreneurship" where the enterprise is a copy model of another one, and "innovative entrepreneurship" where the enterprise is a unique model of its own. The opportunity discovery process is one the divergent point of views among scholars. Schumpeterian related that process to the environmental change that provides new information, while Kirznerian view linked it to the alertness of entrepreneur (Schumpeterian, 1935; Kirzner, 2008).

Richard (2007) notified that in the process of opportunity exploitation, entrepreneur has to overcome resistance that are following: resistance to "new task", resistance to "the psyche of the businessperson" and resistance "social environment". The competence of the entrepreneurs which is expressed in their attitude, aptitude and ability is the most determinant in overcoming these challenges (Finez, 2008). With regard to business environment, the author notified two major cases. The first case is when the entrepreneur has both talent and competence but the entrepreneurship itself is not profitable or successfully suitable. The second case is when the entrepreneurship is viable to succeed and make profit but the entrepreneur has no sufficient talent to realize the business idea.

The EB modern theory considers both the traditional view of profit-driven initiatives (aiming at maximizing return) and a number of socio-economic and institutional factors that can challenge opportunities identification and exploitation (Akhter and Sumi, 2014). In EB research, the personality traits considered to be determinant in a successful entrepreneurship are multifarious and their selection depends on the view of the researcher (Wu, 2009). As determinant traits of EB, Kautonen (2014) considered risk-taking, desire for self-employment and reluctance. Other characteristics such as innovativeness, change tendency and opportunism, autonomy, self-reliant, self-efficiency, proactive, initiator and resourceful are considered for the value and behaviour of an entrepreneur (Mueller and Thomas, 2001; Lau (2012). This study is formed on the basis of the following traits: reluctance, risk-taking, self-efficiency, innovativeness, proactiveness, initiation and previous failure.

Risk-taking is a personal trait of entrepreneurs to allocate their available resources to exploit new ideas with profit-driven intention and uncertainty that can be costly (Miron and Hudson). This personality trait is reflected in entrepreneurs' decisions on resources distribution, choice of product and market, and at some extent on organizational structure (Boohene et al, 2012). Innovativeness is a combination of current resources, materials (new good) and means of production (new method of production) in some novel ways (Schumpeter, 1935; Swedberg, 2007). Innovativeness displays in various way: new products or goods, technical which includes research and engineering tasks to develop new products, and product-market innovativeness which consists of marketing, market, product design, advertisement and promotion (Boohene et al, 2012). Lins and Doktor (2014) think that innovativeness is more under uncertainty, but not a risk in real sense. Additionally, innovativeness involves uncertainty, thus risk-tolerance behaviour and tendency for change.

Covin and Wales (2012) distinguished between the entrepreneurial proactiveness and innovativeness as follows. The authors define proactiveness as an individual's capability to be forward-looking and anticipating the future with the aim of exploiting opportunities. Innovativeness, on the other hand, is the capability to bring about new products or services, technological process, operational methods and strategies of doing business as a way of experimenting and

exploring. Self-efficiency in the behavioural theory is construed as an individual's judgment about their aptitude and ability to move towards perfect achievement of a given activity (Singh and DeNoble, 2003).

Proactiveness is seen as the ability of people to take anticipated decision that possible affects them and/or their environment (Kamp, 2010). The author reported two attributes of proactiveness which are "acting in advance" and "intended impact". The perceived entrepreneurs are characterized by their ability of opportunity identification, showing initiative, decision-making and persistence till the wanted change occurs.

In the behaviourism sciences, a reluctant entrepreneur is an individual who is venturing in a new business due to the lack of any other means of surviving (Miron and Hudson, 2014). Reluctant entrepreneur is defined by Henley (2005) as businessperson who is involved in doing business unwillingly. The aspiration of reluctant businessperson is more driven by what Henley (2005) called "displacement" factors such as dissatisfaction with job or incomes rather than personal physic or mental resources. Krueger et al. (2017) referred to reluctant entrepreneurs as "dissatisfied individuals".

Self-efficiency is entrepreneur's self-confidence and ability to mentally and physically deal with the environment in an effective and efficient way (Drnovsek et al, 2009). This is an important construct on both business start-up and its successful management. The self-efficiency is linked to persistence, initiation behaviour as well as profit maximization and higher risk aversion (Krueger and Brazeal, 1994). Initiation is individual's engagement in business activities, be it in an existing enterprise or new one. Wu (2009) found this process being the primordial in any research on entrepreneurship. The author divided it into three different steps: intention of initiating new venture, initiation process of new venture and successful running of the new venture. It is a multi-element process where the finding can be mixed and weak among scholars.

Failure is not dichotomous of success, rather a series of events or actions that culminate in collapse or decrease in the value of an output (Kusek et al, 2013). Previous failure or past failure (on-farm or off-farm) is the main driver of farmers' decision on creating new enterprises or expanding old ones (Coulibaly et al, 2015). According to the authors, coping strategies to failure can be classified into ex-ante and ex-post options. Both options involve initiation of activities can be considered as profit-driven since they reduce risk, increase farm income or both. It is more or less related to risk attitude and can involve both personality and environment.

Throughout the literature, EB is a point of divergence among researchers. Moreover, the absentia of measurement of "unconsciousness in self-estimation" and the presence of "variables and invariables" in personal traits such knowledge and live-change events make the EB field more complex compared to other theories (Østergaard, 2014). The author suggests the selection of more traits since few traits can lead to higher biasedness. Additionally, the EB research should equitable both entrepreneurs' intrinsic values and external factors since the EB is a multifaceted context (Walter, 2011). Collins (2004) added that the EB research cannot yield conclusive results if internal factors and external factors are not all considered because the boundaries between the two are blurred.

### 2.1. Factors influencing EB

In EB research, both psychological and non-psychological traits have been used to estimates EB of an individual. In Behavioural science, behaviour is called "overt" if actions and responses can directly be observed, otherwise it is called "covert" (Coon and Mitterer, 2011). Factors influencing the EB can also be categorized as internal and external factors. Ku kemuller (2017) defined the two as follows. External factors as the ones beyond enterprise and entrepreneurs' control such legal, ethical, political, technological and some socio-economic factors of target customers such as values, attitudes their affordability of the products. Internal factors are intrinsic values of entrepreneur and other controllable factors such as motivation, skills, social network, education and endowed resources. The key variables in EB studies are more or less correlated. Wu (2009) admitted that there is none of previous studies have reported zero-order correlation among these variables of EB.

Main theories on EB can be divided into three main groups: classical, neoclassical and behaviourism (Simpeh, 2011). Based on authors these three theories can be identified as Schumpeterian, Kirznerian and modern behavioural science. The commonest view among the three is the EB being the major driving force of identification and exploitation of business opportunities (Boohene, 2012). Nevertheless, the views on venturing decision are diverse and all are subject to some limitations (Simpeh, 2011).

The classical theory based on Schumpeterian view focuses on individual's alertness of information and willingness that are influenced by free trade, competition and specialization (Endres and Wood, 2003). Neoclassical or Marshalian analysis related business initiation to the utility maximization process as well as to market clearance (Bula, 2012). Austrian Market Process can be considered as complementary to the neoclassical theory by its introduction of human intervention and time-scale in opportunity discovery. Nevertheless, the limitation of the later is its lack of implicitness in opportunity discovery process by an entrepreneur (Endres and Wood, 2003).

Other supplementary theories to the economic theory are the resource-based theory and opportunity based theory. The former posits that business initiation ability is determined by the advantages that disposes entrepreneur vis-à-vis external and internal resources (Akio, 2005). The opportunist view of EB sees the opportunity as the right and right location of running business. This theory admits the opportunity being a nexus of personal traits and environment, and also considers that successful business is premised on doing so at an opportune moment (Patrick and Marvel, 2007).

The last theory of EB is behavioural science which is one of the modern theories of this area. The behaviourist theory of business stipulates opportunity discovery and exploitation are determined by entrepreneur's business acumen, attitudes and ability to understand quickly and act well (Endres and Wood, 2003). The central point of investigation in this theory is "cognitive processes" and "cognitive limitations". It gainsays the view of perfect rationality, and posits that nexus

of environment and limitation in cognitive system make people not maximize but to "satisfice". The latter is to opt for a good choice, but not the best choice (Campitelli, 2017). In effectual model of behavioural entrepreneurship which is new perspective, rather than following causal-effect process in opportunities discovery and exploitation, the entrepreneurs follow "effectuation process" where they actively reframe existing market structures and create new effects for new opportunities (Endres and Woods, 2017).

From scrutiny analysis of EB, it is opined that none of approaches, classical, neoclassical, Austrian Market Process and behavioural sciences, is a holistic approach since all of them have some strengths and limitation or biasedness (Endres and Woods, 2017). Some of these theories have complementary points while others have gainsaying views. In spite of divergence of views among scholars, the EB have some socio-economic and institutional factors that are more or less common, and believed to be determinant in successful business start-up and management. However, factor that impulses or deters EB is considered as microcosm since it is individual's ability and aptitude with respect to environment that are key elements in this process (Wu, 2009).

### *2.2. Cultural Aspect and Behavioural Entrepreneurship*

As defined by Oxford dictionary, the culture is a set of beliefs, accepted behaviours that shape the life of a person or a group of people in a given society. Culture models can impulse good behaviour as well as bad one (Mikell, 2003). According to Muhammad and Junaid (2011) the culture being entailed in femininity, masculinity, power distance, individualistic, collectivistic or avoidance of uncertainty are vital factors to be considered. The culture gives the mentality patterns, attributes the sense as well as values to motivated options, devotion, and norms, hence incentives to business orientation. Mikell (2003), states that in many cases the networks and social status of an individual are more determinants in his business success than his skills and capability.

### *2.3. Geographical Aspect and Behavioural Entrepreneurship*

Joachim's study (2007) shows that the geographic areas with big and fast growing population are more likely to have higher number of enterprise creation. The location of an enterprise can also hinder its business activities, thus preventing it from accessing market, finance, relevant information, and even support from institutions (Muhammad, 2013).

### *2.4. Background Aspect and Entrepreneurial Behaviour or Nascent Entrepreneurship*

Endres and Woods (2006) confirms that any previous means such as facts, skills, information, education or experience from work sharp the capacity and motivation of a person towards entrepreneurship. Mohammed in 2013 adds that these factors can be not only the genesis of new economic venture but also a key of success for those initiators. In the same study, the author states that educated people are more likely to undertake new venture and even better run it than uneducated people. On the same way high educated societies create more enterprises than less educated societies i.e. the number of enterprises in developed countries is higher than the number of enterprises in developing or less developed countries (Rehma and Farhana, 2014).

### *2.5. Sociology Aspect and Behavioural Entrepreneurship*

The social theory development recognizes that the communication and influence are forerunners of any developmental process in a society. This theory means that every manifestation in a child's attitude is at two dimensions: from society to the individual as well as from people to the child (interpsychological to intrapsychological). Brenda et al. by their study in 2003 on ethnicity and venture decision found out that 16% of business starters receive idea and guidance from their relatives. The strategy for running business is in accordance with the environment and favoured by the collectivist (human and social capital) spirit of the ethnic group, its morality and feeling of support in term of consumption and supply (Danes and Lee, 2008). All these contribute to the incentives and success of such an enterprise.

### *2.6. Gender and Behavioural Entrepreneurship*

Generally, in the society the women compared to men have limited freedom of initiating business activities as they desire (Rehma and Farhana, 2014). In these societies mostly rural the activities such as business pertain to males whilst the role of women is limited to indoor tasks like kitchen and childcare. The biological theory and physiological view of entrepreneurship admit that women are more risk averse than men, hence making them less probably to invest in new venture than men (Hannah, 2012). Another study of Amanda (2012) shows that in unfavourable business environment, dominated with difficult bureaucratic procedures or bribes, corruption, suspicious behaviours, and other trade obstacles, women compared to men are less likely to initiate or run a business.

### *2.7. Age and Behavioural Entrepreneurship*

The relationship between entrepreneurship and age has been the interest of some research. Those studies show that some types of business with respect to age follow the inverse u-shape with a pick between 35 and 44 years (Kautonen, 2014). This means that the preference to engage in venture is an increasing function with age till a level of age, and becomes a decreasing function. The research explanation of this is that much skills, financial ability, and professionalism which are key factors to a successful entrepreneurship are generally accumulated by the time.

### 2.8. Imitation and Behavioural Entrepreneurship

In similar socio-economic condition copying each other's behaviour can be divided into characteristic-based imitation, action-based imitation and result-based imitation. Hannah's study in 2012 reported that the entrepreneurs in Least Developed Countries imitate more than they innovate. Their entrepreneurship consists rarely of making their own new specific products, instead they copy outputs and methods that are created by other people, mostly the ones from industrialized countries.

## 3. Methodology

### 3.1. Study Area and Sampling Procedure

The study was conducted in Niono zone which is an irrigated perimeter at Office du Niger zone located at Segou region at a distance of 235 Km Northeast for Malian capital city Bamako. The last general census of 2009 indicated a population of 91 550, which is one of the highest in the country, and an economic sector dominated by agriculture at 85% and 3% of fishery (INSTAT and BCR, 2009). The zone is known by its potential of irrigable lands, relative better organization of agricultural and related institutions, and more skilled farmers due to more than a half century of experience in irrigated farming (Jean-Micheal et al., 2016). The current superficies under irrigation is estimated to around 15 000 ha, and the main crops are rice, onion, tomatoes and vegetables.

### 3.2. Sampling Procedure

Multistage sampling technique was adopted where the first stage was purposively selection of Niono zone due to potentiality of its agriculture. The second stage was the selection of farmers who are exploiting a land size that is 5 hectares or below. At the last stage, 236 farmers were selected from a list with a sampling interval of 25.

## 4. Data Collection and Analysis

### 4.1. Instrument

The study used semi-structured questionnaires divided into two sections of information: farmers' socio-economic and institutional characteristics, entrepreneurial behaviour. The study used self-estimation question to gather information on farmers' entrepreneurial behaviour. The developed instrument was based on the modification of instruments used in some previous studies such as Lumkin and Dess (2001), Liñán and Chen (2006), Covin and Whales (2011), and Wu (2009). In this case, the following traits are considered as effective in entrepreneurial behaviour: risk-taking, reluctance, self-efficiency, initiation, innovativeness, proactiveness and previous failure. Each EB trait was rated on a 5-point Likert- scale since the method was found to be the simplest and more accurate. The 5-point Likert- scales were: "strongly disagree", "disagree", "neutral", "agree" and "strongly agree". The questionnaire administered by trained enumerators was also subject to a pre-test for not only instrument reliability but also evaluating the understanding of respondents on the instrument as suggested in Sitza (1999).

### 4.2. Instrument Reliability and Validity Test

A Confirmatory Factor Analysis (CFA) was preferably used as method data reduction since the same construct was measured using different items with underlying assumption of possible correlation among the selected constructs (Costa et al., 2014). The CFA was applied on 7 constructs with 26 items. This is because in CFA method preferred numerous items to ensuring internal consistency, convergence and construct validity (Østergaard, 2014).

The CFA post-estimation tests was conducted to evaluate quality of instruments validity and reliability as suggested by Sitza (2017). Kaiser-Meyer-Olkin (KMO) was used to measure of sampling adequacy. The KMO values range between 0 and 1, and put references from the lowest to the highest: unacceptable, miserable, mediocre, middling, meritorious and marvellous. Bartlett's sphericity test was performed to assess the fitness of CFA to the data. This test uses the presence identity matrix to determine the suitability of variable to structure detection (Glen, 2017). A value of less than 0.05 indicates the usefulness CFA to the data. And lastly, Cronbach's coefficient alpha was applied to estimate the internal consistency, which is the reliability with regard to the average correlation of inter-items. The internal consistency is ranged from "Excellent" to "Unacceptable and it is considered as "Poor" if below 0.6 (Aminul Islam et al., 2011).

## 5. Findings and Discussion

The socio-economic and institutional factors of farmers were analysed using percentages, mean and standard error. The results of analysis showed that 51% of respondents are solo farmers (doing farming alone) while 13% are in partnership and 36% running farming business as family property. There is high dominance of male-headed household, with only 2% female-headed household. The results also showed that 89% of respondents are native of the area. Among respondents, 51% did not go to any school, 4% reached high school level and 31% dropped at primary school level. The minimum of farming experience was 2 years while the maximum was 65 years, people who have been in farming business their entire life. The average farm size of respondents was 1.99 hectares with a minimum size of 0.25 hectare. The analysis revealed that 61% of respondents are doing off-farm business, and 67% of farmers are members of farmers group. The results of post-estimation tests indicated a KMO value 0.81 which is qualified as meritorious (Glen, 2017). The Bartlett's sphericity test showed that the model fit well for CFA with  $[\chi^2 = 702.146, DF = 21, p = 0.000]$  and factor

loadings on the instruments were all significant [ $\chi^2 = 3251.87, \rho = 0.00$ ]. The Cronbach's coefficients alpha ranges from 0.60 to 0.81, hence confirming both internal consistency and reliability of the instrument (see Appendix 1).

### 5.1. Analysis of Characteristics of Small-Scale Rice Farmers' Entrepreneurial Behaviour

Variables	Mean	Std. Dev.
Risk-taking	3.98	0.83
Reluctance	3.84	0.91
Initiation	4.19	0.74
Self-efficiency	3.88	0.80
Innovativeness	4.18	1.08
Proactiveness	3.29	1.68
Previous failure	2.94	1.26

Table 1: Mean Scores of Entrepreneurial Behaviour among Small-Scale Rice Farmers

The characterization of farmers' EB is scaled using the Weighted Mean method based on Moralista and Delariarte (2014). The EB is scaled as "Extremely Strong" (ES) with scores ranging on 4.21-5.00; "Very Strong" (VS) ranging on 3.41-4.20; "Strong" (S) ranging on 2.61-3.40; "Somewhat Strong" (SS) ranging on 1.81-2.60; and "Not Strong" (NS) with score ranging on 1.00-1.80.

The results of analysis as shown in Table 1 indicated that small-scale farmers' EB scores in Niono zone are only of two scales, VS and SS. Farmers' EB of initiation, innovativeness, self-efficiency, risk-taking and reluctance are scaled as VS, which is the second highest level of EB scales. Farmers' EB of proactiveness and previous failure are scaled as SS which is the second lowest scales of EB.

As indicated in Table 1, the risk-taking attitude of farmers is scaled VS with a scores of 3.98. This implies that farmers are risk-taker. This may be attributed to the risky nature of farming business in the area, weather risks and market uncertainty. This is in contrast with the findings of Kouame (2014) which reported high risk aversion attribute among small-scale farmers. Farming business at Office du Niger necessitates farmers to be permanent risk-bearer or risk-tolerance due to land tenure system (loose of land property in case of failure to pay seasonal water bill), rarity of waiver on water bill in case of disease of flood, and absence of indemnity in case of animal attack on farm, which are common in the area (Brondeau, 2017). Presence of risks at all levels of management decision-making in rural Africa risk-taking behaviour gives farmers strength to remain in business but also daring attitude in venturing in new ideas while being aware of possible negative outcomes (Dadzie and Acquah, 2012; Kouame, 2014).

Reluctance as EB has a score of 3.84 which is scaled as "Very Strong". This scale which means lack of enthusiasm towards farming among small-scale farmers can result from various challenges that face agriculture and its inability to guarantee better living conditions to its stakeholders as an occupation. Additionally, the lack of assurance in outcomes of farming business and unstable price make agriculture a secondary or even a temporary occupation before getting better alternative employment, preferably wages employment choices. Kautoen et al. (2014) reported that the level of reluctant entrepreneurship is higher among dissatisfied workers and people facing unemployment. Though high unemployment among young generations in developing countries like Mali, they are disenchanted with agriculture due to its various challenges that hamper its development and poor image of stakeholders practicing in general traditional agricultural up to now (Chander, 216).

The high level of initiation recorded among small-scale farmers can be explained by small-scale farmers' increased motive to diversify farm incomes and improve food security as well as their livelihood conditions. Quality of opportunity seeking, rational decision-making and devotion to new venturing make entrepreneur farmers to undertake more new activities than their counterparty (Endres and Woods, 2003). Caldeira et al. (2017) found that it is mainly the challenges in the value chain (less competitiveness, food insecurity, low incomes, risk reduction) that push entrepreneurs to create more alongside businesses, thus making them more initiators. The initiation attribute can be the point of departure from traditional way of doing farming business because of their willingness towards business and devotion to achieve it (Boohene et al. (2012).

Small-scale farmers' EB of innovativeness being scaled as "Very Strong" can be explained by dominance of farmer-led initiative, imitative practices and "learn from your own mistake method" due to the rarity of institutional supports in the area such as extension services and active farmers' organization. Additionally, long farming experience of farmers in Niono zone can also be contributor to farmers' high scale of innovativeness. Bleeker (2017) found that the importance of innovativeness behaviour is expressed not only the innovation process (searching, selecting and implementing) to elaborate new goods and/or services but also sharpens the ability to evaluate and learn. This EB is also seen in Schumpeterian view of EB as the primordial cause of economic system changes since it is the stimulus to both creativity and experimentation, hence a better way to renew the position of business entity. AFI (2015) reported that small-scale farmers' choice for innovativeness and initiation is one of the best of business survival since it is an adequate tool of risk management and improved livelihood as well.

Self-efficiency of small-scale farmers is also scaled as "Very Strong". This may be attributed to confidence from long farming experience in an environment where farmers rely on their own initiatives and knowledge. Additionally, this attitude of self-efficiency is one the commonest share-outs from EB since it is bound to be linked other essential such as

risk-taking, initiation proactiveness and innovativeness (Lumpkin and Dess, 2001; Drnovsek et al., 2009). Drnovsek et al. (2009) found self-efficiency to be the source of business optimism, endurance for success since and resistance to socio-economic shocks since it gives farmers confidence in both task and outcomes. High self-efficiency of small-scale farmers can be manifested in their high level of business outcomes, business start-up, growth and personal achievement (Denovsek et al., 2009).

Proactiveness scored a MW of 3.292 which is scaled as "Somewhat Strong". In other word, the scores of small-scale farmers EB of proactiveness is less than the scores of neutrality attitude, which is considered as a lack. According to Covin and Whales (2011), lack of proactiveness is synonymous with passive adaptation, which is determines farmers' inability to create new circumstances or to improve the current ones with futuristic and anticipatory initiatives. This neutrality in proactiveness may be related to farmers' lock of efficient tools or skills of analysis and dearth of farming business performance as expected. This is in line with finding of Grant (2000) who positively related this quality of EB to potential and actual business performance of an entrepreneur.

Previous-failure is the EB with the lowest MW of 2.941, and scaled as "Somewhat Strong". This implies that farmers are less sensitive to previous-failure. This can be caused by repetitive experiences of failure, and adoption of coping mechanisms by farmers to prevent or attenuate its consequences. The fact that farming is the major income generator for these farmers may also contribute to insensitivity to previous-failure since alongside businesses can reduce damages of failures. Coulibaly et al. (2015) reported that thought small-scale farmers' adopted resilience strategies that lessen the shocks are mostly post hoc measures such as temporary labour, off-farm activities and diversification within agriculture. According to the authors, these responses are more and more successful in crop and market failures. Barrett (2009) confirmed these finding by reporting that small-scale farmers' strategies to failures have improved in terms of effectiveness and efficiency.

## 6. Conclusion

Small-scale farmers had good scores in all selected EB except proactiveness and reluctance. Farmers' proactiveness scaled "Somewhat Strong" is a sign of their passive adaption to their business environment and lack of adequate tools or skills to handle uncertainty of the sector. The study also concluded that farmers are reluctant in farming business, which indicates that farming is not attractive preposition to the stakeholders due to challenges and inability of the sector to meet the satisfaction of farmers. Nevertheless, the scores of risk-taking (Very Strong) and previous failure (Somewhat Strong) led to conclude strong daring attitude of farmers to farming business while high scaled of initiation, innovativeness and self-efficiency showed their readiness towards business-oriented farming.

## 7. Policy implication

This research on small-scale farmers' entrepreneurial behaviour (EB) reveals that there is still need of action to strengthen farmers' EB mostly their proactiveness through trainings and farmer-to-farmer approaches of sharing techniques and technologies. Also there is need to improve agricultural sector though reduction of risks and improved institutional environment to make agriculture more attractive and decent occupation. Farmers should also be provided by tools for better risk evaluation, risk management and attenuating its consequences.

## 8. Further research

This research considered few personality traits of EB among small-scale farmers, there should further research that includes more personality traits that are considered to be important in entrepreneurship. Also the study should be widened to other sector and areas of high contributions to the country economic growth.

## 9. Acknowledgement

My gratitude goes towards Dr Oscar Ingasia Ayuya and Dr Edith Gathungu at Egerton University for their highly valued inputs to this paper. I am also grateful to Prof Michael A. Okiror at Egerton University, and the staff of Office du Niger Niono and Ségou for the unconditional supports.

## 10. References

- i. Agriculture for Impact. (2015) 'African Smallholders Responding to Uncertain Climate Future'. A Montpellier reports. 44 pp. Available at: <https://www.spring-nutrition.org/publications/resource-review/updates/montpellier-panel-report-2015-farms-change-african-smallholders> (last accessed 18<sup>th</sup> April 2018).
- ii. Akhter, R. and Sumi, F., R. (2014) 'Socio-cultural Factors Influencing Entrepreneurial Activities: A Study on Bangladesh', *Journal of Business and Management*, 16 (2): 1-10.
- iii. Albrizio, S., Botta, E., Koźluk, T., and Zipperer, V. (2014) 'Do Environmental Policies Matter for Productivity Growth?' Economics Department. Working papers 72. 40 pp. Available at: <https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=ECO/WKP%282014%2972anddocLanguage=En> (2014) (last accessed 21 June 218).
- iv. Aminul-Islam, M.D., Khan, M.A., Obaidullah, A.Z.M. and Alam, M.S. (2011) 'Effect of Entrepreneur and Firm Characteristics on the Business Success of Small and Medium Enterprises (SMEs) in Bangladesh', *International Journal of Business and Management*, 6 (3): 289-299.

- v. Barrett, C., B. (2009) 'Challenges to Pro-poor Market Development for African Agriculture'. Towards Priority Actions for Market Development for African Farmers: AGRA and ILRI International Conference 2009, Nairobi, Kenya. 5 pp. Available at: [https://www.researchgate.net/profile/Michael\\_Waithaka/publication/263806797\\_Regional\\_trade\\_An\\_opportunity\\_to\\_spur\\_growth\\_in\\_eastern\\_and\\_central\\_Africa/links/53e9e52a0cf2fb1b9b673e5a.pdf?inViewer=true&pdfJsDownload=true&disableCoverPage=true&origin=publication\\_detail](https://www.researchgate.net/profile/Michael_Waithaka/publication/263806797_Regional_trade_An_opportunity_to_spur_growth_in_eastern_and_central_Africa/links/53e9e52a0cf2fb1b9b673e5a.pdf?inViewer=true&pdfJsDownload=true&disableCoverPage=true&origin=publication_detail) (last accessed 21 June 2018).
- vi. Bleeker, I. (2017) 'The influence of Entrepreneurial Orientation on the Innovation Process: An empirical research on manufacturing SMEs', Master thesis-University of Twente, 55 pp.
- vii. Boohene, R., Marfo-Yiadom, E., and Yeboah, M. A. (2012) 'An Empirical Analysis of the Effect of Entrepreneurial Orientation on Firm Performance of Auto Artisans in the Cape Coast Metropolis', *Developing Country Studies*, 2 (9): 1-8.
- viii. Brondeau F. (2017) 'Les Investissements Agro-industriels dans la Zone de l'Office du Niger au Mali'. 6 pp. Available at: <http://agritrop.cirad.fr/567662/> (last accessed 20 September 2017).
- ix. Bula, A., H., O. (2012) 'Evolution and theories of entrepreneurship: A critical review on the Kenyan perspective', *International Journal of Business and Commerce*, 1(11): 81.
- x. Chander, M. (2017) 'Youth: Potential Target for Agricultural Extension'. aesa blog 8 pp. Available at: <http://www.aesa-gfras.net/admin/kcfinder/upload/files/youth.pdf> (last accessed 28 November 2017).
- xi. Chidi, I., Anozie R., O., and Priscilia, C., N. (2015) 'Analysis of Socio-Economic Factors and Profitability of Rice Production among Smallscale Farmers in Ebonyi State', *IOSR Journal of Agriculture and Veterinary Science*, 8 (2): 20-27.
- xii. Collins, C., J., Hanges, P., J., and Locke, E. A. (2004) 'The Relationship of Achievement Motivation to Entrepreneurial Behaviour: A Meta-Analysis', *Human Performance*, 17(1): 95-117.
- xiii. Costa, D., R., Lachos, V., H., Bazan, J., L., and Azevedo, C., L., (2014) 'N. Estimation Methods for Multivariate Tobit Confirmatory Factor Analysis', *Compus.Stat.Data Anal*, 79: 248-260.
- xiv. Coulibaly, J., Y., Glwadys, A., G., Kundhlande, G., Gudeta W., S., and Beedy, T., L. (2015) 'Responding to Crop Failure: Understanding Farmers' Coping Strategies in Southern Malawi, Sustainability', 7: 1620-1636.
- xv. Covin, J., G., and Wales, W., J. (2012) 'The Measurement of Entrepreneurial Orientation', *Entrepreneurship Theory and Practice*, 36(4): 677-702.
- xvi. Dadzie, S., K., N., and Acquah H., D. (2012) 'Attitudes Toward Risk and Coping Responses: The Case of Food Crop Farmers at Agona Duakwa in Agona East District of Ghana', *International Journal of Agriculture and Forestry*, 2 (2): 29-37.
- xvii. Danes, S., and Lee, J. (2008). The Effects of Ethnicity, Families and Culture on Entrepreneurial Experience: an Extension of Sustainable Family Business Theory. *Journal of Developmental Entrepreneurship*, 13 (3): 229-268.
- xviii. Diallo, O. (2012) 'Small and Medium Enterprises (SMEs) as Drivers of Productive Capacity and Job Creation in Africa'. Regional preparatory meeting for Africa (ECOSC New York). 16 pp. Available at: [https://scholar.google.com/scholar?hl=en&and\\_sdt=0%2C5andq=+Small+and+Medium+Enterprises+%28SMEs+%29+as+Drivers+of+Productive+Capacity+and+Job+Creation+in+Africa+by+Diallo+2012&btnG](https://scholar.google.com/scholar?hl=en&and_sdt=0%2C5andq=+Small+and+Medium+Enterprises+%28SMEs+%29+as+Drivers+of+Productive+Capacity+and+Job+Creation+in+Africa+by+Diallo+2012&btnG) (last accessed 21 June 2018).
- xix. Drnovsek, M., Wincent, J., and Cardon, M., S. (2009) 'Entrepreneurial Self-efficacy and Business Start-up: Developing a Multi-dimensional Definition', *International Journal of Entrepreneurial Behaviour and Research*, 16 (4): 329-348.
- xx. Endres, A., and Woods, C. (2003) 'Modern Theories of Entrepreneurial Behaviour: an Appraisal'. Working paper. Auckland: University of Auckland, Economics Department.
- xxi. Endres, A., M., and Woods, C., R. (2009) 'Schumpeter's 'Conduct Model of the Dynamic Entrepreneur': Nature, Scope and Distinctiveness', Springer-Verlag, 1-40.
- xxii. Finez, J. (2008) 'Three Steps Methodology to Measure an Individual's Personal Competences for Entrepreneurship towards a Particular Business Idea', *Journal of Technology Management and Innovation*, 3(2): 99-107.
- xxiii. Gajanayake, R. (2012) 'The Impact of Marketing Strategies and Behaviour of Small and Medium Enterprises on Their Business Growth'. Proceedings of the 1st International Conference on Business and Information, University of Kelaniya. Available at: [https://scholar.google.com/scholar?hl=en&and\\_sdt=0%2C5andq=Gajanayake%2C+R.+%282010%29.+The+Impact+of+Marketing+Strategies+and+Behaviour+of+Small+and+Medium+Enterprises+on+Their+Business+Growth&btnG](https://scholar.google.com/scholar?hl=en&and_sdt=0%2C5andq=Gajanayake%2C+R.+%282010%29.+The+Impact+of+Marketing+Strategies+and+Behaviour+of+Small+and+Medium+Enterprises+on+Their+Business+Growth&btnG) (last accessed 21 June 2018)
- xxiv. Glen, S. (2016) 'Kaiser-Meyer-Olkin (KMO) Test for Sampling Adequacy'. Online source. Available at: <http://stats.stackexchange.com/questions/92791/why-does-sphericity-diagnosed-by-bartlett-test-mean-a-pca-is-inappropriate> (last accessed 20 November 2016).
- xxv. Government of Mali (2014). Recueil des Textes d'Application de la Loi d'Orientation Agricole, 2th Edition, 187 pp.
- xxvi. Grant, M. (200) 'Proactive Behavior in Organizations, *Journal of Management*, 26 (3): 435-462.
- xxvii. Henley, A. (2007) 'From Entrepreneurial Aspiration to Business Start-up: Evidence from British Longitudinal Data', *Entrepreneurship and Regional Development*, 19: 253-80.
- xxviii. Jaleta, M., Gebremedhin, B., and Hoekstra, (2009) 'Smallholder commercialization: Process, Determinants and Impacts. ILRI Discussion paper No. 18. Available at: [https://scholar.google.com/scholar?hl=en&and\\_sdt=2005andsciodt=0%2C5andcites=-](https://scholar.google.com/scholar?hl=en&and_sdt=2005andsciodt=0%2C5andcites=-)



- 11723103547139017650andscipsc=andq=Smallholder+commercialization%3A+Processes%2C+determinants+and+impact+by+jaletaandbtnG= (last accessed 21 June 2018).
- xxix. Kamp, Ev. (2010) 'Is proactive behavior reciprocal? A study on Organizational Support, Affective Commitment, Personality and Proactive Behavior'. Bachelor Thesis Organization and Strategies (Tilburg 2010) 29 pp.
- xxx. Kautonen, T., Down, S., and Minniti, M. (2014) 'Ageing and Entrepreneurial Preferences', *Small Business Economics*, 42(3): 579-594.
- xxxi. Kirzner, I., M. The Alert and Creative Entrepreneur: A Clarification, IFN Working Paper No. 760, 15 pp. Available at: <https://www.google.com/url?sa=t&drct=j&dq=andescr=s&source=web&cd=1&ved=0ahUKewi5v6GTh-XbAhXDwxQKHYYHDDnUQFggqMAA&url=http%3A%2F%2Fciteseerx.ist.psu.edu%2Fviewdoc%2Fdownload%3Fdoi%3D10.1.1.473.4899%26rep%3Drep1%26type%3Dpdf&usg=AOvVawOPosElwIzDN9ERLYEJkmlf> (last accessed 21 June 2018).
- xxxii. Kouame, E., B., H. (2014) 'Risk Aversion and Agricultural Decision Making under Uncertainty: Evidence from Rural Côte d'Ivoire'. United Nations University – Institute for Natural Resources in Africa, 11 pp. Available at [https://scholar.google.com/scholar?cluster=11411514972987026760&hl=en&as\\_sdt=2005&scioldt=0,5](https://scholar.google.com/scholar?cluster=11411514972987026760&hl=en&as_sdt=2005&scioldt=0,5) (last accessed 22 June 2018).
- xxxiii. Krueger, N., F., and Brazeal, D., V. (1994) 'Entrepreneurial Potential and Potential Entrepreneurs', *Entrepreneurship Theory and Practice*, 18: 91-91.
- xxxiv. Krueger, N., Liñán, F., and Nabi, G. (2013) 'Entrepreneurship and Regional Development'. Call for Papers. 5 pp. Available at: <https://www.tandf.co.uk/journals/authors/tepnauth.pdf> (last accessed 4 April 2018).
- xxxv. Kusek, J., Z., Prestidge, M., G., and Hamilton, B., C. (2013) 'Fail-safe Management: Five Rules to Avoid Project Failure'. World Bank Discussion Paper (DC 20433), 91 pp. DOI: 10.1596/978-0-8213-9896-8.
- xxxvi. Liñán, F., and Chen, T., W. (2006) 'Testing the Entrepreneurial Intention Model on a Two-country Sample'. Document de Treball num. 06/7. Working paper, University of Barcelona, Spain, 37 pp. available at: [https://scholar.google.com/scholar?cluster=14951750599613320786&hl=en&as\\_sdt=2005&scioldt=0,5](https://scholar.google.com/scholar?cluster=14951750599613320786&hl=en&as_sdt=2005&scioldt=0,5) (last accessed 22 June 2018).
- xxxvii. F. & Chen, Y.-W. (2006) 'Testing the entrepreneurial intention model on a two-country sample'. Working paper. Barcelona, Spain: University of Barcelona.
- xxxviii. Lins, A., A., and Doktor, R. (2014) 'A Theory of Entrepreneurial Opportunity Discovery, Knowledge Creation, and Decision-Making', *Business and Management Research*, 3 (1) : 1-13.
- xxxix. Lumpkin, G., T., and Dess, G., G. (2001) 'Linking the Two Dimension of Entrepreneurial Orientation to Firm Performance: the Moderating Role of Environment and Industry life Cycle', *Journal of Business Venturing*, 16: 429-451.
- xl. Ministère de l'Agriculture, de l'Agroalimentaire et de la Forêt (2014). *Les Politiques Agricoles à travers le Monde: Quelques exemples-Mali*, 6 pp..
- xli. Miron, W. and Hudson, D. (2014) 'Enabling Employee Entrepreneurship in Large Technology Firms', *Technology Innovation Management Review*, 4: 23-32.
- xlvi. Misra, S., and Kumar, E., S. (2000) 'Resourcefulness: A Proximal Conceptualisation of Entrepreneurial Behaviour', *Journal of Entrepreneurship*, 9: 135-154
- xlvi. Moralista, R., B., and Delariarte, G., C. (2014) 'Entrepreneurship as a Career Choice: An Analysis of Entrepreneurial Self-Efficacy and Intention of National High School Senior Students at the Municipality of Calinog, Iloilo'. *Asia Pacific Journal of Education, Arts and Sciences*, 1(2): 2362-8022.
- xlvii. Mueller, S., L., and Thomas, A., S. (2001) 'Culture and Entrepreneurial Potential: A Nine Country Study of Locus of Control and Innovativeness', *Journal of Business Venturing*, 16(1): 51-75.
- xlviii. Muhammad, A., and Junaid, M. (2016) 'Determinants of entrepreneurial behaviour in FATA Pakistan, International Food Policy Research Institute'. Working paper No. 038. (International Food Policy Research Instit: DC 20006-1002 USA).
- xlix. Østergaard, A. (2014) 'The Challenges of Measuring the Entrepreneurial Personality? A Methodological Approach'. Paper Presented at the DRUID Society Conference 2014. Copenhagen: CBS.
- xlvi. Government of Mali (2013) 'Politique de Développement Agricole-Documents Provisoire, March 2013, 39 pp.
- xlvi. Institut National de Statistique (INSTAT) and Bureau Central de Recensement (BCR) (2009) '4<sup>ème</sup> Recensement Général de la Population et de l'Habitat'. Document Provisoire. 33 pp.
- xlvi. Schumpeter, J. (1935) 'The Analysis of Economic Change'. *Review of Economics and Statistics*, 17 (4): 2-10.
- li. Singh, G., and DeNoble, A. (2003) 'Early Retirees as the Next Generation of Entrepreneurs', *Entrepreneurship Theory and Practice*, 27(3): 207-226.
- lii. Sitzia, J. (1999) 'How valid and Reliable are Patient Satisfaction Data? An Analysis of 195 studies'. *International Journal for Quality in Health Care*, 11 (4): 319-328.
- liii. Stevenson, L., and St-Onge, A. (2011) 'Assessment of the Environment for the Development of Women's Entrepreneurship in Cameroon, Mali, Nigeria, Rwanda, and Senegal'. International Labor Office. Employment report No 15. 207 pp. available at: <https://www.google.com/url?sa=t&drct=j&dq=andescr=s&source=web&cd=1&cad=rja&uact=8&ved=0ahUKewiEgvaRieXbAhWBSHQKHXCJARwQFggIIMAA&url=http%3A%2F%2Fwww.ilo.org%2Fwcm%2Fgr>

- oups%2Fpublic%2F---ed\_emp%2F---emp\_ent%2F---  
ifp\_seed%2Fdocuments%2Fpublication%2Fwcms\_170545.pdfandusg=AOvVaw3fn6jOdtLj4bfMob-n-20N
- liii. Swedberg, R. (2007) 'Rebuilding Schumpeter's Theory of Entrepreneurship'. Conference on Marshall, Schumpeter and Social Science. Hitotsubashi: Hitotsubashi University, 28 pp.. Available at : <https://www.google.com/search?q=Rebuilding+Schumpeter%E2%80%99s+Theory+of+Entrepreneurship+by+s+wedberg&ie=utf-8&oe=utf-8&client=firefox-b> (last accessed 21 June 2018).
- liv. Welter, F. (2011) 'Contextualizing Entrepreneurship Conceptual Challenges and Ways forward', *Entrepreneurship Theory and Practice*, 35(1): 165-184.
- lv. World Bank. (2011) 'Missing food: The Case of Postharvest Grain Losses in Sub-Saharan Africa'. Report No. (60371-AFR), 116 pp.. Available at: [www.worldbank.org/rural](http://www.worldbank.org/rural) (last accessed 21 June 2018).
- lvi. WU, J. (2009) 'Entrepreneurial Orientation, Entrepreneurial Intent and New Venture Creation: Test of a Framework in a Chinese Context'. Doctor of Philosophy in Business, Management (Blacksburg, Virginia). 220 pp.

### Appendix

Variables	Items	Factor loadings	Uniqueness	AIC	RC	
Reluctance	I prefer salaried work	0.80	0.36			
	(Henley, 2005; Kautonen, 2014)	I prefer being a business trader	0.86	0.26		
		I prefer farming business	0.67	0.55	0.58	0.68
Self-efficiency	Shifting to commercial-oriented farming would be simple for me	0.64	0.59			
	(Lumkin and Dess, 2001; Liñán and Chen, 2006)	Running a commercial-oriented farm would be simple for me	0.77	0.40		
		I have necessary skills to start commercial-oriented farming	0.71	0.50		
Initiation	My farm assets allows me to become commercial-oriented farmer	0.68	0.53			
		Starting commercial-oriented farming, I have a high likelihood to succeed	0.67	0.56	0.46	0.73
		I have tried to become commercial-oriented farmer	0.65	0.57		
Risk-taking	(Liñán and Chen, 2006; and Covin and Whales, 2011)	I am willing to make anything to become commercial-oriented farmer	0.85	0.29		
		My professional intention is to become commercial-oriented farmer	0.81	0.35		
		I have strong thought of shifting commercial-oriented farming in the	0.82	0.33	0.43	0.80
	I like devote my assets and my time to farming business of high profitability	0.58	0.69			
	(Lumkin and Dess, 2001; Liñán and Chen, 2006; Wu, 2009; and Covin and Whales, 2011)	I prefer activities with less risky outcomes	0.68	0.54		
		I don't like to newly venture if there is uncertainty about outcome	0.68	0.59		
	If a business is highly risky and high profitable, I would go for profit but with insight into the risk	0.54	0.78			

Variables	Items	Factor loadings	Uniqueness	AIC	RC
	I often risk in new ideas to become a commercial-oriented farmer	0.71	0.45	0.33	0.60
Innovativeness	I tried once to bring new ideas and plans in my business	0.78	0.46		
(Liñan and Chen, 2006; Covin and Whales, 2011)	I prefer doing my business as other people do, without any change	0.79	0.38		
	If I gain what to feed my family and me, I don't struggle myself with any new way of doing farming	0.81	0.34		
	I always want to distinguish myself from other farmers by bringing ideas, techniques and technology that are new for them	0.7	0.52	0.70	0.75
Proactiveness	I work hard and ever try to improve my business competitiveness and growth	-0.23	0.30		
(Lumkin and Dess, 2001; and Covin and Whales, 2011)	My attitude, aptitude and ability make me ready to commercial-oriented farmer in the nearest future	0.01	0.36		
	I always look for opportunities and exploit them before other farmers	0.10	0.38		
	Farming is the most important for me, I should be ahead of others in modernizing it	0.13	0.31		
	I now am satisfied with my business and fulfilling all my needs and wants, there is no need for more venturing	0.98	0.03	0.30	0.61
Previous-failure	My previous failure in farming business is scaring me to engage in commercial-oriented farming	0.69	0.53		
(Lumkin and Dess, 2001; Liñan and Chen, 2006; Wu, 2009; Covin and Whales, 2011)	If my business idea fails, I neither correct it nor improve it and I will not	0.86	0.27		
	If business fails once, I would not try the same business even if a new environment seems to make it more profitable	0.87	0.25		
	If a new venture fails, I do not dare trying any other similar business activities to that new venture	0.76	0.43	1.06	0.81

*Table 2: Results of Factor Analysis for Entrepreneurial Behaviour*  
*Note: Chi-Squared = 3251.87; DF = 406; P = 0.000; AIC: Average Inter-Items Covariance; RC: Reliability Coefficient*