

Accepting the challenges of agricultural entrepreneurship and management development research: a viewpoint

Alexandra PLIAKOURA*

Abstract

The purpose of this paper is to put forward some ideas on what factors significantly affect entrepreneurship in the agricultural sector, in order to help strengthen them as well as outline practical strategies that can be used by future researchers. The paper is a viewpoint contribution based on the author's research on “entrepreneurship” and “entrepreneurship education” engagement with the development of management in the agricultural field. The research carried out in Western Greece among farmers entrepreneurs. A number of ideas are outlined under the following headings: creating mutually interesting content; demonstrating practical implications; motivating academics. The viewpoint summarizes the key challenges of agricultural entrepreneurship stakeholders and will be of interest to policy makers for the creation of well-targeted development programs.

Keywords: agricultural entrepreneurship, entrepreneurship education, agricultural development, management development, Greece

Introduction

This viewpoint paper on challenges in agricultural entrepreneurship research opens a new viewpoint series in the field of knowledge about agricultural management development. So, examines issues related to entrepreneurship in agriculture and offers a conceptual approach, explanation, and critical analysis of the concept. Studies of entrepreneurship confront the researcher with the difficult problem of identifying the essential properties in this multi-layered, dynamic process. The research literature strongly supports the positive relationship between financial robustness and entrepreneurial activity (Kan *et al.*, 2018) as well as the ascertainment that high levels of general education and entrepreneurship education lead to intensification of entrepreneurship (European Commission, 2006a). According to Kasseeah, (2016), entrepreneurship is increasingly seen as a development-promoting tool and it is recognized that countries, which facilitate entrepreneurship, tend to have

* Alexandra PLIAKOURA is PhD Candidate at University of Patras, Agrinio, Greece, e-mail: pliakouralex@gmail.com, apliakoura@upatras.gr.

higher economic development. Calls for more attention to this area of research in relation to managerial development are common (Maurer *et al.*, 2021; Zaccaro *et al.* 2000). But entrepreneurship is not just about the above. It is a factor of personal development and can enhance social cohesion, as entrepreneurial opportunities can be given to everyone regardless of their social background or the region in which they are located (Onalan and Magda, 2020).

The recent Global Entrepreneurship Monitor (GEM) report 2019/2020 summarizes the results of over 150,000 individual interviews conducted over 50 economies, enquiring about attitudes towards entrepreneurship, the motivations of those starting businesses and the level of entrepreneurial activity in each economy, as well as the relationship between these and a host of demographic and other variables (Bosma *et al.*, 2020). While the GEM report examines entrepreneurship as a global concept, the focus here is mainly on agricultural management development and entrepreneurship in Greece as a member of the European Union.

Although the elements of entrepreneurship seem to be relatively universal, regardless of context, one of the classic questions posed in the international literature is whether agricultural entrepreneurship is different from entrepreneurship in other sectors of an economy (Lans, *et al.*, 2013). Entrepreneurship has always been an integral aspect of the agricultural sector, a fact obscured by the presence of complex mechanisms of market regulation and by the perspective that agriculture is a special case that must be analyzed separately from other forms of economic activity (Alsos *et al.*, 2011). The study of agricultural entrepreneurship should consider the following characteristics: a) the agricultural sector, where historically agricultural work is not an entrepreneurial behaviour, b) the immediate environment of the farm, which is integrated into the countryside, c) the escalation of the risk intensity and the state intervention, and d) the family character of the agricultural enterprise.

According to Deakins *et al.*, (2016) there are different types of agricultural entrepreneurship, and they are involved in different ways in their agricultural environment. Agricultural entrepreneurship is based on the innate (natural, cultural, historical, human, social and/or financial) resources of a place where the venture needs to support its development. In Europe, as in Greece, agriculture is generally a family activity where management and control are inseparable (Pindado and Sanchez, 2017). Over the past two decades, however, the environment in which agricultural enterprises operate has greatly increased its complexity. A variety of pressing problems, including growing market globalization, changes in consumer habits and high rates of change in areas such as technology, biotechnology, and industry, have transformed the context in which the social and economic exchanges take place.

Under such globally and locally competitive circumstances, this viewpoint seeks to victual more information on the policies of strengthening entrepreneurship and to highlight the contribution of the development of entrepreneurial spirit to the general economic development of the countryside. The value seems to lie in the way in which farmers can help overcome some of the most recent changes in employment structures to achieve the goals for sustainable and smart inclusive development. This is an issue that is particularly topical and relevant given the new Common Agricultural Policy (CAP)² after 2020 (CAP 2021-2027) which will have a more comprehensive and coherent approach and will focus on, inter alia: a) maximizing the CAP 's contribution to environmental protection and tackling climate change (“green architecture”) through the establishment of ambitious environmental and climate targets by the Member States (MS); b) the establishment of a new relationship with MS; strengthening the principle of subsidiarity and design flexibility, with a simultaneous transition from a compliance-based system to a more targeted “achievement-oriented” system (by setting and achieving relevant objectives and milestones by MS) and c) promoting innovation, knowledge and new technologies (digitization) (NIEIR, 2019).

In this light, entrepreneurship has become even more important, and is a field of great emphasis at the level of academic study and central policy planning by national governments and supranational organizations such as the European Union.

The main assumption underpinning this research is that entrepreneurship influences and is influenced by the personality of the entrepreneur. In other words, entrepreneurship is in a reciprocal relationship with the individual. Therefore, the main purpose and necessity of this study is the importance of the issue of promoting entrepreneurship through the study of the impact of entrepreneurial intentions, entrepreneurship education and farmers' perception of entrepreneurial success. These constructs are believed to be vital to understanding why some entrepreneurs are more entrepreneurial than others.

Combining all of these complementary constructs is the first challenge of agricultural entrepreneurship research and leads to various sub-challenges such as the adoption of the cooperative and digital model of entrepreneurship. The paper offers a personal viewpoint of the state of entrepreneurship in the agricultural sector and discusses a range of implications for future research.

This paper is a result of the data collection experience during my doctorate. The topic of my research was “Entrepreneurship and Agricultural Development”. The need of the writing this paper is three-fold. First, provide results from one of the very few large-scale studies on personality traits

² It is the agricultural policy of the European Union and was launched in 1962. It implements a system of agricultural subsidies and other programmes.

in agricultural entrepreneurship, and to deliver insights on how to apply them in business practice. Second, based on the experiences gathered in my research on agricultural entrepreneurship over the last three years, to raise a number of implications and questions about the current and future state of the research and practice process. Third, stimulate future debate and discussion among practitioners, researchers, and policymakers.

The paper proceeds as follows. The reflection starts with a brief introduction of the context of this viewpoint. This is followed by the overall contribution and implications of the research. Finally, the paper concludes with the formulation of directions for future research and explains the practical strategies and my reflections.

1. Context

This paper is based on previously five works by the author, which emerged from extensive empirical research in the field of agricultural entrepreneurship. These papers present theoretical and empirical research about the challenges affecting aspects of agricultural entrepreneurship research using both quantitative and qualitative data. Primary data were collected using a structured questionnaire and the random sampling method.

1.1. The research approach to entrepreneurship and agricultural management development

The analysis utilized data from an extensive survey of a sample of over 400 agri-entrepreneurs in the region of Western Greece. The following is a brief overview of the content of each of the articles included in this viewpoint. This section provides a foundation for the rest of the paper.

The purpose of the first paper, entitled “The impact of locus of control and motivations in predicting entrepreneurial intentions among farmers: a field research” (Pliakoura *et al.*, 2021) was to examine the relationship between personal characteristics (such as Locus of Control (LOC), motivations) and entrepreneurial intentions (EI) among farmer entrepreneurs.

Although many researchers have focused on the predictors of EI (Autio *et al.*, 2001; Krueger, 1993; Reitan, 1996), the conceptual model of EI presented in this study uses a sample of existing agri-entrepreneurs able to explain decisions to join entrepreneurship not from university halls but from existing enterprise. This research tests the idea that EI can be used to predict certain outcomes and therefore determines the two-way relationship with personality traits. The main results indicate that a two-way relationship is evident between entrepreneurial intention, total entrepreneurial motivations, and the LOC of the survey participants, which were the main variables tested in the

model. The results of the research showed the statistical significance and strength of individual relationships of EI, to have the strongest significant two-way relationship with internal LOC and pull motivation. That said, individuals who are high in the professional hierarchy display internal LOC (Hattie *et al.*, 1997). In agriculture Kaine *et al.* (2004) found the LOC correlated with farmers' propensity to adopt innovations, to participate in extension activities and their financial performance, and Van Kooten *et al.* (1986) found the LOC correlated with farmers' objectives. It is also known that the motivations for entrepreneurial activity are many and varied, with stronger in agricultural areas the desire for socio-economic achievement and the recognition of entrepreneurial opportunities. In other words, in agricultural areas, it seems that motivations such as independence, the search for a way to increase income and social prestige are what define the concept of entrepreneurial behavior and are able to attract the establishment of businesses. In this sense, this paper is close to understanding why farmers decide to start their own enterprise. The findings of this study provide a number of theoretical and practical contributions. This research adds to the existing literature of the EI by using a different set of the sample extending the antecedents of intention by using a sample of existing agri-entrepreneurs. In this sense, the study provides a theoretical assessment of how and when LOC, as well as motivations, affect the entrepreneurial intentions of existing agri-entrepreneurs. On the other hand, the findings on EI and LOC have important practical implications for motivating the agri-entrepreneurs. Agricultural development initiatives could be aimed at farmers based on these criteria (internal LOC and motivations) to achieve the maximum impact on production. However, care must be taken to examine the potential distributive impact of these targeting farmers who are considered "non-entrepreneurial". The key managerial implication is that EI and LOC could assist policy-makers, educators, as well as existing and start-up farmers with the understanding that these specific entrepreneurial traits are necessary for a successful business venture or for moving to the next stage of the venture life cycle. It is also possible for an individual's LOC to express something about their approach to agriculture, and for this reason alone, it can be valuable as an extension, especially as a focus variable for discussion and reflection. In future research and practice it can be a first step in understanding how farmers reflect, proposing a management development framework that focuses on the farmer personality.

In the second paper, entitled "Farmers' Perception of Entrepreneurial Success: Evidence from the Greek Reality" (Pliakoura *et al.*, 2021), an attempt was made to create an entrepreneurial model of success of agricultural enterprises, based on theoretical perspectives used in previous studies in an attempt to understand what entrepreneurial success from the perspective of the farmer entrepreneur is. A review of the literature did not identify a consistent and acceptable definition or a benchmark

for achieving entrepreneurial success (ES) (Fisher *et al.*, 2014). In contrast, entrepreneurial success is usually understood through the context in which it finds itself, and from the different perspectives of the academic, the policymaker, the commentator and the entrepreneur. Previous research findings (e.g., Lin, 1998; Rose *et al.*, 2006; Rodriguez-Gutierrez *et al.*, 2015) suggest the importance of many variables that determine ES. In this sense, to answer the question "How do farmers perceive entrepreneurial success?", this empirical paper studied personality traits (e.g. locus of control, motivation), socio-demographic features (e.g. gender, educational background, initial financial capital), and external non-organizational predictors (e.g. financial crisis, competition, taxes, labor problems, etc.) to discover the relationships between selected organizational and non-organizational predictors and to contribute to the body of knowledge that identifies and examines perceived entrepreneurial success (PES). The inclusion of internal and external indicators is in line with the literature which recognizes an important relationship between them and success (Staniewski, 2016). The research revealed that ES is recognized through the presence of internal/organizational factors and not the external environment. The significant loss of the direct impact of external/non-organizational factors on perceived entrepreneurial success is an important finding that shows that success is more related to the human factor, emphasizing the need for independence, good business organization, personal work, ability to collaborate, communication skills as well as the use of innovative views. Indeed, a body of literature (Vallerand, 2008; Mageau *et al.*, 2007) exists that addresses and highlights the “*things that make our lives worth living*” showing the interrelationships between satisfaction, achievement, and entrepreneurial activities. Considering the different approaches to the studies of entrepreneurial success this paper contributes to entrepreneurial practice in that it provides guidelines on exactly which predictors are positively associated with PES, which predictors are negatively associated with PES, and which ones are unrelated to PES. That said, internal LOC, pull motivation, innovativeness, and entrepreneurial capacity have positive impact on PES, whereas the ratings for push motivations, educational background and internal funding were negative. Contrary to expectations, external/non-organizational predictors did not appear to play a significant role in farmers’ perception of success. This result shows that external/non-organizational predictors as a measure of success have nothing to do with perceptual scripts.

In the third paper, entitled “Education in agricultural entrepreneurship: training needs and learning practices” (Pliakoura *et al.*, 2020), the authors highlight the role and necessity of entrepreneurship education in enhancing entrepreneurship. At the same time, the research seeks to highlight good practices and particularly educational methods in the field of agriculture. The study of the way of entrepreneurship education (EE), leading to its development and acceptance can

ameliorate our understanding of EE research and how it influences entrepreneurial success. Entrepreneurial education is very important for subsequent entrepreneurial behaviour and attitude because it can be a powerful indicator not only for entrepreneurial intentions but also for entrepreneurial success and management development.

Existing entrepreneurship education research is useful in delineating the body of knowledge of what, when and how farmers need it, giving policymakers and researchers the opportunity to evaluate and build on research findings. In addition, it can be argued that the investigation of farmers' needs, views, and attitudes towards entrepreneurship education revealed that they are positively disposed about the concept and practice of lifelong learning and are willing to pay to fill real gaps in their knowledge and skills. In particular, farmers believe that entrepreneurship can be taught. In light of this, there is a need to develop a social culture oriented towards entrepreneurship, especially in Greece where logics of the past prevail that do not release the forces of “we” versus “me”. In any case, given the existence of different subgroups and profiles within the wider group of farmers, but also the different local conditions and needs, entrepreneurship education should consider the individual training needs.

The teaching of personal skills should not only be limited to traditional methodologies and specific courses, but they also require a different pedagogical style. The transfer of knowledge in the context of structured educational programs can incorporate combinations of different methods, adapted to the content of the programs. The research findings highlight the need to introduce new, more participatory models of knowledge dissemination, such as field activities or contact with other entrepreneurs. This paper supports “learning experience”, “learning by act” and “social learning” (the process by which knowledge is created through the transformation of experience). Participating in an entrepreneurship program has an impact on both LOC and EI. The research concluded that the implementation of any educational effort should be based on the "targeting before implementation" approach.

In the fourth paper, entitled “Significant barriers to the adoption of the agricultural cooperative model of entrepreneurship: a literature review” (Pliakoura *et al.*, 2022), a theoretical framework was presented. A systematic review of the literature (SLR) led to the identification of significant obstacles that undermine the adoption of the agricultural cooperative model of entrepreneurship. The originality of the study lies in proposing a conceptual framework for carrying out effective management development that predicts higher cooperative member commitment and participation. The methodological originality lies in utilizing the systematic literature review for developing a new concept. A study of cooperative entrepreneurship is important today, as citizens in many countries

(both developing and developed) are seeking diverse pathways to carve out viable livelihoods within agriculture. In this context, cooperatives are organizations whose activity revolves around people and their needs (Hidalgo-Fernandez *et al.*, 2020). Ribeiro-Soriano and Urbano, (2010), referring to the idea of collective entrepreneurship, point out that individuals sharing similar roles across various organizational contexts construct a new occupational identity and mobilize resources to increase the status or (“professionalize”) their occupation. So, building the model of cooperation for the agri-food sector is not an ideological or social luxury, but an insurmountable economic need. The reason is simple. The size of the agri-food sector at all levels is so small that it makes the majority of agricultural units non-competitive in terms of both cultivation and exports and internationally traded products. Therefore, the purpose of this review was to identify the main problems encountered in the organization/management of agricultural cooperatives and factors that may influence their entrepreneurship internationally. Specifically, the objective was to categorize the problems arising from the research so as to help cooperatives focus and overcome these problems, making them a dynamic entrepreneurial model. The real challenge is how small farmers can be connected in a market and integrated into the farm-to-fork value chains. The participation of young farmers in strong agricultural cooperatives can help them succeed in their business endeavors and then be a solution to their limited market presence. The most important benefits from the existence of robust agricultural cooperatives in the market stem from the existence of countervailing power, economies of size, risk reduction, minimization of asymmetric information and the rise of social capital (Kontogeorgos *et al.*, 2017; Sergaki and Nastis, 2011). In agriculture, this entrepreneurial model, based on “cooperative capitalism” combines business freedom, economic solidarity, and a strong bond with a local area, placing farmers at the heart of their governance and business development strategy. The cooperative model also promotes self-determination and a sense of responsibility -key qualities- that allow cooperative members (in this case farmers) to play their role as entrepreneurs. It is a model for the people by the people, able to take part in the regional development programs. The literature review identified several obstacles which are largely due to the lack of education and awareness about the cooperative movement. In particular, the most important obstacles for the existence of strong agricultural cooperatives in the market are identified in the existence of Management problems (decision making, participation and cooperation, transparency, as well as the problem of organizational fragmentation), financial problems (finance and accounting, economies of scale, product diversification) as well as lack of cooperative training (technical training and work, cultivation of a spirit of cooperation). If education focuses on what this study identifies as significant barriers, targeted actions and learning practices can be suggested not only to reduce but also to

eliminate these barriers, thus contributing to the success of this entrepreneurial model. The present SLR can be beneficial not only for academics and researchers but also for Managing Directors and policymakers. Based on the analytically presented important barriers as well as the respective themes revealed, academics and researchers can design studies of high value for further investigation of this agricultural entrepreneurial model.

Finally, the fifth paper, entitled “Enhancing Agricultural Entrepreneurship Through Mobile Applications in Greece: The Case of a "Farm Management" Application” (Pliakoura *et al.*, 2021), analyzes how mobile applications can be powerful tools in the hands of farmers. In recent years, heightened attention has been given to the digital model of entrepreneurship as a new and growing area of research. Digital entrepreneurship broadly refers to creating new ventures and transforming existing businesses by developing novel digital technologies and/or novel usage of such technologies (Beliaeva *et al.*, 2020). Bearing in mind this dynamic, the owners of 10 agricultural enterprises were asked to manage their farms with the help of a mobile “farm management” application for a period of 4-6 months. The paper then presents, from an empirical point of view, how this process evolves, considering the experience of users through a process of evaluation of the application under study in order to research the field of digital technology and to highlight its adoption factors. The evaluation identifies those features that an application should have in order to be user friendly and easily applicable by users (farmers) so that they can manage the farm efficiency from anywhere, to gather all information in one note, to have real data and make better decisions on inputs, crop planning, leases, etc. in order to enhance the productivity and competitiveness of holding and achieve their business goals. The rural population must compete in a complex and highly competitive environment and must therefore make changes to its strategic process. This research suggests that this entrepreneurial model is based on the service offerings that combine the demonstration of innovation, growth strategies with an increasing user base, and the ability to management development. It is necessary to identify the opportunities for the development of the Greek economy through the modernization of technical, technological and management processes based on the use of the latest technologies that digitize the economy as a new development model. In this sense, the study suggests that the design of user-friendly applications would help their mass adoption by agricultural enterprises. According to the results, it was found that the main factors influencing the acceptance and intention to use the new technology are the user experience of mobile applications, the expectation of improved performance, ease of use and utility, the expected personal benefits (e.g., less effort) and the suitability of the technology for its intended purpose. Although the majority of users were experienced in using the Android system, all of them were concerned about the ease of

use and the learning time of the application. Given the high application of digital technology in agriculture, farmers' technological skills are vital to identifying and exploring opportunities in every direction. The acquisition of "analytical" skills, the expanded field of knowledge and the friendly functional environment of these systems for users who do not have programming knowledge is considered of utmost importance. Digital farm management is a way for farmers to use their time and space to diversify existing business practices. That said, digital technology offers the opportunity for farmers to create new business ventures that are complementary to the knowledge economy. In addition, the document encourages the adoption of a hybrid strategy (combining cost control and diversification) to improve the competitive position of these agricultural enterprises by identifying which crops, fields, machines, or workers have the best productivity. Finally, this document, among others, contributes to the development of farm entrepreneurship by focusing on the use of mobile technology.

1.2. Locus of Control and management development

There is a need to better understand and manage Locus of Control as a bridge between experience and development. To the extent that control focuses on changeable or improvable factors (e.g., behaviors, skills, knowledge, etc.), locus of Control as a deliberate tool of managerial ability is conducive to development. According to Selart, (2005) locus of control may act as a bias in organizational decision-making. Abay *et al.*, 2017 claim that locus of control significantly predicts farmers' technology adoption decisions, including use of chemical fertilizers, improved seeds, and irrigation. Locus of control can distinguish between successful and unsuccessful businessman. In Nuthall (2010) research, while it does not appear the LOC is a major basic component of a farmer's managerial ability, it might well relate to other important aspects of a farmer's operation and be useful as an aid to training and extension activities. It is also likely a farmer's LOC expresses something about his/her approach to farming, and for this reason, it can be a valuable construct in agricultural management development.

1.3. Cooperatives and management development

In the current changeable economic environment, businesses have become interested in the management of human capital, considering this to be a key factor for their success (Lau and Ngo, 2004). The cooperative model has for many years been considered a mechanism for community

development and regional development. The model is used by many developing countries as a tool for economic self-progress and management development (Fernandez *et al.*, 2018). The unique characteristics of the cooperative sector provide a specific framework for human resource management in this sector. In addition, in a cooperative organization many employees have different roles in the same company. This tool can be adapted for other types of cooperatives with different activities (economic and non-financial activities) in different sectors (Hidalgo-Fernandez *et al.* 2020). The implementation of quality management systems in cooperatives is a business strategy that can assist companies, to improve their operational efficiency and consequently their financial and managerial performance (Kontogeorgos, *et al.* 2018).

1.4. Digital technology and management development

Digital models are playing a significant role in entrepreneurship and management development (Panda, (2019). Digital entrepreneurship is a category of entrepreneurship that incorporates the use of information technology and entrepreneur. The degree of difficulty of the decisions that managers / producers are called upon to make is becoming more and more complex, requiring their support by specialized tools. The evolution of digital technology, especially of Information and Communication Technology (ITC) poses many challenges for smart, sustainable and inclusive growth, and is therefore a crucial initiative to strengthen entrepreneurship and management development in the agricultural sector (Pliakoura *et al.*, 2021).

2. Discussion

Many practitioners and researchers acknowledge the need for inclusive thinking. Overall, empirical research that are included in this paper highlighted several challenges and solutions within the framework of the entrepreneurship agricultural model. Although promising research is ongoing, this viewpoint continues to focus on the self-aware, educated and growth-oriented farmer entrepreneur. The following sections highlight the finding's contribution to the literature, practitioners and policymakers.

2.1. Overall contribution

In agriculture, despite the extensive literature on entrepreneurship, there are few studies focusing on the study of individuals. This paper addressed these challenges by shedding light on some

of the specific aspects of agri-entrepreneur's personality associated with creating and discovering entrepreneurial opportunities. The study of the entrepreneurial process among existing agri-entrepreneurs provided a fertile ground for explaining, anticipating and defining entrepreneurial intentions and entrepreneurial success as factors creating opportunities and agricultural economic development. According to this reasoning, the research stressed first the importance of individual characteristics for entrepreneurial practices and management development creation efforts and secondly the need for entrepreneurship education and training among farmers. The challenges arising from covering the above research gaps have as recipients:

- Researchers, for the different approach of entrepreneurship beyond the economic data, but also for the exploration of new complex scientific fields and issues. It is often said that practice finds a solution, but researchers explain it away. The study and analysis of the factors by which entrepreneurship can be enhanced makes it obvious that management and the theory of entrepreneurship is a multidimensional phenomenon that requires coordinated and intensive efforts by all stakeholders, in order to have a positive economic result. In this way, the previous research on personality variables (e.g., Chlosta *et al.*, 2010; Denisi, 2015; Souitaris *et al.*, 2007; Fisher *et al.*, 2014; Katekhaye *et al.*, 2019, Sergaki *et al.*, 2020) that affect agricultural entrepreneurship is expanded.
- Local agents, in order to be able to develop actions, better oriented to the needs of the agri-entrepreneurs and the inhabitants of their place.
- Policymakers, so that the design of development programs is not piecemeal and individually oriented towards entrepreneurship or agricultural development but aims at their simultaneous reinforcement. Policy makers and practitioners engaged in rural development face a complex problem with no easy solutions. The presented evidence in this paper is believed to be valuable for understanding the heterogeneity of entrepreneurship in the agricultural sector. First, public policy should realize the value of critical perceptions (desirability, motivations and feasibility) held by farmers to behave entrepreneurially. In addition, policymakers will have to design their own specific programs to create favorable conditions for agri-entrepreneurs in the specific environment in which they operate. From a managerial point of view, the results of the research prove the complexity of the field of agricultural education and confirm the need for careful approaches of the target populations before the design and implementation of the educational process. Program implementers need to realize that agricultural societies are not homogeneous and focus on designing training programs tailored to the requirements of individual groups and how to enhance certain attitudes associated with management. Policies often fail to consider the

specificities of the rural population and local ethos or culture (North and Smallbone, 2006). This viewpoint can help policymakers and community actors understand how to build bottom-up entrepreneurial capacity that considers the farmer's personality. Recognizing the way in which agricultural entrepreneurship interacts with individual characteristics can enable a more effective design, implementation, and enforcement of entrepreneurial policies in lagging areas. It is important to understand how agricultural entrepreneurs think, behave and act in order to put forward practical or policy recommendations. This document hopefully has contributed to enhancing such understanding.

- Agents involved with entrepreneurship, in order to transfer and communicate to agri-entrepreneurs the role and responsibility they undertake in local development, where they settle and operate. The person-centered dimension is just one piece of the puzzle of entrepreneurship, and they need to know this in-depth in order to complete it properly. Entrepreneurial individuals are imperative for agricultural development, as they are individuals who - not only create jobs - but are also interested in improving the quality of rural life by focusing on their entrepreneurial skills, innovation, and seizing opportunities.

Additionally, the paper contributes to the “agricultural management”, which on the one hand the object itself is complex, on the other hand, those who are called to implement it, are farmers, cooperatives and all those who are active in the agricultural sector.

Finally, the contribution to the effort of acceptance and use of mobile applications by farmers is important, providing the opportunity to minimize cross-border barriers to trade and investment as well as to strengthen the regional integration of the value chain. Even more in troubled periods like the one we are currently going through with the pandemic (Covid-19) that came to further isolate the agricultural world, diffusion applications of information and technology are of crucial importance.

In order to strengthen the new models of entrepreneurship (cooperative, digital) where the contemporary reality demands, emphasis should be placed on educational and training programs. The development of skills, with the aim of promoting collaborative forms and creating a channel of communication and contact between farmers in order to find “common ground”, is the solution to many of the problems faced by farmers entrepreneurs.

The combination of all these different acceptances and challenges simultaneously creates the framework for research approaches to entrepreneurship research at all levels. There may, of course, be many more challenges, some of which may only become apparent once others have “reached” their recipients.

3. Critical reflections and future works

This paper opens various avenues for further research. First and foremost, scholars need to reconsider fundamental entrepreneurship and theory models. A constructive way to do this could be to develop more integrated and multilevel tools and methodological approaches for evaluating entrepreneurship factors at a developmental level. A holistic approach that involves more variables of farmer entrepreneurial attitudes with economic data (e.g., yield) can be added to the conceptual model and consist an important research path for future empirical studies in the field.

However, the empirical evidence on which this view is mainly based is the result of some choices regarding approach, design and method and not exempt from limitations, which may involve future lines of research. First, the studied empirical data is the result of a cross-sectional research which focuses on the investigation of the phenomena under consideration at a “statistical” time point. Second, future work could consider other moderating variables such as the work experience of the farmers, or if they have undertaken previous programs or courses of entrepreneurship. Third, personal skills have been measured using self-perception tools. Future lines of research can work on tests where these skills can be directly audited. In addition, future research should focus on exploring the effectiveness of entrepreneurial education programs, namely the degree of achievement of learning and behavioral goal in all directions as they are set by the respective development framework. Moreover, it would be interesting to bring to this research the model of cooperation between farmers. What makes farmers work together and why? How this changes with the entrepreneurial culture of the area and how the collaboration affects the entrepreneurial culture. In this way, a comprehensive plan for the promotion of entrepreneurial, innovative and creative attitudes could be advanced.

Finally, future research needs to consider entrepreneurship in theory and application. As entrepreneurship researchers, we need to add variance to the theory and avoid being trapped in the same old way of thinking.

Conclusions

In this viewpoint, a series of findings critical to understanding the factors affecting the entrepreneurship and management development of Greek farmers were presented. At the same time, it was documented that entrepreneurship is a complex issue, the success of which depends on the determination with which to deal at the same time all those elements involved in highlighting entrepreneurial opportunities, cultivating entrepreneurial thinking, developing a cooperative spirit,

adopting necessary technology and in the lifelong presence of entrepreneurship education. These elements, which are concretized in appropriate skills, are key components of the conditions for the effectiveness of this human resource in the enterprises that they will potentially create or already possess. The synchronous competitive environment developed in agriculture needs new, flexible, organized farms with management control and adaptation to market requirements. That is why it is necessary to have people with an entrepreneurial spirit and innovative ideas that will take advantage of the comparative advantages and expand the productive potential of the country. That said, the process of upgrading the level of education will contribute to the formation of the necessary critical mass of people in the agricultural sector, with a relatively satisfactory level of education that will allow them to capture the challenges presented in the field of agricultural production internationally. Both the empirical research and the previous literature reflect the need to apply new methodologies of agricultural entrepreneurial education.

The findings discussed in this paper provide empirical evidence on the influence of personal abilities to improve entrepreneurship. Individual development plays an important role in the understanding of the behaviour and attitude of farmers that differentiate “entrepreneurial” individuals from “non-entrepreneurial” and could be used to promote entrepreneurship through several approaches. This is a general finding, which in practice will help policymakers to achieve faster growth. What is needed is the “translation” of the individual findings into specific actions and programs of parallel and simultaneous development and improvement focusing on the personality of the farmer. This can be achieved by constantly informing, educating, and training the farmer by placing in the role of “farmer entrepreneur”, the “professional farmer”, aware of his socio-economic position. The present research demonstrated that there is empirical value in framing individual traits differences in this type of overall framework.

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