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ENTREPRENEURIAL INTENTION IN PUERTO RICO'S AGRICULTURE: A LOOK AT AGRO-CANNABIS

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Abstract: The agricultural entrepreneurial intention is an activity that seeks to improve agricultural productivity and therefore the competitiveness of agro businesses. The changing market environment, together with the development of new information and communication technologies, means that the modern agribusiness must take on the challenge of modifying its management to compete successfully. Puerto Rico's economy has experienced a remarkable decline in recent years. The new incorporation of cannabis production on the island offers a new paradigm. The use of the intention model based on the theory of planned behavior (TPB) is presented as a method in this quantitative research to determine whether the production of cannabis for medicinal use forms entrepreneurial intentions in agricultural students at the undergraduate level. The research aims to respond and provide information to the academic community in relation to whether the entrepreneurial intention to agro cannabis is influenced by exogenous factors that in turn influence the attitudes, subjective norms, and perceived control of undergraduate students of agriculture at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayagüez.

Key words: Entrepreneurship, agriculture, theory of planned behavior.

INTENCIÓN EMPRENDEDORA EN LA AGRICULTURA DE PUERTO RICO: UNA MIRADA HACIA EL AGRO-CANNABIS

Resumen: La intención emprendedora agrícola es una actividad que persigue mejorar la productividad y la competitividad de los agronegocios. Los cambios y el desarrollo de nuevas tecnologías de información y comunicación provocan que la empresa agropecuaria moderna deba modificar su gestión para poder competir con éxito. La economía de Puerto Rico ha decrecido notablemente en años recientes. La nueva incorporación de la producción de cannabis en la agricultura de Puerto Rico ofrece un nuevo paradigma. La utilización del modelo de intención basado en la teoría del comportamiento planificado (TCP) se presenta como método en esta investigación cuantitativa para determinar si la producción de cannabis para uso medicinal forma intenciones emprendedoras en estudiantes de agricultura a nivel subgraduado. La investigación tiene como propósito responder y aportar información a la comunidad académica en relación con: si la intención emprendedora al agro-cannabis está influenciada por factores exógenos que a su vez influye sobre las actitudes, normas subjetivas y control percibido de los estudiantes subgraduados de agricultura de la Universidad de Puerto Rico en Utuado y Universidad de Puerto Rico en Mayagüez.

Palabras clave: Emprendimiento, agricultura, teoría del comportamiento planificado.

Introduction

Throughout its history, Puerto Rico's economy, and particularly its agriculture, has undergone profound changes. Catalá (1998) pointed out that Puerto Rico had to participate as a supplier of a primary good such as sugar. Sugar production increased. Catalá (1998) stated that the increase in sugar production was both extensive and intensive. The land dedicated to sugar cane increased from 72 thousand one hundred and forty-six acres (74 thousand two hundred and ninety-one cuerdas) at the beginning of the change of sovereignty to 251 thousand eighteen acres (258 thousand five hundred and forty-nine cuerdas) in 1930. The extension of the cultivated area increased from 15% to 44%.

Rodriguez (2008) argued that, from 1947 to 1973, the island's public policy focused on capital industrialization by invitation. This development changed the order of importance of Puerto Rico's economic sectors.

Since the U.S. economic crisis of 1974, Puerto Rico has been characterized by a long period of economic stagnation. The International Monetary Fund (IMF) (2016) considered that Puerto Rico's economy ended fiscal year 2016 with a contraction of -1.3%. For 2017, the economy again fell -1.4%. According to data from the Economic Report to the Governor (2016) between the years 2013 to 2016 the gross national product decreased: - 0.1%, - 1.8%, - 0.7% and - 1.1% respectively each year. The Economic Report to the Governor (2021) highlighted that Puerto Rico's economy in 2020 suffered a significant decline of 5.0 percentage points when compared to fiscal year 2019 which manifests a consistent reduction in its economic activity.

The current crisis motivates the search for new opportunities. Entrepreneurship is an important production factor that visualizes business opportunities. Puerto Rico's critical economic evolution in recent years has raised concerns about future development.

According to Wompner (2012) the real key to professional success is the ability to adapt to a changing, globalized and cross-cultural world. This means that future professionals must be able to be flexible, interested in learning and able to cross borders.

Entrepreneurial intention, according to Osorio and Londoño (2015) has often been studied through the use of intention models; Ajzen's theory of planned behavior (TCP) offers a coherent and robust framework for understanding the entrepreneurial process. This is the reason why this model was chosen for the present analysis. Krueger and Brazeal (1994); Krueger and Carsrud (1993) and Krueger, Reilly and Carsrud (2000) state that the Theory of Planned Behavior (TCP) is a general model that serves to explain individual behavior.

The benefits of entrepreneurial business activity in the agricultural sector together with the therapeutic and economic properties that can be derived from the activity of agro-cannabis for medicinal use constitute a framework of opportunity. The need for food security for the island harbors new business possibilities and intentions to generate employment and activate the island's economy. Data from the 2012 and 2017 Agricultural Census validated a decreasing trend in the

number of farms in Puerto Rico from 13 thousand one hundred and fifty-nine in 2012 to 8 thousand two hundred and thirty in 2018.

Some causes of this phenomenon were explained by Irizarry (2012), who details the urbanization process experienced in Puerto Rico, which caused the transformation from a rural society to an urban one. In addition, Pol (2001) argued that Puerto Rico's economic profile reflected a reduction of the industrial system, high unemployment, among other factors.

By 2017, Cannabis was incorporated on the island for medical use made viable by means of Act 42 of the Legislative Assembly of Puerto Rico, which was subsequently amended by means of Act 15 of the year 2021. Considering the above facts, the following article evaluates, by means of the theory of planned behavior model, whether entrepreneurial intention to agro-cannabis is influenced by external circumstances such as the environment and individual factors that in turn influence the attitudes, subjective norms and perceived control of undergraduate agriculture students at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayaguez.

Method

Through the model of planned behavior theory, the researcher intends to answer and provide information to the academic community regarding: whether the entrepreneurial intention to agro-cannabis is influenced by exogenous factors that in turn influence the attitudes, subjective norms and perceived control of undergraduate students of agriculture at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayaguez. The research questions involved in the analysis of the study are as follows:

- Does the environment influence the attitudes of undergraduate agriculture students at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayagüez?
- Does the environment influencing subjective norms promote entrepreneurial intention to engage in agro-cannabis activity in undergraduate agriculture students at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez?
- Does the environment influence in facilitating or hindering the entrepreneurial realization (perceived control) of agro-cannabis in undergraduate students of agriculture at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez?
- Do individual factors influence the attitudes of undergraduate agriculture students at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez to agro-cannabis entrepreneurial intention?
- Do individual factors influencing subjective norms promote the intention to engage in agro-cannabis entrepreneurship in undergraduate agriculture students at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayaguez?
- Do individual factors influence facilitating or hindering the entrepreneurial realization (perceived control) of agro-cannabis in undergraduate students of agriculture at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez?

- Do attitudes positively impact the intention to agro-cannabis entrepreneurship by undergraduate students of agriculture at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez?
- Do subjective norms positively impact intention to agro-cannabis entrepreneurship by agriculture students at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez?
- Does perceived control positively impact intention to agro-cannabis entrepreneurship by agriculture students at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez?

For the research question the researcher presents the following hypotheses:

H₁: The environment influences attitudes of undergraduate agriculture students at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayagüez.

H₂: The environment influences subjective norms that impact undergraduate agriculture students at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayagüez.

H₃: The environment influences the perceived control of undergraduate agriculture students at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayagüez.

H₄: Individual factors influence the attitudes of undergraduate agriculture students at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayagüez.

H₅: Individual factors influence subjective norms impacting undergraduate agricultural students at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez.

H₆: Individual factors influence the perceived control of undergraduate agricultural students at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayagüez.

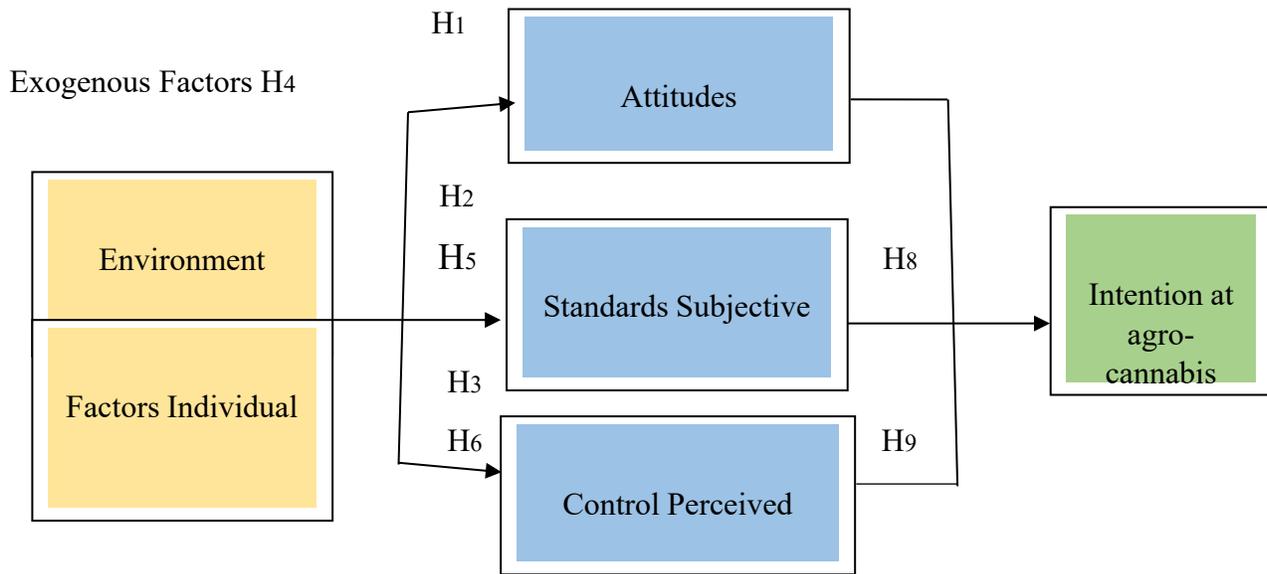
H₇: Attitudes positively impact agro-cannabis entrepreneurial intention of undergraduate agriculture students at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez.

H₈: Subjective norms positively impact agro-cannabis entrepreneurial intention of undergraduate agriculture students at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez.

H₉: Perceived control positively impacts agro-cannabis entrepreneurial intention of undergraduate agriculture students at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez. The hypotheses are explained in the following map showing the relationship between variables

Figure 1

Map of Relationship between Variables



This research developed a positivist design, quantitative in nature and with a survey technique. The PLS-SEM test was used with the bootstrapping technique in order to support or reject the researcher's hypotheses. The reasons for using the PLS-SEM test were two as stated by Osorio and Londoño (2015): which consisted in the measurement of the external model that aims to determine the reliability and validity of the model. The instrument was made by the researcher. It was developed through literature review and as a complement, it was submitted to a group of three (3) experts to validate the instrument. It was also evaluated by the Institutional Review Board of the University of Puerto Rico Mayagüez Campus and the University of Puerto Rico at Utuado, which determined that it met the objectives of the study. The study had a valid sample of 191 students using those subjects available on a non-probabilistic basis; which aimed to explore whether entrepreneurial intention to agro-cannabis is influenced by external circumstances such as the environment and individual factors that in turn influence the attitudes, subjective norms and perceived control of undergraduate agriculture students at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayaguez. In the present study, these students have been selected because they are oriented to one type of entrepreneurial activity, agriculture. This characteristic determined the incorporation of this group of people to analyze the entrepreneurial intention to agro-cannabis for medicinal use. To guide the study the researcher was concerned with: (1) developing the research questions, (2) constructing the questionnaire, (3) determining data collection areas, (4) establishing a schedule of deadlines, (5) establishing participation criteria, (6) taking the field sample, (7) determining the data interpretation instrument, (8) establishing the evaluation process, (9) defining the limitations of the research, (10) complying with the ethical statutes applied in the research process, (11) analyzing the data collected, and (12) presenting the results and their conclusions.

Results

To determine the existence of evidence to accept or reject each of the hypotheses, the t-value statistic was examined. These values were calculated using the bootstrapping technique of the SmartPLS program. Hair et al. (2014) states that the t value is calculated by the division between the path coefficient of the original sample and the standard value according to bootstrapping. Using a 90% confidence level test with a one-way hypothesis, the path coefficient will be significant if the theoretical t-value is equal to or greater than 1.28 according to Hair, Wolfinbarger, Money, Samouel, and Page (2015).

The following is a breakdown of the questions and hypotheses to provide the results of the study

- Question 1: does the environment influence the attitudes of undergraduate agriculture students at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayagüez?
 - H₁: The environment influences attitudes of undergraduate agriculture students at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayagüez.

When performing partial least squares structural equation modeling (PLS-SEM), and using the bootstrapping technique, a t-value equal to 3.385 was found. A test with a 90% confidence level and a one-way hypothesis, the theoretical t-value should be greater than 1.28 Hair et al. (2015). Since the t-value found of 3.385 is greater than 1.28, it is affirmed that there is a significant impact in the form that influences to support the hypothesis stated by the researcher. Therefore, it can be concluded that the environment is a factor that impacts students' attitudes.

- Question 2: Does the environment influencing social pressure promote entrepreneurial intention to undertake agro-cannabis activity in undergraduate students of agriculture at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayagüez?
 - H₂: The environment influences subjective norms that impact undergraduate agriculture students at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayagüez.

When performing partial least squares structural equation modeling (PLS-SEM), and using the bootstrapping technique, a t-value equal to 4.828 was found. A test with a 90% confidence level and a one-way hypothesis, the theoretical t-value should be greater than 1.28 Hair et al. (2015). Since the t-value found of 4.828 is greater than 1.28, it is affirmed that there is a significant impact in the form that influences to support the hypothesis stated by the researcher. Therefore, it can be concluded that the environment is a factor that impacts the subjective norms that impact students.

- Question 3: does the environment influence in facilitating or hindering the entrepreneurial realization (perceived control) of agro-cannabis in undergraduate students of agriculture at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez?

- H3: The environment influences the perceived control of undergraduate agriculture students at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayagüez.

When performing partial least squares structural equation modeling (PLS-SEM), and using the bootstrapping technique, a t-value equal to 4.386 was found. A test with a 90% confidence level and a one-way hypothesis, the theoretical t-value should be greater than 1.28 Hair et al. (2015). Since the t-value found of 4.386 is greater than 1.28, it is affirmed that there is a significant impact in the form that influences to support the hypothesis stated by the researcher. Therefore, it can be concluded that the environment is a factor that impacts students' perceived control.

- Question 4: do individual factors influence the attitudes of undergraduate agriculture students at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayagüez to the entrepreneurial intention of agro-cannabis?

- H4: Individual factors influence the attitudes of undergraduate agriculture students at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayagüez.

When performing partial least squares structural equation modeling (PLS-SEM), and using the bootstrapping technique, a t-value equal to 10.971 was found. A test with a 90% confidence level and a one-way hypothesis, the theoretical t-value should be greater than 1.28 Hair et al. (2015). Because the t-value found of 10.971 is greater than 1.28, it is affirmed that there is a significant impact in the form that influences to support the hypothesis stated by the researcher. Therefore, it can be concluded that individual factors is a factor that impacts students' attitudes.

- Question 5: do individual factors influencing social pressure promote the intention to engage in agro-cannabis entrepreneurship among undergraduate students of agriculture at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayagüez?

- H5: Individual factors influence subjective norms impacting undergraduate agriculture students at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez.

When performing partial least squares structural equation modeling (PLS-SEM), and using the bootstrapping technique, a t-value equal to 2.802 was found. A test with a 90% confidence level and a one-way hypothesis, the theoretical t-value should be greater than 1.28 Hair et al. (2015). Since the t-value found of 2.802 is greater than 1.28, it is affirmed that there is a significant impact to support the hypothesis put forward by the researcher. Therefore, it can be concluded that individual factors is a factor that impacts on students' subjective norms.

- Question 6: To identify whether individual factors influence the facilitation or hindering of the entrepreneurial realization (perceived control) of agro-cannabis in undergraduate students of agriculture at the University of Puerto Rico in Utuado and the University of Puerto Rico in Mayagüez.

- H6: Individual factors influence the perceived control of undergraduate agriculture students at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayagüez.

When performing partial least squares structural equation modeling (PLS-SEM), and using the bootstrapping technique, a t-value equal to 2.578 was found. A test with a 90% confidence level and a one-way hypothesis, the theoretical t-value should be greater than 1.28 Hair et al. (2015). Since the t-value found of 2.578 is greater than 1.28, it is affirmed that there is a significant impact to support the hypothesis put forward by the researcher. Therefore, it can be concluded that individual factors is a factor that impacts on students' perceived control.

- Question 7: do attitudes positively impact the intention to agro-cannabis entrepreneurship by undergraduate students of agriculture at the University of Puerto Rico at Utuado and the University of Puerto Rico at Mayagüez?

- H7: Attitudes positively impact Agro Cannabis entrepreneurial intention of undergraduate agriculture students at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez.

When performing partial least squares structural equation modeling (PLS-SEM), and using the bootstrapping technique, a t-value equal to 12.617 was found. A test with a 90% confidence level and a one-way hypothesis, the theoretical t-value should be greater than 1.28 Hair et al. (2015). Since the t-value found of 12.617 is greater than 1.28, it is affirmed that there is a significant impact to support the hypothesis put forward by the researcher. Therefore, it can be concluded that attitudes impact students' Agro-Cannabis entrepreneurial intention.

- Question 8: do subjective norms positively impact the intention to agro-cannabis entrepreneurship by agriculture students at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez?

- H8: Subjective norms positively impact the entrepreneurial intention of Agro Cannabis of undergraduate students at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez.

When performing partial least squares structural equation modeling (PLS-SEM), and using the bootstrapping technique, a t-value equal to 3.603 was found. A test with a 90% confidence level and a one-way hypothesis, the theoretical t-value should be greater than 1.28 Hair et al. (2015). Since the t-value found of 3.603 is greater than 1.28, it is affirmed that there is a significant impact to support the hypothesis put forward by the researcher. Therefore, it can be concluded that subjective norms impact students' entrepreneurial intention to impact the entrepreneurial intention to Agro-Cannabis of the students.

- Question 9: does perceived control positively impact intention to agro-cannabis entrepreneurship by agriculture students at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez?

- H₉: Perceived control positively impacts the entrepreneurial intention of Agro Cannabis of undergraduate students at the University of Puerto Rico at Utuado and University of Puerto Rico at Mayagüez.

When performing partial least squares structural equation modeling (PLS-SEM), and using the bootstrapping technique, a t-value equal to 2.359 was found. A test with a 90% confidence level and a one-way hypothesis, the theoretical t-value should be greater than 1.28 Hair et al. (2015). Since the t-value found of 2.359 is greater than 1.28, it is affirmed that there is a significant impact to support the hypothesis put forward by the researcher. Therefore, it can be concluded that perceived control is a factor that impacts students' agro-cannabis entrepreneurial intention.

A predictive model was developed, using five predictor variables for the entrepreneurial intention to use medicinal agro-cannabis. The results were obtained during the period from September to December 2017. They presented support for all the proposed hypotheses, which reflects an important contribution given the scarcity of studies on agro-cannabis in Puerto Rico. Likewise, this study reflects data of interest through the Theory of Planned Behavior, as it is the first study that analyzes agro-cannabis. Through the literature review, no previous studies analyzing this issue were identified.

Discussion and conclusions

This is the first research in Puerto Rico to study the factors that lead to entrepreneurial intention for medical agro-cannabis using Ajzen's (1991) Theory of Planned Behavior. Among the most significant findings was that the highest proportion of respondents in the study were male. The majority of the participants were young people between the ages of 18 and 28, almost all of whom were studying. The place of study of almost $\frac{3}{4}$ of the respondents came from the University of Puerto Rico in Utuado while the remaining corresponded to the University of Puerto Rico in Mayagüez. The degree of study of more than half of the participants was the associate degree. The largest proportion of students did not work while only 26.3% did. 8.1 in 10 survey participants had an income level of \$10,000 or less.

This demographic profile proved to be attracted to the agro-cannabis industry. It showed that 9 out of 10 respondents are interested in news about agriculture applied to agro-cannabis. 7.8 out of 10 subjects consider medicinal agro-cannabis as a serious option to agro-enterprise. 86.9% considered that agro-cannabis activity appeals to them as a good business opportunity. 79.1% considered being their own entrepreneur in the agricultural sector and 61.4% feel motivated to produce Cannabis. These findings demonstrate that undergraduate agricultural students at the University of Puerto Rico in Utuado and Mayagüez have a strong interest in this sector. They see it as one full of opportunities.

The final research model was able to predict 75% of the entrepreneurial intention to medical agro-cannabis by the selected sample. The key variables that allowed predicting entrepreneurial intention were: Environment, Individual Factors, Attitudes, Subjective Norms and Perceived Control.

Individual factors and attitudes were found to be the factors that most directly impact entrepreneurial intention to medical agro-cannabis, while subjective norm was the least influential factor. The different models of intentions state that business intentions are the result of a process of knowledge and understanding of beliefs, expectations and values. These models consider that individual factors are a key factor in entrepreneurial activity; both the individual's knowledge and intellect and intentions act as mediators of the influence of other factors such as demographic variables, attitudes, social and cultural variables on entrepreneurial behavior and action, according to Chattopadhyay and Ghosh (2008).

Individual factors become precedents that provoke entrepreneurship aimed at medicinal Agro-Cannabis in the present study. Naktiyok, Karabey and Gulluce (2010) emphasize that individual factors such as entrepreneurs' competence and motivation stimulate the development of entrepreneurial activity. Other reasons for this behavior are pointed out by Quevedo, Izar and Romo (2010) and Gnyawali and Fogel (1994) who state that some of the circumstances that stimulate such activity may be: being unemployed, family factor, moving to a new place, business education in agriculture, reliability in the use of cannabis for medicinal use, employment promotion, learning about cultivation, and the economic situation are reasons to undertake agro-cannabis. Naktiyok et al. (2010) state that the phenomenon of entrepreneurship is composed of individuals. This makes this variable one of the most significant in the study.

According to Ajzen (1987) attitudes explain fifty percent of the variation in behavioral intentions. Most of the studies that attempt to predict behavior do so using the attitude variable and this variable was studied under the framework of Ajzen's (1991) Theory of Planned Behavior. According to the aforementioned theory, attitudes are determined by the total set of beliefs and behaviors, which include affective and evaluative estimations. Quevedo, Izar and Romo (2010): consider values such as passion, motivation, creativity, opportunity and innovation as motives for action. The present research shows that the attitude towards agro-cannabis activity activates passion for agricultural enterprise and creativity. It is seen as an opportunity to put into practice knowledge and experience in the agricultural sector. In addition, it is intuited that agro-cannabis offers unexplored agribusiness opportunities. Students have a positive perception of agro-cannabis, which allows for a possibility of management and a different adventure of entrepreneurship in the agricultural sector. The probable economic gains motivate them to enter this activity. Attitudes obtained an explanatory power of 67% of the predictor variables environment and individual factors. This is one of the most important contributions of the research since it can be concluded that individual factors significantly impact the attitudes and this in turn the entrepreneurial intention to agro-cannabis of the subjects of the study.

Gnyawali and Fogel (1994) argue that the environment is an exogenous factor within the framework of the business environment. Its most significant components are: government policies and procedures, socioeconomic conditions, entrepreneurial and business skills, financial aid and non-financial assistance. North, Wallis and Weingast (2006) emphasize that institutions create the rules of the game that govern and set limits on individuals' relationships. The socioeconomic conditions encompass a diversity of activities. In the case of Puerto Rico, both in the agricultural economy sector and in the prevailing social aspects, there are important effects on: economic reality, social uncertainty, access to financing, technological advances, decriminalization of cannabis for medical use, interest rates, tax payments, climate change, public policy, technological advances, cannabinoid alternatives in the treatment of different health conditions, impact the entrepreneurial intention of students.

Subjective norms according to Ajzen's (1991) Theory of Planned Behavior refers to how the social environment influences the behavior of subjects. This suggests that individuals have perceptions of the people in their environment that are important to them which drives them to think about what these individuals should or should not do, according to which they manifest a particular behavior according to Ajzen and Fishbein (1980). In this case, social pressure was significant but was not the most influential variable in the students' reaction.

Perceived control according to Ajzen (1991) refers to the perceived ease or difficulty of performing a given behavior. The students participating in the study expressed that they have the ability to undertake medicinal agro-cannabis. They envision themselves with the ability to use marketing concepts, business resources, read, develop new businesses, manage cash flow, develop field work, observe new business opportunities in medical agri-cannabis, tolerate risks, incorporate new technologies and make decisions in critical situations.

The results prove that Ajzen's (1991) Theory of Planned Behavior is an effective study tool for the analysis of business entrepreneurship. Martin, Martinez and Rojas (2011) highlighted that the theory of planned behavior is one of the most widely used and empirically supported psychosocial theoretical models in a wide variety of behaviors. Belchior and Liñán, (2017) posit that Ajzen's (1991) theory of planned behavior (TCP) has become the predominant specification within the general category of models of entrepreneurial intentions. Tarrant, Mussons, and Ferrás (2015) argue that Ajzen's (1991) TCP is the most widely used psychological theory to explain and predict human behavior. Medina, Bolívar and Lemes (2014) state that this theory is the one that has been most extensively analyzed, constituting the predominant specification, while providing theoretical support to the international research project Global University Entrepreneurial Spirits Students Survey (GUESSS).

Given that Puerto Rico has been going through economic difficulties, as described by Rodríguez (2008). Importantly, consider intent as a first step in understanding how new businesses can influence an economy. The study exhibits a significant pathway to entrepreneurship through individual factors and attitudes that precede entrepreneurial intention to Agro-Cannabis. This possibility of creating new agribusinesses involves the intervention of different actors. Individual factors according to Vesalainen and Pihkala (1999) predominate entrepreneurial behavior, in addition to entrepreneurial behavior linked to attitudes that lead to entrepreneurial activity. Although each approach offers partial contributions, it is recognized that all are necessary to enable an understanding of the entrepreneur. A review of the research literature shows that the different approaches are usually interrelated, according to Hankinson, Bartlett and Ducheneaut (1997).

The analysis of entrepreneurial intentions allows us to understand the factors that stimulate entrepreneurial activity. The present research demonstrates that Ajzen's (1991) Theory of Planned Behavior is a model that predicts entrepreneurial intentions to medical Agro-Cannabis applied to undergraduate students of agriculture at the University of Puerto Rico in Utuado and Mayagüez. The results highlight that the most significant variables that stimulate student action correspond to the pathway involving individual factors that impact attitudes and these in turn precede entrepreneurial intention to medical Agro-Cannabis.

However, limitations were identified. One of them was related to data collection at the University of Puerto Rico at Mayagüez. Candidates were invited to participate in the research by e-mail. An informative letter was sent to them that provided information related to the correct way

to access the research questionnaire link, security measures to manage data confidentiality and their rights as participants.

The participation of students from the Mayagüez Campus was relatively low. Only 48 people registered out of the 191 responses received, approximately 25.4%. This is explained by the fact that the questionnaire was provided a week and a half before Hurricane Maria hit Puerto Rico. Although the students were invited, infrastructure limitations prevented a massive participation of these students.

As this is the first research that evaluates the entrepreneurial intention of undergraduate students of agriculture in Puerto Rico towards medicinal Agro-Cannabis, our search did not find a precedent literature review that would offer a background of the perspective of the topic presented.

This research definitely opens doors for future research. The Theory of Planned Behavior is a widely used theoretical framework on the topic of entrepreneurial intention. Future research should ask why people perceive entrepreneurship opportunities differently. How do institutions and public policy influence entrepreneurial activity?

The gender perspective through a comparative study can offer valuable information related to determining the stimuli that precede the intention to entrepreneurship in the agricultural sector as well as in other sectors of the economy. On the other hand, the line of research can be extended to include other professional groups and industries. Some possibilities that could be considered for the extension of the study could be: the agro-industrial sector, animal nutrition, construction industry, textile industry, paper industry, biodegradable plastic industry, cosmetic industry and pharmaceutical industry, among others.

A better understanding of the factors that promote entrepreneurial intent is vital. The state must understand these factors so that measures can be developed to promote entrepreneurship policies tailored to the country's needs. The wealth of information provides a better understanding of the importance of entrepreneurship and its prospects for economic development. The research highlights the interest generated by this sector among undergraduate agriculture students at the University of Puerto Rico, Utuado and Mayagüez campuses. Therefore, the state should seriously address this interest expressed by the students and exposed in this research.

References

- Ajzen, I. (1987). Attitudes, Traits and Actions: Dispositional Prediction of Behavior in Personality and Social Psychology. *Advances in Experimental Social Psychology*, 20(1), 63.
- Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational behavior and Human Decision Processes*, 50(2), 179-211.
- Ajzen, I., & Fishbein, M. (1980). Understanding Attitudes and Predicting Social Behaviour.
- Belchior, R. & Liñán, F. (2017). Individual and cultural values as psychosocial cognitive antecedents and moderators of entrepreneurial intentions. In *The Emergence of Entrepreneurial Behaviour Intention, Education and Orientation* (pp. 66-87). Edward Elgar, Editors.
- Catalá, F. A. (1998). La Economía de Puerto Rico, 1898-1998. In *Centenario 1898-1998* (pp. 1-37). Puerto Rican Athenaeum.

- Chattopadhyay, R., & Ghosh, A. (2008). Entrepreneurial Intention Model-Based Qualitative Approach to Estimate Entrepreneurial Success. *Journal of Small Business and Entrepreneurship*, 21(1), 1-22. <https://doi.org/10.1080/08276331.2008.10593410>
- Cordero, R. (1949). La Economía de Puerto Rico y sus Problemas. In *Foro Público sobre Diversos Aspectos de la Economía del País, auspiciado por la Facultad de Ciencias Sociales de la Universidad de Puerto Rico* (pp. 1-22). Faculty of Social Sciences, University of Puerto Rico.
- Commonwealth of Puerto Rico, Legislative Assembly, House of Representatives. (2017). *Ley 42* (pp. 1-28). San Juan, Puerto Rico: Cámara de Representantes.
- Estado Libre Asociado de Puerto Rico, Asamblea Legislativa, Cámara de Representantes. (2021). *Ley 15* (pp. 1-5). House of Representatives.
- International Monetary Fund. (2016). *Informe de Perspectivas de la Economía Mundial: Demasiado Lento por Demasiado Tiempo*. Washington.
- Gnyawali, D. R. & Fogel, D. S. (1994). Environments for Entrepreneurship Development: Key Dimensions and Research Implications. *Entrepreneurship Theory and Practice*, 18 (4), 43-62.
- Hair, J. F., Ringle, C.M., & Sarstedt, M. (2014). PLS/SEM: Indeed, a silver bullet. *Journal of Marketing Theory and Practice*, 19 (2), 139-152. <https://doi.org/10.2753/MTP1069-6679190202>
- Hair Jr, J. F., Wolfinbarger, M., Money, A. H., Samouel, P., & Page, M. J. (2015) *Essentials of Business Research Methods*. Routledge.
- Hankinson, A., Bartlett, D., & Ducheneaut, B. (1997). The Key Factors in the Small Profiles of Small-Medium Enterprise Owner-Managers that Influence Business Performance: The UK (Rennes) SME survey 1995-1997 An International Research Project UK survey. *International Journal of Entrepreneurial Behavior & Research*, 3 (3), 168-175.
- Hernández Sampieri, R., Fernández Collado, C., & Baptista Lucio, P., (2010). *Metodología de la Investigación*. (Fifth Edition) McGraw Hill.
- Irizarry, E. (2012). Evolución Histórica de la Economía de Puerto Rico. *Encyclopedia of Puerto Rico*.
- Irizarry, E. (2016). *Situación y Perspectivas de la Agricultura del Sector Agroalimentario del País*. Mayagüez University Campus.
- Junta de Planificación de Puerto Rico (2016). Apéndice Estadístico Informe Económico al Gobernador y a la Asamblea Legislativa en el Año Fiscal 2015.
- Junta de Planificación de Puerto Rico (2021). Apéndice Estadístico Informe Económico al Gobernador y a la Asamblea Legislativa en el Año Fiscal 2020.
- Krueger, N. & Brazeal, D. (1994). Entrepreneurial Potential and Potential Entrepreneurs. *Entrepreneurship Theory and Practice*, 19(3), 91-104.
- Krueger, N. (1993). The impact of prior entrepreneurial exposure on perceptions of new venture feasibility and desirability. *Entrepreneurship Theory and Practice*, 18 (1), 5-21.
- Krueger, N. Reilly, M., and Carsrud, A. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15 (5/6), 411-432.
- Martín, M. J., Martínez, J. M., & Rojas D., (2011). Teoría del comportamiento planificado y conducta sexual de riesgo en hombres homosexuales. *Revista Panamericana Salud Pública*, 29 (6), 433-443.

- Medina, P., Bolívar, A., & Lemes, A. I. (2014). Un Paso Más en la Investigación de la Intención Emprendedora del Estudiante Universitario: guess. *Revista de Estudios Empresariales*, 2014 (2), 63-80. <https://revistaselectronicas.ujaen.es/index.php/REE/article/view/1758>
- Naktiyok, A., Karabey, C. N., & Gulluce, A. C. (2010). Entrepreneurial Self Efficacy and Entrepreneurial Intention: the Turkish Case. *International Entrepreneurship and Management Journal*, 6(4), 419-435. <https://link.springer.com/article/10.1007/s11365-009-0123-6>
- Osorio, F. & Londoño, J. (2015). Intención emprendedora de estudiantes de educación media: extendiendo la teoría de comportamiento planificado mediante el efecto exposición. *Cuadernos de Administración*, 28-51.
- Pantojas, E. (2016). Is Puerto Rico Greece in the Caribbean? Crisis, Colonialism, and Globalization. *The Fletcher Forum of World Affairs*, 40(1), 57-71. <https://www.jstor.org/stable/45290060>
- Pol, J. C. (2001). Determinantes económicos de la migración entre Puerto Rico y Estados Unidos. http://economia.uprrp.edu/ensayo_119.pdf
- Quevedo, L. M., Izar, J. M., & Romo, L. (2010). Factores endógenos y exógenos de mujeres y hombres emprendedores de España, Estados Unidos y México. *Investigación y Ciencia*, 18(46), 57-63. <http://www.redalyc.org/articulo.oa?id=67413508008>
- Rivera, B., & López, S. (2011). Percepción de los Estudiantes Universitarios sobre las Empresas, los Empresarios y el Ambiente Empresarial en Puerto Rico y su Intención de Empezar un Negocio. In *XLVI Asamblea Anual de CLADEA* (pp. 1-20). University of Puerto Rico.
- Rivera, L. (1958). La Agricultura en una Economía en Desarrollo. In *Seminario de Planificación Económica* (pp. 1-22). Secretary of Agriculture and Commerce, Commonwealth of Puerto Rico.
- Rodríguez, C. A. (2008). La Evolución Histórica, la Teoría Económica y el Sistema Económico deseable como las Bases Fundamentales para Desarrollar una Estrategia de Desarrollo Económico en Puerto Rico. *Unidad de Investigaciones Económicas, Departamento de Economía, Universidad de Puerto Rico*, 136, 1-15.
- Tarrant-Pons, E., Torras, M. M., & Hernández, X. F. (2015). Del modelo del evento emprendedor al modelo sistémico de emprendimiento. *3C Empresa*, 4(2), 124. <https://dialnet.unirioja.es/servlet/articulo?codigo=5093286>
- United States, U.S. Department of Agriculture, National Agricultural Statistics Service. (2014). *2012 Census of Agriculture* (Vol. 1, Part52, AC-12-A-52, pp. 1-350). United States Department of Agriculture.
- United States, U.S. Department of Agriculture, National Agricultural Statistics Service. (2020). In *2017 Census of Agriculture* (Vol. 1, Part52, AC-12-A-52, pp. 1-350). United States Department of Agriculture.
- Vesalainen, J., & Pihkala, T. (1999). Entrepreneurial Identity, Intentions and the Effect of the Push Factor. *Academy of Entrepreneurship Journal*, 5(2), 1-24.
- Wompner, F. (2012). El Emprendimiento como Factor de Movilización Social. *Nómadas. Revista Crítica de Ciencias Sociales y Jurídicas*, 36(4), 1-6. <http://www.redalyc.org/articulo.oa?id=18126450015>

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