



Unravelling the Agripreneurial Mindset: Exploring the Interplay of Subjective Norms, Entrepreneurial Orientation, Attitude, Perceived Behavioral Control, and Agripreneurship Intention

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Abstract

This study's main objective was to investigate the impact of subjective norms, perceived behavioral control, attitude towards agripreneurship, and entrepreneurial orientation on agripreneurship intention among people with agricultural educational backgrounds. The subjective norms and entrepreneurial orientation were taken as independent variables. In contrast, attitude towards agripreneurship and perceived behavioural control were taken as mediators and agripreneurship intention as the dependent variable. The quantitative research design was chosen for this study, and the survey was conducted with the help of Google Forms from the millennials with an educational background in agriculture, initially with the support of cluster sampling and then with convenience sampling at the final stage. The research questionnaire with a five-point Likert scale was distributed amongst 400 respondents, and 376 responses were received back in accurate format and put forward for further analysis. The results from this study's primary data analysis reveal that subjective norms have a positive and significant relationship with attitudes towards agripreneurship and perceived behavioural control. All these have positive and significant associations with agripreneurship intention and authenticated the hypothesis H1 to H4 and rejected hypothesis (H5) that is between entrepreneurial orientation and agripreneurship intention due to research cultural differences and the mediation relations H6 and H7 were accepted with partial mediation. The study gave insights into the agripreneurship intention factors, including subjective norms, perceived behavioral control, attitude towards agripreneurship, and entrepreneurial orientation, as the finding of this study will direct the stakeholders of the agricultural sector to play a vital role in boosting the economy of the country and how to achieve SDGs relevant to the sustainability for the agricultural sector with enhancing the business activities.

Keywords: Agripreneurship Intention, Subjective Norms, Perceived Behavioral control, Attitude, and Entrepreneurial Orientation

1. Introduction

The interaction of generational dynamics and entrepreneurial endeavors has received increased attention in the modern agricultural landscape (Elias et al., 2018). As previously said, millennials, those born between the early 1980s and the mid-1990s are a demographic group that is uniquely positioned at the crossroads of technology innovation, economic shifts, and a great dedication to social and environmental problems. Among these considerations, the rise of agripreneurship (entrepreneurship in the agricultural sector) is of particular importance (Abid et al., 2022). The purpose of this study is to delve into the nuanced fabric of millennial' intents towards agripreneurship, recognizing the critical role that agricultural education plays in molding and anticipating their entrepreneurial inclinations. This study seeks to contribute to academic scholarship by synthesizing literature on agripreneurship, generational traits, and educational influences. It also seeks to provide practical insights that can inform educational policies and strategies aimed at fostering a new generation of agricultural entrepreneurs. This study intends to expand our understanding of the intricate processes impacting millennial' agripreneurial ambitions and, as a result, contribute to the agricultural sector's sustainable development through a comprehensive analysis of these interconnected worlds (Abid et al., 2022; Audi & ali, 2023).

Sustainable agricultural development is specifically very high in the South Asia region. Agriculture is a very important locus of point for social and economic development in these South Asian countries, and for the reduction of poverty, enhancing food security and providing a source of income; agriculture plays a very important role (Anik et al., 2017; Ashiq et al., 2023). Agripreneurship, the dynamic combination of agriculture and entrepreneurship, is a cornerstone for encouraging long-term economic development, assuring food security, and improving rural livelihoods. Understanding the factors of agripreneurship intention has become a key endeavor as global agriculture undergoes revolutionary transitions and entrepreneurial activities gain importance within the industry. This study delves into the complex aspects that shape individuals' attitudes, subjective norms, entrepreneurial orientation, and perceived behavioral control as they consider engaging in agripreneurship activities (Audi et al., 2020; Singh & Misra, 2021). The changing agricultural landscape, characterized by technology breakthroughs, market difficulties, and environmental concerns, needs a more nuanced understanding of the entrepreneurial mindset within the industry. Agripreneurship, with its ability to stimulate innovation, generate job opportunities, and contribute to sustainable farming practices, emerges as a critical component for tackling contemporary concerns. Recognizing the importance of agripreneurship in defining agriculture's future, this study tries to unearth the underlying factors affecting individuals' intents to embark into this unique junction of agriculture (Practice, 2020).

2. Literature Review

Agripreneurship, also known as agricultural entrepreneurship, is a dynamic concept that combines agricultural practices and entrepreneurship skills to explore innovative solutions in the agricultural sector (Chisom, 2022). This growing field has received significant attention in recent years due to its potential to address challenges in food security, rural development, and sustainable agriculture (Thrupp, n.d.). Agripreneurship encompasses a wide range of activities involving the application of entrepreneurship in the agricultural sector (Bairwa et al., 2014). Scholars and practitioners have proposed various definitions to capture the essence of agripreneurship. Agripreneurship as an approach focused on identifying and exploiting entrepreneurial opportunities in agricultural

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value chains (Chisom, 2022). Several factors lead individuals to engage in agriculture. Economic factors such as high-income potential and job creation have been identified as key motivations (Economies & Adenutsi, 2023). Furthermore, the desire to contribute to sustainable agricultural practices and address social challenges such as food security and climate change also plays an important role in promoting agripreneurship (Anabaraonye et al., 2021). Agripreneurship offers exciting opportunities, but it is not without challenges. Lack of access to finance and credit opportunities, inadequate infrastructure, limited technical knowledge, and market orientation are often cited as barriers for agribusiness entrepreneurs (Onyiriuba et al., 2020).

The existence of a complex regulatory framework and high-risk perception in the agricultural sector are major obstacles for aspiring entrepreneurs. Technological advances have played an important role in changing agricultural entrepreneurship. The introduction of information and communication technology (ICT), precision farming technologies, and innovative farming methods have emerged as important drivers of agricultural ventures (Economics & Library, n.d.). The use of mobile applications and sensor-based technologies facilitates real-time monitoring of crops and livestock, thereby optimizing productivity and resource utilization. Governments and other stakeholders have recognized the potential of agripreneurship and have implemented various policy interventions to support its development. Mechanisms introduced to promote agricultural activities include access to finance, training programs, market linkages, and development support (Bekchanov et al., 2019). Collaboration between the public and private sectors has proven beneficial in promoting agricultural management through knowledge sharing and resource mobilization (Shiferaw et al., 2011). Agripreneurship, the interface between agriculture and entrepreneurship, has received increasing attention in the literature. A review of successful agripreneurship models and initiatives in India reveals factors that contribute to their effectiveness (Mehta et al., 2022). However, it has been pointed out that agripreneurship lacks a consistent definition and there are gaps in the conceptual understanding of the field (Siqueira et al., 2022).

Agricultural entrepreneurship or agripreneurship has received considerable attention in recent literature, particularly in the context of youth participation in agricultural ventures (Akrong & Hundie, 2022). Youth's intention to engage in agricultural entrepreneurship is influenced by various factors. Chipfupa and Tagwi (2021) found that exposure to agricultural research at secondary and tertiary levels positively influences youth's intentions to engage in agricultural entrepreneurship. Ephrem et al. (2021) highlight the importance of agricultural social norms, psychological capital, gender, and access to land, educational level, and location in shaping youth agricultural intentions. Adeyanju et al. (2021) investigated the impact of agricultural training programs on the performance of young agricultural entrepreneurs and highlighted the role such programs play in shaping agricultural intentions. According to Akrong and Hundie (2022) that parental financial support, completion of agronomy studies in school, and perception of economic benefits from farming had positive effects on young people's intentions to pursue a career as an agricultural entrepreneur. Agricultural research at secondary and tertiary levels on youths' intentions to participate in agricultural entrepreneurship (Geza et al., 2021). Descriptive norms and perceived economic profitability as the main determinants of behavioral intentions of livestock college students (Adebayo et al., 2020).

2.1. Research Framework

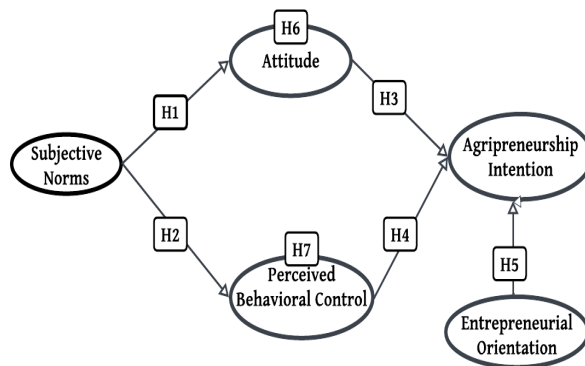


Figure 1: Research Framework

2.2. Research Hypotheses

- H1: A positive and significant relationship exists between subjective norms and attitudes toward agripreneurship.
- H2: A positive and significant relationship exists between subjective norms and perceived behavioral control.
- H3: A positive and significant relationship exists between attitude and agripreneurship intention.
- H4: A positive and significant relationship exists between perceived behavioral control and agripreneurship intention.
- H5: There is a positive and significant relationship between entrepreneurial orientation and agripreneurship intention.
- H6: Attitude mediates the relationship between subjective norms and agripreneurship intention.
- H7: Perceived behavioral control mediates the relationship between subjective norms and agripreneurship intention.

3. Research Methodology

The sample for the current study was taken from agricultural students belonging to the end semesters from agricultural universities located in the province of Punjab, Pakistan. The collected data was analyzed to test the hypotheses of the study proposed with the support of the literature review, and these hypotheses are about agripreneurship intention. The province of Punjab is divided into two clusters, including upper Punjab and southern Punjab agricultural university students belonging to end semesters for measuring the agripreneurship intention of the agrarians. These variables include agripreneurship intention, subjective norms, attitude,

perceived behavioral control, and entrepreneurial orientation. The items of the current study variables are taken from the previous studies, and the questionnaire was developed which consisted of two parts; the first part includes demographic information, and the second part is about the items of the variables 6-items of the agripreneurship intention (AGRII), 8-items of the attitude (ATA), 9-items of the entrepreneurial orientation (EOAGRI), 8-items of the perceived behavioral control (PBC), and 8-items of the subjective norms (SNAGRI). All these variables are measured on a five-point Likert scale. The questionnaire was distributed through Google Forms, and 376 responses were received back out of 400 randomly amongst the selected clusters of agricultural students.

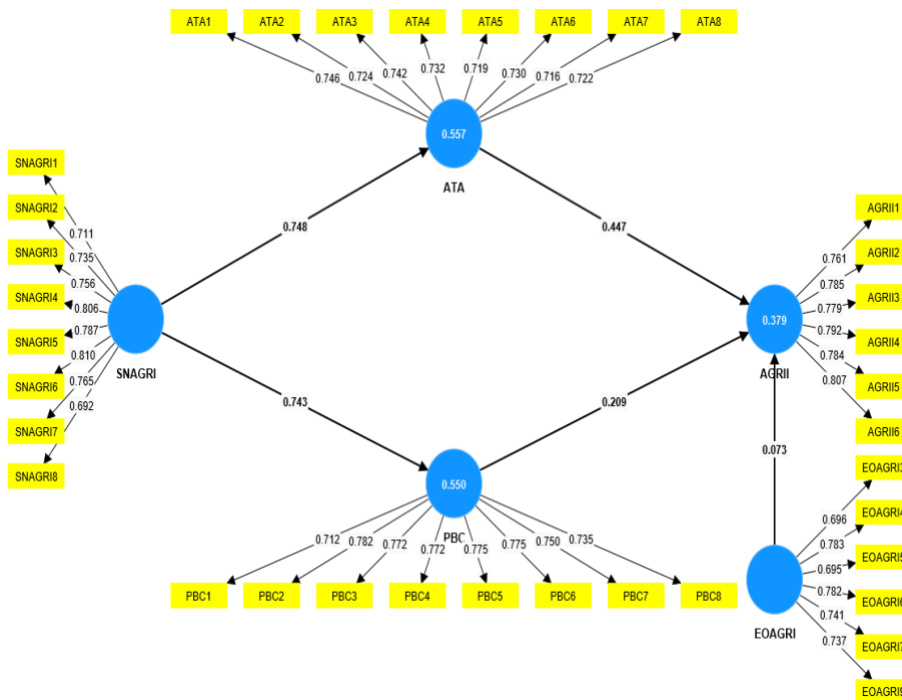


Figure 2: Factors Loadings from the Measurement Model

4. Results of Data Analysis

4.1. Demographic Statistics

A demographic analysis was performed to study the respondents' characteristics, including gender, age, marital status, and education. Their demographic characteristics determine the behavior of a particular group of people.

Table 1: Demographic Information of the Respondents

Demographic Variables	Items	No. of Participants	Percentage
Gender	Male	303	80.58
	Female	073	19.42
Marital Status	Single	289	76.86
	Married	87	23.14
Age	18-22 years	084	22.34
	23-27 years	127	33.77
	28-32 years	112	29.78
	33 and above years	053	14.09
Education Level	Graduation	228	60.64
	Master	085	22.61
	M.Phil	044	11.70
	PhD	019	5.05
Experience of Agribusiness	Less than 01 year	192	51.06
	1-5 years	101	26.86
	6-10 years	53	14.10
	11-15 years	12	3.19
	16-20 years	18	4.79

Table 1 shows the demographic information details of the respondents participating in this study. As shown in the above table, this information includes the gender distribution as 80.58% of the respondents were male and 19.42% of respondents were female; the majority of the respondents were male and 76.86% were single while 23.14% were married participants of the study, the 22.14% of the respondents belonged to 18-22 years age group, 33.77% were from 23-27 years age group, 29.78% were from the age group of 28-32 years, and only 14.09% were from the 33 and above years age group. The majority of the respondents had education at the

graduation level, which was 60.64%; 40% of respondents belonged to other educational levels, such as master's, M. Phil and PhD levels of education and having an initial level as far as the experience is concerned of the respondents.

Table 2: The results of reliability and validity of the study variables

Variables	Items	Factor Loadings	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Agripreneurship Intention (AGRII)	AGRII1	0.761	0.875	0.906	0.616
	AGRII2	0.785			
	AGRII3	0.779			
	AGRII4	0.792			
	AGRII5	0.784			
	AGRII6	0.807			
Attitude (ATA)	ATA1	0.746	0.874	0.901	0.531
	ATA2	0.724			
	ATA3	0.742			
	ATA4	0.732			
	ATA5	0.719			
	ATA6	0.730			
	ATA7	0.716			
	ATA8	0.722			
Entrepreneurial Orientation (EOAGRI)	EOAGRI 3	0.696	0.842	0.879	0.547
	EOAGRI 4	0.783			
	EOAGRI 5	0.695			
	EOAGRI 6	0.782			
	EOAGRI 7	0.741			
	EOAGRI 9	0.737			
	PBC1	0.712			
	PBC2	0.782			
	PBC3	0.772			
Perceived Behavioral Control (PBC)	PBC4	0.772	0.895	0.916	0.577
	PBC5	0.775			
	PBC6	0.775			
	PBC7	0.750			
	PBC8	0.735			
	SNAGRI 1	0.711			
	SNAGRI 2	0.735			
	SNAGRI 3	0.756			
Subjective Norms (SNAGRI)	SNAGRI 4	0.806	0.894	0.915	0.576
	SNAGRI 5	0.787			
	SNAGRI 6	0.810			
	SNAGRI 7	0.765			
	SNAGRI 8	0.692			

4.2. Measurement Model (PLS-Algorithm)

The primary data for this study was collected with the help of Google Forms on a five-point Likert scale where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. The first section of the questionnaire was about the study introduction, and the second part was about the demographic information. Further, each section was dedicated to each variable of the study. At the end of the survey, the responses were downloaded into the CSV file, and necessary coding was done to convert the data into numeric format for further analysis. That CSV file was imported to Smart-PLS 4.0. As the Google form was used for data collection and every questionnaire was restricted to respond, no missing value was found in the data set, and no outlier value was reported.

After data authentication and taking the demographic distribution, the next and most crucial step to measure the tool's reliability and validity is the execution of the measurement model, which is done by running the PLS algorithm in Smart-PLS. The first assumption was the factor loadings, and almost all the loadings are higher than the threshold value. As the rule of thumb for the factor loadings is that the value of 0.7 is considered as the acceptable value, 0.8 is taken as the good value for factor loadings and the value of 0.9 is considered as the excellent value of factor loadings as shown in the figure 2 that all the values of outer loadings are above the threshold values while few are above the 0.8 which shows that the loadings meet the criteria for further analysis, which shows that all the items of the research questionnaire meet the basic criteria of the items' reliability.

To check the reliability and validity of the variables the values of Cronbach's Alpha and composite reliability and average variance extracted and finally the discriminant validity is checked. The rule of thumb for taking into consideration the values of Cronbach's Alpha for each variable is given by MILLS, (2003) as the values of $\alpha \leq 0.7$, $\alpha \leq 0.8$, and $\alpha \leq 0.9$ are considered as acceptable, good, and excellent respectively, the same assumptions are taken into consideration while checking the values of composite reliability. But when interpreting the values of average variance extracted (AVE) is taken into consideration a different rule of thumb is applied as which states that the threshold value for the average variance extracted is the above 0.5.

The table 2 shoes that the Alpha value for the dependent variable agripreneurship intention (AGRII) is 0.875. Alpha values for the independent variables, including attitude (ATA), is 0.874, Perceived behavioral control (PBC) is 0.895, and subjective norms (SNAGRI) is 0.894. For the Agripreneurship orientation (EOAGRI), it is 0.842. It is clear from all the Alpha values that all these values are above the threshold value and are in a range considered good. The values of the composite reliability for the variables are 0.906, 0.901, 0.879, 0.916, and 0.915 for the variables including agripreneurship intention, attitude, entrepreneurship orientation, perceived behavioral control, and subjective norms, respectively, and all these values are considered as the excellent values. The next is to check the values of the average variance extracted (AVE) for the entire variable. These values are 0.616, 0.531, 0.547, 0.577, and 0.576 for the study variables as agripreneurship intention, attitude, entrepreneurship orientation, perceived behavioral control, and subjective norms, respectively, and all these values of average variance extracted are above the threshold value of 0.5 and above are acceptable. Hence, all meet the criteria for convergent validity.

Table 2 shows the names of variables in the first column, the number of items of each variable in the second column of the table, the third column there are the values of factor loadings, the fourth column has the values of Cronbach's Alpha values, the fifth column the values of composite reliability and finally in the last column which is the sixth column of the table contains the average variance extracted (AVE) values.

Table 3: Discriminant Validity (Fornell and Larcker Criterion)

	AGRII	ATA	EOAGRI	PBC	SNAGRI
AGRII	0.785				
ATA	0.598	0.729			
EOAGRI	0.133	0.106	0.740		
PBC	0.519	0.684	0.062	0.759	
SNAGRI	0.575	0.718	0.035	0.743	0.759

According to the Fornell and Larcker criterion, the discriminant validity is established in Smart-PLS 4.0. if the diagonal values in Table 3, as bolded, are higher than the off-diagonal values, then the discriminant validity is achieved; otherwise, it is not. It is clear from the results available in table 3 that all the bolded values are higher than the off-diagonal values.

4.3. Structural Model (PLS-Bootstrapping)

After taking the results of the measurement model by executing the PLS algorithm and taking the values of factor loadings, Cronbach's Alpha, composite reliability, average variance extracted, and discriminant validity measures for the reliability and validity of the measurement tool of the research framework. The next step is to test the structural model, obtained after executing the PLS-Bootstrapping and deciding about the acceptance and rejection of the hypotheses based on results obtained from the structural model.

4.4. Direct Effects (Hypotheses Testing)

The five direct hypotheses were proposed for this study as H1, H2, H3, H4, and H5. These hypotheses are tested by executing Bootstrapping and checking the p-values and t-values to decide the theories' acceptance and rejection. If the t-value is more significant than 1.64 and the p-value is less than 0.05, then the hypothesis is accepted; otherwise, it is rejected. Hence, table 4, figure 3, and 4 show that the t-value and p-value for hypothesis H1 (SNAGRI -> ATA) are 22.012 and 0.000 are respectively and the decision is accepted. The t-value and p-value for hypothesis H2 (SNAGRI -> PBC) are 21.762 and 0.000 are respectively and the decision is accepted. The t-value and p-value for hypothesis H3 (ATA -> AGRII) are 5.533 and 0.000 are respectively and the decision is accepted. The t-value and p-value for hypothesis H4 (PBC -> AGRII) are 2.630 and 0.009 are respectively and the

decision is accepted. While the t-value and p-value for hypothesis H5 (EOAGRI -> AGRII) are 1.515 and 0.130 are respectively and the decision is rejected.

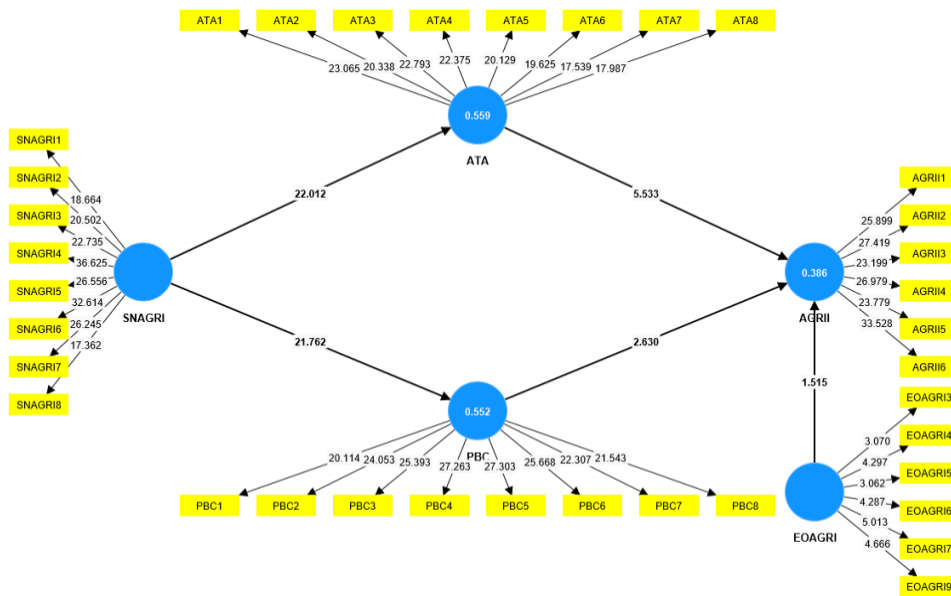


Figure 3: Structural Model results bootstrapping (t-values)

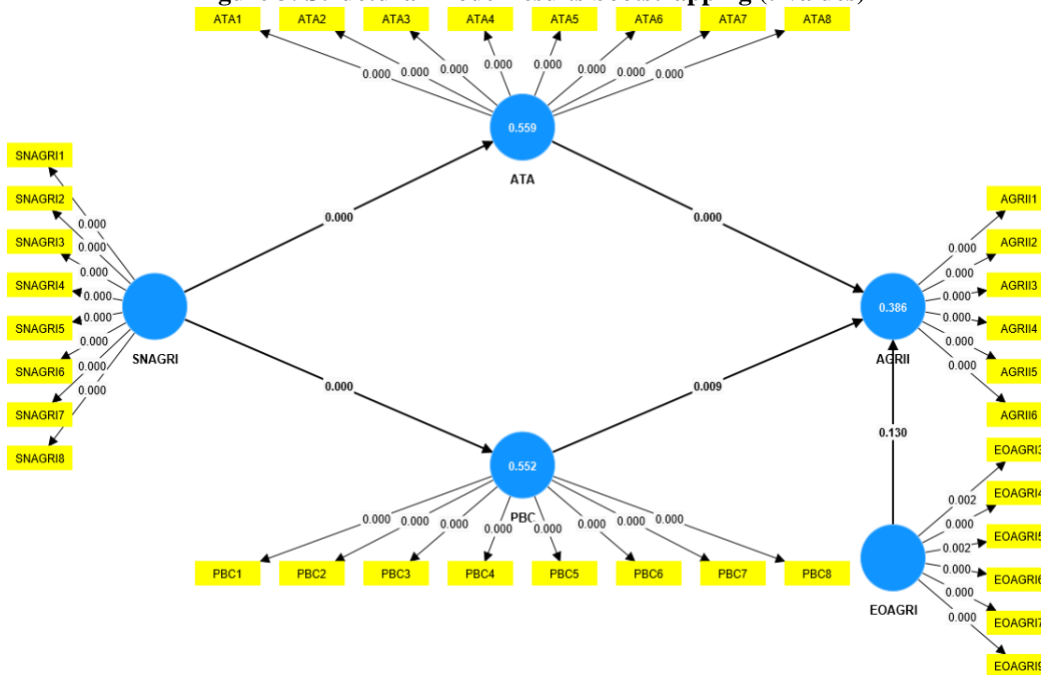


Figure 4: Structural Model results bootstrapping (p-values)

Table 4: Results of Structural Model (Direct Relations)

Sr. No	Hypotheses	Beta	SD	T statistics	P values	Decision	R ²
1	SNAGRI -> ATA	0.750	0.034	22.012	0.000	Accepted	0.559
2	SNAGRI -> PBC	0.745	0.034	21.762	0.000	Accepted	0.552
3	ATA -> AGRII	0.448	0.081	5.533	0.000	Accepted	
4	PBC -> AGRII	0.211	0.079	2.630	0.009	Accepted	0.386
5	EOAGRI -> AGRII	0.086	0.048	1.515	0.130	Rejected	

Table 4 shows the results of bootstrapping for the direct hypotheses, including H1 to H5, the beta values for each hypothesis, and the t-statistics and p-values. The study results show that all direct relations are accepted except the relationship between entrepreneurial orientation and agripreneurship intention, possibly due to cultural differences. The value of R-square for the relation (SNAGRI -> ATA) is 55%, 52% for the relationship between SNAGRI -> PBC, and 38% change in the agripreneurship intention due to subjective norms, attitude, perceived behavioral control, and entrepreneurial orientation.

4.5. Results of Structural Model (Mediation Effects)

The results of hypotheses H6 and H7 showed the mediation effects in which the attitude and perceived behavioral control are mediators between subjective norms and agripreneurship intention. Table 5 shows the results of mediation subjective norms -> attitude -> agripreneurship intention and subjective norms -> perceived behavioral control -> agripreneurship intention. The t-value and p-value for H5 are 5.247 and 0.000, respectively; hence, hypothesis H6 is supported, while the t-value and p-value for H6 are 2.547 and 0.011, respectively; hence hypothesis H6 is supported. Both hypotheses for mediation effects are supported, showing partial mediation between these mediation relations.

Table 5: Results of Mediation effects

Hypotheses	Beta	SD	T statistics	P values	2.5%	97.5%	Decision
SNAGRI -> ATA -> AGRII	0.336	0.064	5.247	0.000	0.205	0.458	Supported
SNAGRI -> PBC -> AGRII	0.157	0.061	2.547	0.011	0.041	0.280	Supported

Table 5 shows the results of mediating effects taken from the execution of the bootstrapping through Smart-PLS in which column 1 shows the relations of variables, column 2 shows the beta values, column 3 shows the standard deviation, and column 4 has t-values and column 5 has the p-values. In contrast, the last column of this table contains the decision about the mediation relations.

5. Discussion, Implications, and Conclusion

This study's main objective was to investigate the impact of subjective norms, perceived behavioral control, attitude, and entrepreneurial orientation on agripreneurship intention among people with agricultural educational backgrounds. Seven hypotheses were established from previous studies and tested with the help of data collected from the respondents. They were assessed by executing the PLS algorithm and bootstrapping through Smart-PLS 4.0 software for data analysis. The findings of this study reveal that subjective norms associated with attitude and perceived behavioral control are associated with agripreneurship intention, and entrepreneurial orientation is also associated with agripreneurship intention. Hypotheses H1, H2, H3, H4, and H5 are direct hypotheses, while H6 and H7 are the mediating hypotheses. The relations of subjective norms with attitude and perceived behavioral control and perceived behavioral control and attitude and entrepreneurial orientation are directly associated with agripreneurship intention. The relationship of H5 is rejected; that is, the entrepreneurial orientation and agripreneurship intention are rejected while all other hypotheses are accepted. The mediating impacts are accepted as partial mediation, and H6 and H7 are accepted.

5.1. Theoretical and Managerial Implications

5.1.1. Theoretical Implications

The underpinning theory of this study is planned behavior and entrepreneurship theory and the findings of this study will contribute to the existing body of knowledge to these theories. It will also help achieve the Pakistan Vision 2025 United Nations goals, sustainable development goals and economic benefits. This will add to the literature about the interrelation between the theory of planned behavior and entrepreneurship theory. This study also authenticates that subjective norms, attitudes, and perceived behavioral control are positively associated with agripreneurship intention. In contrast, the entrepreneurial orientation connection with agripreneurship intention is rejected, highlighting cultural differences. Finally, the findings from the results of this study enhance the understanding of the entrepreneurship theory and theory of planned behavior as the indicators used in this study belong to the technology acceptance model (TAM) and TAM2 and findings of this study will also enhance the understanding about these models and theories by strengthen the body of knowledge.

5.1.2. Managerial Implications

The findings of this study have several implications for those involved in agripreneurship businesses and all other stakeholders of agricultural sectors, including academicians, researchers, scholars, students, and small, medium, and scale business owners playing a vital role in business activities relevant to agripreneurship. In Pakistan's economy, the primary role is in the agricultural sector. This study will also help the government make decisions about the farm sector to boost the country's economy. This study also paves new ways for the decision makers to take decisions about the adoption of new technologies in the mind of farmers by enhancing agripreneurship intention with the help of different factors, including subjective norms, attitude, perceived behavioral control, as these factors play a vital role for advancement and benefits for the agricultural society and also better the living standards of people of Pakistan by contributing in the economy of the country.

5.2. Conclusion

It is concluded that the current study has taken essential insights into the theory of planned behavior and entrepreneurship theory. This study has considered the impact of subjective norms, perceived behavioral control, attitude to agripreneurship, and entrepreneurship orientation on agripreneurship intention. The findings of this study have proved the relationship between subjective norms, perceived behavioral control, and attitude toward agripreneurship with agripreneurship intention. At the same time, the entrepreneurial orientation with agripreneurship intention is denied due to cultural differences and attitudes towards entrepreneurship, and perceived behavioral control also served as a mediator between subjective norms and agripreneurship intention with partial mediation. This study also aligns with the SDGs about sustainability, as sustainability is a primary concern for today's business environment.

5.3. Limitations and Future Research Directions

Two main restrictions to this study were time and budget, as this study was conducted with the researcher's sources. Due to these restrictions, a limited sample size was chosen only from the southern region of Punjab province of Pakistan. The relationship between entrepreneurial orientation and agripreneurship intention was rejected because there is no prevailing research culture in the area from

which the data is collected. More antecedents from the TAM model may also be added to this study's research framework. Also, demographic information, including gender, age, education, etc., were added to this model, and the variables added to the proposed model from the theory of planned behavior and entrepreneurship theory measures can also be taken globally.

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