“Growers’ behavioral intentions towards agricultural insurance participation: Big Five personality traits within the TPB framework”

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GROWERS' BEHAVIORAL INTENTIONS TOWARDS AGRICULTURAL INSURANCE PARTICIPATION: BIG FIVE PERSONALITY TRAITS WITHIN THE TPB FRAMEWORK

Abstract

This study seeks to establish the influence of the Big Five personality traits, which include Openness, Neuroticism, Conscientiousness, Agreeableness, and Extraversion, on growers' willingness to embrace crop insurance schemes. Furthermore, it explores the role of Attitude, Subjective Norms, and Perceived Behavioral Control, as proposed in the Theory of Planned Behavior (TPB), on this relationship. Using a structured questionnaire, data were collected from 412 growers of arecanut and pepper. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) via Smart-PLS 3.3. The analysis revealed that Perceived Behavioral Control ($\beta = 0.462^{**}$), Subjective Norms ($\beta = 0.260^{**}$), and Attitude ($\beta = 0.115^{**}$) positively influenced growers' behavioral intentions. Interestingly, the Big Five personality traits themselves did not have a direct effect on these intentions. Further mediation analysis demonstrated that Attitude and Subjective Norms fully mediated the effects of Extraversion ($\alpha = 0.026^{**}$, $\beta = 0.069$), Neuroticism ($\alpha = 0.019^{**}$, $\beta = -0.016$), and Openness ($\alpha = 0.024^{**}$, $\beta = 0.069$) on Behavioral Intention. However, these variables did not mediate the relationship between Agreeableness ($\alpha = 0.011$, $\beta = 0.058$), Conscientiousness ($\alpha = -0.017$, $\beta = -0.080$), and Behavioral Intention. Additionally, perceived behavioral control mediated the link between personality traits and intention, though this was not the case for Conscientiousness. This study contributes to the application of the TPB by incorporating the Big Five personality traits and exploring their interaction with the TPB dimensions.

Keywords Theory of Planned Behavior (TPB), personality traits, crop insurance, agriculture, growers

JEL Classification G22, Q14, D91, M31, Q54

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INTRODUCTION

Agriculture is one of the most important sectors in India's economy, as it gives employment to many people. For instance, arecanut and pepper as cash crops, are very important in the states of Karnataka, Kerala, and Tamil Nadu. However, these crops are prone to different risks such as unfavorable weather conditions, pest and disease attacks and fluctuation of prices in the market which may result in huge losses to farmers (Bhise et al., 2007). Crop insurance is an important risk management tool that can help manage financial risks and give stability to growers (Bahinipati & Patnaik, 2022).

To meet these challenges, the Indian government has introduced several crop insurance schemes of which one is the Weather-based Crop Insurance Scheme (WBCIS). While Pradhan Manthri Fasal Bhima Yojana (PMFBY) covers multiple crops and multiple perils for each

crop, WBCIS is a micro-insurance product that targets weather risks for crops such as arecanut and pepper. WBCIS is designed to offer insurance coverage against loss due to unfavorable weather by relying on the weather parameters to set down the compensation rates for the farmers. However, the take-up of the scheme by farmers is not uniform, and therefore, there is a need to establish the factors that affect the uptake.

Even though the literature abounds in works devoted to analyzing the socioeconomic factors affecting farmers' decision to purchase crop insurance (Blwal & Bahinipati, 2022), the psychological factors have been studied to a lesser extent. The Big-Five personality traits are a behavioral decision-making model known as the Allport (1937). These traits have been linked to several behavioral intentions in other contexts and may thus be relevant to agricultural decisions too. In addition, the Theory of Planned Behavior (TPB) by Ajzen (1991) has a sound theoretical framework for examining the determinants of behavioral intentions. TPB posits that a person's behavior is influenced by attitude (AT), perceived norms (SN) and perceived control (PBC). Therefore, the objective of this study is to assess the influence of Big Five personality traits, and the TPB constructs to estimate the Behavioral Intention (BI) of growers to participate in crop insurance schemes for arecanut and pepper in India.

1. LITERATURE REVIEW AND HYPOTHESES

The conceptual model to assess the influence of Big Five personality traits on the Behavioral Intention of growers to participate in crop insurance schemes is the synthesis of personality characteristics and decision-making in agricultural environments. The Big Five personality traits include openness (OE), Conscientiousness (CS), Extraversion (ET), Agreeableness (AG), and Neuroticism (NUR) and are widely known for their effects on various aspects of behavior such as risk evaluation and choice making (Costa & McCrae, 1992; Digman, 1990). These traits can affect how people view risk and this is relevant, especially in crop insurance where farmers have to decide on whether to take an insurance cover despite the risks they may come across in their returns (Barrick & Mount, 1991). In addition, the Theory of Planned Behavior (TPB) offers a theoretical framework for examining the determinants of BI. Based on TPB, an individual's behavior is determined by the Attitude (AT) toward the behavior, Subjective Norms (SN), and Perceived Behavioral Control (PBC) (Ajzen, 1991). Combining TPB with the Big-Five personality traits can give a better understanding of how these psychological constructs jointly affect growers' decision to engage in crop insurance schemes.

Crop insurance is a financial instrument that aims to reduce the risk of crop loss because of unfavorable weather or other factors. Crop insurance schemes are important in India to protect farmers and promote investment in improved farming methods. However, the uptake of crop insurance schemes has in the past been low for several reasons, such as the perceived value of insurance, cost of insurance, and awareness. It is, therefore, important to establish the factors that influence participation in crop insurance schemes to enhance the same. The decision of growers to participate in crop insurance can be affected by various factors, such as the personality characteristics of the growers.

The Big Five personality traits, namely OE, CS, ET, AG, and NUR, are basic in psychology to capture individual differences in behavior, AT, and decision-making (Goldberg, 1993). These traits can predispose people to certain ways of handling risks and uncertainties which is very important in cases of crop insurance schemes. Here's an in-depth look at each trait and its potential impact on farmers' decisions to participate in crop insurance schemes: Here's an in-depth look at each trait and its potential impact on farmers' decisions to participate in crop insurance schemes:

OE is defined as the ability to appreciate new ideas and experiences and the ability to practice unconventional ways (McCrae, 1996). Innovative technologies are often accepted by individuals who have high OE. In the agricultural context, this trait could mean that individuals are more likely to embrace new practices such as crop insurance.

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For instance, openness may make farmers appreciate the use of crop insurance as a way of dealing with risk in agriculture, hence higher uptake. Openness may also enhance the level of acceptance of new crop varieties or farming techniques, which may enhance the level of acceptance of crop insurance as part of a risk management strategy (Piedmont, 1998).

CS is a measure of how well an individual is organized, how reliable he or she is, and how responsible he or she is. Conscientious people are usually very careful when planning and are more likely to prevent risks than take them. Concerned farmers are likely to be more involved in insurance schemes since they are more likely to take time to assess the benefits of insurance and look for ways of protecting their crops (Lounsbury et al., 2009). This makes them more likely to plan and manage resources hence, increasing their appreciation of crop insurance as a worthy hedge against risk. Thus, CS can enhance the probability of engaging in crop insurance programs (Judge et al., 1999).

ET is defined as being sociable, active, and self-confident (McCrae & Costa, 2004). The extraverted people are more active in social contacts and ready to take risks. It means that their social interactions can influence their AT towards crop insurance to a large extent. Extraverted farmers may engage in more conversations about crop insurance with other people, which may help create awareness of insurance schemes and, hence, adoption (Asendorpf & Wilpers, 1998). However, their risk-taking propensity might also result in differential levels of insurance involvement because they might perceive insurance as unnecessary or prefer to manage risks on their own (Watson & Clark, 1997).

Cooperation, trust, and social harmony are some of the features that characterize the AG personality dimension. People who are high on AG are likely to be more receptive to the common good of actions and may be more receptive to any programs set to enhance the community's welfare. In the context of crop insurance, willing farmers may be willing to engage in schemes that are likely to yield communal gains, such as cooperative insurance systems or community insurance (Digman, 1997). Their cooperative nature may also help in the diffusion of positive information about crop insurance, hence increasing the rate of participation (John & Srivastava, 1999).

NUR is characterized by emotional instability, anxiety and increased stress sensitivity (Widiger & Costa, 1994). The results also showed that people with high NUR scores may have higher levels of anxiety about risk and uncertainty. This trait can greatly affect the ability of these people to engage in crop insurance schemes since neurotics may consider insurance as protection against possible losses (Costa & Widiger, 2002). It can make them look for insurance as a way of eliminating perceived risks and other negative possibilities they might encounter. On the other hand, high levels of NUR might also cause an overestimation of risks that may affect their decision-making regarding the choice of insurance (Judge & Ilies, 2002).

In conclusion, all the Big Five personality traits may have unique characteristics in determining farmers' willingness to engage in crop insurance schemes. Knowledge of these traits may help to better understand how various people view and act toward agricultural risks and thus improve the promotion and utilization of crop insurance.

One of the most widely used models in predicting human behavior is the Theory of Planned Behavior (TPB) developed by Ajzen (1991). According to TPB, the closest predictor of a behavior is the intention to perform the behavior. Intentions are influenced by three key factors: self-reported measures of the theory of planned behavior, including AT toward the behavior, perceived SN, and PBC. AT pertains to the extent of the individual's positive or negative judgment about the behavior. SN are the community's perceived expectations concerning the performance or non-performance of the behavior. Perceived behavioral control is the extent to which the individual believes that performing the behavior is easy or difficult, which is closely related to self-efficacy. The theory postulates that when people have positive AT towards the behavior, they perceive that the behavior is socially supported, and they feel that they have control over the behavior, they are likely to develop strong intentions to perform the behavior (Ajzen, 1991; Ajzen, 2002; Conner & Armitage, 1998).

In the context of crop insurance for arecanut and pepper growers in India, TPB offers a strong theoretical foundation for analyzing the factors that affect farmers' insurance participation. Beliefs about crop insurance may include perceived advantages of crop insurance, including financial security and risk management, as postulated by Ajzen (1991) and Fishbein and Ajzen (1975). SN may include the opinions of friends, relatives, and other farmers in the community who support or encourage the use of insurance or who disapprove it (Fishbein & Ajzen, 2010; Armitage & Conner, 2001). PBC is defined as farmers' AT towards the ease or difficulty of understanding insurance products and the ease or difficulty of engaging in insurance-related processes (Ajzen, 2002; Godin & Kok, 1996). Understanding these components will help researchers to identify the psychological and social factors influencing the farmers' decision to participate in crop insurance to improve the uptake of these schemes (Ajzen, 2011; Francis et al., 2004; Madden et al., 1992; Sheeran, 2002; Sutton, 2006).

Thus, the study intends to assess the influence of Big-Five personality traits and the TPB constructs to estimate the Behavioral Intention (BI) of growers to participate in crop insurance schemes for arecanut and pepper in India. Therefore, based on the literature review, the study hypothesizes the following relationships concerning the BI of growers to participate in crop insurance schemes for areca nut and pepper in India:

H1: *Attitude has a significant influence on the Behavioral Intention of growers towards crop insurance.*

H2: *Subjective Norms have a positive impact on growers' Behavioral Intention regarding crop insurance.*

H3: *Perceived Behavioral Control has a significant influence on the Behavioral Intention of growers on crop insurance.*

H4: *Big Five personality traits have a significant relationship with Behavioral Intentions of growers regarding crop insurance.*

H5: *Personality characteristics within the Big Five model have a strong influence on the Attitude toward crop insurance.*

H6: *Big Five personality traits have an impact on the Subjective Norms concerning crop insurance.*

H7: *Big Five personality traits have a significant influence on Perceived Behavioral Control of crop insurance.*

H8: *Attitude mediates the relationship between personality traits and Behavioral Intention of growers with regard to crop insurance.*

H9: *Subjective Norms mediate the relationship between personality traits and the Behavioral Intention of growers toward crop insurance.*

H10: *Perceived Behavioral Control will mediate the relationship between the Big Five personality traits of the growers and their Behavioral Intention towards crop insurance.*

2. METHODOLOGY

This study adopted a quantitative research approach to examine the influence of Big-Five personality traits on the behavioral intention of growers to engage in crop insurance schemes for arecanut and pepper crops in India. Questionnaires were completed by a random sample of growers using a standardized survey instrument. The minimum sample size for the PLS path model was calculated in accordance with the 10-times rule of thumb suggested by Hair et al. (2017), and hence, the minimum sample size required for this study is 410. The Raosoft calculator suggested a 377 sample size (Memon et al., 2020). The final sample was 412 respondents to enhance the reliability of the study. The questionnaire consisted of demographic characteristics and research-related variables, and the measurement items were adopted from the existing literature. All the items were rated on a five-point Likert scale. The data analysis was done using Partial Least Squares Structural Equation Modeling (PLS-SEM). Further, the conceptual framework for the study is shown in Figure 1.

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Table 1. Measurement of items

Source: Rajeev et al. (2022).

Constructs Employed		Variable Measurement
AT	AT1	Participating in crop insurance is a good idea
	AT2	Enrolling in crop insurance is a wise choice
	AT3	AI like the idea of using crop insurance for my crops
SN	SN1	Many of my fellow growers use crop insurance
	SN2	Influential people in my community think I should use crop insurance
	SN3	People whose opinions I value prefer that I use crop insurance
PBC	PBC1	I know where to buy crop insurance policies
	PBC2	I can identify beneficial crop insurance policies easily
	PBC3	I can enroll in crop insurance conveniently
BI	BI1	I plan to use crop insurance for my crops frequently
	BI2	I encourage my fellow growers to use crop insurance
	BI3	I will use crop insurance for my crops in the near future
NUR	NUR1	When I'm under significant stress, I feel like I might break down
	NUR2	Often, I feel as though I am completely insignificant
	NUR3	I frequently get disheartened and feel like quitting when things go wrong
	NUR4	I tend to feel tense and anxious regularly
ET	ET1	I find pleasure in engaging with people
	ET2	I often feel like I'm overflowing with energy
	ET3	I am a lively and optimistic person
	ET4	I am very energetic
	ET6	I easily form new friendships
OE	OE1	I am brimming with ideas
	OE2	I possess a strong sense of intellectual curiosity.
	OE3	I elevate conversations to more profound levels.
	OE4	I often find enjoyment in exploring abstract concepts like love, friendship, or freedom
AG	AG1	I frequently find myself in disputes with my family and colleagues
	AG2	Some people perceive me as self-centered and arrogant
	AG3	I am sometimes seen as unemotional and calculating by others
	AG4	I strive to be considerate and thoughtful
CS	CS1	I plan ahead and follow through with my plans
	CS2	I often spend too much time procrastinating before starting work
	CS3	Occasionally, I fall short of being as reliable or dependable as I should be
	CS4	I consistently struggle with staying organized

Table 2. Respondents' demographic profile

Demographic Variable	Frequency	Percentage
Gender		
Male	321	77.91%
Female	91	22.09%
Age		
Less than 30	33	8.01 %
31-40	121	29.37%
41-50	159	38.59%
51-60	73	17.72%
60 and above	26	6.31%
Education Qualification		
Below 12th class	224	54.37%
Undergraduate	95	23.06%
Postgraduate	19	4.61%
Professional	24	5.83%
Others	50	12.14%

Table 2 (cont.). Respondents' demographic profile

Demographic Variable	Frequency	Percentage
Occupation		
Salaried	45	10.92%
Business	24	5.83%
Professional	17	4.13%
Retired	15	3.64%
Only Agriculture	311	75.49%
Annual Income		
Less than 5 lakhs	156	37.86%
> 5L – < 10L	181	43.93%
> 10L – < 15L	45	10.92%
> 15L	30	7.28%
Crop Type		
Pepper	67	16.26%
Arecanut	156	37.86%
Both	189	45.87%

From the respondents' demographic data presented in Table 2, the study found that most of the participants are male (77.91%), and many are aged between 41-50 years (38.59%). The analysis of the respondents' education level indicates that 54.37% have an education below the 12th class, and 75.49% are involved only in agriculture. As for annual income, the greatest number of respondents belong to the ₹5 lakhs to ₹10 lakhs bracket (43.93%). This demographic distribution gives a clear picture of the demographic background of the people who participated in the study; a large number of them had low education and income levels.

Regarding crop type, the respondents' interest is quite varied, with a bias towards arecanut (37.86%) and a significant number who grow both pepper and arecanut (45.87%). The fact that only 16.26% of the respondents said they only grew pepper shows that arecanut is a more popular crop since many growers have decided to engage in crop diversification. This trend further establishes the significance of arecanut in the region's agriculture and at the same time, the growers' decisions to diversify their crops and manage risks and revenues.

3. RESULTS

The measurement model was assessed to check the level of fit of the theoretical constructs to the data. This assessment includes reliability and validity checks before testing structural models as pointed out by Hair et al. (2018).

Table 3 presents the study's reliability and validity coefficients. All the constructs achieved this criterion since outer loadings were all above 0.7, which shows that the indicators are reliable enough. For internal consistency, the reliability coefficients used were Cronbach's α and the composite reliability (CR). In the same manner, all the constructs had reliability values greater than 0.7, the acceptable level of reliability for the scales adopted in the study.

The convergent validity was measured using the AVE with the acceptable minimum value of 0.5. AVE values for all the constructs in Table 3 are above 0.5 which supports the fact that the study has got convergent validity. This goes a long way in ensuring that the constructs are a good representation of their indicators hence establishing the validity of the measurement model.

The Fornell-Larcker is used for discriminant validity. As presented in Table 4, the values indicate acceptable discriminant validity (Fornell & Larcker, 1981). Also, to further support the discriminant validity, the HTMT ratio was employed for the test of discriminant validity. The HTMT ratio is used to measure the extent of similarity between the latent variables and if the value is above 0.9 then discriminant validity is questionable. In Table 5, all the HTMT ratios are below 0.9, which means that discriminant validity has been achieved (Henseler et al., 2015). This helps to avoid overlapping of constructs and to make sure that each of them is unambiguous within the model.

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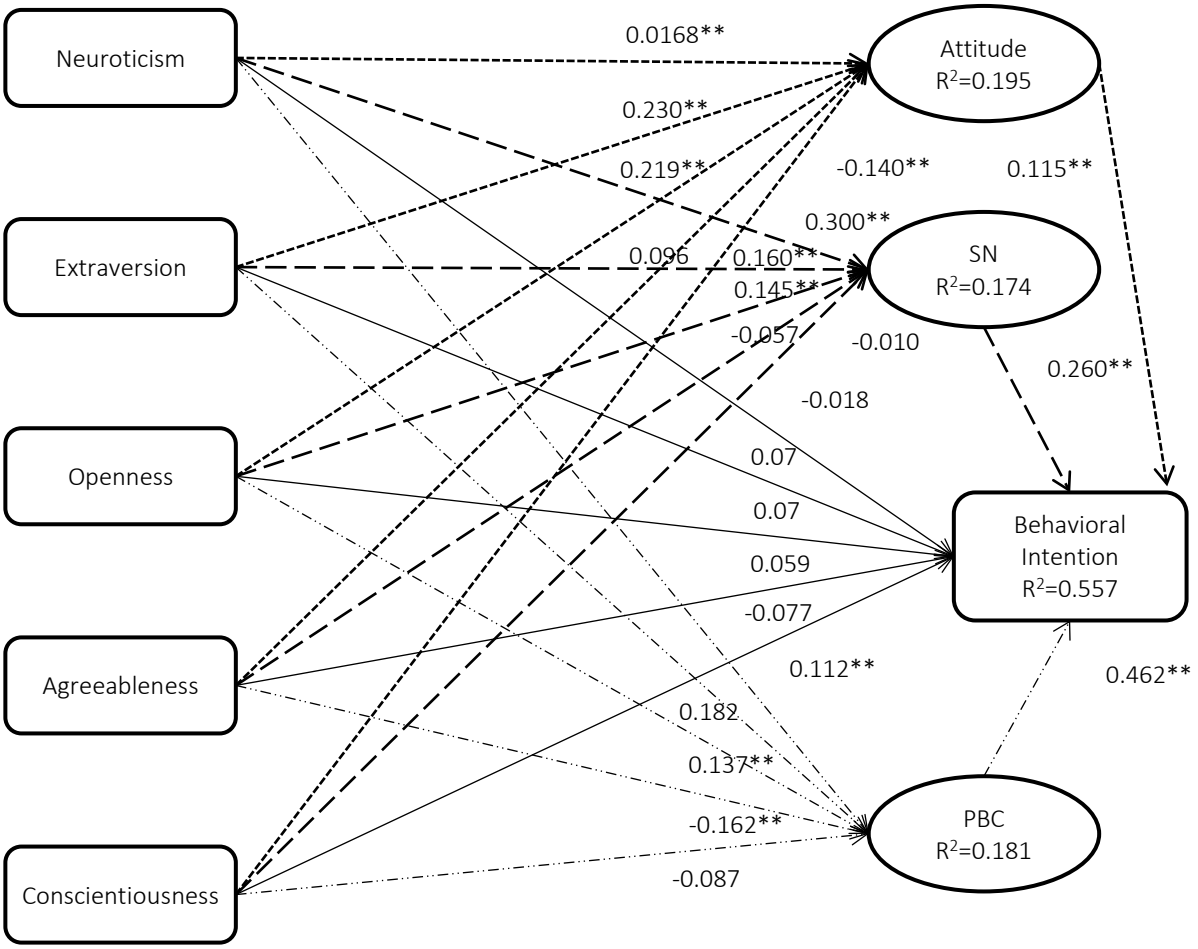

Figure 1. Conceptual framework

Table 3. Measurement models (Cronbach's α, Composite reliability and Average Variance Extracted)

Construct	Items	Outer Loadings	Cronbach's α	Composite reliability	Average variance extracted
AT	AT1	0.821	0.881	0.912	0.892
	AT2	0.915			
	AT3	0.985			
BI	BI1	0.812	0.762	0.876	0.752
	BI2	0.924			
	BI3	0.802			
AG	AG1	0.853	0.836	0.842	0.84
	AG2	0.892			
	AG3	0.932			
PBC	PBC1	0.745	0.872	0.882	0.823
	PBC2	0.803			
	PBC3	0.824			
CS	CS1	0.785	0.767	0.791	0.756
	CS2	0.762			
	CS3	0.792			
	CS4	0.706			
ET	ET1	0.856	0.859	0.926	0.921
	ET2	0.749			
	ET3	0.823			
	ET4	0.831			
	ET5	0.839			

Table 3 (cont.). Measurement models (Cronbach's α, Composite reliability and Average Variance Extracted)

Construct	Items	Outer Loadings	Cronbach's α	Composite reliability	Average variance extracted
NUR	NUR1	0.892	0.876	0.927	0.786
	NUR2	0.826			
	NUR3	0.869			
	NUR4	0.812			
OE	OE1	0.792	0.821	0.932	0.695
	OE2	0.801			
	OE3	0.906			
	OE4	0.942			
SN	SN1	0.865	0.862	0.901	0.892
	SN2	0.842			
	SN3	0.923			

Table 4. Fornell-Larcker criterion test results

	AT	BI	AG	PBC	CS	ET	NUR	OE	SN
AT	0.912	–	–	–	–	–	–	–	–
BI	0.525	0.836	–	–	–	–	–	–	–
AG	–0.115	–0.210	0.832	–	–	–	–	–	–
PBC	0.434	0.665	–0.306	0.899	–	–	–	–	–
CS	–0.220	–0.245	0.431	–0.240	0.878	–	–	–	–
ET	0.345	0.348	–0.175	0.293	–0.150	0.806	–	–	–
NUR	0.161	0.171	–0.368	0.191	–0.400	–0.040	0.858	–	–
OE	0.320	0.322	–0.210	0.265	–0.080	0.541	–0.090	0.836	–
SN	0.521	0.557	–0.230	0.453	–0.190	0.242	0.321	0.225	0.892

Table 5. HTMT (Heterotrait-Monotrait) test results

Variable	AT	BI	AG	PBC	CS	ET	NUR	OE	SN
AT	–	–	–	–	–	–	–	–	–
BI	0.59	–	–	–	–	–	–	–	–
AG	0.105	0.215	–	–	–	–	–	–	–
PBC	0.49	0.8	0.305	–	–	–	–	–	–
CS	0.27	0.32	0.54	0.3	–	–	–	–	–
ET	0.38	0.41	0.175	0.33	0.19	–	–	–	–
NUR	0.18	0.2	0.42	0.21	0.5	0.09	–	–	–
OE	0.36	0.39	0.23	0.3	0.16	0.64	0.11	–	–
SN	0.56	0.665	0.23	0.51	0.24	0.27	0.34	0.24	–

Hypotheses testing was done after the measurement model was validated using the PLS bootstrapping method, which involves creating 5,000 samples to estimate the path coefficients. Table 6 shows the path coefficients, the coefficients of determination (R^2) for the amount of explained variance, and the cross-validated redundancy (Q^2) for the amount of predicted variance.

The findings show that AT (*H1*) has a positive and significant relationship with BI ($\beta = 0.115^{**}$), SN(H2) ($\beta = 0.260^{**}$) and PBC (*H3*) ($\beta = 0.462^{**}$) also have a positive and significant relationship with BI. Therefore, the hypotheses *H1*, *H2*, and *H3* are approved. Hypothesis H4 to H7 has 5 Big Personality traits separately as sub hypothesis. On the other hand, the paths for the Big Five personality traits: AG (*H4a*) is 0.059, CS (*H4b*) is –0.077, ET (*H4c*) is 0.070, NUR (*H4d*) is –0.018, and OE (*H4e*) is 0.070 are not significant and thus, *H4a*, *H4b*, *H4c*, *H4d,* and *H4e* are rejected.

R^2 values are indicative of the extent to which the observed variance in the dependent variable is accounted for by the model. An R^2 of 0.75, 0.5, and 0.25 represent the high, moderate, and weak ability to explain variation, respectively. $R^2 = 0.557$, as presented in Table 6, meaning that 55.7% of the

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variance in BI is accounted for by the model. The Q^2 values, calculated using the blindfolding technique, indicate the model's predictive significance. The model also has good predictive power with a Q^2 value of 0.379 for BI.

Concerning the effect of personality traits on AT (*H5*), ET, NUR, and OE have positive effects on AT, while CS has a negative effect on AT. Therefore, *H5b*, *H5c*, *H5d*, and *H5e* are supported, while *H5a* is not supported. The R^2 for AT is 0.195, while the Q^2 is 0.147. As for SN(H6), ET (β = 0.160**), NUR (β = 0.300**), and OE (β = 0.145**) have a positive impact on SN, while AG (β = –0.057) and CS (β = –0.010) have no significant effect. Thus, the hypotheses *H6c*, *H6d*, and *H6e* are supported, while the hypotheses *H6a* and *H6b* are not supported. SNs have R^2 of 0.174 and Q^2 of 0.129. Finally, for PBC (*H7*), AG has a negative influence on PBC (β = –0.162**, t = –2.985), while NUR (β = 0.112**, t = 2.317) and OE (β = 0.137**, t = 2.712) have a positive influence on PBC, but CS (β = –0.087, t =1.48) do not impact PBC. Therefore, *H7a*, *H7d*, and *H7e* are supported, whereas *H7b* and *H7c* are not supported.

Finally, this study also employed mediation analysis to examine how AT, SN, and PBC moderated the relationship between the Big Five personality traits and BI. Table 7 offers information regarding the indirect effects of mediation in contrast to the direct effects of those mediation paths.

The findings show that AT, SN, and PBC act as mediators of personality traits, including ET, NUR, and OE on BI. More precisely, ET (*H8c*) (α = 0.026, β = 0.069), NUR (*H8d*) (α = 0.019, β = –0.016), and OE (*H8e*) (α = 0.024, β = 0.069) are fully mediated, which means that these traits affect BIT only through AT. The mediation effect of AG (*H8a*) is not significant with α = 0.011 and β = 0.058, while that of CS (*H8b*) is also insignificant with α = –0.017 and β = –0.080.

For SN(SN), ET (*H9c*) (α = 0.042, β = 0.069), NUR (*H9d*) (α = 0.077, β = –0.016), and OE (*H9e*) (α = 0.037, β = 0.069) also indicate full mediation. AG (*H9a*) (α = –0.015, β = 0.058) and CS (*H9b*) (α = –0.003, β = –0.080) are not mediators of the relationship between personality traits and BIT.

Regarding PBC, AG (*H10a*) has a negative direct effect, α = –0.077, β = 0.058, full mediation ET (*H10c*), α = 0.083, β = 0.069, NUR (*H10d*), α = 0.051, β = –0.016, and OE (*H10e*), α = 0.063, β= 0.069,

Table 6. Structural path analysis results

Hypothesis	SP	PC (β)	R^2	Q^2	Dec.
H1	AT → BI	0.115**	0.557	0.379	Yes
H2	SN → BI	0.260**			Yes
H3	PBC → BI	0.462**			Yes
H4a	AG → BI	0.059			No
H4b	CS → BI	–0.077			No
H4c	ET → BI	0.07			No
H4d	NUR → BI	–0.018			No
H4e	OE → BI	0.07			No
H5a	AG → AT	0.096	0.195	0.147	No
H5b	CS → AT	–0.140**			Yes
H5c	ET → AT	0.230**			Yes
H5d	NUR → AT	0.168**			Yes
H5e	OE → AT	0.219**			Yes
H6a	AG → SN	–0.057	0.174	0.129	No
H6b	CS → SN	–0.010			No
H6c	ET → SN	0.160**			Yes
H6d	NUR → SN	0.300**			Yes
H6e	OE → SN	0.145**			Yes
H7a	AG → PBC	–0.162**	0.181	0.133	Yes
H7b	CS → PBC	–0.087			No
H7c	ET → PBC	0.182			No
H7d	NUR → PBC	0.112**			Yes
H7e	OE → PBC	0.137**			Yes

Note: SP: Structural Path, Path Coefficient: PC, Dec.: Decision.

Table 7. Mediation analysis results

Hypothesis	Path	SIE (α)	DE (β)	t stat.	p Values	Dec.
H8a	AG → AT →BIT	0.011	0.058	1.31	0.192	NM
H8b	CS → AT → BI	−0.017	−0.080	1.67	0.094	NM
H8c	ET → AT → BI	0.026**	0.069	2.09	0.036	FM
H8d	NUR → AT → BI	0.019**	−0.016	2.08	0.038	FM
H8e	OE → AT → BI	0.024**	0.069	2.01	0.043	FM
H9a	AG → SN → BI	−0.015	0.058	0.85	0.399	NM
H9b	CS → SN → BI	−0.003	−0.080	0.17	0.862	NM
H9c	ET → SN →BI	0.042**	0.069	2.04	0.041	FM
H9d	NUR → SN → BI	0.077**	−0.016	4.14	0	FM
H9e	OE → SN → BI	0.037**	0.069	2.15	0.031	FM
H10a	AG → PBC → BI	−0.077**	0.058	2.9	0.004	FM
H10b	CS → PBC → BI	−0.041	−0.080	1.48	0.139	NM
H10c	ET → PBC → BI	0.083**	0.069	2.7	0.008	FM
H10d	NUR→PBC → BI	0.051**	−0.016	2.05	0.04	FM
H10e	OE →PBC → BI	0.063**	0.069	2.02	0.043	FM

Note: SIE: Specific Indirect Effect, DI: Direct Effect, FM: Full mediation, NM: No mediation. ** - denotes statistically significant at 5% (0.05); → : symbol is linkage for Mediation.

while CS (*H10b*) (α = −0.041, β = −0.080) does not mediate. In sum, AG and CS do not directly affect any of the tested paths, while ET, NUR, and OE exert full mediation across the different paths through AT, SN, and PBC on BI.

4. DISCUSSION

The findings of this study provide significant information regarding the factors that influence arecanut and pepper growers' intentions to participate in crop insurance schemes, concerning AT, SN, and perceived behavioral control. These results support the Theory of Planned Behavior (Ajzen, 1991) that claims these constructs are crucial for the formation of BI. The findings of the current study supported the proposed hypothesis that AT, SN, and PBC affect BI, as also indicated by Wauters et al. (2014) who showed that these variables predict farmers' intentions to engage in sustainable practices.

Notably, the study also reveals that the Big Five personality traits play diverse and multiple roles in influencing the growers' BI. ET, NUR, and OE were found to have a significant effect on AT, SN, and PBC but not on the BI to participate in crop insurance schemes. This implies that although personality traits influence the fundamental AT and perceptions, personality traits are not a perfect reflection of the BI. This is slightly different from some of the literature where personality traits were found to be perfect predictors of the BI (McCrae & Costa, 2008).

The mediation analysis provided further understanding of these relationships, suggesting that personality traits have an indirect effect on the BI through AT, SN, and PBC. This aligns with previous literature, which points out that AT served as a mediator between personality traits and BI. In particular, ET, NUR, and OE were identified as antecedents of the BI through these mediating variables.

This study implies that efforts to increase growers' uptake of crop insurance should target AT change, perceived behavioral control, and SN instead of personality characteristics. This is in concordance with Borges et al. (2014), who supported policy interventions that increased farmers' control beliefs and had a favorable impact on their beliefs towards innovations in agriculture. Furthermore, research also argues that increasing perceived control and making the interventions congruent with social norms can increase adoption by a large margin.

Nevertheless, the non-significant direct effect of traits like AG and CS on BI contradicts some of the prior studies that have revealed significant direct effects. This might be the case because crop insurance is a unique product in the agricultural sector, and therefore, the impact of personality

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traits might not be universal and might depend on the cultural context. For example, extant literature has pointed out that personality traits' effects on BI are contingent upon the context and require taking into account the sector and culture.

In conclusion, this study advances knowledge in the following ways: It combines the Big Five personality model with the Theory of Planned Behavior with regard to agricultural insurance purchase. It offers a more complex view of the manner in which personality characteristics influence BI via AT, SN, and PBC. Subsequent studies should examine these mediating factors in other agricultural settings and examine other possible moderators, including cultural and economic factors. The studies on cross-cultural differences in personality antecedents indicate that such factors may well have a strong bearing on growers' behavioral intents.

Furthermore, this study suggests that there is a need to focus on the attitudinal and perceptual factors to enhance growers' participation in crop insurance programs. Therefore, by understanding the mediating roles of AT, SN, and PBC, policymakers and practitioners can design more suitable interventions that correspond to the growers' psychological characteristics, thus enhancing the likelihood of crop insurance uptake. This is in tandem with Blackstock et al. (2010), who emphasize that policy should be aligned with farmers' psychological and socio-cultural aspects of behavior change.

CONCLUSION

This paper presents evidence of the association between personality characteristics and the Behavioral Intention (BI) of growers to participate in crop insurance schemes for arecanut and pepper. Therefore, by applying the TPB, it was possible to show how PBC, SN, and AT influenced the growers' intentions. These findings suggest that BI is not directly affected by the Big-Five personality traits such as ON, NUR, CS, AG, and ET but is fully mediated by the TPB constructs. This calls for the inclusion of psychological and social factors to be able to predict the decision-making of growers.

The findings of the study have important implications for policymakers and practitioners, as well as for those wishing to enhance enrolment in crop insurance schemes. Understanding that personality traits impact intentions through the theory of AT, SN, and perceived behavioral control implies that interventions should be aimed at these variables. Communication interventions that are congruent with the growers' AT and their perceived norms for the behavior and enhancing perceived self- and response efficacy may be more successful. This research work, therefore, contributes to the existing literature by integrating personality psychology into the BI models in order to develop a comprehensive framework for predicting and controlling growers' BI towards crop insurance schemes.

AUTHOR CONTRIBUTIONS

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