

## **Planned Behavior Theory and Graduates' Behaviors towards Agricultural Entrepreneurship in Tanzania**

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### **Abstract:**

This study investigated about graduates' behaviors towards agricultural entrepreneurship in Tanzania using planned behavior theory. The study used the cross-sectional survey design with a sample of 600 graduates who completed bachelor's degrees between 2018 and 2022 in six regions in the country. The study used a questionnaire as source of data. The study tested several hypotheses to establish the relationships among studied variables. The study revealed a significant positive relationship between attitude and entrepreneurial aspirations among young individuals in the agricultural sector. There is a mediating effect of knowledge regarding agriculture on the relationships between attitude and intention to pursue agricultural entrepreneurship. Furthermore, there is a mediating effect of knowledge regarding agriculture on the relationships between perceived behavior control and intention to pursue agricultural entrepreneurship. Therefore, it is essential to design programs that nurture positive attitudes toward agricultural entrepreneurship among the graduates, incorporating elements of education, mentorship and exposure for a successful agricultural entrepreneurship. The government should strengthen knowledge-based initiatives, leveraging educational programs, access to information and technological resources to empower graduates in translating their behavior into entrepreneurial intentions.

**Keywords:** Agricultural entrepreneurship; theory of planned behavior; knowledge; graduates.

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### **Introduction**

Agricultural entrepreneurship is an untapped potential opportunity in most developing countries (Som et al., 2018). The field of agricultural entrepreneurship presents significantly greater prospects for entrepreneurial advancement, given that it provides a fertile ground for creation of micro-businesses (Hosseininia et al., 2022). The decreasing interest of young people in pursuing careers in agriculture is the primary reason for the shortage of revitalized human resources in the African agricultural sector (Maina & Maina, 2012; Ouko et al., 2022). Lack of human resources remains the main obstacle to the development of the agriculture industry in Sub-Saharan Africa.

Agriculture is vital for African countries, providing employment, income, food security and sustainability (Manfre et al., 2013). On the other hand, agricultural entrepreneurship is dynamic, offering youths chances for entrepreneurship, credit access and value chain involvement (German et al., 2020). Despite efforts to involve youths in the sector, the youths have not embraced it as a business opportunity (Abiddin et al., 2012). The initiative to encourage the youth who are graduates to participate in agricultural entrepreneurship has failed to yield positive results due to the persistent mindset that graduates cannot engage in agricultural activities (Khayri et al., 2011). The negative attitude towards agriculture (Njeru, 2017)

warrants an investigation into the issue. This study used the Theory of Planned Behavior (TPB). The theory states that attitude, subjective norms and perceived behavioral control are key determinants of behavior (Ajzen, 1991). TPB is widely recognized as the most influential theoretical framework for predicting human behavior, particularly, with regard to various types of intended behaviors.

The existing research regarding the behaviors of graduates that influence their intentions to pursue agricultural entrepreneurship is sparse. While some studies, such as Yunandar et al. (2019), have explored the positive attitudes of students towards agricultural entrepreneurship, it's noteworthy that these investigations focused on enrolled students within university settings. Additionally, Ridha et al. (2017) discovered that only subjective norms played a significant role in shaping the intention to engage in agricultural entrepreneurship. The implications of this finding are constrained by the limited examination of other potential influential factors. Therefore, four distinct research gaps remain. The first pertains to the development of attitudes among graduates that drive entrepreneurial intentions towards agriculture. The aforementioned gap can offer valuable insights into the way young individuals perceive agricultural entrepreneurship and their intention to pursue a career in agriculture. The second involves the effects of subjective norms on the formation of entrepreneurial intentions towards agriculture. The third concerns examination of how perceived behavior control can shape graduates' intentions towards agricultural entrepreneurship. The last gap in this study pertains to the potential mediating effect of knowledge/information regarding agriculture on the predictive relationships. The understanding of the relationship between subjective norms, attitudes, perceived behavioral control, and the intention to pursue agricultural entrepreneurship can help policymakers design more effective policies that support and encourage agricultural entrepreneurship.

### **Theory of Planned Behavior**

This study was underpinned by the Theory of Planned Behavior developed by Ajzen in 1991 (Ajzen, 1991). According to this theory, an individual's behavior can be anticipated and clarified through their intention, which is affected by three essential elements: attitude, subjective norms and perceived behavioral control (Ajzen, 1991; Ajzen, 2002). Hence, an individual's conduct is

usually steered by their intention, which is molded by their attitudes, beliefs of those in their social circle and perceived capability to regulate their actions.

TPB suggests that an individual's attitude is a significant factor in predicting the behavior. Therefore, to encourage agricultural participation, it is necessary to understand an individual's existing attitudes and beliefs (Ajzen, 2001) about agriculture and shift them in a positive direction through education and through addressing negative stereotypes explaining potential benefits (Kvartiuk et al., 2020). By doing so, it is possible to encourage greater participation in agriculture and promote its growth and sustainability.

A number of studies established that attitude is a factor to involve or not in agricultural entrepreneurship contributed to some critics and suggestions. For instance, a study by Abdullah et al. (2014) revealed that graduates' intention to pursue agricultural entrepreneurship was found to be shaped by their own attitudes rather than external influences. Bosompem et al. (2017) found that completing a degree in agricultural science cultivated a more optimistic outlook towards entrepreneurship within the agricultural sector. In contrast, those without agricultural proficiency may not view agriculture as a viable business option.

Ajzen (2015) proposed that within the framework of the TPB, the term "subjective norm" refers to an individual's perception of the influence of social pressure, which may either encourage or discourage the person from engaging in a particular behavior. In the context of agricultural entrepreneurship, subjective norms may come from various sources such as family members, peers, community members and government agencies (Greibitus et al., 2017). These norms can be both positive and negative, depending on the individual's perception of the social pressure exerted on them. For instance, if an individual perceives that their family or community members consider agricultural entrepreneurship as a low-status profession, they may be less likely to participate in agricultural endeavors. On the other hand, if the person perceives that their social circle views agricultural entrepreneurship positively and values it as a significant economic activity, the person may be more likely to engage in such activities (Abdul & Norhlilmaturun, 2013).

Perceived behavioral control revolves around how easy or difficult a person perceives it to be to engage in a certain behavior. This perception is shaped by past experiences and can have a significant effect on motivation to act (Ajzen, 1985). In the context of agricultural entrepreneurship, perceived behavior control revolves around resources, skills development and risks associated with agriculture. The absence of adequate resources, skill development opportunities and potential risks inherent in agricultural business can significantly contribute to individuals' reluctance to participate in agriculture-related businesses (Maina & Maina, 2012). On the contrary, the presence of ample resources, opportunities for skill development and effective risk management strategies in agricultural

business can significantly enhance individuals' willingness to engage in agricultural entrepreneurship.

### Hypotheses Development

This study formulates hypotheses to address existing gaps in the literature, positing that attitude, subjective norms, perceived behavior control and knowledge influence graduates' intentions towards the agricultural entrepreneurship. The study anticipates that graduates with a positive attitude towards agriculture are more likely to embrace it as a viable career option, as evidenced by the findings of Zaremohzzabieh et al. (2022) and Ismail et al. (2020).

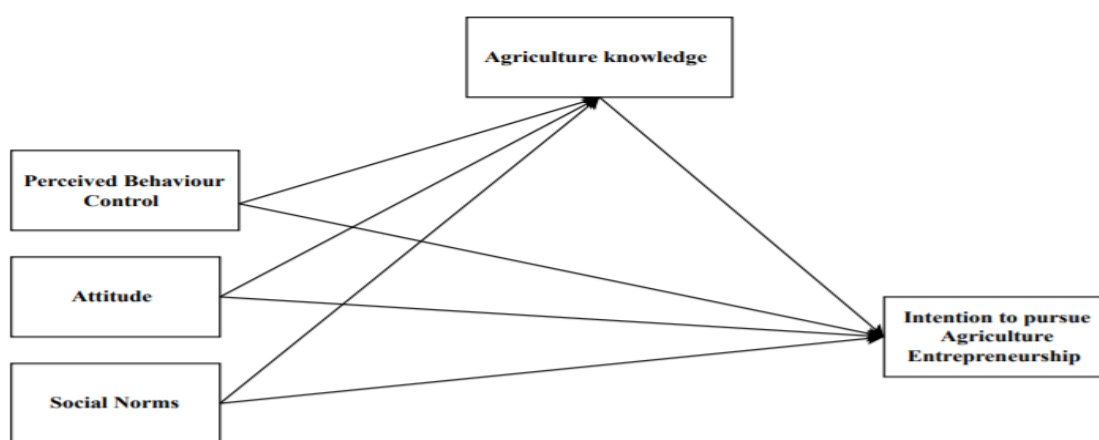


Figure 1: Conceptual Framework

Research by Sargani et al. (2020) and Ephrem et al. (2021) revealed that social norm and societal value of agricultural entrepreneurship positively shape the intentions of youth to engage in agribusiness. Additionally, perceived behavior control, as highlighted by Zaremohzzabieh et al. (2022), plays a pivotal role in influencing individuals' intentions to participate in agricultural entrepreneurship. Furthermore, knowledge, acting as a mediating factor, connects attitudes, perceived behavior control and social norms to intentions, facilitating informed decision-making towards agricultural entrepreneurship, as supported by Morris and James (2017) and Soeparno et al. (2018).

### Attitude

Positive attitude towards potential profitability of agriculture increases the likelihood of individuals pursuing agricultural entrepreneurship as a viable

career option. A study by Zaremohzzabieh et al. (2022) revealed that positive attitude towards entrepreneurship was an important predictor of entrepreneurial intentions in the agricultural sector. Similarly, Ismail et al. (2020) found a positive relationship between attitude and agricultural intention among Malaysian undergraduate students. Ismail et al. (2020) found that education was a key factor in shaping positive attitudes towards agriculture while Ojebiyi et al. (2015) identified job opportunities as a significant driver of positive attitudes towards agricultural entrepreneurship. Grande et al. (2011) highlighted the importance of availability of resources in shaping individuals' attitudes towards agricultural entrepreneurship. Study findings above demonstrate the significance of right attitude in influencing individuals' intentions towards

agricultural entrepreneurship. Based on these findings, the study formulated the following hypothesis:

**Hypothesis 1:** Development of positive attitudes towards agriculture positively affects the agricultural entrepreneurship intention.

### **Social Norms**

In some societies, there is a strong social norm of valuing agricultural entrepreneurship and promoting it as a viable and respected career choice. Positive social norms refer to shared expectations, beliefs and attitudes within a society or community that promote positive behaviors (Ajzen, 2015). A study by Sargani et al. (2020) revealed a positive correlation between social norms and the inclination to pursue agricultural entrepreneurship. The study corroborated the findings of Ephrem et al. (2021) that identified a substantial link between perceptions of social backing and propensity to partake agribusiness among young individuals. Positive social norms may contribute to the development and growth of agricultural entrepreneurship in societies (Yunandar et al., 2019) since culture that values agricultural entrepreneurship is likely to encourage young people to pursue careers in the field, leading to a greater supply of skilled and innovative entrepreneurs. This study tested the following hypothesis:

**Hypothesis 2:** Social norms positively influence the intention to pursue agricultural entrepreneurship.

### **Perceived Behavior Control**

Studies suggest that individuals who perceive high level of control over their ability to perform entrepreneurial activities, such as starting and managing a farm or agribusiness, are more likely to engage in agricultural entrepreneurship. In various societies where the youth's reluctance to engage in agriculture is evident, a common factor contributing to this trend is the absence of adequate support (Chinsinga et al., 2012). The support may include access to resources, knowledge and skills, social support and economic opportunities (White, 2012). Individuals who perceive that they have control over factors that may affect their participation in agricultural entrepreneurship will have a stronger intention to engage in agriculture (Zaremohzzabieh et al., 2022). Based on this understanding, the study tested the following hypothesis:

**Hypothesis 3:** Perceived behavior control positively influences intentions towards agricultural entrepreneurship.

### **Knowledge as Mediating Factor**

The study involves agriculture knowledge as a mediator. The mediator has been explained in the literature as a variable that explains the relationship between the dependent and independent variables. Complete mediation occurs when the mediator variable fully intervenes in the relationship between the dependent and independent variables (Fernandes, 2017). A study by Devkota et al. (2023) suggests that being well-informed about agricultural practices and principles could enhance the impact of a positive attitude on the decision to pursue entrepreneurship in the agricultural sector. The aforementioned study gives the prediction that knowledge plays as the mediator between attitude and intention to pursue agricultural entrepreneurship and led to the following hypothesis:

**Hypothesis 4:** There is mediating effect of knowledge regarding agriculture on the relationships between attitude and intention to pursue agricultural entrepreneurship.

In this study, subjective norms, defined as the perception that an individual or a group may endorse, encourage or discourage a person from a particular behavior. It is anticipated to impact graduates' intention to pursue agricultural entrepreneurship when coupled with agricultural knowledge. The formation of subjective norms is influenced by close relationships (Devkota et al., 2023). Consequently, a graduate, placing trust in these close connections, may rely on the agricultural knowledge they provide. When these close individuals possess expertise in agriculture, it can potentially affect the relationship between subjective norms and the intention to pursue agricultural entrepreneurship (Zaremohzzabieh et al., 2022). The significance of knowledge as a mediator between subjective norms and the intention to pursue agricultural entrepreneurship becomes evident. Hence, the study predicts knowledge to play a mediating role between subjective norms and the intention to pursue entrepreneurship. The conclusion of these insights leads to the formulation of the following hypothesis:

**Hypothesis 5:** There is mediating effect of knowledge regarding agriculture on the relationships between social norms and intention to pursue agricultural entrepreneurship.

Concerned with the ease or difficulty that individuals associate with engaging in a specific behavior, perceived behavior control becomes pivotal in shaping decisions. In the context of perceived behavior control, the probability that graduates will focus on agricultural entrepreneurship increases if there is easy access to resources, knowledge, skills, social support and economic opportunities (White, 2012). Furthermore, the swift access to knowledge through information technology has been identified as a key factor influencing graduates' intentions to pursue agricultural entrepreneurship (Soeparno et al., 2018). In the framework of perceived behavior control, the effective utilization of knowledge to inform graduates about the accessibility of resources, is predicted to play a significant role in influencing their participation in agricultural entrepreneurship and led to the following hypothesis:

**Hypothesis 6:** There is mediating effect of knowledge regarding agriculture on the relationships between perceived behavior control and intention to pursue agricultural entrepreneurship.

## **Methodology**

### **Design**

This study used the cross-sectional survey design. Cross-sectional survey design allows simultaneous collection of data at a single point in time, offering a snapshot of prevailing sentiments or characteristics within the studied population. This design facilitates the exploration of relationships between variables, providing valuable insights.

### **Population and Sampling**

The study focused on graduates who completed bachelor's degrees between 2018 and 2022, as recognized by the Tanzania Commission for Universities (TCU) in diverse regions, namely Mbeya, Mwanza, Ruvuma, Songwe, Tanga, and Kilimanjaro. These regions, known for cultivating a variety of crops such as maize, rice, bananas, potatoes, cassava, coffee, beans, cotton and peanuts, constituted a heterogeneous population. Given the dispersed nature of graduates across these six regions, a stratified random sampling approach

ensured representation from each region, with a targeted sample size of 150 graduates per region, thereby enhancing the overall representativeness of the study. Scholars have recommended that the best way to determine the appropriate sample size for an SEM study is to use the case-to-parameter ratio approach (Hair et al., 2019). To succeed using the sample obtained to analyze using structural equation model, the sample size technique was determined using the N: q rule, a well-established method for ensuring statistical power in sample selection (Jackson, 2003). Given that there were 39 parameters in the hypothesis model, necessitating statistical estimates, the recommended minimum sample size was 10 for lower-dimensional observations and 15 for upper-dimensional ones. This calculation resulted in 39 parameters × 15 respondents, which is equal to 585 cases. The final sample size used in this study was 600, meeting the maximum sample size criteria as specified by this method.

### **Instruments**

The study used a questionnaire as source of data. The researchers distributed the questionnaire sheets across Mbeya, Mwanza, Ruvuma, Songwe, Tanga and Kilimanjaro regions with the assistance of trained volunteers.

### **Statistical Treatment of the Data**

The analysis of data involved the testing of hypotheses to establish the interrelationship among variables under investigation.

### **Ethical Considerations**

The study adhered to ethical principles and guidelines to ensure the well-being and rights of participants (Bjärsholm et al., 2018). The researchers provided detailed information about the study's purpose and procedures. The researchers ensured anonymity and confidentiality. The study received ethical approval from Research department at Mzumbe University, ensuring that it met the necessary ethical standards.

## **Results and Discussion**

### **Demographics of Respondents**

Demographics of respondents appear in table 1. Among the graduates sampled, 380 (64.96%) were males while 205 (35.04%) were females. A significant proportion, comprising 470 respondents (80.3%) came from families involved in agriculture. This sheds light on the prevalence of agriculture-related backgrounds within the sample. However,

only 180 respondents (30.77%) specialized in agriculture. This indicates that while many have an agricultural background, a smaller portion of the graduate sample pursued specialized education or careers in the agricultural field.

The study used the Smart PLS to conduct the analysis. To establish the reliability of the measures utilized for the attitude, perceived behavior control, subjective norms, knowledge and intention to pursue agricultural entrepreneurship constructs, the researcher conducted a confirmatory factor analysis using Smart PLS. As depicted in Table 2, all composite reliability scores surpassed the 0.7

thresholds and the average variance extracted (AVE) values exceeded the recommended threshold of 0.5, in accordance with Fornell and Larcker (1981). Furthermore, Cronbach's Alpha, another indicator of reliability, exceeded the suggested threshold of 0.7, as per Hair et al. (2019). This confirms the reliability of the measures employed for the five constructs, suggesting that these measures are dependable and are likely to yield consistent results. Collectively, these findings suggest that there is a satisfactory alignment between the measurement model and the dataset as outlined by Bagozzi et al. (1988).

**Table 1 Responders Profile**

Variables	Frequency	%
<b>Gender</b>		
Male	380	64.96
Female	205	35.04
Total	585	100
<b>Parents Occupation</b>		
Agriculture related	470	80.3
Non-agriculture related	115	19.7
Total	585	100
<b>Field of study</b>		
Agriculture	180	30.77
Non-Agriculture	405	69.23
Total	585	100

**Table2: CFA To Check The Convergent Validity**

Construct	Cronbach's alpha	Composite reliability (rho_c)	Average variance extracted (AVE)
Agriculture Knowledge	0.917	0.917	0.787
Attitude	0.955	0.956	0.616
Intention to pursue agricultural entrepreneurship	0.936	0.936	0.746
Perceived Behaviour Control	0.953	0.953	0.871
Social Norms	0.917	0.917	0.734

**Table 3: Fornell-Larcker Criterion Analysis, Q<sup>2</sup> AND R<sup>2</sup> to check discriminant validity**

Construct	R <sup>2</sup>	Fornell Larker measure (AVE ≥ highest correlation <sup>2</sup> )	Stone-Geisser test (Q <sup>2</sup> ≥ 0)
Agriculture knowledge	0.641	0.887 > 0.779	0.566
Intention to pursue agricultural entrepreneurship	0.596	0.864 > 0.702	0.517

Table 3 shows the analysis of discriminant validity for the outer model involved, calculating the coefficient of determination ( $R^2$ ), the Fornell Lacker measure and the Stone-Geisser test ( $Q^2$ ). According to Fornell and Larcker (1982), the Fornell Larker measure compares the average variance extracted (AVE) to the highest squared correlation of each construct. Therefore, the AVE should be smaller than the highest squared correlation to meet this criterion. Additionally, the Stone-Geisser test evaluates the model's ability along with its parameters to replicate the observed values. If  $Q^2$  exceeds 0, it suggests the model possesses predictive relevance (Chin, 1998). The results indicate that all constructs in the model met these requirements, providing support for discriminant validity. Consequently, the measurement model demonstrates discriminant validity, implying that there are no significant correlations among theoretically unrelated variables.

### Structural Model Analysis

The study explored both direct and mediated relationships in its hypotheses as appears in Table 4,

which summarizes the study's findings through the Smart PLS 4 Structural Equation Model (Smart PLS SEM). The table provides valuable insights into the relationships between path coefficients, standard deviation (STDEV), probability values (P-value) and the outcomes of each research construct. The analysis reveals that attitude exerts positive and direct influence on the intention to engage in agricultural entrepreneurship (Beta value = 0.372,  $p = 0.008$ ). This outcome supports the Hypothesis 1. This discovery underscores the significance of personal beliefs and inclinations in shaping the entrepreneurial aspirations of young individuals in the agricultural sector. The results are in line with findings by Yunandar et al. (2019). The study revealed less favorable outcomes for Hypotheses 2 and 3. Particularly, the relationship between subjective norms, perceived behavior control and intention to pursue agricultural entrepreneurship were not significant. The results differ from those by Abdullah and Samah (2014) which revealed a positive relationship.

**Table 4: Summary of Hypotheses Direct Path Results**

Hypotheses	Beta Values	T-statistics	P-Value	Remarks
The development of positive attitudes towards agriculture among graduate individuals positively affects agricultural entrepreneurship intentions.	0.372	2.668	0.008	Supported
Social norms positively influence intentions to pursue agricultural entrepreneurship.	0.053	0.712	0.477	Not supported
Perceived behavior control that graduates possess positively influence the intentions of graduates towards agricultural entrepreneurship.	0.154	1.238	0.216	Not supported

**Table 5: Summary of Hypotheses Mediating Path Results**

Hypotheses	Beta Values	T-statistics	P-Value	Remarks
There is mediating effect of knowledge regarding agriculture on the relationships between attitude and intention to pursue agricultural entrepreneurship.	0.166	2.590	0.010	Supported
There is mediating effect of knowledge regarding agriculture on the relationships between social norms and intention to pursue agricultural entrepreneurship.	0.026	1.529	0.126	Not Supported
There is mediating effect of knowledge regarding agriculture on the relationships between perceived behavior control and intention to pursue agricultural entrepreneurship.	0.101	1.971	0.009	Supported

## Mediating Effect

Table 5 tests three hypotheses using the mediation understanding by Memon et al. (2018). The table shows that knowledge in the field of agriculture acts as a motivation in the relationship between attitude and the intention to engage in agricultural entrepreneurship.

This mediation is evidenced by the path coefficient of  $\beta=0.166$ , t-value of 2.590 and p-value of 0.010, thereby confirming the support for Hypothesis 4. In hypothesis 5, Knowledge could not act as a mediator in the relationship between social norms and intention to pursue agriculture entrepreneurship. Regarding Hypothesis 6, knowledge in agriculture plays a mediating role in the connection between perceived behavior control and the intention to pursue a career in agricultural entrepreneurship. This mediation is substantiated by path coefficient of  $\beta=0.101$ , t-value of 1.971 and p-value of 0.009. Therefore, the mediation underlines the pivotal role that knowledge in the agricultural domain plays in translating attitude and perceived behavior control into concrete intentions, corroborating the importance of educational initiatives and awareness-building in fostering entrepreneurial ambitions. The study findings aligned with Yunandar et al. (2019) who revealed that the information acquired by students through both internet resources and classroom lectures has significantly contributed to their overall knowledge. Moreover, a study by Zaremohzzabieh et al. (2022) aligns with the present study by identifying that agricultural knowledge played a significant role in influencing the intention to engage in agricultural entrepreneurship, though it is important to note that the current study diverges in terms of the specific population under investigation.

## Conclusion and Recommendation

The study presents a significant positive influence of attitude on entrepreneurial aspirations among young individuals in the agricultural sector. The relationship between subjective norms, perceived behavior control and intention to pursue agricultural entrepreneurship were not significant. There is mediating effect of knowledge regarding agriculture on the relationships between attitude and intention to pursue agricultural entrepreneurship. Furthermore, there is a mediating effect of knowledge regarding agriculture on the relationships between perceived behavior control and intention to pursue agricultural entrepreneurship. This underscores the pivotal role

of agricultural knowledge in translating attitude and perceived behavior control into concrete intentions, echoing the importance of educational initiatives.

Therefore, it is essential to design programs that nurture positive attitudes toward agricultural entrepreneurship among the graduates, incorporating elements of education, mentorship and exposure for a successful agricultural entrepreneurship. The government should strengthen knowledge-based initiatives, leveraging educational programs, access to information and technological resources to empower graduates in translating their behavior into entrepreneurial intentions.

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