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Investigating the determinants of entrepreneurial intentions among agriculture university students in economically disadvantaged regions of Indonesia

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Abstract

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Considering the consistent reliance of Sumatra Island on agricultural sector, coupled with high poverty rate, the development of agriculture-based entrepreneurship by the younger generation is expected to alleviate poverty. Therefore, this study aimed to investigate the determinants of entrepreneurial intentions among agricultural university students in the impoverished regions of Sumatra, specifically in the provinces of Aceh and Bengkulu, using the Theory of Planned Behavior (TPB) framework. The data were collected from 165 agricultural students in Aceh and Bengkulu, through an online survey between March and April 2020. Subsequently, the data were analyzed using descriptive analysis and Structural Equation Modeling (SEM) to test the hypotheses and the conceptual framework developed. The results showed that perceived behavioral control (PBC) had a positive and significant impact on entrepreneurial intentions, while subjective norm (SN) and attitude toward behavior (ATB) did not have a significant impact. In this study, the implication was that individuals with higher behavioral control over entrepreneurial behavior, tended to develop stronger intentions to become entrepreneurs. Analyzing and understanding the role of perceived behavioral control in shaping entrepreneurial intentions could help inform strategies to foster entrepreneurial mindset and encourage entrepreneurship among individuals. These results provided recommendations to help enhance entrepreneurial intentions among agricultural students.

Keywords: intentions; entrepreneurship; theory of planned behavior; poverty alleviation; youth entrepreneurship; agricultural students

Introduction

Indonesia has consistently strived to address the reluctance of youth toward agricultural sector, who perceive agriculture career as unattractive (Nainggolan and Rommel, 2023; Ridha and Wahyu, 2017). In the past two decades, there has been a decline in the number of young individuals (aged 15–29 years), working in agricultural sector in Indonesia, from 11.29 million in February 2005 to 6.59 million in August 2023 (BPS, 2005, 2023). This is consistent with the recorded decline from 27.02% in February 2005 to 16.72% in August 2023. In this context, the decrease in the number of youth could impact productivity and rural poverty (Rigg et al., 2020). This low interest can be attributed to the perception of the lack of career development and prospects (Widiyanti et al., 2023; Ngadi et al., 2023), lack of initial capital, low profitability, and personal reasons (Mulema et al., 2021).

The phenomenon of low interest of youth in agriculture, coupled with the increasing proportion of the elderly in this sector, is expected to continue and could threaten the future of agriculture, food security, succession, and economic transformation (Mmbengwa et al., 2021). This challenge is prevalent across all regions of Indonesia, including Sumatra. Therefore, efforts are needed to promote the engagement of youth in agriculture (Widiyanti et al., 2023; Ngadi et al., 2023). Sumatra, one of the largest islands in Indonesia, has abundant natural resources, including agricultural commodities like palm oil, coffee, rice, corn, and cassava. Besides the issue of low interest of the youth in agriculture, this island also faces problems of poverty and income distribution, with Aceh and Bengkulu being the two poorest provinces. In 2023, the poverty rates in these provinces were 14.45% (Aceh) and 14.04% (Bengkulu), significantly higher than Indonesia's overall poverty rate of 9.36% (BPS, 2023).

Agricultural and rural sectors are closely related to poverty, as shown by the higher percentage of poor people in rural areas compared to urban. In 2023, the urban poverty rate in Indonesia was 7.29%, while rural poverty was 12.22% (BPS, 2023). Although poverty has been a longstanding issue, its alleviation should remain a policy priority. Agriculture can be a main focus for poverty alleviation, since the highest poverty rates are generally found in agricultural areas, including Sumatra. Therefore, it is essential to implement effective and equitable anti-poverty policies, specifically in rural areas, to address the issue of low agricultural household income (Angélique et al., 2022). Anti-poverty policies are closely related to the involvement of youth in agriculture, particularly the number of agricultural university graduates working in the sector.

Agriculture is particularly recognized as a means for poverty reduction and improving food security despite the sector being associated with high poverty levels (Modi, 2019). Agricultural sector is a crucial driver for poverty alleviation (Maulu et al., 2021), with entrepreneurship being an effective strategy (Naminse et al., 2019; Osei and Zhuang, 2020). Entrepreneurship has proven effective in promoting economic development and reducing poverty (Khanna et al., 2020; Wu and Wu, 2008). The integration of agricultural sector and entrepreneurship can significantly reduce or alleviate poverty. Agricultural entrepreneurship facilitates poverty reduction in rural areas by improving food security, skill transfer, job creation, and income (Tindiwensi et al., 2023).

Developing agriculture to alleviate poverty requires entrepreneurial capability, specifically among young farmers, to face increasing competition. The younger generation faces significant unemployment challenges, which require agricultural entrepreneurship (Mmbengwa et al., 2021). The participation of the youth in agricultural sector is crucial for promoting economic growth and poverty reduction through agricultural entrepreneurship. In addition, young entrepreneurs in agriculture are seen as an effective solution for poverty reduction (Ouko et al., 2022), as the sector has much potential to generate new job opportunities for the youth due to technological advancements.

Youth with agricultural education background are specifically expected to be agents of change, or agripreneurs, for the agrarian sector in impoverished areas of Sumatra. According to (Pawitan et al., 2018), on Southeast Asian youths, young entrepreneurs are more innovative than other groups. Poverty alleviation through young agricultural entrepreneurs is supported by entrepreneurial education conducted by various universities in Indonesia, including Sumatra, as part of government efforts to foster entrepreneurial spirit (Kasih, 2013). Moreover, the government plays a significant role in designing programs to create successful entrepreneurs (Abbas and Md Khair, 2017). Universities also participate in developing entrepreneurship to increase students' interest in becoming entrepreneurs, thereby reducing unemployment. Youth unemployment can be reduced by involving young people in agricultural entrepreneurship, which is more accessible compared to other industries (Mmbengwa et al., 2021).

Entrepreneurship education programs have been shown to promote higher entrepreneurial intentions. Information technology-based entrepreneurship education is an inspiration, that positively impacts entrepreneurial intentions (Fayolle and Gailly, 2015). It is also considered an essential instrument for improving entrepreneurial attitudes and has been proven to increase entrepreneurial intentions (Akram et al., 2019). However, the number of graduates from university has an effect on unemployment (Sondari, 2014), making

entrepreneurship education crucial for fostering entrepreneurial intentions. Entrepreneurship education for agricultural university students is of primary concern in the context of promoting economic progress in impoverished areas of Sumatra. The abundant natural resources in Sumatra, including agricultural sector, are expected to be developed into profitable businesses for regional development.

In the context of economic improvement efforts, education is the most appropriate way to reduce and alleviate poverty in the impoverished regions of Sumatra. Therefore, entrepreneurship education can be viewed as a means to foster entrepreneurial character, mindset, and behavior (Azwar, 2013; Susilaningsih, 2015). According to Masri et al. (2021), 84.7% of students practice entrepreneurship, which can foster business confidence. However, the youth who have received entrepreneurship education do not necessarily have entrepreneurial intentions, as these intentions are influenced by several factors (Bouichou et al., 2021; Lediana et al., 2023; Ridha et al., 2017). Entrepreneurial intentions can be a good starting point to determine whether becoming entrepreneur is probable. Individuals, who intend to become entrepreneurs by creating a specific business, are more prepared and advanced in business compared to those without the intent.

Considering the consistent reliance of Sumatra economy on agricultural sector, coupled with high poverty rates, particularly in Aceh and Bengkulu provinces, developing agriculture-based entrepreneurship among the youth is expected to help alleviate poverty levels. Involving the youth in agriculture is recognized as an essential strategy for creating job opportunities (Ninson and Brobbey, 2023). Therefore, the youth are expected to build a social-based economy (social entrepreneur), where social entrepreneurship is highly correlated with the formation of good intentions among young individuals (Sahharon et al., 2019) and impacts the well-being of businesses. Agricultural university graduates, who have received entrepreneurship education are expected to develop agriculture-based businesses in impoverished areas of Sumatra, contributing to poverty alleviation. Promoting agricultural entrepreneurship by involving the youth in poverty alleviation efforts can contribute to sustainable development goals (SDGs), particularly goal 1, "no poverty," and goal 8, "decent work and economic growth." In addition to poverty alleviation, promoting agricultural entrepreneurship is also expected to reduce economic inequality and support socio-economic justice.

The current study aim to investigate the determinants of entrepreneurial intentions among agricultural university students in the impoverished regions of Sumatra, namely Aceh and Bengkulu provinces. Addressing poverty issues through entrepreneurial method is an extraordinary breakthrough. Understanding the determinants and outcomes of entrepreneurial intentions, could contribute to developing theories and models explaining entrepreneurial behavior. Furthermore, this study was expected to advance knowledge on entrepreneurship, inform evidence-based policy interventions to foster entrepreneurial ecosystem, and reduce poverty levels in the impoverished regions of Sumatra.

Theoretical framework

This study was based on the Theory of Planned Behavior (TPB) framework, developed by Ajzen, (1991). The theory defines intentions as representation of motivational factors that influence action, showing how predicting human behavior can be challenging. Meanwhile, intentions are highly correlated with behavior and influenced by several factors, such as attitudes toward behavior, subjective norms, and perceived behavioral control (Figure 1). According to (Godin and Kok, 1996), these factors significantly impacted behavior. TPB can be used to identify and target individuals for entrepreneurial career development.

According to Kim-Soon et al. (2016), studies using TPB support the idea that entrepreneurial intervention programs can help identify and develop the youth, who are intentional about founding and owning firms. Due to limited available evidence, this theory predicts behavior quite well compared to Theory of Reasoned Action (Rizzo and Columna, 2020).

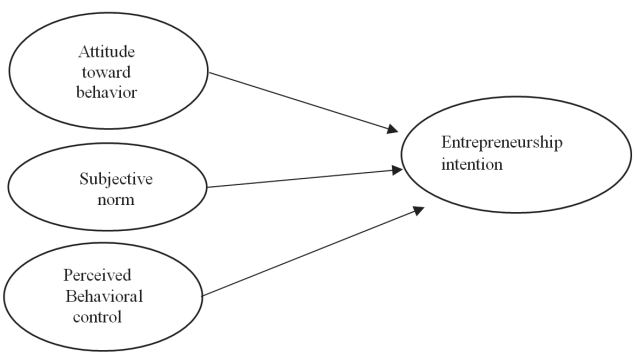

Fig. 1. The Theory of Planned Behavior model
Source: Ajzen and Fishbein, (1980)

Intentions to pursue entrepreneurship are significantly influenced by several factors, with some deeply rooted in TPB and others, originating from external theory. The profound significance of the factors in shaping entrepreneurial intentions is briefly discussed in this section, serving as a crucial basis for determining the variables and designing the model for the current study.

According to Samah et al. (2018), in Malaysia, predictors supporting entrepreneurial intentions of the youth included attitudes toward entrepreneurship, entrepreneurial knowledge, and perceived feasibility. These were found to be the most significant predictors of entrepreneurial intention. Azwar, (2013) identified three main factors influencing entrepreneurial intentions. Firstly, socio-demographic variables, such as gender and parents' occupations as entrepreneurs, which were not significantly proven to affect students entrepreneurial intentions. Secondly, attitudes, including economic opportunities, challenges, and perceived confidence. Thirdly, contextual factor, particularly social support, has a significant and positive impact on student's entrepreneurial intentions, while academic and environmental supports did not have a significant effect.

Kim-Soon et al. (2016) showed that entrepreneurial motivation factors affected entrepreneurial intentions. Subjective norms (tolerance for risk) and entrepreneurial attitudes (desires) are significantly related to student's intentions and future career choices to become entrepreneurs. Behavior control was also found to be significantly associated with student's entrepreneurial intentions. Ambad and Damit, (2016); Schmidt and Tatarko, (2016) found that the three factors in TPB were influential on entrepreneurial intentions. However, Tsordia and Papadimitriou, (2015) concluded that subjective norms were insignificant in forming intentions. The role of curriculum and entrepreneurial content is not significant in influencing the relatively weak intentions of business students to pursue entrepreneurial careers. After attending some business-related courses, fourth-year students reported average entrepreneurial intentions, which were less strong compared to first-year students.

Ridha and Wahyu (2017) found that subjective norms significantly affected entrepreneurial intentions among the youth in agricultural sector in Indonesia. Muhammad et al. (2015) stated that attitudes and subjective norms influenced entrepreneurial abilities among agriculture university students in Nigeria, while behavioral control had no significant effect on entrepreneurial intentions. These influential factors are crucial and directly affect student's entrepreneurial intentions (Wijerathna et al., 2015). Moreover, entrepreneurship education and training need to be improved to increase awareness and change students' mindset about entrepreneurship, reducing the dependence of fresh graduates on formal sector jobs.

Regarding factors outside of TPB, several studies have shown varying results. Therefore, the factors influencing entrepreneurial intentions differ across countries. For instance, self-efficacy significantly affects intentions of students in Indonesia and Norway. Instrument readiness and previous work experience are determinants of entrepreneurial intentions for Norwegian students, while educational background influences intentions for Indonesian students, though in the opposite direction (Indarti, 2008). Risk-taking significantly affects self-efficacy and entrepreneurial attitudes. Subjective norms do not significantly influence entrepreneurial intentions, as students are more driven by internal aspects such as self-ability and attitude toward evaluating entrepreneurial activities. Self-efficacy significantly influences entrepreneurial intentions (Handaru et al., 2015; Wijaya et al., 2015). Furthermore, emotional intelligence directly and positively influences the significance level of entrepreneurial intentions. An independent attitude significantly affects entrepreneurial intentions, while the environment does not (Paulina and Wardoyo, 2013).

Other factors, such as social particularities and culture, reflect the influence of external variables on intentions antecedents (social norms, personal interests, and self-efficacy). While reliability and validity measures show that entrepreneurial intentions may be generally adequate, future studies still need to address some design problems. This study can help higher education system planners improve agricultural students' entrepreneurial intentions and behavior (Shiri et al., 2012).

The preceding discussion shows the pressing need for further in-depth analysis of the factors influencing entrepreneurial intentions among agriculture university students in economically disadvantaged regions of Sumatra Island, Indonesia, using TPB framework. This analysis is crucial for gaining a comprehensive understanding and devising effective strategies to promote entrepreneurial intentions among students.

Hypothesis development

1. Attitudes toward behavior

The extent to which individuals have favorable or unfavorable judgment or appraisal of an action, namely attitudes toward a behavior (Ajzen, 2011), is a significant predictor for the current study. This concept has been shown to have a positive impact on intentions among students (Arango-Botero et al., 2020), making it an appropriate study focus. In the context of entrepreneurship, attitudes toward working for oneself is a key factor, often described as 'the difference between perceptions of personal desirability in becoming self-employed and organizationally employed' (Fernandes et al., 2013). Understanding and potentially influencing the attitudes may offer new possibilities for entrepreneurial success and regional advancement.

Theorists have argued for a distinction between aspects of attitudes such as appreciating time, bearing risks, integ-

rity, confidence, creativity, innovativeness, autonomy, leadership, diligence, and discipline (Kurniawan et al., 2019; Lorz, 2015; Schmidt & Tatarko, 2016; Ridha and Wahyu, 2017). The attitudes factor is the first formulator of intentions in TPB theory. Kotler and Amstrong (2012) argued that attitudes could cause individuals to like or dislike an object. Therefore, the more positive the attitudes toward entrepreneurship, the stronger intentions to engage in entrepreneurial activities and contribute to regional advancement. The following hypothesis was formulated based on the preceding discussion:

H1: Attitude toward behavior have a significant effect on entrepreneurial intentions among agriculture university students in economically disadvantaged regions of Sumatra Island, Indonesia

2. Subjective norms

Subjective norms are the second construct in TPB, reflecting resistance to social pressure, influencing individuals to act according to the surrounding expectations. The perception of important individuals can significantly impact intentions to behave similarly (Ayudya and Wibowo, 2018). Subjective norms reflect individual opinions on the environment, serving as external influences that encourage adherence to social expectations. This variable has a significant influence on self-efficacy for entrepreneurship, and provides encouragement or inspiration from immediate surroundings, including family, friends, lecturers, and successful entrepreneurs. Theorists have differentiated aspects of subjective norms into categories, namely organizational expectations, as well as parents', close friends', and general friends' hopes. One of the crucial traits to understand is the support from family and friends.

According to Ridha and Wahyu, (2017), university students' perceptions of subjective norms play a crucial role in fostering commercial relationships. This sentiment was also supported by, Novanda et al. (2020) and Wazni and Muliadi, (2023). The following hypothesis was formulated based on the preceding discussion:

H2: Subjective norms have a significant effect on entrepreneurial intentions among agriculture university students in economically disadvantaged regions of Sumatra Island, Indonesia

3. Perceived behavioral control

Perceived Behavioral Control (PBC), known as the apparent ease or difficulty of conduct, is anticipated based on past performance, and possible foreseen issues. Individuals tend to acquire greater intent to start businesses when there is more personal control over entrepreneurial activities. The self-efficacy, drive, dedication, tendency to take risks, planning, and sense of self-identity of individuals as entrepreneurs are all influenced by this impression of control (Aga, 2023; Akram et al., 2019; Lopes et al., 2023). Strategies to promote entrepreneurial mentality and entrepreneurship among individuals can be informed by analyzing and understanding the impact of perceived behavioral control in developing entrepreneurial intention. Theorists have argued for a distinction between aspects of perceived behavioral control, including accessing finances, overcoming tiredness, surmounting entrepreneurship difficulty, and negotiating (Novanda, 2020; Ridha et al., 2017). Perceived behavioral control is regarded as the TPB's most divisive construct partly due to inconsistent empirical results on its effect on intentions or disagreements around its conceptualization and operationalization (Vamvaka et al., 2020) The following hypothesis was formulated based on the preceding discussion:

H3: Perceived behavioral control has a significant effect on entrepreneurial intentions among agriculture university students in economically disadvantaged regions of Sumatra Island, Indonesia

Methods

Sample and data collection

Relevant data were collected through an online survey conducted in March-April 2020 to investigate the determinants of entrepreneurial intentions among students from agricultural universities in economically disadvantaged regions of Sumatra. An online survey was chosen for several reasons, namely the method could reach more respondents, which suited the respondents' characteristics as tech-savvy students, and has been widely used in similar studies. The target respondents were students from agricultural universities in the two poorest provinces of Sumatra, Bengkulu and Aceh. The poverty rates in these provinces were 14.45% (Aceh) and 14.04% (Bengkulu), significantly higher than the national poverty rate of 9.36% (BPS, 2023).

The targeted students were those, who actively enrolled in the faculties of agriculture and had taken or currently taking entrepreneurship courses or similar subjects. Relevant data were collected using a thorough purposive sampling method, resulting in 165 respondents. Primary data were gathered by distributing the questionnaire link massively via WhatsApp, both personally and in groups, on a voluntary basis. Respondents were also asked to share the questionnaire link with their networks voluntarily. The data were obtained through interviews with several key respondents to gather and confirm the survey results. Meanwhile, secondary data were collected from books, reports, journals, and other sup-

porting literature. The sample' size of 165 respondents was deemed sufficient for the statistical method used, namely Structural Equation Modelling (SEM).

Variable and measures

The TPB was used as the framework to address the study objectives, incorporating four variables, namely attitudes toward behavior, subjective norms, Perceived behavioral control, and entrepreneurial intentions (Table 1). Each variable was measured using several indicators adapted from previous studies to ensure validity. A 5-point Likert scale was used in the questionnaire, with 1 denoting "strongly disagree" for a strongly negative view and 5 denoting "strongly agree" for a strongly positive view.

Data analysis

This study used three stages of data analysis, namely descriptive statistics for socio-demographics, measurement model analysis, and SEM. This SEM is a statistical method for developing and testing analytical models, specifically causal models. It is a hybrid method that incorporates the confirmatory characteristics of factor analysis, path analysis, and regression as special examples. It was particularly used in this study to confirm the TPB concerning entrepreneurial intentions of agriculture students in economically disadvantaged areas of Sumatra.

The parameters examined included (1) Descriptive Statistics: Analysis of the socio-demographic characteristics of the respondents, (2) Measurement Model Analysis: Assessment of the reliability and validity of the constructs used in the TPB framework, (3) Structural Model Analysis: Examination of the causal relationships between the variables (attitudes toward behavior, subjective norms, perceived behavioral control, and entrepreneurial intentions) using SEM (Figure 2). This comprehensive method ensured a thorough understanding of the factors influencing entrepreneurial intentions among agriculture university students in economically disadvantaged areas of Sumatra.

Table 1. Explanation for the SEM model

Laten Variable	Manifest	Variable
1. ATB (Attitudes Toward Behavior)	ATB1	Appreciating time
	ATB2	Bearing to take risks
	ATB3	Integrity
	ATB4	Confidence
	ATB5	Creativeness
	ATB6	Innovativeness
	ATB7	Autonomy
	ATB8	Leadership
	ATB9	Diligence
	ATB10	Discipline
2. SN (Subjective Norms)	SN1	Organization expectation
	SN2	Parent's hope
	SN3	Closed friend's hope
	SN4	Friend's hope
3. PBC (Perceived Behavioral Control)	PBC1	Accessing financial
	PBC2	Overcoming tired
	PBC3	Surmounting entrepreneurship difficulty
	PBC4	Negotiation
4. I (Entrepreneursip Intentions)	I1	High intentions of entrepreneurship
	I2	High intentions of entrepreneurship on their speciality

Source: Authors' work

The equation in SEM model is:

1. Attitudes toward behavior

$$ATB1 = \lambda_{ATB1}\,\xi_1 + \delta_1 \quad (1)$$
$$ATB2 = \lambda_{ATB2}\,\xi_2 + \delta_2 \quad (2)$$
$$ATB3 = \lambda_{ATB3}\,\xi_3 + \delta_3 \quad (3)$$
$$ATB4 = \lambda_{ATB4}\,\xi_4 + \delta_4 \quad (4)$$
$$ATB5 = \lambda_{ATB5}\,\xi_5 + \delta_5 \quad (5)$$
$$ATB6 = \lambda_{ATB6}\,\xi_6 + \delta_6 \quad (6)$$
$$ATB7 = \lambda_{ATB7}\,\xi_7 + \delta_7 \quad (7)$$
$$ATB8 = \lambda_{ATB8}\,\xi_8 + \delta_8 \quad (8)$$
$$ATB9 = \lambda_{ATB9}\,\xi_9 + \delta_9 \quad (9)$$
$$ATB10 = \lambda_{ATB10}\,\xi_{10} + \delta_{10} \quad (10)$$

2. Subjective norms

$$SN1 = \lambda_{SN1}\,\xi_1 + \delta_1 \quad (1)$$
$$SN2 = \lambda_{SN2}\,\xi_2 + \delta_2 \quad (2)$$
$$SN3 = \lambda_{SN3}\,\xi_3 + \delta_3 \quad (3)$$
$$SN4 = \lambda_{SN4}\,\xi_4 + \delta_4 \quad (4)$$

3. Perceived Behavioral Control

$$PBC1 = \lambda_{PBC1}\,\xi_1 + \delta_1 \quad (1)$$
$$PBC2 = \lambda_{PBC2}\,\xi_2 + \delta_2 \quad (2)$$
$$PBC3 = \lambda_{PBC3}\,\xi_3 + \delta_3 \quad (3)$$
$$PBC4 = \lambda_{PBC4}\,\xi_4 + \delta_4 \quad (4)$$

Analysis of reliability and validity

The quality of study instruments reflects the validity and reliability. Validity test refers to assessing the accuracy of an instrument in measuring what it aims to measure. Meanwhile, reliability refers to the consistency of an instrument.

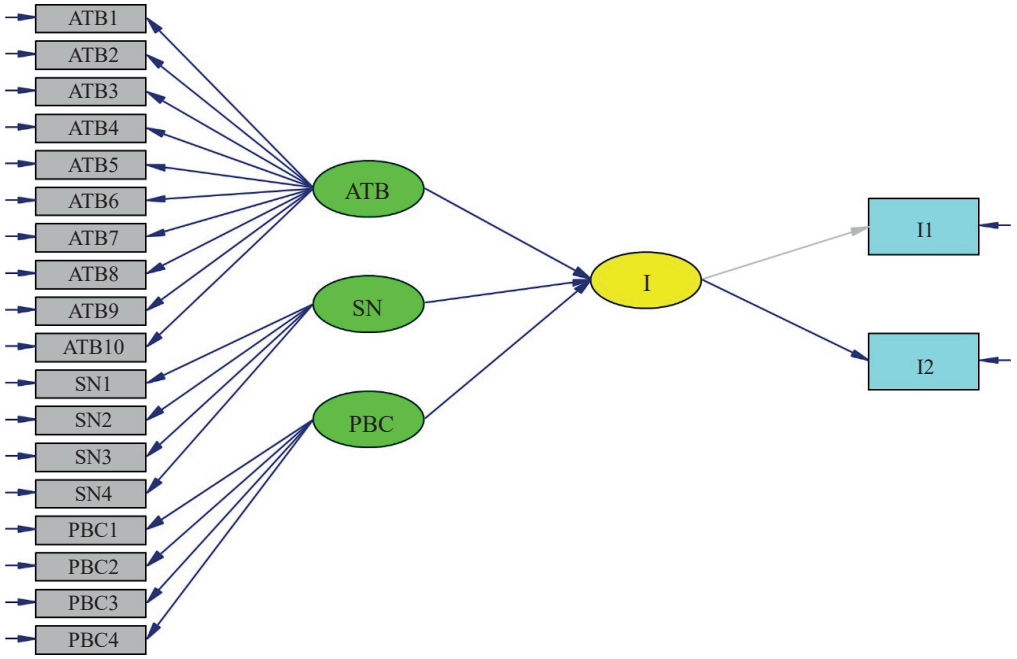

Fig. 2. Agriculture entrepreneurship intentions of college students in poor areas of Sumatra model
Source: Authors' work

The study instrument trial was carried out on 30 students from Aceh and Bengkulu, who were considered to have the same characteristics as the sample of this study using Statistical Package for Social Science (SPSS) software computer program version 22. Validity refers to the level of reliability of an instrument in assessing questions delivered in a questionnaire. An instrument is declared valid when it accurately measures what should be measured. In other words, a valid instrument appropriately estimates what it is intended to measure. Validity also states the extent a measuring instrument, which declared accurate in measuring data.

Based on the results of the validity test (Table 2), all statements in the measuring instrument were declared valid. The test results showed that using Pearson product-moment correlation method, the instrument met validity requirements with 95% confidence level. The calculated r-value was greater than the r-table, confirming the validity of the data. Therefore, the questionnaire was suitable as a study instrument due to its reliability.

Reliability refers to the accuracy of Cronbach's Alpha method. This method assesses how consistent the results are when using the same measuring instruments multiple times. For the instrument to be considered reliable, the r-alpha value needs to be greater than the r-table. The reliability test results in Table 3 show the instrument was reliable, with a Cronbach's alpha level of 88.0%. The reliability value showed that the instrument could be trusted and applied for data collection.

Table 3. Reliability statistic

Cronbach's Alpha	N of Items
0.880	18

Source: Authors' work

Table 2. Analysis of validity

Items	Pearson Correlation	Information	Items	Pearson Correlation	Information
Item_1	0.429**	Valid	Item_10	0.708**	Valid
Item_2	0.700**	Valid	Item_11	0.409**	Valid
Item_3	0.648**	Valid	Item_12	0.572**	Valid
Item_4	0.650**	Valid	Item_13	0.666**	Valid
Item_5	0.651**	Valid	Item_14	0.487**	Valid
Item_6	0.526**	Valid	Item_15	0.690**	Valid
Item_7	0.542**	Valid	Item_16	0.546**	Valid
Item_8	0.726**	Valid	Item_17	0.665**	Valid
Item_9	0.578**	Valid	Item_18	0.647**	Valid

Source: Authors' work

Results and Discussion

Result

Socio-demographics characteristics

This study included 165 respondents from agricultural faculties in the two poorest provinces of Sumatra, with 52.12% from Bengkulu and 47.88% from Aceh (Table 4). The majority were females (57.58%), reflecting the current demographic trend in Indonesia, where women are more dominant. In this study, the respondents were from various programs under agricultural faculties, predominantly agribusiness (27.88%), agrotechnology (14.55%), and socio-economic agriculture (12.12%). Other programs included agroecotechnology (4.24%), fisheries cultivation (9.09%), soil science (7.27%), forestry (4.85%), animal husbandry (8.48%), plant protection (2.42%), and agricultural engineering (9.09%). All respondents were students between 18 and 23 years old, with the largest group being 20 years old (52%).

Table 4. Profile of respondents' socio-demographics

Variable	Category	Number	Percentage (%)
Sex	Male	70	42.42
	Female	95	57.58
Origin	Bengkulu	86	52.12
	Aceh	79	47.88
Study Program	Agroecotechnology	7	4.24
	Agrotechnology	24	14.55
	Agribusiness	46	27.88
	Fisheries Cultivation	15	9.09
	Soil Science	12	7.27
	Forestry	8	4.85
	Animal husbandry	14	8.48
	Plant protection	4	2.42
	Socio-Economic Agri.	20	12.12
	Agricultural Engineering	15	9.09
Age	18	9	5.45
	19	28	16.97
	20	85	52.52
	21	30	18.18
	22	11	6.67
	23	2	1.21

Source: Authors' work

Model compatibility test

1. Overall model fit

The suitability of the model was tested by evaluating against Goodness of fit (GOF). Based on the test results in Table 5, RMR, RMSEA, CFI, NFI, and RFI fell in the good fit category. This showed the value had an incremental compatibility, or there was no significant difference between the base and the proposed models. As a result, the hypothesis of the theory was validated, since the model was classified to be fit. Data from the questionnaire were able to support the theory developed.

2. Measurement model fit

The suitability of the measurement model was conducted in each construct by estimating validity and reliability. Good validity has a t-value ≥ 1.96, while the value of the standardized loading factor is more than the tolerable loading factor limit of ≥ 0.50 (Igbaria et al., 1997). The test results showed that ATB_1, ATB_6, ATB_7, SN_1, and SN_4 had values below the standard (Invalid), confirming the removal of the indicator from the model (Figure 3).

3. The respecification model

As a result of the indicator variables that did not meet the loading factor threshold, it was necessary to re-confirm the model by reconducting overall model fit. This was due to an incremental compatibility or insignificant difference between the basic and the proposed models (Figure 4). Therefore, the theory's hypothesis can be tested once the model's GOF is established. The hypothesis testing theory can be used when model has a significant compatibility. This also implied the data from the questionnaire could support the theory developed (Table 6).

After obtaining a compatible measurement model, the result from the standardized loading factor diagram was higher than 0.5 and a t-value greater than 1.96, showing that all variables met validity standards (significant) (Figure 5). Therefore, the suitability of the structural model could be tested.

Table 5. Overall model fit in the initial model

Goodness-of-Fit	Cut-off-Value	Value	Information
RMR (*Root Mean Square Residual*)	< 0.05	0.031	*Good Fit*
RMSEA (*Root Mean square Error of Approximation*)	≤ 0.05 *or* ≤ 0.08	0.071	*Good Fit*
CFI (*Comparative Fit Index*)	≥ 0.90	0.97	*Good Fit*
Normed Fit Index (*NFI*)	≥ 0.90	0.93	*Good Fit*
Relative Fit Index (*RFI*)	≥ 0.90	0.91	*Good Fit*

Source: Authors' work

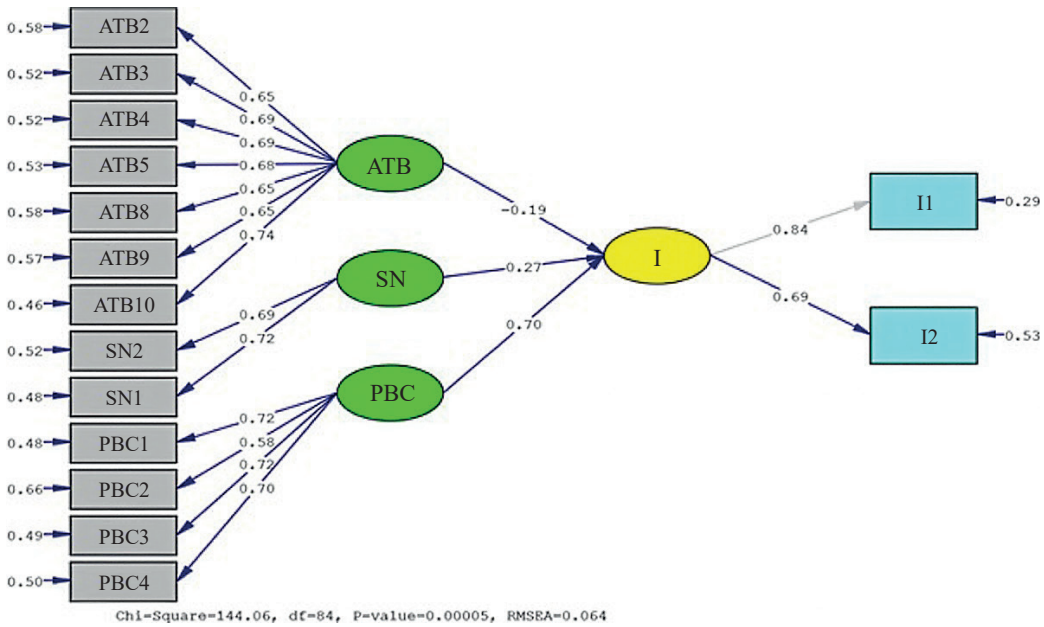

Fig. 3. Standardized loading factor path diagram in the initial model
Source: Authors' work

Table 6. Overall model Fit in the respecification model

Goodness-of-Fit	Cut-off-Value	Value	Information
RMSEA (Root Mean square Error of Approximation)	≤ 0.05 *or* ≤ 0.08	0.064	Good Fit
GFI (Goodness of Fit)	≥ 0.90	0.90	Good Fit
CFI (Comparative Fit Index)	≥ 0.90	0.98	Good Fit
Normed fit index (NFI)	≥ 0.90	0.96	Good Fit

Source: *Authors' work*

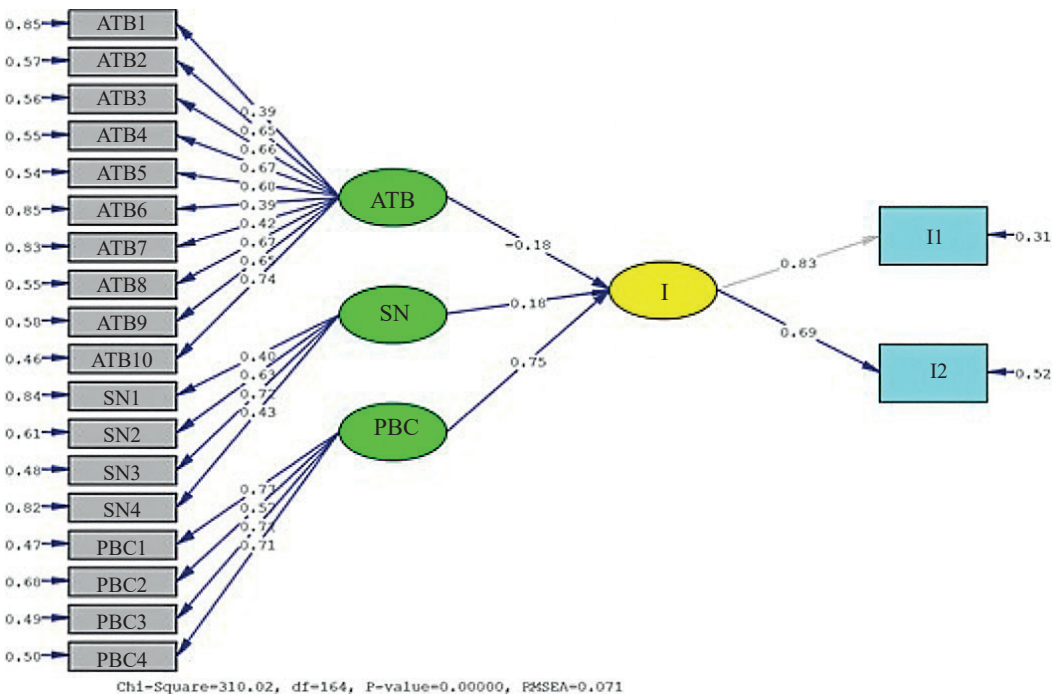

Fig. 4. Standardized loading factor path diagram in the respecification model
Source: Authors' work

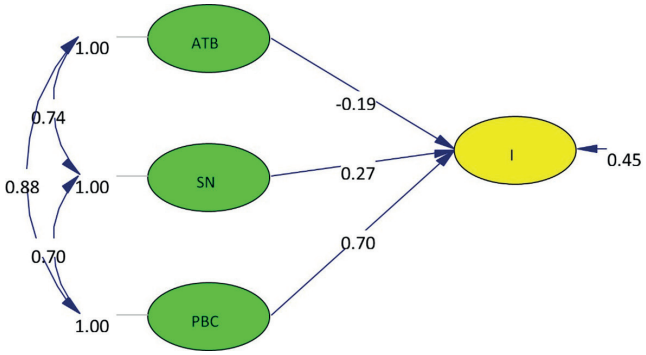

Fig. 5. Path coefficient diagram
Source: Authors' work

Figure 6 identified as the T-value Diagram, presents the outcomes of the structural equation model (SEM) by depicting the connections between latent variables and their corresponding t-values. Each pathway in the figure indicates a postulated correlation between two variables, with the associated t-value exhibited adjacent to the pathway.

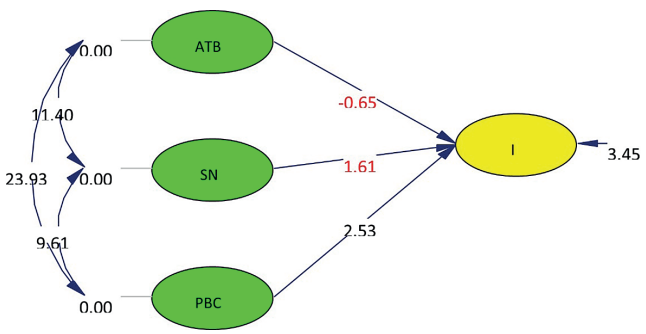

Fig. 6. T-value diagram
Source: Authors' work

Structural model included assessing the significance of the coefficients and the t-value for each factor. Structural model compatibility was tested with R^2 value, which could suggest the size of the structural compatibility for the structural equation. Table 7 investigates the elements that impact entrepreneurial intentions in agriculture, especially the connections between attitude towards behavior (ATB), subjective norm (SN), and perceived behavioral control (PBC) on intents (I). The findings suggest that both ATB (t-value = -0.65) and SN (t-value = 1.61) have no significant effect on entrepreneurial ambitions, since their t-values are below the significance threshold of 1.96. Nevertheless, PBC has a substantial impact on intentions, as indicated by a t-value of 2.53, which above the threshold. A t-value of 1.96 implies statistical significance, but a result below this threshold suggests statistical insignificance.

Table 7. Factors that influence agriculture entrepreneurial intentions

Relationship between variables	t-*value*	Conclusion
ATB → I	-0.65	Not significant
SN → I	1.61	Not significant
PBC → I	2.53	Significant

Notes: t-value > 1.96 denotes significance while t-value < 1.96 denotes insignificance
Source: Authors' work

Discussion

This study showed the significant impact of perceived behavioral control on entrepreneurial intentions of agricultural students in impoverished regions of Sumatra. Also, subjective norms and attitudes toward behavior did not have a significant influence as shown in Table 7. Consistent with these results, perceived behavioral control was the sole TPB foundational variable influencing entrepreneurial intentions among students in Vietnam and South Korea (Nguyen et al., 2018). The significance of perceived behavioral control in shaping entrepreneurial intentions had been similarly reported in previous studies across various countries, such as Albania (Cera and Furxhiu, 2017), India (Lingappa et al., 2020), and China (Mensah et al., 2021; Su et al., 2021).

Based on the current study, subjective norms and attitudes toward behavior proved negligible in forming entrepreneurial intentions among agricultural students in impoverished regions of Sumatra. The significance of perceived behavioral control in intentions formation necessitated investigation as it was shown to influence respondents' entrepreneurial intentions directly (Wijerathna et al., 2015). Furthermore, entrepreneurial content function within the curriculum did not contribute significantly to students' intentions toward entrepreneurship. Agricultural entrepreneurship education and training need evaluation to increase awareness and alter students' mindsets toward entrepreneurship, thereby reducing fresh graduates' dependence on the formal sector.

Perceived behavioral control refers to the ease or difficulty of behavior perceived by respondents, originating from previous experiences accompanied by anticipation of potential issues. Perceived behavioral control positively and significantly influenced entrepreneurial intentions at a significant level of 5%, with a t-value of 2.53 (Table 6). These results showed individuals with higher control over entrepreneurial behavior tended to develop stronger intentions to become entrepreneurs. This perception of control could influence self-efficacy, motivation, commitment, risk-taking propensity, planning, and entrepreneurial identity (Anjum et al., 2023; Lopes et

al., 2023). Analyzing and understanding the role of perceived behavioral control in shaping entrepreneurial intentions, can inform strategies to cultivate entrepreneurial mindsets and promote entrepreneurship among individuals.

There were differences in the factors influencing entrepreneurial intentions from previous studies on TPB foundational variables. Subjective norms significantly contributed to intentions to start a new business among the youth in Indonesia's agricultural sector (Ridha and Wahyu, 2017). Subjective norms also emerged as the variable with the most significant effect on forming entrepreneurial intentions among young Muslim generations in Indonesia (Baharuddin and Rahman, 2021). In contrast, (Aries et al., 2020) reported that attitudes toward behavior, subjective norm, and perceived behavioral control positively influenced students' entrepreneurial intentions with online learning models in Indonesia, with perceived behavioral control being the most dominant variable. Differences in the significance of TPB predictors on entrepreneurial intentions could be attributed to social background differences (Nguyen et al., 2018). While entrepreneurship development strategies for young generations should not be generalized, unique aspects of each location should be considered, including developing entrepreneurial intentions among agricultural students in impoverished regions of Sumatra.

Based on analysis, universities were crucial in generating creative programs to increase students' interest in starting businesses independently or collaborating with external parties (Baharuddin and Rahman, 2021). The institutions often served as the first educational institutions to introduce technical skills for entrepreneurship (Lingappa et al., 2020). Besides offering entrepreneurship courses, educational institutions such as universities can instill essential understandings related to risk-taking, fear of failure, and coping with stress, often hindering individuals from initiating businesses (To & Le, 2021). In this study, the significance of perceived behavioral control showed that students' entrepreneurial intentions could increase alongside confidence in skills, adequate knowledge, and existing opportunities (Mensah et al., 2021). Confidence in the ability to achieve desired outcomes constitutes self-efficacy, a motivational driver for entrepreneurship, and a core attribute in perceived behavioral control measurement (Vamvaka et al., 2020). Self-efficacy in entrepreneurship shapes students' entrepreneurial intentions (Doanh, 2021).

Students' abilities and self-confidence can be improved by strengthening university entrepreneurship education curricula, fostering practical skills, and encouraging participation in entrepreneurial innovation competitions (Su et al., 2021). This entrepreneurship education curriculum is expected to improve innovation capabilities, proactive attitudes, and the need for achievement among students, directly influencing entrepreneurial intentions (Mahmood et al., 2019). Conversely, improving teachers' competencies was also necessary in improving students' entrepreneurship knowledge levels (Harudin et al., 2016). The availability of educational institutions and training with adequate curricula and instructors creates a conducive environment to instill the necessary self-confidence to show entrepreneurship self-efficacy (Mensah et al., 2021). The development of supportive infrastructure is also crucial for entrepreneurship development, specifically in rural areas (Zainalaludin, 2012). Therefore, the government should prioritize improving the quality of higher education in impoverished Sumatran regions to promote young entrepreneurs and regional economies.

The current study also discussed the influence of perceived behavioral control on entrepreneurial intentions based on each indicator. Understanding these factors can inform the design of support systems, training programs, and policies to improve students' entrepreneurial abilities in impoverished Sumatran regions. By addressing factors impacting perceived control, stakeholders can work to create environments that foster entrepreneurial intentions and support agricultural business growth.

Perceived behavioral control, based on indicators, such as access to finance, emerged as the most dominant factor influencing entrepreneurial intentions, in line with the phenomenon that financial access plays a crucial role in starting a business. Financial support has been proven to influence social entrepreneurship performance and impact job creation despite the difficulties and complexities in accessing financial resources (Kallab and Salloum, 2017). Policies designed to increase youth participation in agricultural entrepreneurship should ideally provide initial business funding assistance (Magagula and Tsvakirai, 2020). Access to financial resources remains a barrier to youth engagement in agricultural business ventures, specifically in Zambia and Vietnam (Mulema et al., 2021), Ethiopia (Ahmed and Ahmed, 2021), and Morocco (Bouichou et al., 2021). Therefore, an integrated method that improves access to the financial resources through targeted financial promotions for youth, business skills development programs, organizational capacity development, and initial business funding assistance is highly recommended (Mulema et al., 2021).

Agricultural students in impoverished Sumatran regions face barriers, such as financial access to start new businesses, due to concerns about business failure impacting the ability to repay. Initial business financing options include personal capital, family assistance, grants, or external financing such as banking. However, obtaining banking financing for

new entrepreneurs is challenging, because businesses are relatively unbankable and lack sufficient lateral support. Family financial assistance is generally limited to families with existing businesses or those with substantial financial resources. Government grants to new entrepreneurs, such as the Young Agricultural Entrepreneurship Growth Program (PWMP) from the Ministry of Agriculture, provide funding assistance to students (Ridha et al., 2017).

Perceived behavioral control, based on indicators of addressing entrepreneurship difficulties, also proves to influence entrepreneurial intentions. Addressing entrepreneurship difficulties reflects the complexity of running a business and the ease of controlling business complexity, which is the second dominant factor representing perceived behavioral control. Entrepreneurs' ability to manage business complexity is a key factor in behavioral control. Business complexity can originate from internal and uncontrollable external factors, such as production, price, and climate change risks. However, with the right support, including government policies, financial support, as well as universities' technology transfer and business incubators, students can gain more confidence for success as entrepreneurs, instilling a sense of optimism and confidence.

Negotiation skills serve as an indicator reflecting perceived behavioral control and significantly influence entrepreneurial intentions among students in impoverished Sumatran regions. Entrepreneurial negotiation skills are based on entrepreneurs' ability to empathize by responding emotionally to partners' experiences, thoughts, and feelings during negotiations (Shcherban et al., 2022). This empathetic attitude is not only a skill, but a value that provides better understanding of partners' desires and perspectives, thereby improving business performance and ensuring students feel the value of understanding partners' perspectives.

Self-perceptions of competencies as entrepreneurs can be strengthened through vocational education provided by universities to improve entrepreneurial intentions among the youth, since vocational education equips students more with practical skills rather than mere theory (Joensuu-Salo et al., 2022). Negotiation skills are recognized as crucial knowledge and abilities needed by students in entrepreneurship, which can be improved through entrepreneurship courses and training organized by universities (Su et al., 2021). Industrial internship programs are considered to have a positive impact on entrepreneurial learning among students (Harudin et al., 2016). Therefore, improving negotiation skills among university students in impoverished areas of Sumatra should be a concern for educators, specifically to boost students' confidence in starting businesses. These negotiation skills can be honed through simulations (Sun and Theussen, 2023) reflecting real-world business conditions. Similarly, Seun and Kalsom (2015), agreed that the establishment of a business largely depended on entrepreneur's readiness to face all challenges in business endeavors.

Another indicator of perceived behavioral control is the ability to manage fatigue. Entrepreneurs often face complex tasks such as decision-making, operational planning, and personnel placement. These activities induce stress among entrepreneurs, requiring strong commitment to sustain business ventures (Yuan et al., 2020). When left unattended, stress and fatigue can lead to decreased work motivation and business targets, thereby limiting income potential (Susihono, 2014). Fatigue is a complex biological phenomenon influenced by waking hours, workloads, health, and lifestyle factors outside of tasks, often exacerbated by insufficient or disrupted sleep (Caldwell et al., 2019). Workload, a significant contributor to fatigue, can foster fear and reduce optimism among entrepreneurs (Xu et al., 2022). Therefore, entrepreneurs need self-management systems that help avoid excessive workloads and pay attention to details in business processes (Goldsby et al., 2021). In essence, individuals should be capable of self-learning before venturing into business, reflecting the role of educational institutions in instilling entrepreneurial mindsets capable of managing stress (To and Le, 2021).

Conclusion and Recommendation

In conclusion, youth participation in agricultural sector was crucial for promoting economic growth and poverty reduction through agricultural entrepreneurship. Entrepreneurship in agriculture by the youth was perceived as an effective solution for poverty alleviation. Specifically, young individuals with a farming education background were expected to become agents of change by contributing to job creation and poverty reduction. Therefore, this study investigated the determinants of entrepreneurial intentions among agricultural college students in impoverished Sumatra regions, namely the Aceh and Bengkulu provinces. The TPB was used as the framework to address this objective. Four variables were subjected to analysis, namely attitudes toward behavior, subjective norms, perceived behavioral control, and entrepreneurial intentions.

The analysis results using SEM showed that perceived behavioral control significantly impacted entrepreneurial intentions. In contrast, subjective norms and attitudes toward behavior did not have a significant effect. Students with higher behavior control over entrepreneurial behavior tended to develop strong intentions to become entrepreneurs. This belief, particularly in the ability to access finance, was

the dominant factor influencing students' entrepreneurial intentions. Negotiation skills, the ability to address entrepreneurial difficulties, and endurance in the face of fatigue also shaped entrepreneurial intentions.

The results had policy implications for increasing students' entrepreneurial intentions by strengthening entrepreneurship education curriculum at universities in Sumatra, improving the competency of educators. There were also implications in implementing entrepreneurship innovation competitions and industrial internships to train the business competencies of the youth, as well as providing startup capital for young entrepreneurs when initiating businesses.

This study had limitations in using variables confined to the basic TPB model. Other factors not included in the model could shape students' entrepreneurial intentions. Furthermore, the study focused solely on Sumatra region, limiting the generalizability of the results. Future studies were recommended to address these gaps by incorporating explanatory variables that could strengthen the model and expand the scope of analysis.

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