



## RESEARCH PAPER

## OPEN ACCESS

## Youth perceptions of paddy agribusiness to increase interest in becoming paddy farmers in South Borneo

Miranda Romaully Br. Sitanggang<sup>\*1</sup>, Sadik Ikhsan<sup>2</sup>, Nuri Dewi Yanti<sup>2</sup>, Yudi Ferrianta<sup>2</sup>

<sup>1</sup>*Doctoral Program of Agriculture Science, University of Lambung Mangkurat, Banjarbaru, Borneo Selatan, Indonesia*

<sup>2</sup>*Magister of Agriculture Economics, University of Lambung Mangkurat, Borneo Selatan Indonesia*

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### Abstract

The concept of paddy agribusiness is a more modern perspective on paddy farming. The interconnection between subsystems will elevate the cultivation subsystem into a promising job as the core of the agribusiness system. The research wants to determine whether the perception of paddy agribusiness increases the interest of the youth to become paddy farmers. 400 youths who are still in school or college, and are pursuing both agricultural and non-agricultural majors participated in the study in south Borneo. The participants' ages ranged from 15 to 28. Analysis using binary logit regression. The results showed that the perception of paddy agribusiness affects the interest of the youth to become paddy farmers in South Borneo. The dominant variable in the model is the agriculture major chosen by the respondent, and the following variable determinant is paddy as the type of respondent plant selected. The model used is feasible or has a correct prediction accuracy of 89.25% by including other variables that are confounding.

\* **Corresponding Author:** Miranda Romaully Br. Sitanggang ✉ [1940511320012@mhs.ulm.ac.id](mailto:1940511320012@mhs.ulm.ac.id)

## Introduction

Indonesia's national economic development strategy is anticipated to focus on agricultural growth using an agribusiness system approach as a pillar of national development. The agribusiness system approach can be a future development strategy that can increase farmers' and other economic actors' participation, initiative, and creativity, such as Malaysia developing agriculture with global agribusiness terminology (Kasim *et al.*, 2013). Also, this approach is expected to build harmonious relations between agriculture, industry, and services, increasing competitive advantage over comparative advantage, driven by capital and innovation like start-up platforms and FinTech (Hinson *et al.*, 2019; Yami *et al.*, 2019). The concept of agribusiness can carry high technology that plays a role in the new strategy of agricultural development: while maintaining aspects of quality and environmental sustainability (Zambon *et al.*, 2019).

The approach of agribusiness as smart agriculture will change the youth's perception of the agricultural sector—model *smart agriculture* for the youth, especially the unemployed (Nhamo and Chikoye, 2017a). Smart agribusiness increases productivity and agricultural value (Sung, 2016).

Agribusiness can be a place for the youth to work as entrepreneurs. Agribusiness can support engineering and finance, agricultural profits, and sustainability, showing an interest in becoming a young entrepreneur (Pelzom and Katel, 2017). Career incentives in agriculture must be considered to attract fresh graduates from agriculturally educated students (Unay-Gailhard *et al.*, 2019). We need a plan to socialize youths to want to farm as more farmers from non-farm backgrounds enter into agriculture and desire to practice agriculture (Carolan, 2018).

Because it does have challenging to realize, especially facing youth with a strong interest in technology and innovation, the need to change the perception of young people about agricultural (Boström, 2012; Magagula and Tsvakirai, 2020; Nhamo and Chikoye,

2017b; Toader and Roman, 2015). Policies should assist young people who intend to farm and those who would tend if they had a better chance (Ruiz Salvago *et al.*, 2019).

The paddy agribusiness system is an integrated subsystem. With paddy farmers in the farm subsystem, other subsystems will exist. The paddy farming business, following the wishes of young people, needs to be started soon so that in the future, it becomes a job that is in demand by the youth. The research aims to examine the influence of paddy agribusiness perceptions on the interest of the youth to become paddy farmers in South Borneo, Indonesia.

## Materials and methods

### Study area

This study focused on South Borneo, Indonesia, with wetlands areas for alternate paddy center production. For the sustainability of rice production, local governments need to prepare the youth to replace aging farmers.

### Study design

The study analyzes the youth's interest in becoming farmers with a binary logit regression. The equation model includes the main variables of paddy agribusiness system perception and confounding variables such as age, gender, education, major, gender, place of origin, parental occupation, and the type of plant selected. The research results can be used as the basis for decision-making to develop a paddy agribusiness program for the youth in South Borneo.

The analysis used a multivariable logistic regression with a response changer (interest in working as a paddy farmer). The multivariable logistic regression formula is as follows:

$$\text{Loge} \left[ \frac{\pi}{1-\pi} \right] = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 D_1 + \beta_8 D_2 + \beta_9 D_3 + \beta_{10} D_4 + \beta_{11} D_5 + \beta_{12} D_6 + \beta_{13} D_7$$

Where:

$\pi$  = opportunities interested in being paddy farmers (1)

$1 - \pi$  = opportunities of no interest being paddy farmers (0)

$X_1$  = age (22-28 oy =1,15-21 oy =0)

$X_2$  = gender ( male =1, female =0)

$X_3$  = education (college =1, school = 0)

$X_4$  = major (agriculture =1, non agriculture =0)

$X_5$  = Residential environment (rural =1, urban = 0)

Dummy parental occupation (farmer = D1, government employee= D2, employee= D3, merchant= D4, entrepreneur=D5, others)

$X_6$ = perception of paddy agribusiness (scale)

Dummy crops desired (D6 = paddy, D7= except for paddy)

Estimation of logistic regression coefficient using *Maximum Likelihood Estimation* (MLE) method using Eviews software. Assessing the *Goodness of Fit* using the HL test (Hosmer and Lemeshow Test), validation model using overall correct predicted.

**Results and discussion**

*Validation and reliability tests*

The validation test results (Table 2) for paddy agribusiness perception showed three insignificant with values  $\rho > \alpha = 0.05$  items, so it was decided to remove items from the questionnaire, namely item 2, item 7, and item 14. Meanwhile, the results of the reliability test of the Cronbach alpha coefficient of

0.829 (Table 3) greater than 0.7 indicate a reliable questionnaire. The indicators used to compile the questionnaire can be seen in Table 1.

*Perception of paddy agribusiness and the interest of the youth to become rice farmers*

Most of the respondents showed interest in agriculture or became paddy farmers. Almost 86.5% of respondents are interested in becoming paddy farmers with the concept of agribusiness (Table 4).

The logit regression functions obtained from the results of the analysis are;

$$\pi = 1 - @CLOGISTIC(-(-13.9384602151 + 0.00152888351339 * X_1 - 0.174167476091 * X_2 + 0.886186701506 * X_3 + 2.38297612487 * X_4 - 0.0224402749771 * X_5 - 0.202235284662 * D_1 - 0.332887729303 * D_2 - 0.414208324961 * D_3 - 1.24105402096 * D_4 - 0.912016506595 * D_5 + 0.377144017415 * X_9 + 2.12940182702 * D_6 + 0.233213142266 * D_7))$$

Their perception of paddy agribusiness allegedly influences the youth's interest in paddy farmers. It is suspected that there is an improved perception or considers rice farming as an interesting agribusiness concept to make the youth interested in becoming farmers or wanting to work as farmers in the future (Nhamo and Chikoye, 2017a).

**Table 1.** Indicators of perceptual measurement of working in paddy Agribusiness.

Variables	Indicators
Work in agribusiness	a. Income level
	b. Working atmosphere
	c. Prospects
	d. Technology level
	f. Social status

The study's results (Table 5) had a statistical H-L of 9.943 with  $\rho$  value  $0.2691 > \alpha = 0.05$ , not rejected  $H_0$  means that the model is acceptable because there is no significant difference between the model and its observation value. The logit equation model has a good goodness fit so that it can be used to explain the phenomenon.

The  $R^2_{MFD}$  value of only 0.43 or the variation in the youth's interest in paddy agribusiness of only 43% can be explained by all the variables in the model, the remaining 57% by other variables that have not been included. The model is suitable to estimate the interest of being a paddy farmer with a correct total predicted value of 89.25%; in other words, the

accuracy of this model is good. So the simultaneous variation of all variables in the model can explain the probability of the youth being interested in paddy farmers. Based on the value of  $\rho < 0.05$  in the partial test (Table 6), the variables which have a dominant effect on the chances of the youth being interested in

paddy farmers ( $\pi$ ) from the most influence were major (X4), plant selected; paddy (D6), the perception of paddy agribusiness (X6), and the parent occupation: a merchant (D4). While age and sex variables have no effect, this is in line with the study (Bosompem *et al.*, 2017).

**Table 2.** The results of the questionnaire validity test of the perception of the younger generation towards paddy agribusiness.1

Item	Keterangan	Skor Total
Item1	Pearson Correlation	,568**
Income working in Agribusiness paddy crops [High-income level]	Sig. (2-tailed)	0,000
Item2	Pearson Correlation	0,178
Income of working in agribusiness rice crops [The amount of Income is not sufficient for daily needs]	Sig. (2-tailed)	0,253
Item3	Pearson Correlation	,750**
Income working in Agribusiness rice crops [Part of Income can be saved]	Sig. (2-tailed)	0,000
Item4	Pearson Correlation	,661**
Income working in Agribusiness rice crops [Income can meet educational needs until college]	Sig. (2-tailed)	0,000
Item5	Pearson Correlation	,701**
Working atmosphere in agribusiness rice crops [Working in Agribusiness is comfortable with the rural atmosphere]	Sig. (2-tailed)	0,000
Item6	Pearson Correlation	,601**
Working atmosphere in the field of rice crop agribusiness [Workplace conditions are in line with expectations, flexible time]	Sig. (2-tailed)	0,000
Item7	Pearson Correlation	0,206
Working atmosphere in agribusiness rice crops [Work in Agribusiness is tiring]	Sig. (2-tailed)	0,186
Item8	Pearson Correlation	,742**
Prospects of working in rice crop agribusiness [Working in Agribusiness can be a successful entrepreneur]	Sig. (2-tailed)	0,000
Item9	Pearson Correlation	,787**
Prospects of working in rice crop agribusiness [Work in Agribusiness guarantees the future]	Sig. (2-tailed)	0,000
Item10	Pearson Correlation	,631**
Prospects of working in rice crop agribusiness [Work in Agribusiness guarantees a prosperous family life]	Sig. (2-tailed)	0,000
Item11	Pearson Correlation	,744**
Level of technology in the field of paddy agribusiness [Cultivation technology in the field of advanced Agribusiness]	Sig. (2-tailed)	0,000
Item12	Pearson Correlation	,678**
Level of technology in the field of paddy agribusiness [Work in Agribusiness supported by technology 4.0]	Sig. (2-tailed)	0,000
Item13	Pearson Correlation	,726**
Level of technology in the field of paddy agribusiness [Agribusiness mechanization is modern]	Sig. (2-tailed)	0,000
Item14	Pearson Correlation	-0,286
Social status of working in paddy agribusiness [Employment in prestigious Agribusiness]	Sig. (2-tailed)	0,063
Item15	Pearson Correlation	,565**
Social status of working in paddy agribusiness [Employment in noble paddy agribusiness]	Sig. (2-tailed)	0,000
Item16	Pearson Correlation	,607**
Social status of working in paddy agribusiness [Employment status in Agribusiness favored by prospective in-laws]	Sig. (2-tailed)	0,000
	N	43

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).

**Table 3.** The results of the questionnaire reliability test of the perception of the younger generation towards paddy agribusiness.

Cronbach's Alpha	N of Items
0,829	16

Calculating the odd ratio (OR) in the partial test showed that the most dominant variable affecting the

chances of the youth interested in paddy farmers is variable major with OR = 10.8 (Table 6).

**Table 4.** The frequency of interest of the younger generation toward rice farmers.

Not interested (0)	54	13,50	54	13,50
interested (1)	346	86,50	400	100.00

**Table 5.** Results of the regression analysis test of the younger generation's interest in paddy agribusiness in South Borneo.

Information	Value	$\rho$
statistic	136,160	0,00
$R^2_{MFD}$	0,43	
$HL_{statistic}$	9,943	0,2691
Correct predictions	89,25%	

Respondents who chose an agriculture major were 10.8 times more likely to be interested in being paddy farmers than respondents whose majors were non-agriculture. Variable perception of paddy agribusiness

provides an opportunity for youth interested 1.4 times better than those with an unfavorable perception of paddy agribusiness.

**Table 6.** Partial test results regression of younger generation's interest in rice farmers.

Variable	Coefficient	Std. Error	z-Statistic	Prob.	Odd Ratio
Constant	-11.80906	2.488069	-4.746275	0.0000	,000
Age (X1)	0.001529	0.555395	0.002753	0.9978	1,002
Gender (X2)	-0.174167	0.437927	-0.397709	0.6908	,840
Education (X3)	0.886187	0.496438	1.785092	0.0742	2,426
Major (X4)	2.382976	0.548156	4.347262	0.0000	10,837
Place of Origin (X5)	-0.022440	0.461200	-0.048656	0.9612	,978
Parents occupation:					
farmers (D1)	-0.202235	0.574194	-0.352207	0.7247	,817
government employees(D2)	-0.332888	0.743863	-0.447512	0.6545	,717
employee (D3)	-0.414208	0.783368	-0.528753	0.5970	,661
merchant (D4)	-1.241054	0.626727	-1.980216	0.0477	,289
Entrepreneur(D5)	-0.912017	0.738407	-1.235113	0.2168	,402
Perception of paddy agribusiness (X7)					
Crops selected: paddy(D6)	2.129402	0.541223	3.934423	0.0001	8,410
except for paddy (D7)	0.233213	0.530464	0.439640	0.6602	1,263

## Conclusion

The perception of paddy agribusiness is not the dominant determining variable in the youth's interest in becoming rice farmers. If the perception of paddy agribusiness can be even better, the chance that the youth is interested will increase by more than 1.4 times the perception of bad ones. The major agriculture chosen by the respondents turned out to

support the interest of the youth to become rice farmers up to 10 times rather than non-agricultural ones. The research results illustrate that agricultural education does well in fostering the interest of its students. However, interest can change due to many factors or circumstances that make respondents not work as paddy farmers. The South Borneo regional government needs to develop a young farmer

program to welcome the youth's interest so they can be realized as paddy farmers. The agribusiness curriculum will increase the perception of paddy agribusiness so that the youth is increasingly interested in becoming paddy farmers. The government's young farmer program will be successful if it collaborates with educational institutions, schools, and colleges. The combination of improved perceptions and programs of young farmers in agriculture will provide young farmers with for regeneration of the sustainability of food security in South Borneo.

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