# Strength of Social Environmental Support and Off-Farm Accessibility as Determinants of Young Farmers' Willingness to Persist in Agriculture

# Kekuatan Dukungan Lingkungan Sosial dan Aksesbilitas Off Farm sebagai Penentu Kesediaan Petani Muda Bertahan di Pertanian

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#### ABSTRACT

The poor regeneration of farmers is a significant strain on the Indonesian agricultural sector. The negative stereotypical view of the farming profession is the cause of the reluctance of the younger generation to get involved and persist in agriculture. However, there is a strong potential for environmental support and land access as well as access to off-farm work to be factors that can encourage young farmers to remain in agriculture. The purpose of this study is to analyze the determinants of the willingness of young farmers to continue in the agricultural sector, specifically on the outskirts of Pontianak, West Kalimantan. This is accomplished by taking into account the proximity of the area to the city center, as well as certain demographic factors, in which the choice of occupation and decision to remain a farmer presents numerous obstacles. This study took a quantitative approach, with a sample size of 47 persons, and was analyzed using logistic regression. The findings of the study indicate that social environmental support from family and residents has a significant impact on young farmers' willingness to continue in agriculture. Social environmental support will help to eradicate negative stereotypes about farming, increasing young farmers' trust and confidence that becoming a farmer will give them pride and a secure future. The results of this study also demonstrate that growing levels of education, farming experience, and off-farm job access improve the likelihood of young farmers' willingness to continue in the agricultural sector.

*Keywords: Social environmental support, farmer regeneration, off-farm willingness to persist in agriculture, young farmer* 

#### ABSTRAK

Lemahnya regenerasi petani menjadi tekanan yang cukup kuat bagi sektor pertanian Indonesia. Pandangan stereotip negatif terhadap profesi petani menjadi penyebab keengganan generasi muda untuk masuk dan bertahan di pertanian. Namun, ada potensi kuatnya dukungan lingkungan dan akses lahan serta akses terhadap pekerjaan off farm menjadi faktor yang dapat mendorong petani muda bertahan di pertanian. Tujuan penelitian ini secara khusus menganalisis faktor penentu kesediaan petani muda bertahan di sektor pertanian khususnya pada lokasi pinggiran kota Pontianak Kalimantan Barat. Hal ini dilakukan dengan pertimbangan dekatnya lokasi dengan pusat kota memiliki karakteritik demografis yang spesifik dimana pilihan profesi dan memutuskan untuk bertahan menjadi petani menghadapi banyak tantangan. Penelitian ini menggunakan pendekatan kuantitatif dengan jumlah sampel 47 orang dan dianalisis menggunakan regresi logistik. Hasil penelitian menunjukkan besarnya pengaruh dukungan lingkungan sosial yang berasal dari keluarga dan tempat tinggal terhadap kesediaan petani muda bertahan di pertanian. Dukungan lingkungan sosial akan menghilangkan stereotip negatif profesi petani sehingga dapat meningkatkan kepercayaan dan keyakinan pada diri petani muda bahwa menjadi petani akan memberikan kebanggaan dan jaminan masa depan. Hasil penelitian ini juga membuktikan semakin meningkatnya tingkat pendidikan, pengalaman usahatani, dan akses pekerjaan off farm akan meningkatkan probabilitas kesediaan petani muda bertahan di sektor pertanian.

Kata kunci: Dukungan lingkungan sosial, off farm, regenerasi petani, kesediaan bertahan di pertanian, petani muda

# INTRODUCTION

The farmer regeneration crisis is now affecting both developed and developing countries (Haharap & Siregar, 2018; Karahan et al., 2023; May et al., 2019; Priani et al., 2023). In the context of Indonesia, the crisis of agricultural workforce regeneration in villages is visible in the decline in the number of agricultural workers in the youth age group aged 15-29 years, with an average annual reduction of 3.41% (Pujiriyani et al., 2016). Even the 2023 agricultural census revealed that there were only 6.183 million young farmers in Indonesia, accounting for around 21.93% of the total number of farmers (Badan Pusat Statistik, 2023).

The decline in the number of young farmers will have an impact on the agricultural sector's sustainability, particularly productivity, farmer income, market competitiveness, rural economic capacity, and future food security (Octaviana et al., 2022; Priani et al., 2023; Susilowati, 2016). Indeed, young farmers can revitalize agriculture since they are thought to be receptive to innovation and adaptable to more current inventions (Badan & Fîntîneru, 2022; Karahan et al., 2023). Thus, farmer regeneration is critical to sustainable agricultural development and must be addressed.

Several socioeconomic problems have been recognized as impeding regeneration, resulting in the younger generation finally abandoning agriculture (Oktaviani & Rozci, 2024; Saputra et al., 2022). Negative stereotypes are inextricably associated with the various social realities that generate the notion that farming is an undesirable career path with numerous drawbacks. This profession is associated with poverty, lack of prestige, no education required, and dirty work that relies on physical ability rather than intelligence, is high risk, and is less financially profitable, so it is considered less promising for the future when compared to non-agricultural jobs such as industry and services (Anwarudin et al., 2020; Fitriyana et al., 2020; Hernowo et al., 2023; Oktaviani & Rozci, 2024). Thus, negative perceptions are the primary reason why the younger generation fails to persist and eventually leaves agriculture (Arvianti et al., 2019).

Another concern is limited access to agricultural land due to rising selling and leasing prices, which would discourage the younger generation from entering the agricultural business. Furthermore, the inheritance system has been reported to contribute to the fragmentation of agricultural land, resulting in relatively small land ownership for each heir (Yamin & Ayuningsih, 2023), preventing some young farmers from generating sufficient income from small agricultural land. Furthermore, there is a movement in society's thinking toward industry, making it difficult for the next generation to preserve the agricultural sector as a legacy of their forefathers (Julia et al., 2024). Another factor is income uncertainty in agriculture; many farmers confront risks, particularly from climate change, which increases production costs, price volatility, and revenue instability. The third implication makes farming less appealing, particularly among the younger generation (Oktaviani & Rozci, 2024).

Modernization, including the rise of new cultures, has a significant impact on socio-cultural values. (Dwiyana & Hasan, 2021; Fitriyana et al., 2020). The result is that an ironic phenomenon emerges: most parents do not want their children to become farmers like them (Arvianti et al., 2019).

Furthermore, education level influences the desire to be a farmer; the higher the child's level of education, the less likely they are to become a farmer. When farmers emphasize schooling for their children, they delay the socialization of agriculture for their children, which leads to failure in agricultural succession (Nugraha & Herawati, 2015). As a result, the agricultural industry is only deemed appropriate for people who do not thrive academically.

On the other hand, several significant factors encourage young farmers to continue agricultural activities in the future, including family support, land access, government support, rural infrastructure improvements, and off-farm jobs (Karahan et al., 2023; Türker, 2024). Support for young farmers, particularly from family members, and recognition of the farming profession in the residential environment will boost self-confidence in the profession, resulting in a desire to stay in agriculture. Several studies have demonstrated that parents and close family members play a crucial role in informing and encouraging young Indonesians to choose to work in agriculture (Adinugraha et al., 2017; Pujiriyani et al., 2016). This suggests that the socialization of agricultural introduction since childhood, as well as family traditions, are determining variables for young farmers' retention in the agricultural sector (May et al., 2019; Pechrová et al., 2018). Similarly, access to off-farm labor can increase income, which influences young farmers' willingness to persist (Karahan et al., 2023). This is because off-farm income helps mitigate the risk of variability provided by the

agricultural sector, as well as expand and promote agricultural performance success (Bubela, 2016).

About the subject of the farmer regeneration crisis in Rasau Jaya, the site of this study, the village on the outskirts of the city, provides various opportunities for non-agricultural jobs, which is sometimes an impediment to becoming a farmer. The problem of regeneration in this location is interesting to investigate further in terms of factors such as inherited land, family farming history, access to non-agricultural work, variations in education levels, increased exposure to modern urban culture, and high negative stereotypes. Based on this concept, this study intends to investigate the factors that influence young farmers' willingness to persist in the agricultural industry, particularly in suburban areas.

### **RESEARCH METHOD**

The research was carried out in Rasau Jaya District, Kubu Raya Regency, West Kalimantan Province. It includes four villages: Rasau Jaya 1, Rasau Jaya 2, Rasau Jaya 3, and Bintang Mas. This site is around 30-40 kilometers from Pontianak City, the seat of West Kalimantan Province. This study takes place in a specific sort of agroecosystem: peatland farming, which is a type of wetland found in coastal areas. The research location was chosen because it is a major agricultural area, with the majority of the people employed as farmers. In this study, data was collected through structured interviews with respondents who had been purposely chosen. This approach is believed to be able to represent the condition of young farmers in the research location because the number of young farmers in this location is very small. According to national data from the 2023 population census, the proportion of young farmers aged 18 to 40 is just about 21%. Field investigations revealed that there were only 47 young farmers at the research site.

$$Y = \left\{\frac{y_i}{1-y}\right\} = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7 + \beta_8 X_8 + \varepsilon$$

Logistic regression analysis was used to answer the research objectives, with the variable descriptions listed below: The dependent variable in the model is symbolized by Y; Y = 1 if the farmer states that he wants to stay in farming and even has hopes of developing a more advanced farming business in the future, conversely Y = 0 if the possibility of the farmer wants to resign or leave the farming business because farming is currently a necessity or in the future farming is seen as not having better prospects. The independent variable is symbolized by X, consisting of  $X_1$  = Education level (years);  $X_2$  = Farming experience (years) ;  $X_3$  = Number of family members (people) ;  $X_4$  = Area of cultivated land (Ha);  $X_5$  = Social environmental support (1= Yes, 0= No);  $X_6$  = Off-farm access (1= Yes, 0= No);  $X_7$ = Social environment support (1=Yes, 0=no);  $X_8$ = Participation in farmer groups (1=Yes, 0=No)

### **RESULT AND DISCUSSION**

#### **Respondent Characteristics**

The characteristics of respondents that will be discussed in this study include gender, education level, farming experience, number of family dependents, area of cultivated land, parental inheritance, off-farm access, social environmental support, participation in farmer groups, and the willingness of young farmers to persist as farmers. Table 1 shows this summary.

According to the study's findings, the gender of young farmers is largely male, with 39 people (82.98%) and only 8 women (17%). The majority of young farmers are men who cannot be separated from their family traditions. In accordance with the findings of Cavicchioli et al. (2018) males who are the first born are more likely to inherit the family horticulture farming business. These findings confirm the assumption, which is still prevalent today, that agricultural work in villages is identical to being regarded as a man's job. As a result, women are less likely to choose to work as farmers, even though they are heavily involved in agricultural output.

The level of education in this study is the formal education that young farmers have ever taken. The amount of education of respondents is assumed to influence attitude formation and response in decision-making to stay or leave farming occupations in the future. According to the study's findings, the majority of young farmers in Rasau Jaya Sub District had a high school education (48.94%), while the remainder had completed elementary and junior high school. This

demonstrates that the degree of education among young farmers in Rasau Jaya District is relatively high. Farmers with a higher level of education are more likely to adopt innovations, and they are continuously on the lookout for new knowledge to help them grow their businesses. Conversely, low levels of education make it difficult for farmers to adopt new knowledge and technologies, therefore farming is only done conventionally based on their field experience (Arvianti et al., 2019).

The average number of family dependents is >2-4 people (76.8%), while the remaining 23.40% have fewer than 2 dependents. This means that the majority of young farmers live in small families with 2-3 children. The number of dependents will be proportional to the willingness to persist in the agriculture sector. The more dependents young farmers have, the easier it is to transition into non-agricultural employment. This is due to restricted land, which has ramifications for poor farm revenue, resulting in many young farmers who will easily shift professions if they have the opportunity to work in a field other than agriculture that pays more.

Farming experience in this study refers to running an agricultural enterprise. Farming experience influences the desire of young farmers to stay in agriculture. Farmers' knowledge and ability to tackle diverse agricultural issues improve as they gain more experience. Farming experience can impact farmers' decisions about agricultural development and improve their desire to stay in the agricultural business. According to the study's findings, 63.83% of young farmers have more than 5 years of farming experience, while 31% have 3-5 years of farming experience and the other 4% have only 1-2 years. These results indicate that farming experience has been long because on average they are children of farmers who have learned about farming from their parents since childhood.

	Category	Frequency	Percentage	
Gender	Male	39	82.98	
	Female	8	17.02	
	Not Graduated from Elementary			
Education	School	2	4.26	
	Elementary School	7	14.89	
	JHS	14	29.79	
	SHS	23	48.94	
	College/DIPLOMA	1	2.13	
Number of Dependents	0-2	11	23.40	
-	>2	36	76.60	
Farming Business Experience	1-2 years	2	4.26	
	3-5 years	15	31.91	
	>5 years	30	63.83	
Large of Cultivated Land	0-0.5 ha	21	44.68	
	0.5-1 ha	15	31.91	
	>1 ha	11	23.40	
Heritage Land from Parents	Yes	22	46.81	
	No	25	53.19	
Off Farm Access	Yes	24	51.06	
	No	23	48.94	

**Table 1. Characteristics of Farming Business** 

Support from Social			
Environment	Yes	36	76.60
	No	11	23.40
Participation of Farming			
Group	Yes	37	78.72
	No	10	21.28
Willingness to Survive as			
Farmer	Yes	22	46.81
	No	25	53.19

Farmers' willingness to continue farming is strongly linked to the amount of farmed land they have. This study categorized farmed land into three types. Farmers with farmed areas of 0-0.5 ha account for 44%, while those with > 0.5-1 ha account for 31.91%. About 23% have agricultural areas of >1 hectare. According to these data, young farmers continue to manage a small area of cultivation. This is because young farmers have restricted access to land. Young farmers struggle to expand their production area due to expensive land prices and rents. The importance of land access, followed by the inheritance of land from parents, will have a significant impact on young farmers' willingness to engage and eventually persist in the agricultural industry. On average, 46.81% of respondents received land inheritance from their parents, while 53.19% did not. Young farmers who inherit land tend to continue their parents' businesses. According to the findings (Hidayatullah et al., 2023), cultural factors influence the continuation of the parents' businesses when inheriting land from them.

Another significant factor is parental and community support for the farmer's profession. In this study, parental social-environmental support is associated with agricultural education beginning in childhood, whereas support from the place of residency is associated with infrastructure, financing, and government help. According to the study's findings, 76.6% received environmental support, while the remaining 23.40% received no environmental support for their future farming careers. In the family, parents serve as facilitators, assisting their children to attain success. The field survey findings revealed that, on average, young farmers have known about plant production procedures since childhood. This is also influenced by environmental factors, since the majority also work as farmers which also influences the willingness of young farmers to persist with their profession as farmers.

Furthermore, participation in farmer groups influences farmers' willingness to continue farming. On average, 78% of young farmers participate in farmer groups, whereas 21% do not. These findings imply a high level of participation among young farmers in groups. There are numerous advantages to joining a group, such as the easy access to information and support services that will be available if people join a farmer's organization. This is frequently what motivates young farmers to join and participate in farmer groups.

Overall, 46.81% of young farmers are willing to continue their agricultural vocation, while the remaining 53% said they would leave farming if they found better employment. Farmers' willingness to continue farming is inextricably linked to land inheritance and family support. However, many young people chose non-agricultural jobs such as construction workers, porters, online motorcycle taxi drivers, barbers, and so on. Another reason not to work in agriculture is that agricultural selling prices fluctuate and results take a long time to come.

### Factors Affecting the Willingness of Young Farmers to Persist in the Agricultural Sector

Factors affecting the decision of young farmers to remain working as farmers in Rasau Jaya District were analyzed using logistic regression. The variables included as independent variables include education level (X1), farming experience (X2), number of dependents (X3), area of cultivated land (X4), inheritance of land (X5), off-farm access (X6), environmental support (X7), and active participation in farmer groups (X8). The dependent variable consists of two possibilities, Y = 1 if the young farmer still states that he wants to remain in farming and even has hopes of

developing a more advanced farming business in the future, conversely, Y = 0 if the possibility of the young farmer wants to resign or leave the agricultural business because farming is currently a necessity or in the future farming is seen as not having better prospects.

The first step in conducting a logistic regression test is to determine the model's viability. The model significance value in the Omnibus Test of Model, as well as the Hosmer and Lemeshow Test tables, demonstrate the model's viability. The model significance value based on the findings of the Omnibus Test of Model Coefficient is 0.003, which is less than the 10% actual level, indicating that at least one independent variable has a meaningful effect on the dependent variable. The model significance value in the Hosmer and Lemeshow Test is 0.795, which is greater than the 10% real level, therefore Ho is accepted, implying that there is no significant difference between the model and the data, and thus the logistic regression model can predict the observation values.

Furthermore, using the Nagelkerke R Square value, a value of 0.526 is produced, indicating that the independent variables may explain 52% of the total diversity of the logistic regression model, with the remaining 48% explained by factors outside the model. The influence of each independent variable on the dependent variable is determined using a partial parameter test. The Wald test is used to investigate each parameter independently. Accept Ho (null hypothesis) or fail to reject Ho at the level if the P value or the sign value of the Wald Test is greater than  $\alpha$ , as presented in Table 2.

Variable	В	S.E.	Wald	Sig.	Odd Ratio
Constant	-6.599	2.763	5.706	0.017	0.001
Education	0.349	0.18	3.763	0.052	1.417
Farming Business Experience	0.246	0.127	3.721	0.054	1.278
Number of Family Dependents	-0.817	0.433	3.563	0.059	0.442
Large of Cultivated Land	0.0000	0.0000	2.652	0.103	1.0000
Gain of Inheritance Land	1.059	0.943	1.261	0.261	2.882
Off-farm Job Access	1.201	0.794	2.29	0.13	3.324
Support from Social Environment	2.368	1.034	5.243	0.022	10.673
Participation of Farmer Group	-1.277	1.032	1.532	0.216	0.279
Omnibus Test	23.595	0.003			
Hosmer & Lemeshow test	3.868093	0.794839			
Nagelkerke R Square	0.526332				

The analysis revealed that five variables influence farmers' willingness to stay in agriculture. First, the degree of education has a positive and significant effect (p=0.052), with an odd ratio of 1.417. According to these findings, every year of more formal education increases the likelihood of young farmers remaining in agriculture by 1.4 times. Education influences farmers' mindsets, abilities, and knowledge. A person's capacity to use technology improves as their education level increases. Education is critical to transforming subsistence farming into market-oriented farming. The majority of the young farmers in this survey came from farming families. The urge to learn more to better one's quality of life remains strong. Higher education broadens young people's knowledge horizons and helps them understand the mechanics of positive environmental change (Fitriyana et al., 2020). These findings are in line with a study (Pujiriyani, 2022) which discovered that the younger generation who continue their parents' work will be more adaptable to science and technology, allowing them to develop inherited farming companies. However, the findings of this study differ from those of Yamin & Ayuningsih (2023) who found a negative association between education level and willingness to become farmers among young people in Central Java. The younger generation with higher education is less interested in agriculture because they prefer employment that matches their formal degree (Oktaviani & Rozci, 2024). The findings of Adriani & Septiani (2023) also showed different results, education had no real impact on the perceptions of farmers' children in continuing rubber farming. This finding can be understood because the perception of young farmers towards the profession as farmers is not formed entirely because of higher education, but the ability to access information is a factor that shapes the perceptions of young farmer groups (Girdziute et al., 2019). Young farmers still need to improve and increase

their education and skills to be able to innovate to increase agricultural productivity (Anwarudin, 2021; Susilowati, 2016).

Second, agricultural experience has a favorable and significant effect (p=0.054), with an odd ratio value of 1.278. These findings suggest that adding one year of farming experience increases the likelihood of young farmers remaining farmers by 1.278 times. The length of time spent farming is one of the aspects that indirectly contribute to farmers' overall performance. Farmers with extensive farming experies will benefit from more complete production facilities, allowing them to boost productivity as compared to farmers with limited farming experience. It is recognized that accumulating experience improves farmers' skills in managing agricultural companies, hence raising interest in participating in and surviving in the farming sector (Pujiriyani et al., 2016). Farming abilities include seeding, hoeing, plowing, planting, weeding, fertilization, insect management, and harvesting. The more farming experience a farmer has, the better the farmer's knowledge to overcome various agricultural challenges.

Third, the number of family dependents has a negative and substantial effect (p=0.059), with an odd ratio value of 0.442. These findings show that each extra dependent reduces young farmers' willingness to continue in the agriculture sector by 0.442 times. This is frequently associated with young farmers' inability to grow revenue due to a lack of cultivable land. To meet rising household demands, young farmers will temporarily quit the agricultural sector and pursue other employment that yields more income than the agriculture sector. This finding is consistent with the findings of Berk's study, (2018) which discovered that the number of children, the presence of a house in the city center, and the level of monthly income all influence the desire to leave agriculture in Turkey. However, these findings differ from those of (Adriani & Septiani, 2023) who found that the number of family members has no significant effect on farmers' children's enthusiasm for continuing to cultivate rubber.

Fourth, off-farm access has a substantial influence effect (p=0.13) with an odd ratio value of 3.32, implying that there is a gap in opportunities between young farmers who have off-farm access and those who do not. Young farmers who receive off-farm access are 3.3 times more likely to persist in agriculture than those who do not. Off-farm access increases household income, which serves as a risk management tool by mitigating the impact of agricultural income unpredictability (Bubela, 2016). Even increasing off-farm access consistently improves scale and technical efficiency, raising farmer households' incomes. Off-farm income has an impact not only on finances but also on how time and resources are allocated. In line with the findings of Karahan et al., (2023) in Japan, access to off-farm work, and large ownership of agricultural land are important factors for young farmers to maintain their agricultural activities in the future. The important role of off-farm income not only helps maintain farming households during periods of income volatility but also encourages more young people to enter agricultural production because it can facilitate access to credit (Nehring, Richard & Hallahan, 2016).

Fifth, family and residential social environmental support has a substantial influence effect (p=0.022) with an odd ratio value of 10.673, which means that there is a difference in the chances of young farmers who receive social environmental support and those who do not. Young farmers who receive family and residential social environmental help have a 10.673 times higher chance of survival in the agricultural industry than young farmers who do not receive such support. In addition to family support, there must be residential support for the farming profession, such as agricultural infrastructure assistance. These findings demonstrate that social environmental support is the most important element influencing young farmers' willingness to persist in agriculture. These results reinforce that the role of family support, especially from parental expectations, can also influence the interest of the younger generation in becoming farmers (Priani et al., 2023). Similarly, Puijrivani et al. (2016) found that family interactions are vital in sparking imagination about a child's desires. This is due to young people's reluctance to return to agriculture, which is influenced not only by their aspirations but also by the expectations of parents who do not want their children to become farmers. The findings of this study highlight the relevance of family and residential environment support, as well as the availability of agricultural infrastructure and government policies, in assuring young farmers' willingness to stay in agriculture.

## CONCLUSION

Based on the study's findings, it may be feasible to conclude that the support factor of the family environment and domicile is the most important and has a positive effect on raising the likelihood that young farmers would persist in agriculture. Other considerations include the level of education, farming experience, and off-farm job access. On the other hand, the number of family dependents has a negative influence, and its increase reduces the likelihood of young farmers wanting to persist in the agricultural sector. Based on these findings, government policy support is required to promote greater farmer regeneration, such as upgrading farming skills and providing agricultural infrastructure

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