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Analysis of factors that influence young farmers' interest in entrepreneurship in the agribusiness sector in Batu City, East Java, Indonesia

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ABSTRACT

Introduction: Agriculture is the primary source of livelihood for people throughout the world. The agricultural sector plays an important role in national development and cannot be separated from various problems. Agribusiness is an approach that can be used in agricultural development activities. Efforts to increase young farmers' interest in the agricultural sector by exploring the factors that encourage interest in farming. The aim of this research is to determine the factors that influence young farmers' interest, and the factors that most dominantly influence young farmers' interest in entrepreneurship in the agribusiness sector. **Methods:** This research was conducted in Batu City, from October-November 2023. This research used primary and secondary data. The sample taken was 97 respondents. The sampling technique used in this research was the accidental sampling method. Data were analyzed using Structural Equation Modeling (SEM). **Results:** The research results show that factors that influence the interest of young farmers are; individual character, family environment, non-family environment, land area, economy, and motivation. The factors studied have a significant influence both directly and indirectly through motivation on young farmers' interest in entrepreneurship in the agribusiness sector. Among them, the land area factor which has the most dominant influence contributes equally to the interest of young farmers in entrepreneurship in the agribusiness sector in Batu City. **Conclusion:** This research concludes that all the factors studied have a significant influence both directly and indirectly through motivation on young farmers' interest in entrepreneurship in the agribusiness sector. Among them, the land area factor which has the most dominant influence contributes equally to the interest of young farmers in entrepreneurship in the agribusiness sector in Batu City.

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INTRODUCTION

Agriculture is the main source of livelihood for 2.5 billion rural people worldwide in developing countries (D'Amour *et al.*, 2021; Joshi *et al.*, 2021). In most developing countries, agriculture is the backbone of the economy and makes a large contribution to their annual GDP. The agricultural sector is an important sector in the formation of Indonesia's Gross Domestic Product (GDP) every year. The agricultural sector has a large contribution to the development of the Indonesian economy, more than 50% of national income is generated from the agricultural sector. Indonesia as an agricultural country shows that the agricultural sector has an important role in supporting the national economy, especially as a source of food for the Indonesian population, a contributor to the country's foreign exchange in the non-oil and gas sector, and a source of livelihood for the majority of the Indonesian population (Pandey & Kumari, 2021).

Based on data released by the Central Statistics Agency (BPS), shows that the percentage of informal workers in the agricultural sector in Indonesia in 2018-2022 is increasing. However, the absorption of agricultural labor is still experiencing problems, including changes in the demographic structure that are less favorable for the agricultural sector. The number of farmers aged 54 years and over is increasing, but on the contrary the number of young farmers aged 35 years and under is actually decreasing (Arvianti *et al.*, 2022). The age group of young farmers (less than 35 years) is only 12.87%, much lower than the middle age group (35-54 years) at 54.37% and elderly farmers (over 54 years) at 32.76%. Compared with the age group over 54 years who will soon enter a period of rest or retirement, it turns out that the portion of the age group less than 35 years cannot be replaced (32.76% compared to 12.87%). This condition raises concerns that the number of people working in the agricultural sector is decreasing due to the slow regeneration of farmers (Anwarudin *et al.*, 2020).

Batu City is the main city in tourism development in East Java. The arrangement, management, agriculture, and development of tourism-oriented urban areas in Batu City could be an example for other cities (Hardianto *et al.,* 2019; Zaki *et al.*, 2020). Batu City, which is known as an agrotourism city, is trying to develop its tourism so that it is known to the wider community. This city with an agricultural background is able to attract the attention of tourists to visit. Batu City, which is located 800 meters above sea level, is blessed with increasing natural beauty (Masyithoh *et al.*, 2021). This potential is reflected in the richness of agricultural production, fruit and vegetables as well as panoramic views of mountains and hills. The Batu City area can provide good opportunities for the future of agriculture in the area. The majority of young farmers in the Batu City area are aged 30-35 years (Arvianti *et al.*, 2022). However, the conversion of agricultural land in Batu City to the construction of villas, recreation areas, housing and so on makes agricultural conditions less attractive for the native residents of Batu City. Regarding this, it is feared that there will be no more farmers working in the rice fields because they are more interested in developing the tourist city of Batu.

The condition of human resources in the agricultural sector is mostly old, showing the number of farmers as many as 4,846 of the total farmers in Batu City are over 45 years old. One of the consequences that can arise is that the survival and competitiveness of the agricultural sector (agribusiness) are increasingly threatened by the aging process of farmers due to the decreasing participation of the younger generation (Arvianti *et al.*, 2015; Frolova *et al.*, 2021). The agricultural sector which is considered to be still low causes the interest and desire of the younger generation to participate in the agricultural sector, especially in the food crop farming sector. This sector is a sector that has the potential to be developed but is not yet supported by adequate human resources and even tends to decline (Zaki *et al.*, 2020).

Efforts to increase young farmers' interest in the agricultural sector are carried out by developing young farmers' interest in the agricultural sector by exploring the factors that encourage interest in farming. According to Saleh *et al.*, (2020) interest is a driving force that causes someone to pay attention to certain people, objects, and activities. Personal interests are closely related to a person's motivation, something that is learned, and can change depending on needs, experiences, and fashion trends, factors that influence the emergence of a person's interests depend on physical, social, emotional, and experiential needs. According to Dayat *et al.* (2020) factors that influence interest are internal factors, social motivation factors, emotional factors, economic status, education, and situational and psychological conditions.

These problems are formulated in this research, namely; What factors influence young farmers' interest in entrepreneurship in the agribusiness sector in Batu City, East Java, Indonesia, and which factors have the most dominant influence in contributing to young farmers' interest in entrepreneurship in the agribusiness sector in Batu City, East Java, Indonesia. This research aims to find out what factors influence young farmers' interest in entrepreneurship in the agribusiness sector in Batu City, East Java, Indonesia, and to find out which factors have the most dominant influence in contributing to young farmers' interest in entrepreneurship in the agribusiness sector in Batu City, East Java, Indonesia.

METHODS

Data types and sources

The types of data used in this research are primary and secondary data. Primary data is data in the form of verbal or spoken words, movements, or behavior carried out by objects obtained through questionnaires distributed to young farmers in Batu City. Meanwhile, secondary data is data obtained from graphic documents such as tables, notes, photographs, and others that can enrich primary data.

Place and time of implementation

This research was carried out in Batu City, East Java, Indonesia starting from October-November 2023. Determining the location in Batu City, East Java, Indonesia was carried out deliberately based on the following considerations:

1. Batu City is one of the Agrotourism Cities that is active in the agricultural sector in East Java, Indonesia.
2. There are still many people in Batu City who work as agricultural laborers to increase their income for household needs.
3. The concept of entrepreneurship in the agribusiness sector is different between young farmers and older farmers. Young farmers use modern concepts, while older farmers use conventional concepts.

Population and sample

The population in this study was the entire community in Batu City, totaling 36,692 people, and used the Slowin formula to determine the sample size in this study with a precision of 10% (Borsányi *et al.* 2022). The sample taken

was 97 respondents consisting of men and women. The sampling technique in this research used the Accidental Sampling method. The respondents of this research were young farmers aged 20-35 years.

Data collection technique

The data collection technique used is primary data analysis, processed using three stages of analytical methods and carried out simultaneously, namely: reduction of data presentation and drawing conclusions (Herman *et al.* 2022), based on the description and relationship between variables in the field, carried out as follows: 1. Analysis of individual character factors, 2. Analysis of family environmental factors, 3. Analysis of non-family environments faktors, 4. Analysis of land area factors, 5. Analysis of economic factors, and 6. Analysis of motivation factors.

Data collection was carried out by means of literature studies and interviews as well as collecting statistical data which helped in the research. Primary data collection was carried out by conducting in-depth interviews with young farming communities who were interested in the agribusiness sector. The questionnaire contains a number of statements related to the factors that influence young farmers' interest in the agribusiness sector and then distributed to the farming community.

Data analysis

Data were analyzed using Structural Equation Modeling (SEM) using the WarpPLS program. Structural Equation Modeling (SEM) is a set of statistical techniques that allow testing a relatively complex series of relationships that cannot be resolved by linear regression equations. SEM can also be considered as a combination of regression analysis and factor analysis. In SEM there are 3 (three) activities simultaneously, namely checking the validity and reliability of the instrument (confirmatory factor analysis), testing the relationship model between variables (path analysis), and obtaining a suitable model for prediction (structural model and regression analysis), (Hair *et al.* 2020). SEM analysis with SmartPls produces several outputs including latent variables (endogenous and exogenous), indicators, path coefficient values, determination coefficient values, correlation coefficient values, and the nature of the influence between variables (direct influence or direct effect, and indirect effect).

RESULTS AND DISCUSSION

Research analysis results

The results of research analysis on factors influencing young farmers' interest in agribusiness entrepreneurship in Batu City, East Java, Indonesia in 2023 using SEM-WarpPLS 7.0 analysis can be seen in Figure 1. Results of SEM-WarpPLS 7.0 model analysis.

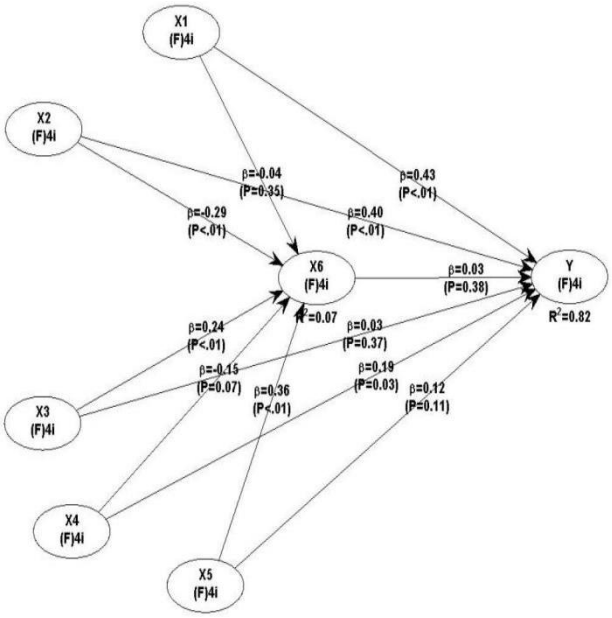

Figure 1. Results of the SEM-WarpPLS 0.7 analysis model
Source: Primary data analysis (2023)

SEM (Structural Equation Modeling) is a statistical technique used to analyze the relationship between latent variables (concepts that cannot be measured directly) and manifest variables (indicators that can be measured). SEM combines factor analysis and regression analysis to understand and test theoretical models. WarpPLS is a software used to carry out SEM analysis based on Partial Least Squares (PLS). WarpPLS allows to analysis of complex models

with many variables and non-linear relationships. Figure 1. Shows the SEM model with latent variables represented by circles, and manifest or indicator variables represented by boxes. Here, the latent variables are labeled X1 to X6, and Y. X1 to X5 are the independent variables that influence X6, which then influences the dependent variable Y.

The path coefficient (β) shows the strength and direction of the relationship between latent variables, namely; The relationship between X1 and X6 has a path coefficient of 0.04 and a P value = 0.35, indicating that the influence of X1 on the relationship between X3 and X6 has a path coefficient of 0.24 and a P value <0.01, indicating that the influence of X3 on X6 is significant. The direct effect of X6 on Y is 0.03 with a P value = 0.39, which indicates that this effect is not significant.

The R^2 value in X6 is 0.07, which indicates that 7% of the variability in X6 can be explained by X1 to X5. The R^2 value of Y is 0.82, which indicates that 82% of the variability in Y can be explained by X1 to X6. This is a high R^2 value, which indicates this model has good predictive ability for variable Y. The P value indicates the statistical significance of each path. Typically, a P value < 0.05 is considered significant. For example, the effect of X3 on X6 and the effect of X4 on X6 are both significant (P < 0.01). Several other paths, such as the influence of X1 on X6 and X6 on Y, are not significant because the P value is > 0.05.

Model fit and quality indices.

For model suitability, the fit model and Quality Indices were used which the researchers obtained using the WarpPLS 7.0 application as a statistical analysis tool based on Structural Equation Modeling (SEM) as in Table 1. Presenting several indices used to measure model suitability. However, the interpretation of the model fit index depends on the purpose of the SEM analysis, so if the goal is to test a hypothesis, the model fit index is useful for establishing measures related to model quality (Hair *et al.*, 2020). Based on the analysis results, all quantities are in condition. Suitable (good). This shows that the model used in this research is very good, and can be interpreted for further hypothesis testing.

Table 1. Model fit and quality indices

No.	Model fit and quality indices.	Fit criteria	Analysis Results	Information
1.	Average path coefficient (APC)	p-value<0,05	(APC)=0.206, P<0.001	Good
2.	Average R-squared (ARS)	p-value<0,05	(ARS)=0.444, P<0.001	Good
3.	Average adjusted R-squared (AARS)	p-value<0,05	(AARS)=0.412, P<0.001	Good
4.	Average block VIF (AVIF)	Acceptable if ≤ 5, ideally ≤3,3	(AVIF)=1.779	Ideal
5.	Average full collinearity VIF (AFVIF)	*Acceptable if ≤ 5, ideally ≤3,3*	(AFVIF)=2.260	Ideal
6.	Tenenhaus GoF (GoF)	Small ≥0,1; medium ≥0,25; large ≥0,36.	(GoF)=0.510	Large
7.	Sympson's paradox ratio (SPR)	Acceptable if ≥0,7, ideally = 1	(SPR)=1.000	Accepted
8.	R-squared contribution ratio (RSCR)	Acceptable if ≥0,9, ideally = 1	(RSCR)=1.000	Accepted
9.	Statistical suppression ratio (SSR)	Acceptable if ≥0,7	(SSR)=1.000	Accepted
10.	Nonlinear bivariate causality direction ratio (NLBCDR)	Acceptable if ≥0,7	(NLBCDR)=1.000	Accepted

Source: Primary data analysis (2023)

The following is a more detailed explanation of each model fit and quality index used in SEM analysis, as well as an interpretation of the analysis results in Table 1. Model Fit and Quality Indices:

1. Average path coefficient (APC)

Average Path Coefficient (APC) is the average of all path coefficients in the SEM model. This gives a general idea of how strong the relationships found in the model are. APC is important because it helps assess whether the relationships between variables in a model are statistically significant. Fit Criteria: The p-value must be < 0.05 to indicate statistical significance. Analysis Results: APC = 0.206, P < 0.001. This indicates that the average relationship in the model is significant, indicating that the model has a statistically significant relationship.

2. Average R-squared (ARS)

Average R-squared (ARS) is the average of the R^2 values of the dependent variables in the model. It shows the proportion of variability that can be explained by the model. ARS is important for assessing the predictive ability of the model. The higher the ARS, the better the model explains the variability of the data. Fit Criteria: P-value must be < 0.05 to indicate significance. Analysis Results: ARS = 0.444, P < 0.001. This shows that the model explains 44.4% of the variability of the dependent variable, which is a good result.

3. Average adjusted R-squared (AARS)

Average Adjusted R-squared (AARS) is the average of adjusted R^2 values, which takes into account the number of variables in the model. This provides a more conservative assessment of the model's predictive ability. AARS is important because it corrects for bias that may arise due to too many independent variables. Fit Criteria: The p-value must be < 0.05 to indicate significance. Analysis Results: AARS = 0.412, P < 0.001. This shows the model explains 41.2% of the variability of the data after adjusting for the number of variables, and this is a good result.

4. Average block VIF (AVIF)

Average Block VIF (AVIF) measures multicollinearity between independent variables. A higher VIF (Variance Inflation Factor) indicates higher multicollinearity. AVIF is important because high multicollinearity can make regression results unstable and unreliable. Fit Criteria: AVIF value should be ≤ 5, and ideally ≤ 3.3. Analysis Results: AVIF = 1.779. This indicates that there is no serious multicollinearity problem in the model, and the model is considered ideal in this regard.

5. Average full collinearity VIF (AFVIF)

Average Full Collinearity VIF (AFVIF) is a more comprehensive measure of multicollinearity, taking into account all variables in the model, both independent and dependent. AFTVIT It is important to assess multicollinearity at the overall model level to help ensure that analysis results are not influenced by redundancy between variables. Fit Criteria: AFVIF value should be ≤ 5, and ideally ≤ 3.3. Analysis Results: AFVIF = 2,260. It shows multicollinearity within an acceptable level, indicating good model quality.

6. Tenenhaus GoF (GoF)

Tenenhaus GoF (GoF) is a measure used to assess the overall fit of a model to the data. This considers the fit in both the outer model and the inner model. GoF is used to assess whether the model as a whole is good enough to represent the data. Fit Criteria: GoF values ≥ 0.36 are considered large, indicating a good fit. Analysis Results: GoF = 0.510. This shows that the model has a very good fit to the data, indicating that the model is reliable.

7. Sympson's paradox ratio (SPR)

Sympson's Paradox Ratio (SPR) is to measure the consistency of the relationship between the variables hypothesized in the model. A value of 1 indicates no Simpson's paradox, where the direction of the relationship can change when considering different groups of data. SPR is important to ensure that the analysis results are not influenced by Simpson's paradox. Fit Criteria: SPR value ≥ 0.7 is accepted, and the ideal value is 1. Analysis Results: SPR = 1,000. This indicates the absence of Simpson's paradox, meaning the relationships found in the model are consistent across the data.

8. R-squared contribution ratio (RSCR)

R-squared Contribution Ratio (RSCR) measures the contribution of each independent variable to the R^2 value of the dependent variable. The ideal value is 1, indicating uniform contribution. RSCR is important to ensure that all independent variables make a balanced contribution to the model. Fit Criteria: RSCR value ≥ 0.9 is accepted, and the ideal value is 1. Analysis Results: RSCR = 1,000. This shows that the contribution of the independent variable to the R^2 of the dependent variable is very balanced.

9. Statistical suppression ratio (SSR)

Statistical Suppression Ratio (SSR) is to measure whether there are variables that act as suppressors in the model, which change the direction or strength of the relationship between other variables. SSR is important for identifying and addressing suppressor variables that may affect the validity of results. Fit Criteria: SSR value ≥ 0.7 is accepted. Analysis Results: SSR = 1,000. This indicates the absence of a significant suppressor effect, which means the model results are reliable.

10. Nonlinear bivariate causality direction ratio (NLBCDR)

Nonlinear Bivariate Causality Direction Ratio (NLBCDR) is to measure the direction of causality between bivariate variables in the model, especially in the case of non-linear relationships. NLBCDR is important to ensure that the model captures the correct direction of relationships between variables. Fit Criteria: NLBCDR value ≥ 0.7 is accepted. Analysis Results: NLBCDR = 1,000. This indicates that the direction of causality identified in the model is accurate.

Overall, the analysis results show that the model used in this study is very good, with almost all indices showing an ideal or very good fit. Indices such as APC, ARS, and GoF show that the model is able to explain the variability of the data very well and has a strong fit. This strengthens the validity of the model for use in further hypothesis testing (Hair *et al.*, 2020).

Inner model analysis results show 7.0

Direct effect testing

Inner model testing essentially tests the hypothesis in the research. Hypothesis testing is carried out using the T-test on each partial direct influence path. The p-value coefficient results from the complete analysis can be seen in Table 2. Hypothesis testing results. Hypothesis testing in this research aims to evaluate the relationship between exogenous variables (such as individual character, family environment, etc.) and endogenous variables (such as young farmers' interest and motivation). Testing was carried out using path analysis in the SEM model with a T-test approach for each direct influence path. The goal is to determine whether the hypothesized relationship between the variables is significant or not (Hair *et al.*, 2020).

Table 2. Hypothesis testing results in the inner model

No.	Relationship between variables Exogenon ==> Endogen		Path Coefficient	*p-value*	Information
1.	Individual Character	The Interest of Young Farmers	0.434	<0.001	Significant
2.	Family Environment	The Interest of Young Farmers	0.397	<0.001	Significant
3.	Non-Family Environment	The Interest of Young Farmers	0.369	0.034	Significant
4.	Land area	The Interest of Young Farmers	0.186	0.028	Significant
5.	Economy	The Interest of Young Farmers	0.121	0.010	Significant
6.	Motivation	The Interest of Young Farmers	0.379	0.031	Significant
7.	Individual Character	Motivation	0.039	0.003	Significant
8.	Family Environment	Motivation	0.285	0.002	Significant
9.	Non-Family Environment	Motivation	0.236	0.007	Significant
10.	Land area	Motivation	0.145	0.004	Significant
11.	Economy	Motivation	0.361	<0.001	Significant

Source: Primary data analysis (2023)

Table 2. Shows the results of the hypothesis in the inner model which can be interpreted further as follows: Path Coefficient: Shows the strength and direction of the relationship between variables. A positive coefficient means there is a positive relationship between exogenous and endogenous variables, where an increase in the exogenous variable will increase the endogenous variable. P value: Indicates the statistical significance of the relationship. A relationship is considered significant if the p-value is <0.05, which means the relationship does not occur by chance and can be considered valid in the context of this research.

Interpretation of relationships between variables

1. Individual Character → Young Farmer Interest (0.434, $p < 0.001$): This relationship is significant, indicating that strong individual character has a large positive influence on young farmer interest.
2. Family Environment → Interest of Young Farmers (0.397, $p < 0.001$): This significant relationship shows that support from the family environment plays an important role in increasing the interest of young farmers.
3. Non-Family Environment → Interest of Young Farmers (0.369, $p = 0.034$): This is also a significant relationship, although slightly weaker than the influence of the family environment.
4. Land Size → Interest of Young Farmers (0.186, $p = 0.028$): This significance shows that access to large areas of land contributes positively to the interest of young farmers.
5. Economy → Interest of Young Farmers (0.121, $p = 0.010$): This relationship shows that economic conditions also influence the interest of young farmers, although with a lower influence than other factors.
6. Motivation → Interest of Young Farmers (0.379, $p = 0.031$): Strong motivation significantly increases the interest of young farmers.
7. Individual Character → Motivation (0.039, $p = 0.003$): Strong individual character also significantly influences motivation, although with a lower coefficient.
8. Family Environment → Motivation (0.285, $p = 0.002$): Support from the family environment also increases motivation significantly.
9. Non-Family Environment → Motivation (0.236, $p = 0.007$): The environment outside the family also has a significant effect on motivation.
10. Land Area → Motivation (0.145, $p = 0.004$): Access to land influences motivation positively and significantly.
11. Economy → Motivation (0.361, $p < 0.001$): Economic conditions have a significant and quite large influence on motivation.

These results indicate that variables such as individual character, family environment, and economic conditions significantly influence the interest and motivation of young farmers. All relationships in this table are significant, meaning that they are reliable for further hypothesis testing.

Indirect effect testing

Apart from testing direct effects, indirect effects were also found in the SEM warpPLS 7.0 analysis, namely the indirect effects of individual characteristics, family environment, non-family environment, land area, and economy on young farmers' interest through motivation. More detailed testing of indirect effects can be seen in Table 3.

Table 3. Results of analysis of indirect influence variables

Exogen Variables	Mediation Variables	Endogen Variables	Coefficient	*p-value*	Path Segment	Information
Individual Character	Motivation	The Interest of Young Farmers	0.493	0.001	Segment 2	Significant
Family Environment	Motivation	The Interest of Young Farmers	0.451	0.009	Segment 2	Significant
Non-Family Environment	Motivation	The Interest of Young Farmers	0.459	0.007	Segment 2	Significant
Land area	Motivation	The Interest of Young Farmers	0.475	0.005	Segment 2	Significant
Economy	Motivation	The Interest of Young Farmers	0.438	0.011	Segment 2	Significant

Sumber: Analisis data primer (2023)

Table 4. Shows the results of the analysis of the indirect influence of exogenous variables on endogenous variables, with motivation as a mediating variable. This table shows how the influence of individual character, family environment, non-family environment, land area, and economy on young farmers' interest is mediated by motivation.

- Individual Character → Motivation → Interest of Young Farmers: The coefficient of 0.493 and the p-value of 0.001 indicate that the indirect influence of individual character through motivation on the interest of young farmers is significant. This means that strong individual character, through increased motivation, significantly increases the interest of young farmers.
- Family Environment → Motivation → Interest of Young Farmers: This relationship is also significant with a coefficient of 0.451 and a p-value of 0.009. This suggests that a supportive family environment, through motivation, positively influences young farmers' interests.
- Non-Family Environment → Motivation → Interest of Young Farmers: With a coefficient of 0.459 and a p-value of 0.007, this result shows that the environment outside the family, through motivation, also has a significant influence on the interest of young farmers.
- Land Area → Motivation → Young Farmer Interest: The indirect effect of land area through motivation on young farmer interest is significant with a coefficient of 0.475 and a p-value of 0.005. This suggests that larger land areas, through increased motivation, significantly increase the interest of young farmers.
- Economy → Motivation → Interest of Young Farmers: These results show that economic conditions also have a significant indirect effect on the interest of young farmers with a coefficient of 0.438 and a p-value of 0.011.

Overall, all exogenous variables in this table show a significant indirect influence on young farmers' interest through motivation, which means that motivation plays an important role as a mediator in this relationship. This data is taken from Primary Data Analysis (2023).

Variable analysis results in total influence.

The analysis of the total effect variable involves combining the direct effect coefficient with the indirect effect obtained from Structural Equation Modeling (SEM). This total effect is then squared and multiplied by 100% to determine the overall contribution percentage of exogenous variables to endogenous variables. In this study, the detailed breakdown of these total effects is presented in Table 4. This analytical approach is crucial in identifying not only the direct relationships between variables but also the mediating or intervening pathways through which these influences occur. The purpose of evaluating the total effect is to provide a comprehensive understanding of how each independent (exogenous) variable contributes to the variance of the dependent (endogenous) variable within the structural model. By doing so, researchers are able to measure the strength, direction, and significance of these relationships with greater precision. According to Hair et al. (2020), analyzing the contribution of exogenous variables in SEM enables researchers to test theoretical assumptions and derive conclusions that are empirically grounded and actionable. Ultimately, this kind of analysis enhances the explanatory power of the model and supports the development of evidence-based interventions or recommendations.

Table 4. Results of analysis of the effect of the contribution of exogenous variables on endogenous variables

No.	Exogen Variables	Endogenous Variables	Contribution Impact Value (%)
1.	Individual Character (X1)	Interest of Young Farmers (Y)	18.75
2.	Family Environment (X2)	Interest of Young Farmers (Y)	15.05
3.	Non-Family Environment (X3)	Interest of Young Farmers (Y)	11.63
4.	Land area (X4)	Interest of Young Farmers (Y)	28.84
5.	Economy (X5)	Interest of Young Farmers (Y)	13.78
6.	Motivation (X6)	Interest of Young Farmers (Y)	11.49

Source: Primary data analysis (2023)

Discussion of hypothesis test results for research variables

Individual character variables (X1)

Based on the results of hypothesis testing, it proves that individual character variables have a direct influence on the interest of young farmers, having a path coefficient value of 0.434 and a p-value <0.001. Because the p-value is smaller than 0.001, it is said to be significant so that the hypothesis is accepted or has an effect. The path coefficient value is positive (0.434), which indicates that the better the individual's character, the greater the interest of young farmers. The path coefficient for the indirect influence of individual character on the interest of young farmers through motivation is 0.493 with a p-value <0.001 which is said to be significant so that motivation is a mediating variable between individual character and the interest of young farmers.

These results show that young farmers' interest in entrepreneurship in the agribusiness sector in Batu City is influenced by their individual character, so that farmers' interest can develop along with individual character, for example, age. Age causes the process of personality formation to occur, resulting in something that makes a person mature. Age will cause a person to acquire new knowledge, attitudes, and skills according to their interests. Research (Dayat *et al.*, 2020). also shows that young farmers of productive age are optimal for entrepreneurship in the agribusiness sector with existing physical abilities and knowledge that are adaptive to increasingly sophisticated technological developments so that they can be applied to improve the agribusiness sector. Because of technological knowledge, young farmers are more interested in modern agricultural technology, so they can take advantage of business opportunities in the agribusiness sector (Young *et al.*, 2021).

Research results Widiyanti *et al.* (2020) also state that age is a factor that has a positive influence on income. Increasing age can affect the abilities of young farmers, but if increasing age is not accompanied by additional experience, skills, and knowledge, productive age will not improve performance. Productive age ranges from 15-64 years, during productive age income can increase (Young *et al.* 2021). Young entrepreneurial farmers in the agribusiness sector in Batu City range in age from 20-35 years. The age factor can also influence the character of individual farmers in entrepreneurship in the agribusiness sector because in each life cycle a person can experience physical, psychological, and social changes which can determine the attitudes and behavioral decisions of young farmers in entrepreneurship in the agribusiness sector (Dayat *et al.*, 2020).

Family environment variables (X2)

Based on the results of the hypothesis test, it proves that the family environment variable has a direct effect on the interest of young farmers, having a path coefficient value of 0.397 and a p-value <0.001. Because the p-value is smaller than 0.001, it is said to be significant, so the hypothesis is accepted or influential. The double line coefficient value is positive (0.397), which indicates that the better the family environment, the greater the interest of the younger generation of farmers. The path coefficient for the indirect influence of the family environment on the interest of young farmers through motivation is 0.451 with a p-value <0.009 which is said to be significant so that motivation is a mediating variable between the family environment and the interest of young farmers.

These results show that young farmers are interested in entrepreneurship in the agribusiness sector in Batu City because they are influenced by family environmental factors which provide appreciation or support so that young farmers continue their profession as farmers in the agribusiness sector. This is because the family has been successful in entrepreneurship in the agribusiness sector so young farmers tend to be motivated and inspired to become entrepreneurs in the agribusiness sector. Financial support from the family can also provide opportunities for young farmers because young farmers who are entrepreneurs in the agribusiness sector certainly need financial capital (Fajri *et al.*, 2021).

The research results Arvianti *et al.*, (2022) also show that family support in entrepreneurship in the agribusiness sector is carried out on a daily basis and helps by looking at the income of young farmers towards the family support they feel in carrying out entrepreneurship in the agribusiness sector from upstream to downstream. To influence the entrepreneurial interest of young farmers in the field of agribusiness, it is important for families to provide the necessary support, knowledge, and resources. In addition, government and educational policies that support opportunities in the agribusiness sector provide important hope in motivating young farmers. Family support for family members who work as farmers is generally good. Family support and family influence can also have a positive influence in determining the development of agribusiness entrepreneurial opportunities in the future (Mu'adi *et al.*, 2020)

Non-family environmental variables (X3)

Based on the results of hypothesis testing, it proves that non-family environmental variables have a direct effect on the interest of young farmers, having a path coefficient value of 0.369 and p-value <0.034. Because the p-value is smaller than 0.034, it is said to be significant, so the hypothesis is accepted or influential. The double line coefficient value is positive (0.369), which indicates that the better the non-family environment, the greater the interest of the

younger generation of farmers. The path coefficient for the indirect influence of the non-family environment on farmer interest through young motivation is 0.459 with a p-value <0.007 so it is said to be significant so that motivation is a mediating variable between the non-family environment and young farmer interest.

These results show that young farmers are interested in entrepreneurship in the agribusiness sector in Batu City, due to the influence of non-family environmental factors from fellow groups who provide mutual support and motivation so that young farmers are inspired to be interested in entrepreneurship in the agribusiness sector. Apart from support from family, young farmers can also interact with fellow groups. To create a farmer entrepreneurship group, there is a management structure, namely chairman, secretary, treasurer, and group members. Support from fellow groups also allows young entrepreneurial farmers to share experiences in finding solutions to problems faced in the agribusiness sector (Fajri *et al.*, 2021). Support from fellow groups also provides strong collaboration between other entrepreneurs in the agricultural sector. So that young farmers can collaborate with each other in a mutually beneficial exchange of information, resources, and business opportunities (Mujuru & Obi, 2020).

Research results Anwarudin *et al.* (2020) also state that in social organizations farmer groups are a learning and teaching forum for each member to gain knowledge, skills, and attitudes as well as grow and develop independence in farming. With the support of farmer entrepreneurial groups, it is hoped that productivity will increase, income will increase and farmers' lives will become more prosperous. Farmer entrepreneur groups are also a forum for collaboration between the younger generation of farmers to provide mutual support (Fajri *et al.*, 2021). Through cooperation or mutual cooperation, it is hoped that farming can make farming more efficient and effective in carrying out entrepreneurship in the agribusiness sector (Afista *et al.*, 2021).

Land area variable (X4)

Based on the results of the hypothesis test, it proves that the land area variable has an influence on the interest of young farmers, having a path coefficient value of 0.186 and a p-value <0.028. Because the p-value is smaller than 0.028, it is said to be significant, so the hypothesis is accepted or influential. The double line coefficient value is positive (0.186), which indicates that the better the land area, the greater the interest of the younger generation of farmers. The path coefficient for the indirect influence of land area on the interest of young farmers through motivation is 0.475 with a p-value <0.005 which is said to be significant so that motivation is a mediating variable between land area and the interest of young farmers.

These results show that young farmers are interested in agribusiness in Batu City because the land area factor has a positive effect on the interest of young farmers. Land area is considered the main capital in agribusiness entrepreneurship. The larger the land area, the higher the level of interest of young farmers, and conversely, the smaller the land area, the lower the level of interest of young farmers in entrepreneurship in the agribusiness sector. Because land area also greatly determines the level of agricultural productivity. Batu City has limited agricultural land because it has been converted into property buildings, which can influence the interest of the younger generation of farmers in agribusiness entrepreneurship (Vanham *et al.*, 2019). Especially if the available land is limited and expensive. So that Young farmers are more interested in starting small or micro-scale agribusiness if their land area is limited, this factor can be determined by capital requirements, management capabilities, and existing risks (Anwarudin *et al.*, 2020).

Research results Anwarudin *et al.* (2020) also show that many factors influence farming income, namely land fertility, area of cultivated land, availability of labor, availability of farming capital, use of technological inputs, planting patterns, plant location, land fragmentation, ownership status land, marketing methods. Output, efficiency of input use, and level of knowledge and skills of farmers and workers. Meanwhile, external farming factors that influence farming income are transportation facilities, trading systems, the discovery of new technology, irrigation facilities, output and input price levels, availability of credit institutions, community customs, and government policies (Saleh *et al.*, 2020). The land area provides opportunities for the development of the large-scale agribusiness sector. This includes agricultural products, agricultural product processing industries, and agrotourism, all of which can increase added value and income for business actors in the agribusiness sector (Vanham *et al.*, 2019).

Economic variables (X5)

Based on the results of hypothesis testing, it proves that economic variables influence the interest of young farmers, having a path coefficient value of 0.121 and a p-value <0.010. Because the p-value is smaller than 0.010, it is said to be significant so that the hypothesis is accepted or has an effect. A positive double-line coefficient value (0.121) shows that the economy is getting better, and the interest of young farmers is increasing. The path coefficient for the indirect influence of economics on young farmers' interest through motivation is 0.438 with a p-value <0.011 so it is said to be significant so that motivation is a mediating variable between economic variables and young farmers' interest variables.

These results show that young farmers are interested in entrepreneurship in the agribusiness sector in Batu City because there are influencing economic factors, so young farmers carry out entrepreneurship in the agribusiness sector to meet daily living costs. This is because economic conditions, including economic growth and unemployment rates, can also influence the interest of young farmers. Economic conditions and stable economic growth can create investment opportunities and certainty in the agribusiness sector (Widiyanti *et al.*, 2020).

Research results Arvianti *et al.* (2022), also state that there are many factors that influence the younger generation to choose to work as farmers or choose non-agricultural work. These factors can be seen from an economic point of view. Many farmers think that working as a farmer is less profitable and the income is lower than working in non-agriculture. This is because jobs in the agricultural sector are less promising. The younger generation tends to be more interested in entrepreneurship in the agribusiness sector if they see potential opportunities that are expected to provide a high level of return on investment. Because it includes calculations of production costs, market prices of agricultural products, and potential profits (Anugrainsa, 2022).

Motivation variable (X6)

Based on the results of hypothesis testing, it proves that the motivation variable has a direct effect on the interest of young farmers, and has a path coefficient value of 0.379 and a p-value <0.031. Because the p-value is smaller than 0.031, it is said to be significant, so the hypothesis is accepted or influential. The positive multiple path coefficient value (0.379) shows that the better the motivation, the greater the interest of young farmers. In this research, motivation is a mediating variable between the variables that influence the entrepreneurial interest of young farmers in the agribusiness sector in Batu City.

These results indicate that the motivation variable is an intervening variable among the factors that influence the entrepreneurial interest of young farmers in the agribusiness sector in Batu City. Young farmers must have responsibility for the work they do, like entrepreneurs in the agribusiness sector in making decisions to face all risks (Widiyanti *et al.*, 2020). Because young farmers dare to take responsibility as the next generation, especially in the agribusiness sector. Young farmers are motivated because they have a big role in deciding to become entrepreneurs in the agribusiness sector because they have a sense of responsibility and the opportunity to contribute to food security. Young farmers can be motivated because they have the desire to overcome challenges and be innovative in agribusiness.

Research results (Fajri *et al.*, 2021), also state that motivation to develop skills and knowledge in the agribusiness sector can encourage young farmers to try to improve their farming skills. Income has a real relationship with farmers' motivation to farm in order to fulfill physiological needs and have a sense of security regarding food availability. Farmer success motivation has a positive relationship with farmer productivity. Young farmers' interest in implementing sustainable agriculture can be influenced by the motivation to contribute to environmental friendliness. The younger generation also has an awareness of the environment so they are motivated to use agriculture as a solution to participate in environmentally friendly desires (Khaerunnisa *et al.*, 2022). The stronger the farmer's motivation to succeed, the higher the farmer's productivity in working on agricultural land, and vice versa. Therefore, farmers' motivation for success is an important variable to pay attention to in efforts to increase productivity (Hardianto *et al.* 2019).

Results of the influence of the contribution of exogenous variables on endogenous variables

The results of the analysis regarding the influence of exogenous variables on the endogenous variable—namely, the interest of young farmers—reveal several key findings. Each exogenous factor contributes to varying degrees, both through direct and indirect pathways, indicating the multifaceted nature of influences that shape the interest of youth in agricultural pursuits. First, individual character was found to contribute 18.75% to the interest of young farmers. This suggests that personal attributes such as attitudes, aspirations, and self-confidence play a meaningful role in shaping agricultural interest, either independently or mediated by other variables. Second, the family environment demonstrated a 15.05% contribution. This finding emphasizes the importance of familial support, role models, and agricultural background within the family as significant motivators or deterrents for young individuals considering farming as a viable career. Third, the non-family environment, which may include peers, community norms, or institutional influences such as schools and extension services, contributed 11.63%. Although lower than the family environment, this still reflects a meaningful impact and highlights the role of broader social contexts in forming agricultural interest. Fourth, land ownership or access to agricultural land emerged as the most dominant contributing factor, with a total effect of 28.84%. This underscores the centrality of land as a critical enabling resource, without which interest may not translate into actual engagement in agriculture. Fifth, economic factors such as income potential, access to credit, and perceptions of financial viability contributed 13.78%. This illustrates that economic considerations remain a core element in shaping career choices, especially in the agricultural sector which is often perceived as financially uncertain. Finally, motivation, whether intrinsic (e.g., passion for farming) or extrinsic (e.g.,

rewards, recognition), accounted for 11.49% of the total influence. Though it has the smallest contribution among the six variables, motivation still plays a crucial psychological role in reinforcing or weakening the desire to pursue farming.

These findings collectively illustrate that the interest of young farmers is not determined by a single dominant factor, but rather by an intricate interplay of personal, familial, environmental, and economic conditions. For a clearer visualization of these relationships and their respective contributions, refer to Figure 2. This comprehensive perspective can be valuable for stakeholders in designing targeted interventions aimed at increasing youth engagement in agriculture.

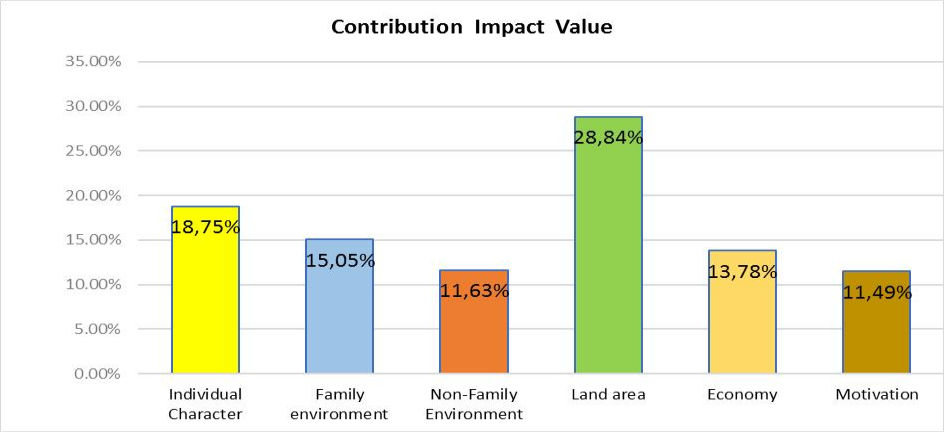

Figure 2. Diagram of the results of the influence value of the contribution of exogen variables to endogen variables
Source: Primary data analysis (2023)

The results from Figure 2. Show that the influence of the contribution of exogenous variables on endogenous variables with the highest value is the land area variable with an influence contribution of 28.84%. This is because young farmers in entrepreneurship in the agribusiness sector in Batu City really need land area as the main capital, so the contribution of the land area factor is greater than other factors. Adequate land area can increase farmers' interest in using it as an agricultural business on a larger scale (Anwarudin *et al.*, 2020). Young farmers who own large areas of land can use modern technology to manage it efficiently and increase productivity and income. According to Anwarudin *et al.* (2020) they also agree that land area is the entire area that is used for planting or carrying out the planting process, and land area guarantees the amount or results that farmers will obtain. In an agricultural country. Like Indonesia, land is a factor of production. This is the most important compared to other production factors because the remuneration received by land is higher compared to other factors (Arvianti *et al.*, 2022).

CONCLUSION

The results of this research concluded that the factors that have a significant direct influence on the interest of young farmers are individual character, family environment, non-family environment, land area, economy, and motivation. Factors that have a significant indirect influence through motivation on young farmers' interest are individual character, family environment, non-family environment, land area, and economy. Motivation is a mediator among factors that influence the interest of young farmers. Among them, the land area factor which has the most dominant influence contributes equally to the interest of young farmers in entrepreneurship in the agribusiness sector in Batu City.

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REFERENCES

Afista, M., Relawati, R., & Windiana, L. (2021). Faktor-faktor yang mempengaruhi minat petani muda di Desa Balerejo Kecamatan Panggungrejo Kabupaten Blitar. *Jurnal Hexagro, 5*(1), 27-37. https://doi.org/10.36423/hexagro.v5i1.656

Anugrainsa, Y. (2022). Analis faktor-faktor yang mempengaruhi kualitas pelayanan publik di Kantor Camat Taliwang Kabupaten Sumbawa Barat. *Jurnal TAMBORA, 6*(3), 171–183. https://doi.org/10.36761/jt.v6i3.2097

Anwarudin, O., Sumardjo, S., Satria, A., & Fatchiya, A. (2020). Process and approach to farmer regeneration through multi-strategy in Indonesia. *Jurnal Penelitian Dan Pengembangan Pertanian, 39*(2), 73–85. https://doi.org/10.21082/jp3.v39n2.2020.p73-85

Arvianti, E. Y., Anggrasari, H., & Masyhuri, M. (2022). Pemanfaatan teknologi komunikasi melalui digital marketing pada petani milenial di Kota Batu, Jawa Timur. *Agriekonomika, 11*(1), 11–18. https://doi.org/10.21107/agriekonomika.v11i1.10403

Arvianti, E. Y., Asnah, A., & Prasetyo, A. (2015). Minat pemuda tani terhadap transformasi sektor pertanian di Kabupaten Ponorogo. *Journal Buana Sains, 15*(2), 181–188.

Borsányi, S., Kara, R., Fodor, Z., Godzieba, D. A., Parotto, P., & Sexty, D. (2022). Precision study of the continuum SU(3) Yang-Mills theory: How to use parallel tempering to improve on supercritical slowing down for first-order phase transitions. *Physical Review D, 105*(7), Article 74513. https://doi.org/10.1103/PhysRevD.105.074513

D'Amour, S., Harris, L. R., Berti, S., & Keshavarz, B. (2021). The role of cognitive factors and personality traits in the perception of illusory self-motion (section). *Attention, Perception, and Psychophysics, 83*(4), 1804–1817. https://doi.org/10.3758/s13414-020-02228-3

Dayat, D., Anwarudin, O., & Makhmudi, M. (2020). Regeneration of farmers through rural youth participation in chili agribusiness. *International Journal of Scientific and Technology Research, 9*(3), 1201–1206.

Fajri, Z., Baharun, H., Muali, C., Shofiatun, Farida, L., & Wahyuningtiyas, Y. (2021). Student's learning motivation and interest: The effectiveness of online learning during COVID-19 pandemic. *Journal of Physics: Conference Series, 1899*(1), Article 012178. https://doi.org/10.1088/1742-6596/1899/1/012178

Frolova, E. Y., Nikonov, A. A., Mukhametzyanov, R. R., Korol'kov, A. F., & Zaretskaya, A. S. (2021). Contradictions to regulatory measures and their impact on global and national agricultural markets. *Proceedings of International Scientific and Practical Conference "Russia 2020 - a New Reality: Economy and Society" (ISPCR 2020), 164*, 312–315. https://doi.org/10.2991/aebmr.k.210222.054

Hair, J. F., Howard, M. C., & Nitzl, C. (2020). Assessing measurement model quality in PLS-SEM using confirmatory composite analysis. *Journal of Business Research, 109*, 101–110. https://doi.org/10.1016/j.jbusres.2019.11.069

Hardianto, W. T., Sumartono, Muluk, M. R. K., & Wijaya, F. (2019). PentaHelix synergy on tourism development in Batu, East Java. *International Journal of Innovation, Creativity and Change, 10*(6), 137–149.

Joshi, T., Mainali, R. P., Marasini, S., Acharya, K. P., & Adhikari, S. (2021). Nepal is at the edge of a sword with two edges: The COVID-19 pandemic and sustainable development goals. *Journal of Agriculture and Food Research, 4*, Article 100138. https://doi.org/10.1016/j.jafr.2021.100138

Khaerunnisa, Nurmayulis, & Salampessy, Y. L. A. (2022). The attitude of young farmers to on-farm business sustainability is based on the behavior and success of seeking digital information related to agriculture (case of Lebak Regency, Banten Province-Indonesia). *IOP Conference Series: Earth and Environmental Science, 978*(1), Article 012037. https://doi.org/10.1088/1755-1315/978/1/012037

Masyithoh, D., Hartono, B., Fanani, Z., Radiati, L. E., & Febrianto, N. (2021). Identification of the socioeconomic profile of Kembang Joyo Honey consumers in Batu City. *IOP Conference Series: Earth and Environmental Science, 788*(1), Article 012217. https://doi.org/10.1088/1755-1315/788/1/012217

Mu'adi, S., Maksum, A., Hakim, M. L., & Umanailo, M. C. B. (2020). Transfer of functional agricultural land. *Proceedings of the International Conference on Industrial Engineering and Operations Management*, 2568–2574.

Mujuru, N. M., & Obi, A. (2020). Effects of cultivated area on smallholder farm profits and food security in rural communities of the Eastern Cape province of South Africa. *Sustainability, 12*(8), Article 3272. https://doi.org/10.3390/su12083272

Pandey, G., & Kumari, S. (2021). Dynamics of agricultural growth and diversification in Eastern India. *Journal of Agribusiness in Developing and Emerging Economies, 11*(2), 105–120. https://doi.org/10.1108/JADEE-06-2020-0131

Saleh, H., Surya, B., Ahmad, D. N. A., & Manda, D. (2020). The role of natural and human resources on economic growth and regional development: With discussion of open innovation dynamics. *Journal of Open Innovation: Technology, Market, and Complexity, 6*(4), Article 103. https://doi.org/10.3390/joitmc6040103

Vanham, D., Leip, A., Galli, A., Kastner, T., Bruckner, M., Uwizeye, A., … Hoekstra, A. Y. (2019). Environmental footprint family to address local to planetary sustainability and deliver on the SDGs. *Science of the Total Environment, 693*, Article 133642. https://doi.org/10.1016/j.scitotenv.2019.133642

Widiyanti, E., Karsidi, R., Wijaya, M., & Utari, P. (2020). Identity gaps and negotiations among layers of young farmers: A case study in Indonesia. *Open Agriculture, 5*(1), 361–374. https://doi.org/10.1515/opag-2020-0041

Young, R. A., Domene, J. F., Valach, L., & Socholotiuk, K. (2021). Exploring human action in counseling psychology: The action-project research method. *Journal of Counseling Psychology, 68*(3), 331–343. https://doi.org/10.1037/cou0000533

Zaki, I., Hamida, G., & Cahyono, E. F. (2020). Potentials of implementation of Sharia principles. *Amwaluna: Jurnal Ekonomi Dan Keuangan Syariah, 4*(1), 96–111. https://doi.org/10.29313/amwaluna.v4i1.4990