Various Driver Factors For Youth Farmers in Malang Related with Horticultural Business

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Abstract. Horticultural business in Malang tends to be cultivated by young farmers with various characteristics, such as individual characteristics, economic environment, social culture, empowerment, and managerial capacity. The purpose of this study was to determine the effect of individual characteristics and external environment on the interests of young farmers and horticultural farming in Malang Regency. The study was conducted using a purposive sampling method with a number of 200 young farmers. Data collection was carried out for 3 months, from January to March 2019. Data analysis was used using SEM WarpPLS. Based on the results of the analysis and discussion that the interest of young farmers in horticultural agriculture in Malang Regency is still high, the statistical test found that the external environment in the form of social and empowerment factors encourages the interest of young farmers in horticultural agriculture in Malang Regency. In addition, the knowledge of young farmers is the main driving factor that drives the interests of young farmers. Other factors such as individual characteristics, economic environment, and managerial capacity are not significant drivers, because the statistical value is below its critical value.

1. Introduction
Horticulture is one of the agricultural sub-sectors that has a high economic value. In addition, the Horticulture sub sector still has a strategic role in agricultural development. The strategic role of the horticultural sub-sector is seen in its contribution as a provider of food and industrial raw materials, contributors to the Gross Domestic Product (GDP), employment, and the main source of rural household income. During the period 2010-2014, horticultural production experienced a trend of production development which tended to increase. One area in Indonesia that has the potential for horticultural development is Malang Regency. Seeing the cool natural conditions in Malang Regency, it is natural that the hotikultura commodity has sufficient potential. According to the Department of Food Crops, Horticulture and Plantation in Malang Regency, there are 20 vegetable commodities and 21 fruit commodities that have the potential to be developed in Malang Regency. Vegetable production in 2016 generally increased, while fruit production fluctuated from year to year. The increase in horticultural production is also offset by an increase in population thereby increasing food needs. Potential human resources from the agricultural sector to the industrial sector alone affect agricultural productivity. Quality energy transfer from the agricultural sector. This is based on Human Resources who are able to be the driving force of agricultural development [1]. Agricultural development is faced with a dilemma that is difficult to solve quickly [2]. One side of
agricultural land is increasingly narrow along with the use of agricultural land for industrial and residential activities. In addition, the age of farmers who are now classified as old age causes an increase in agricultural productivity that is not optimal and the quality of agricultural products is difficult to improve. Farmers have an important role in the development of a nation. One of them is to meet the needs of life of a nation that is a food provider. However, currently there are very few young people who want to work in the field of agriculture so that the term youth crisis arises.

Growing interest for young people in agriculture is very important for the sustainability of agriculture in the future. Interest is an individual's interest in a particular object that makes that individual feel happy with that object. Interest is one element of personality that plays an important role in making decisions in the future. The emergence of interest in an object is marked by pleasure or tetarik. So it can be said that people who are interested in something then someone will feel happy or interested in the object of interest [3]. Therefore, fostering the interest of young people in agriculture is very important. How to make them interested and happy with agriculture, because so far agriculture is synonymous with traditional things, dirty, and less prosperous. Many factors can influence the interests of young people, namely:

a. Social Demographics: Social demographics are the first factor affecting young people's attitudes and attitudes towards agricultural entrepreneurs. This includes gender, age, income, locality, and ethnicity [4].

b. Attitude: Attitude is another factor that influences youth to be involved in agricultural entrepreneurs. These attitudes can be formed based on the level of likes or dislikes of individuals in something.

c. Acceptance: acceptance as an expression or implication by actions that indicate agreement to the terms and conditions of the offer, this results in the formation of a binding contract [5].

d. Knowledge: knowledge can produce more skills for young people in preparation for building their own business [6].

Research on the interests of young horticultural farmers has not been done much. However, research on interests has been carried out by for example [1] in his paper entitled "Factors Affecting Youth Interest in Agricultural Entrepreneurship" conducting research that studies factors that increase youth interest in becoming agricultural farmers and linking factors with interests youth to become entrepreneurs. The main factors used to understand interest are attitude, acceptance, and knowledge of agriculture. Another factor is family support, government, and promotion through carnivals and festivals. The data used amounted to 10 respondents taken by purposive sampling from 250 young entrepreneurs in the field of agribusiness aged 18-40 years in Pahang, Malaysia. In this study using questionnaire with Likert scale. Primary data obtained were then analyzed using SPSS 12.0 with the general linear regression model. The results showed that attitude and acceptance had a significant relationship with the interest of youth for entrepreneurship while knowledge did not have a significant relationship with the interest of youth to become entrepreneurs.

A research on interest in researching the factors affecting Interest in Smallholder Palm Oil Farmers participating in Product Certification in Kampar District using a summarized Likert analysis scale to find out farmers and binary logistic regression analysis for buyers of interest in certification participation [2]. The dependent variable used is participation, while the independent variables are age, education, number of children, area, land type, occupation, and profit. The results of this study indicate that the perception of KKPA farmers on the importance of the role of certification is very important while the perception of independent smallholders is important. Education and land area are factors that influence farmers' interest. KKPA is for the interest in certification while education, land area and occupation are factors that influence farmers.

2. Materials and Methods
2.1. Research Method
2.1.1. Research Location and Sample

The study sites were in five villages in Malang Regency, namely Codo Village, Dampit Village, Punten Village, Gempol Village, and Ngantru Village. The choice of location in Malang Regency was due to the highest number of agriculture business households in Malang in East Java, which is 328,369. In addition, Malang Regency is one of the horticultural centers [3]. While seven villages were chosen because each village had a large number of young horticultural farmers. The study was conducted using a purposive sampling method with a number of 200 young farmers. Data collection was carried out for 3 months, from January to March 2019.

2.1.2. Method of collecting data

The data used were primary data and secondary data. Secondary data was obtained from government agencies to provide additional information needed by researchers. Whereas primary data were obtained from respondents (young horticultural farmers) through observation, structured interviews, and in-depth interviews. Observation is the collection of primary data by making close observations in the field by looking closely at phenomena related to research. The structured interview was carried out with a questionnaire prepared for young horticultural farmers that contained a list of open and closed questions to capture the information needed in the study, while in-depth interviews were conducted with related parties in this research namely the head of the farmer group, community leaders, and extension workers.

2.1.3. Data analysis method

The data analysis model used in this study was a structural equation model (SEM) that is analyzed using the WarpPLS (Partial Least Square development) program. SEM is a statistical modeling that uses the relationship between variables and also indicator models simultaneously. SEM analysis at the time of transition between simultaneous system analysis or path analysis or regression analysis with factor analysis. In this case factor analysis is used as a method for obtaining latent variables.

There are three algorithms in the WarpPLS analysis, namely the algorithm that estimates the parameters of the outer model, the inner model, and the hypothesis testing algorithm. Analysis of the outer model algorithm is the process of calculating latent variable data sourced from indicator data while the inner model algorithm is the method and process of calculating the path coefficient of the relationship between the latent variables. In addition, an evaluation of goodness of fit will be conducted. Moreover, measuring the inner model, before interpreting the test results, the model has an appropriate virtue that is the index and measure of satisfaction of the relationship between latent variables (inner models) also related to assumptions. The research model can be used if it meets one or two indicators of the Model fit and the Quality Index which can be seen in table 1.

| No | Model fit and quality indices | Criteria Fit |
|----|--------------------------------|--------------|
| 1  | Average path coefficient (APC) | p < 0.05     |
| 2  | Average R-squared (ARS)       | p < 0.05     |
| 3  | Average adjusted R-squared (AARS) | p < 0.05 |
| 4  | Average block VIF (AVIF)      | Acceptable if ≤ 5, ideally ≤ 3.3 |
| 5  | Average full collinearity VIF (AVFIV) | Acceptable if ≤ 5, ideally ≤ 3.3 |
| 6  | Tenenhaus GoF (GoF)           | Small ≥ 0.1; medium ≥ 0.25; large ≥ 0.36. |
| 7  | Symposon’s paradox ratio (SPR) | Acceptable if ≥ 0.7, ideally = 1 |
| 8  | R-squared contribution ratio (RSCR) | Acceptable if ≥ 0.9, ideally = 1 |
| 9  | Statistical suppression ratio (SSR) | Acceptable if ≥ 0.7 |
| 10 | Nonlinear bivariate causality direction ratio (NLBCDR) | Acceptable if ≥ 0.7 |

Source: [4]
After that the hypothesis testing on each path coefficient of the influence of endogenous variables on endogenous, the influence of exogenous variables on endogenous, and factor load or component weights performed by Bootstrap resampling method developed by Geisser and Stone.

![Diagram](image)

**Figure 1.** The Relationship Model of the Outer Structure Model and the Inner Model Information:
- Perform (Y): Performance of Young Farmers in Horticultural Farming
- Individuals (X1): Characteristics of Individual Young Farmers
- Economic (X2): Economic Environment
- Soc-Cul (X3): Socio-Cultural Environment
- Empowerment (X4): Empowerment
- Managerial (X5): Operational Management Capacity and Handling of Horticultural Production
- Interest (X6): Interest of Young Farmers in Horticultural Enterprises

Model F: Formative
Model R: Reflection

The relationship between the outer model and the inner model is illustrated in Figure 1 changed to the measurement model that can be seen in table 2.

### 3. Results and Discussion

The results of the calculation of Goodness of fit warpps show the value of relevance-prediction of 0.8802 or 88.02% so that the model is feasible to be said to have a relevant predictive value. The predictive relevance value of 88.02% indicates that the diversity of data that can be explained by the model is 88.02% or in other words the information contained in the data 88.02% can be explained by the remaining model 11.98% is explained by others (who have not contained in the model) and errors. [5] states that a Q2 value > 75% indicates that the model obtained is very good and can be interpreted for further hypothesis testing.

To see a good model (Fit), the fit and quality index model obtained by researchers uses the WarpPLS 5.0 application as a statistical analysis tool based on Structural Equation Modeling (SEM) as in Table 3. Based on the analysis results, all amounts are in good condition (good). This shows that the model obtained is very good, and could be interpreted for further hypothesis testing.
Table 2. Measurement Model and Structure Model of Path Diagram Conversion Results

| Measurement Model | Structure Model |
|-------------------|-----------------|
| X1 = \( \lambda_{11}X_{11} + \lambda_{12}X_{12} + \lambda_{13}X_{13} + \lambda_{14}X_{14} + \lambda_{15}X_{15} + e_1 \) | Y1 = \( \gamma_{11}X_{11} + \gamma_{12}X_{12} + \gamma_{13}X_{13} + \gamma_{14}X_{14} + \gamma_{15}X_{15} + e_{11} \) |
| X21 = \( \lambda_{21}X_{21} + e_2 \) | X41 = \( \lambda_{41}X_{41} + e_{11} \) |
| X22 = \( \lambda_{22}X_{22} + e_3 \) | X42 = \( \lambda_{42}X_{42} + e_{12} \) |
| X23 = \( \lambda_{23}X_{23} + e_4 \) | X43 = \( \lambda_{43}X_{43} + e_{13} \) |
| X24 = \( \lambda_{24}X_{24} + e_5 \) | X44 = \( \lambda_{44}X_{44} + e_{14} \) |
| X25 = \( \lambda_{25}X_{25} + e_6 \) | X51 = \( \lambda_{51}X_{51} + e_{15} \) |
| X31 = \( \lambda_{31}X_{31} + e_7 \) | X52 = \( \lambda_{52}X_{52} + e_{16} \) |
| X32 = \( \lambda_{32}X_{32} + e_8 \) | X53 = \( \lambda_{53}X_{53} + e_{17} \) |
| X33 = \( \lambda_{33}X_{33} + e_9 \) | | |
| X34 = \( \lambda_{34}X_{34} + e_{10} \) | | |
| X6 = \( \lambda_{61}X_{61} + \lambda_{62}X_{62} + \lambda_{63}X_{63} + \lambda_{64}X_{64} + \lambda_{65}X_{65} + e_{19} \) | | |

| Table 3. Result of Model fit and Quality Indices |
|-----------------------------------------------|
| No | Model fit and quality indices | Result | Information |
|-----|---------------------------------|--------|-------------|
| 1   | Average Path coefficient (APC)  | 0.195  | Good        |
|     | p-value = 0.001                 |        |             |
| 2   | Average R-squared (ARS)         | 0.538  | Good        |
|     | p-value<0.001                   |        |             |
| 3   | Average adjusted R-squared      | 0.525  | Good        |
|     | p-value<0.001                   |        |             |
| 4   | Average block VIF (AVIF)        | 4.319  | Accepted    |
| 5   | Average full collinearity VIF   | 4.466  | Accepted    |
| 6   | Tenanhaus GoF (GoF)             | 0.639  | Good        |
| 7   | Symphon’s paradox ratio         | 0.800  | Ideal       |
| 8   | R-squared contribution ratio    | 0.961  | Ideal       |
| 9   | Statistical suppression ratio   | 1.000  | Ideal       |
| 10  | Nonlinter bivariate causality direction ratio (NLBCDR) | 0.700 | Ideal |

3.1 Analysis of Young Hortikultura Farmer Interest Model in Malang Regency

In this study, the interests of young farmers were hypothesized to be influenced by individual characteristics, economic environment, socio-cultural environment, empowerment and management capacitance. Each variable has an estimation indicator that affects each independent variable or is called an external model.

In the design of the outer model it is produced that indicators in individual characteristics such as formal education, farmer's age, agricultural experience, technological mastery, and venture capital have outer weight values of 0.236, 0.235, 0.231, 0.238 and 0.232 at an error rate of 5%. It can be concluded that all indicators have a positive effect on measuring individual characteristics and indicate...
the higher the value of the indicator, the stronger the indicator shapes individual characteristics. Of the five indicators of individual characteristics, the indicator of technological mastery is the most dominant indicator forming individual characteristics. This shows that forming the individual characteristics of young horticultural farmers in Malang Regency is mainly due to farming experience.

All economic environmental indicators are the availability of stores that provide horticultural farming tools and inputs, availability of horticultural crop production sites, freedom to sell horticultural products, ease of place to accommodate horticultural production, and easy access to capital have outer loading values in a sequence that is 0.798, 0.213, 0.541, 0.856 and 0.762 at an error rate of 5%. It can be concluded that all indicators have a positive effect on the economic environment and indicate the higher the indicator value, the stronger the indicator reflects the economic environment. Five economic environment indicators, ease of accommodating horticultural production is the most dominant indicator that reflects the agricultural economic environment of young farmers in Malang Regency. This shows that the main economic environment is reflected in indicators of ease of place that accommodates horticultural production.

Indicators in the socio-cultural environment in the form of family support, fellow group members, and surrounding communities has outer loading values in a sequence that is 0.705, 0.934, and 0.937 at an error rate of 5%. It can be concluded that all indicators have a positive effect on the socio-cultural environment and indicate the higher the indicator value, the stronger the indicator reflects the socio-cultural environment. Of the three indicators of the socio-cultural environment, indicators of community support are the most dominant indicators that reflect the socio-cultural environment. This shows that the socio-cultural environment is mainly reflected in indicators of support from the surrounding community.

Indicators of empowerment in the form of counseling about horticultural cultivation, government assistance funds, the ability of counselors in fostering, and the ability of farmer group administrators has a value of outside loading by a sequence of 0.891, 0.940, 0.897, and 0.945 at an error rate of 5%. It can be denied that all indicators determine positively measuring empowerment and increase the higher the value of the indicator, the stronger the indicator reflects empowerment. Of the four indicators of empowerment, indicators of the ability of farmer group administrators to foster are the most dominant indicators reflecting empowerment. This shows that the main treatment is reflected in indicators of the ability of farmer group management to foster.

In all indicators of operational management capacity, namely the importance of operational roles, governance, and evaluation activities have outer loading values, namely 0.884, 0.943, and 0.912 at an error rate of 5%. It can be concluded that all indicators have a positive effect on measuring operational management capacity and indicate the higher the indicator value, the stronger the indicator reflects the operational management capacity. Of the three indicators of operational management capacity, indicators of the importance of managing governance activities are the most dominant indicators that reflect the capacity of operations management. This shows that operational management capacity is mainly reflected in indicators of the importance of governance arrangements.

On all indicators of the interests of young farmers, motivation, attitudes, and knowledge have external weight values, namely 0.356, 0.362, and 0.380 at an error rate of 5%. This can be concluded from all the indicators that prove positive choosing young farmers and the higher the value of the indicator, the stronger the indicator makes the interest of young farmers. Of the three indicators of interest of young farmers, knowledge indicators are the most dominant indicators shaping the interests of young farmers. This shows that the interest of young farmers is mainly formed from indicators of knowledge.

The results of the research model of the relationship between the structure of the Inner Model can be seen in Figure 3. It was found that the factors that directly influenced the interest of young horticultural farmers in Malang Regency were the socio-cultural environment and empowerment. The influence of the socio-cultural environment on the positive interest of young farmers shows that the better the socio-cultural environment, the interest of young farmers increases. The effect of empowerment on the interests of young farmers shows that the better the empowerment, the interest of
young farmers increases. According to [6] the existence of empowerment through intensive training attracts many young people to move in the agricultural sector. Research conducted by [7] also gave a presentation on training that can give farmers perceptions and interests about cultivation methods that enable farmers to increase innovation, explore and process it more. In addition, according to [8] environmental factors For example the role of the community has a significant interest in the willingness of young farmers to remain in the agricultural sector.

**Figure 3.** Relationship between Interest in Horticultural Young Farmers with individual characteristics and external factors

4. Conclusion
The interest of young farmers in horticultural agriculture in Malang Regency is still high, from statistical tests it was found that social environmental factors and empowerment encourage the interest of young farmers in horticultural agriculture in Malang Regency. In addition, the knowledge of young farmers is the main driving factor that drives the interests of young farmers. Other factors such as individual characteristics, economic environment, and managerial capacity are not significant drivers, because the statistical value is below its critical value. The influence of empowerment through the interest of young farmers in horticultural farming of farmers also affects the performance of young farmers so that empowerment through the ability of farmer groups and extension workers in managing their members is needed in advancing the agriculture of young farmers in Malang Regency. Empowering young farmers through training is very important for farmers, especially when young. At this age, farmers are more receptive to information and implement technology adoption. Young
farmers are also more accustomed to using technology, for example applications contained in cell phones about agriculture can improve farmers’ performance. Empowerment of farmers by farmer groups and the government is needed by young farmers when they are still of productive age.

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