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Accelerating Farmers' Regeneration of Chili Farmers in Garut District, West Java, Indonesia

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Abstract:

Indonesia will experience a crisis of agricultural generation if the tendency of youth to find work in urban areas is not dammed, therefore efforts to increase the interest of rural youth in agriculture are urgent. A study related to farmers' regeneration was carried out in Garut District, with the aim at (1) describing the level of capacity, interest, and participation of youth in the farmers' regeneration in chili farmers community; (2) finding factors that influence the acceleration of farmers' regeneration; and (3) formulating strategies to accelerate the regeneration process of farmers. This survey research involved 233 respondents from 1,367 population that determined using the Slovin formula. Data collected through direct interviews using a close-ended questionnaire that has been calibrated with validity and reliability tests. Research Results: (1) most respondents rated the acceleration of farmers' regeneration, interest, participation, business capacity and external factors of young farmers are in medium level. Most respondents belong to the category of young farmers with an average age of 31.47 years, graduates of elementary school, never been involved in organizations or courses, but have high cosmopolitan (2) the acceleration of regeneration is directly affected by age (negative), involvement in the organization, and interest, (3) strategies for accelerating farmers' regeneration of chili farmers community can be done by (a) farmers' regeneration of youth in the early time, (b) involving youth in farmer groups, (c) increasing youth's interest in agricultural business through various agricultural programs.

Keywords: Acceleration, regeneration, chili farmers

1. Introduction

Agriculture remained a reliable sector in rural communities, because of its role as a source of employment for livelihoods and its capacity to reduce unemployment, especially for rural youth. However, this did not attract the interest of rural youth to engage in agriculture. According to the results of the study, there are several causes for the lack of youths' motivation and participation in agricultural development. Effendy, L (2017) reported that lack of youth's participation caused lack of youth's interest in agriculture. This situation was strengthened by the results of the KRKP study (2016), which explained that 54 percent of horticultural farmers' children and 63 percent children of rice farmers were not interested in agriculture. Some of the reasons are; lack of land access and assets, low income, lack of agricultural knowledge or education, and inadequate infrastructure (Ningsih and Sjaf 2019). This condition was also thought to be the cause of the low participation of rural youth in agricultural activities. The participation of youths with age ranged 18-24 years was 31 percent, while those youth in 25-35 years were 25 percent. Considering these issues, efforts to regenerate farmers are needed.

Garut District is an important supplier of vegetable products in West Java, especially chili. According to the Head of Department of Agriculture of Garut District (2018) from May to June 2018 period, the productions of Bird's eye chili pepper in the Districts of Banyuresmi and Sampireng were 2,607 tons and 2,502 tons and chili peppers were 8,319 tons and 9,095 tons, respectively. Based on this situation, the Head of Department of Agriculture of Garut District is optimistic that Garut District can supply 30-40 percent of Jabodetabek's chili needs. Some sub-districts as the largest chili production center is presented in the following table:

No	Sub-district	Production (Ton)
1	Cisewu	3 452
2	Cikajang	6 965
3	Cigedug	4 517
4	Cisurupan	7 743
5	Wanaraja	4 691
6	Sucinaraja	6 274
7	Banyuresmi	4 153
8	Leles	4 108

Table 1: Chili Production Center in Garut District

Several studies reported that there was a relationship between farmers' regeneration and the participation of youth in agriculture. Wardani and Anwarudin (2018) reported that the participation of the younger generation in agriculture were those formed by their parents to become farmers who succeeded their parents. Anwarudin and Haryanto (2018) recommended the importance of the role of government and self-help extension workers to involve youth in agricultural extension activities and agriculture programs so that farmers can gradually regenerate. Harniati and Anwarudin (2018) supported the report and recommendations by proving that most of the young farmers engaged in agriculture today are the result of informal education; that is their involvement in parental agriculture, interested in and following the success story of farmers, agriculture extension workers and members of the young farmers' community.

Based on the description above, the main problem is the crisis of the main actors and business actors or "farmers' crisis". The reason is that the youth generation in rural areas is less interested in the profession of farmers, while most of the existing farmers are relatively old (> 45 years), thus efforts to grow new farmers are a necessity. Therefore, it is needed to do in-depth studies to accelerate the growth of a new generation of farmers to create young millennial farmers in rural areas. Research objectives were (1) to describe the level of capacity, interest, and participation of youth in the process of farmers regeneration in farmers communities in Garut District; (2) to find factors that influence accelerating of farmers' regeneration in the chili farmers community in Garut District; (3) to determine models and strategies to accelerate the process of farmers regeneration in chili farmers community in Garut District.

1.1. Frame Work of Research

Accelerating the growth of a new generation of farmers as a successor of farming activities is a very urgent effort and must be done immediately. The success of accelerating the growth of a new generation of farmers is determined by many factors, whether from internal or external of individual. There are several factors that may have an influence on the accelerating the growth of a new generation of farmers, namely: (1) Interest of the youth to agriculture; internal factor like individual characteristics and external factors ; (2) Youth's capacity; in the form of individual characteristics, characteristics of the social environment, and extension workers' performance; and (3) Youth's participation; consisting of individual characteristics, schematically presented in the following research framework:

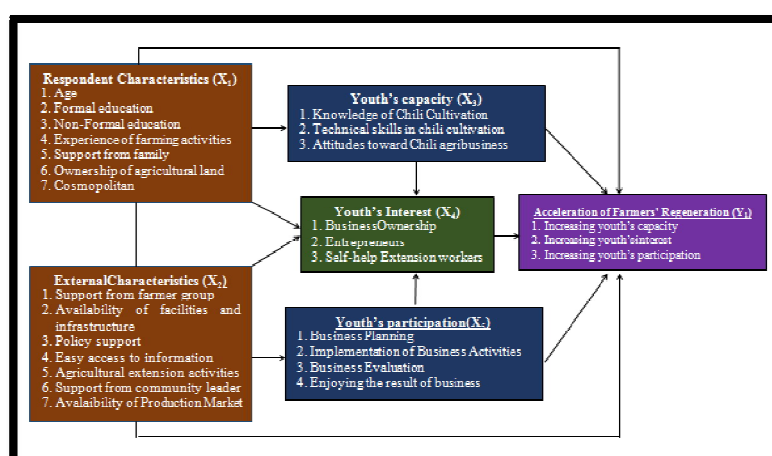


Figure 1: Hypothetical Framework of Research Variables

2. Research Method

The study was conducted in three sub-districts which are the centers of chili production in Garut District. Determination of the location is done purposively with consideration as a horticultural center area, especially chili. The research used survey methods and direct observation for three months (June - August 2019). This type of research is a quantitative study with a survey approach to obtain data from a particular place naturally by using a questionnaire and structured interviews to collect data (Sugiyono 2014). Interviews were conducted on a number of individuals representing the population to obtain a certain number of scores on a number of variables.

The study population was young farmers with ages ranged between 15-40 years who were living in the environment (community) of the chili farm. Based on consultations with the Department of Crops, Horticulture, and Plantations of Garut

District, the research was conducted in three sub-districts, namely Banyuresmi, Wanaraja, and Cikajang. The total population of the research was 1,376 people. The determination of samples was done using the Slovin formula. The calculation results obtained a total sample of 233 people. The number of samples at each location was determined proportionally as presented in Table 2.

No	Sub-district	Village	Population (people)	Sample (people)
1	Banyuresmi	• Dangdeur	148	25
		• Karyasari	160	27
		• Sukakarya	156	27
		Sub-total	464	79
2	Wanaraja	• Sindang Prabu	129	22
		• Sukamenak	161	28
		• Sindang Mekar	130	22
		Sub-total	420	72
3	Cikajang	• Mekarsari	50	8
		• Padasuka	80	14
		• Cikajang	362	61
		Sub total	492	83
		Total	1 367	233

Table 2: The Number of Samples in Each Village

2.1. Definition of Operating Variables

2.1.1. Individual Characteristics

Individual characteristics (X_1) are defined as distinguishing features (identifiers) with other individuals, which consist of: age (X_{11}), formal education (X_{12}), non-formal education (X_{13}), experience in conducting agricultural activities (X_{14}), family support (X_{15}), Farming land tenure (X_{16}), and cosmopolitan (X_{17}).

2.1.2. External Characteristics

External characteristics (X_2) are factors originating from outside the individual, consisting of support from farmer group (X_{21}), availability of facilities and infrastructure (X_{22}), policy support (X_{23}), easy access to information (X_{24}), agricultural extension activities (X_{25}), support of community leaders (X_{26}), and market availability (X_{27}).

2.1.3. Youth's Capacity

Youth's capacity (X_3) is defined as the ability of youth in agriculture, which is determined by the skill of agricultural innovation (X_{31}), the technical skill of chili cultivation (X_{32}), and ability to build cooperation networks (X_{33}).

2.1.4. Youth's Interest

Youth's interest (X_4) is defined as the youth's motive for participating in agricultural activities, which is determined by the willingness to have a business (X_{41}), being a successful entrepreneur (X_{42}), and becoming a self-help extension worker (X_{43}).

2.1.5. Youth's Participation

Youth's participation (X_5) is defined as direct involvement of youth in agricultural activities, which is determined by involvement in business planning (X_{51}), involvement in conducting business (X_{52}), involvement in evaluating business (X_{53}), and participation in enjoying the results of the business (X_{54}).

2.1.6. Acceleration of Farmers' Regeneration

The acceleration of farmers' regeneration (Y) is defined as an effort to accelerate the growth of a new generation as a previous farmer device, which is determined by the acceleration of increasing youth's interest (Y_1), the acceleration of increasing youth's capacity (Y_2), and the acceleration of increasing participation (Y_4).

2.1.7. Indicators and Grids of Questionnaire

Determination of parameters, indicators of each variable aimed as a tool to direct the desired data. This determination is also a tool to measure the research variables and to ease in making questions or statements on the questionnaire. In detail, the parameters and indicators for each variable are presented in Table 3.

No	Variable	Indicator	Parameter	Score			
1	Individual characteristic (X ₁)	Age (X ₁₁)	Age of respondent (years) at the interview	1	2	3	4
		Formal education (X ₁₂)	Number of years of education	1	2	3	4
		Organization (X ₁₃)	Total involvement in the organization	1	2	3	4
		Non-formal education (X ₁₄)	Number of weeks of training	1	2	3	4
		Cosmopolitan (X ₁₅)	interaction with entrepreneurs	1	2	3	4
2	External Characteristic (X ₂)	Support from farmer group (X ₂₁)	There is support from farmer groups in the form of material and/or non-material	1	2	3	4
		Availability of facilities and infrastructure (X ₂₂) (X ₂₂)	Level of availability of facilities and infrastructure for smooth farming activities	1	2	3	4
		Policy support (X ₂₃)	There is support for policies that standing for youth	1	2	3	4
		Easy access to information (X ₂₄)	Easy access to information	1	2	3	4
		Agricultural extension activities (X ₂₅)	Extension activities to encourage youth to be farmers	1	2	3	4
		Support from community leader (X ₂₆)	There is support from the Community leaders in the form of material and/or non-material	1	2	3	4
		Availability of Production Market (X ₂₇)	There is a place to market agribusiness production	1	2	3	4
3	Youth's Capacity (X ₃)	Mastery of agricultural innovation (X ₃₁)	Level of Mastery of agricultural innovation	1	2	3	4
		Technical skills in chili cultivation (X ₃₂)	Mastery level of technique of chili cultivation	1	2	3	4
		Ability to build cooperation networks (X ₃₃)	Number of parties bound in a cooperation	1	2	3	4
4	Youth's Interest (X ₄)	Having a business in agriculture (X ₄₁)	Having a business in agriculture	1	2	3	4
		Become an entrepreneur in agriculture (X ₄₂)	Level of desire to be an entrepreneur in agriculture	1	2	3	4
		Become an extension worker (X ₄₃)	Level of desire to be an extension worker	1	2	3	4
5	Youth's Participation (X ₅)	Agribusiness planning (X ₅₁)	Level of participation in agribusiness planning	1	2	3	4
		Implementation of agribusiness (X ₅₂)	Level of participation in agribusiness implementation	1	2	3	4
		Evaluation of Agribusiness (X ₅₃)	Level of participation in agribusiness evaluation	1	2	3	4
		Enjoying the results of the Agribusiness (X ₅₄)	level of participation in enjoying the results of agribusiness	1	2	3	4
6	Acceleration of farmers' participation (Y)	Increasing youth's capacity (Y ₁)	Increased level in agricultural capacity	1	2	3	4
		Increasing youth's interest (Y ₂)	Increased level of youth's interest in agriculture	1	2	3	4
		Increasing youth's participation (Y ₃)	Increased levels of youth's participation in agricultural programs	1	2	3	4

Table 3: Indicators and Parameters of the Study

2.2. Data Collection

Data collection was done by direct interviews using a set of questionnaires that have been calibrated with validity and reliability tests. To support primary data obtained directly from respondents, secondary data from reports and documentation at local agencies were deepened (Village Offices or District Offices) and in-depth discussions (FGD) has been conducted. For the smooth implementation of data collection, the study was assisted by several field officers (agricultural extension workers) as enumerators from each BP3K (The Extension Center of Agriculture, Fisheries, and Forestry) who had trained and directed on the technicalities of filling out questionnaires.

2.3. Research Instrument

The instrument used was a questionnaire containing a list of questions related to the research variables. Before being used for data collection the questionnaire was calibrated with validity and reliability test. The validity of the questionnaire was focused on the content, to find out: (1) whether the substance of the measuring instrument has reflected all the content (property); (2) Whether the information collected is in accordance with the concept used. The reliability of the instrument reflected its ability to measure phenomena or responses consistently. According to Kerlinger (2004), three-element conditions of the reliability of instruments are stability, accuracy, and validity.

2.4. Method of Data Analysis

The collected data was analyzed according to the objectives of the study. To explain the level of youth's capacity in agriculture activities, youth's interest in agricultural, and youth's participation in agricultural development programs, a descriptive analysis was carried out. Then path analysis was conducted to identify the factors influencing the acceleration of regeneration, while Person analysis was used to determine the relationship between research variables. To simplify data analysis, before using the SPSS program, the data obtained were tabulated in a data set.

3. Result and Discussion

3.1. Description of Respondent Characteristics

Individual characteristics are part of the personal and inherent in a young farmer. The individual characteristics of young farmers in this study consisted of age, formal education level, involvement in farmer organization/institution, non-formal education, and cosmopolitan behavior. Descriptions of the individual characteristics of the respondents are presented in the following diagram:

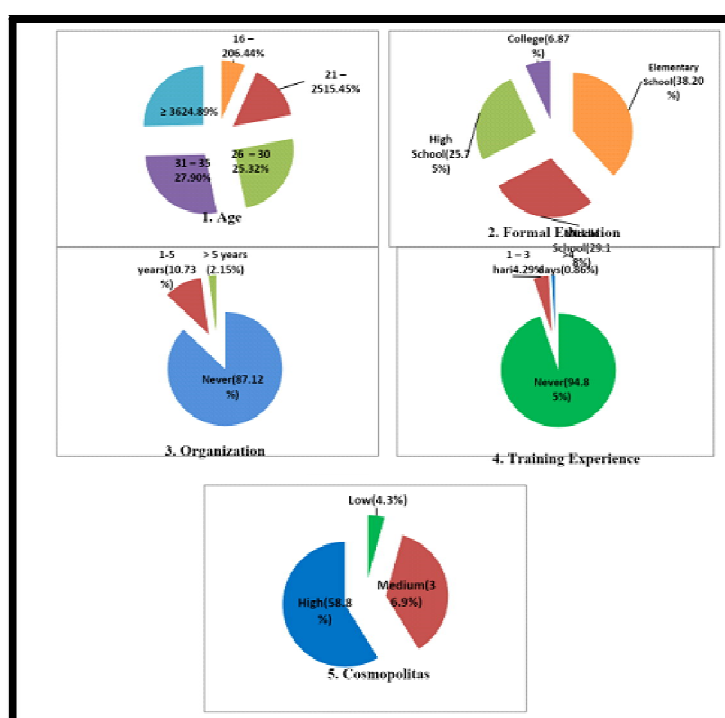


Figure 2: Description of Respondent Characteristics (X_1)

The description of the characteristics of the respondents (Figure 2) confirms that the age of the respondents was dominated by 31 - 35 years (28%) followed by 26 - 30 years (25%), suggest that they were of the productive age group. Furthermore, the education level of most of the respondents is an elementary school (38%) and middle school (29%), which included relatively low education categories. Then for organizational experience, most of the respondents (87%) had no organizational experience, and never attended training or courses (95%), while 59 percent of respondents' cosmopolitan level is in the high category.

3.2. Description of Independent Variable

The following is an explanation of the research variables as the result of descriptive analysis in addition to the characteristics (X_1) described above. The variables that will be explained are external characteristics (X_2), youth's capacity (X_3), youth's interest (X_4), and youth's participation (X_5). The results of the analysis are presented in the following diagram:

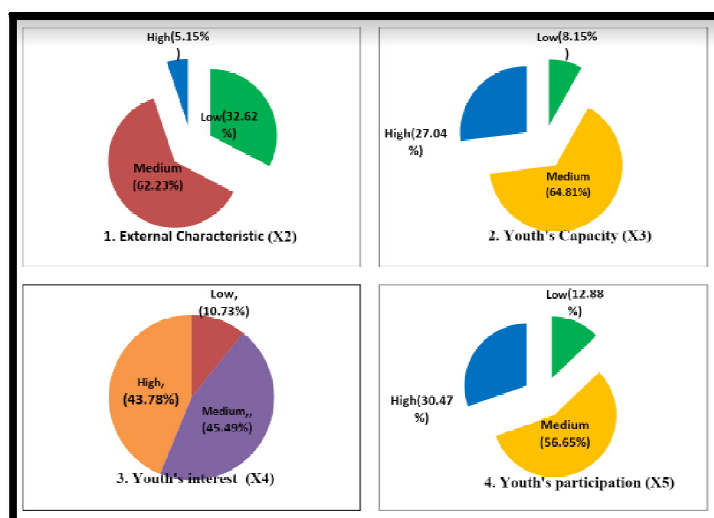


Figure 3: Description of Research Variables

The figure explains that all variables consist of; support of external characteristics (X_2), youth's capacity (X_3), youth's interest (X_4), and youth's participation (X_5) are in low category with number of respondents between 45 – 65 percent.

3.3. Factors That Influence Accelerating of Farmers Regeneration

This study has one dependent variable, namely the acceleration of farmers' regeneration (Y), while there are two independent variables, namely; individual characteristics (X_1) and external characteristics (X_2). Between Independent and dependent variables, there are moderator variables, they are youth's capacity (X_3), youth's interest (X_4), and participation (X_5). Individual respondent characteristics include age, formal education, organization, non-formal education, and cosmopolitan. The results of the path analysis are presented in Table 4.

Variable	Direct	Indirect	Total	Note
Age	-0,172	$0,015 + 0,15 = 0,03$	-0,142	Through capacity and participation
Formal Education		$0,013 + 0,016 = 0,029$	0,029	Through capacity and interest
Organization	0,129		0,129	
Non-formal Education		0,056	0,056	Through capacity organization
Cosmopolitan		$0,074 + 0,054 = 0,128$	0,128	Through capacity and participation
External Factors		$0,028 + 0,024 = 0,052$	0,052	Through capacity and participation
Capacity		0,141	0,141	Through interest
Interest	0,297		0,297	
Participation		0,129	0,129	Through interest

Table 4: Factors Influencing Acceleration of Farmers Regeneration

Based on Table 4, the acceleration of farmers' regeneration in chili's commodity agribusiness is directly affected by age, organizational experience, and youth's interests. Age has a negative effect on the acceleration of farmers' regeneration. Meanwhile formal education, non-formal education, cosmopolitan, external factors, capacity, and participation have an indirect effect on the acceleration of farmers' regeneration.

3.4. Discussion

The description of the characteristics of respondents (Figure 2) confirms that the age of respondents is dominated by the productive age group (26-35 years), this age phase is a period of psychological development and maturity, indicated that they have thought logically and are able to use, manage, and empowering the natural tendency given by the almighty namely instinct (willingness), ratio (common sense), and conscience (feeling) in acting and behaving, so that these people have the potential to be involved in development activities including in agricultural development. Some of them have been

doing farming activities since the age of 16 years. The farming activity has been started by helping his parents in the farmland, however, some young farmers have started farming after marriage and have own families. Finding results showed that young married farmers have the responsibility of managing their farmland independently.

Most respondents have an elementary school (elementary) and junior high school (middle school), indicated they were able to read and write as a basic skill to develop themselves. However, respondents are less experience in organizing, yet this experience could be obtained after they are encouraged to grow young farmers' groups and become a committee, which of course still needs assistance from extension workers or other field officers. The results of field observations showed that only a few of respondents are involved in senior farmer organizations or senior farmer groups. Likewise, in the experience in training/courses, they are very poor in participating in these activities, so it needs to be balanced with more intensive counseling and mentoring activities. Another potential of respondents is that most respondents have a high cosmopolitan or have relatively high insight and broad knowledge. Cosmopolitan is the level of a person's relationship with outside his own social system which can be characterized by the distance he has traveled. Based on the description related to the characteristics of these respondents, it can be concluded that they are youth (young generation) who have the potential to be involved in agricultural development through enhancing and developing their potential, however, it still requiring assistance.

External factors (Figure 3.1) consisting of; support from farmer groups, availability of facilities and infrastructure, policy support, easy access to information, extension activities, support from the community leader, and availability of product markets, are categorized in a medium category with 62 percent of respondent's opinion agrees with this category. However, some young farmers said that government support existed such as the existence of training both technical and entrepreneurial, training facilitation and tool assistance, but it not optimal and equitable. On the other hand, the community of young farmers considered that government support is more concerned with the old generation or those who are members of farmer groups and joint farmer groups with members of many senior farmers. This is also found in venture capital assistance and infrastructure facilities can be a stimulus for recipients to develop their businesses (Cohen and Winn 2007). One of the external factors that are felt by young farmers is the existence of market information support. Support of market information that helps young farmers a lot is information on selling prices, the number of commodity demand and consumer information. The availability of markets can open opportunities for young farmers. The expanding market has an impact on the potential for entrepreneurship and even sustainable entrepreneurship (Nasution et al. 2011), (Sato, Tabuchi, and Yamamoto 2012). Through market information, farmers become innovative in identifying opportunities (Cohen and Winn 2007), (Lehner and Kaniskas 2012) to create and develop businesses (Hansson et al. 2013), (Pinho and de Sá 2014).

The next external factor is the role of agricultural extension workers. Some young farmers argued that the role of agricultural extension workers has existed, however, specifically extension activities for young farmers still a rear program. Most of the agricultural extension workers developed farmer groups with vary members from young to old farmers. When this research was conducted in Garut district, only one farmer group develop a group for young farmers. However, some young farmers are part of existing farmer groups. Agricultural extension workers are expected to play a role because they may influence farmers behavior (Amanah and Sadono 2015), (Maryani, Haryanto, and Anwarudin 2017), (Anwarudin and Haryanto 2018), and increase the business capability of farmers (Fatchiya and Hernanda 2015), (Hauser et al. 2016), (Anwarudin and Dayat 2019).

Most respondents (64.81%) rated business capacity (Figure 3.2) in the medium category. However, there are also young farmers who rate low (8.15%) and high (27.04%). This condition indicated the potential of young farmers to be entrepreneurs because the business capacity is the basic asset to build an independent business (Tambunan 2009). Looking at the percentage of achievement, the business capacity of young farmers needs to be appreciated considering that coaching for young farmers is still rarely done and has only been carried out in a relatively short period of time, which is around two years. However, business capacity must continuously be built as Horton (2003) recommended that efforts to develop business capacity should continue to improve business capabilities. Business capacity has a close relationship with the characteristics of human resources, markets, innovation and customers (Nasution et al. 2011).

Figure 3.3 shows that the average interest of young farmers is in the medium category (45%). However, there are also young farmers with low (11%) and high (44%) categories. The results of this study not in line with the KRKP report (2015) which stated that farmers have a low interest in agricultural business. The farmers referred by KRKP (2015) are young farmers and their parents. The report said that young farmers were less interested in continuing their parents' farming business. Likewise, farmers' parents do not want their children to be a farmer. The difference in the study results might be caused by the population of research. The study by KRKP was aimed at young people in general, while this study aimed specifically at young farmers carrying out agricultural activities. There is a non-intersecting part between the young generation and young farmers, of which young farmers are those who have carried out agricultural activities and dared to involve in agriculture. Thus, young farmers referred to in this study are those young farmers who have been engaged in agribusiness. Moreover, the result of this study is still lower than that reported by Anwarudin and Haryanto (2018) who conducted research in Bogor, they found that the interest of young farmers was high. The reason for the high interest of young farmers in Bogor District is due to good market support. Farmers were ease in getting price and market information. The location of Bogor that closes to the capital city of Indonesia made many consumers thereby causing the smooth sale of agricultural products and increase motivation in the agriculture sector.

The results showed that most of the respondents' participation in agricultural activities was in medium category. Field findings showed that young farmers already involved in agricultural activities by joining their parents' farm or engaged in independent agricultural management. In independent agricultural activities of young farmers tend to be

optimal, however, the participation of young farmers varied among young farmers who are still in the stage of helping their parents. Unmarried young farmers tend to help their parents in conducting farming activities. In this case, young farmers' participation can be further enhanced, considering Taylor and Grieken's (2015) statement that participation is an important component in generating self-reliance in the empowerment process. The participation of farmers is expected to have an impact on welfare as Rai and Smucker (2016) stated that participation is a means of empowering farmer communities to improve their welfare. Moreover, individual participation is an important element to increase the capacity of society towards the importance of technology. Furthermore, it was also explained that participation is an internal factor of farmers as an appreciation and empowerment tool for realizing initiatives, controlling and correcting activities, financing effectiveness, as well as realizing more accurate and relevant activities. According to Ofuoku and Isife (2009), Participation emerges a sense of mutual understanding and potential to transmits innovation through a socialization process.

Regression analysis showed that the acceleration of farmers' regeneration in the chili farmers' community was directly affected by age, organization, and personal interests. Age has a negative effect on the acceleration of farmers' regeneration, of which the process of regeneration of farmers is faster for a younger generation. The regeneration process then slowed down as farmers' age. This age effect is different from that organization and personal interest effects. The process of regeneration of farmers is along with the organization's involvement and interests of young farmers. The higher is the involvement of the organization and the higher is the interest of young farmers; the faster is the regeneration process of farmers.

The acceleration of farmers' regeneration in chili agribusiness is indirectly affected by formal education, non-formal education, cosmopolitan, external factors, business capacity, and participation. The business capacity and participation of young farmers are the main factors in increasing the interest of young farmers, which in turn has an impact on the acceleration of farmers' regeneration processes. The higher is the business capacity and participation of young farmers in agricultural activities, the higher is the interest of young farmers in agriculture and lead the faster regeneration of farmers.

The assessment of the acceleration of farmers' regeneration deserves to be appreciated considering they have the confidence and optimism for their business. However, there are still farmers who are pessimistic that their future agribusiness will be experiencing a setback or stagnation. Anwarudin et al. (2018) synthesized experts that farmers' regeneration can be in the form of family and non-family regeneration. The regeneration of a farmers' family is an act of family in reflecting, thinking and taking concrete action to encourage the younger generation to continue their agribusiness. Family regeneration means the management of agricultural business is inherited from parents to their children, as stated by Inwood and Sharp (2012), Joose and Grubbstrom (2017).

Regeneration can be interpreted as an important event in the development of farmers' families. Regeneration is also a critical point since the farming family must decide whether a farming business will continue in the hands of the family. Second, there is the regeneration of farmers with non-families. In this process, the inheritance of agricultural businesses goes to individuals who have no family relations. This second successor is often referred for as newcomer farmers, a farmer without a family relationship and has not yet experienced the socialization process from a farmer's family. Newcomer farmers may depart from previous farming practices to a higher level. Farmers' regeneration with non-families contributes to bring changes to agricultural development such as: introducing new knowledge or techniques; develop new business models, develop more sustainable farming systems, develop new organizational models, improve relationships between agriculture and local communities and use traditional knowledge to develop business innovation. Newcomer farmers are farmers who are the potential to conduct an experiment with new approaches because they are not limited by socialized agricultural norms (Anwarudin et al. 2018).

Formal and non-formal education has an indirect effect on the acceleration of farmers' regeneration. Formal education influences the development of young farmers' capacities and interests. This indirect effect has a relatively small value but it is understandable considering that almost all young farmers in this study do not have an educational background in agriculture. On the other hand, non-formal has an indirect effect through organizational involvement. This indirect effect has also a relatively small value but it is understandable because most of the young farmers in this study have never received non-formal education such as internships/courses and training.

Cosmopolitan and external factors have an indirect influence on the acceleration of farmers' regeneration. The cosmopolitan indirectly effects on the acceleration of farmers' regeneration through the development of business capacity and the participation of young farmers. Its influence is indirect with relatively large and understandable values considering that most of the young farmers in this study have high levels of cosmopolitan. While, external factors indirectly influence the acceleration of farmers' regeneration through developing business capacity and participation of young farmers.

The effect has a relatively small value but it is understandable considering that most of the young farmers in this study rarely receive guidance from agricultural extension workers or assistance from the government. The role of agricultural extension workers is one of the external factors to young farmers. In the field findings, the current extension activities conducted by government extension workers still based on adult farmers while young farmers receive less attention. The role of extension workers as facilitators, communicators, dynamists and consultants (Sumardjo and Radjabaycolle 2015) is expected to pay more attention to young farmers as the next generation of agriculture. Efforts to form a special group of young farmers can be a solution for coaching young farmers. The results of observations in the field found that many self-help extension workers became role models for young farmers; they can be a source of information

3.5. Models and Strategies for Accelerating Farmers' Regeneration

Figure 1 illustrates the structural model of the proposed research model. The model includes the following variables and their relationships:

- Organization** (white box) has a path to **Capacity** (red box) with a coefficient of 0.437.
- Training** (white box) has a path to **Capacity** (red box) with a coefficient of 0.013.
- Education** (white box) has a path to **Capacity** (red box) with a coefficient of 0.074.
- Education** (white box) has a path to **Interest** (yellow box) with a coefficient of 0.016.
- Cosmopolitan** (orange box) has a path to **Interest** (yellow box) with a coefficient of 0.054.
- External factors** (red box) has a path to **Interest** (yellow box) with a coefficient of 0.024.
- Age** (blue box) has a path to **Interest** (yellow box) with a coefficient of 0.015.
- Capacity** (red box) has a path to **Interest** (yellow box) with a coefficient of 0.141.
- Capacity** (red box) has a path to **Participation** (green box) with a coefficient of 0.129.
- Interest** (yellow box) has a path to **Participation** (green box) with a coefficient of 0.129.
- Participation** (green box) has a path to **Acceleration** (blue box) with a coefficient of -0.172.
- Interest** (yellow box) has a path to **Acceleration** (blue box) with a coefficient of 0.297.
- Capacity** (red box) has a path to **Acceleration** (blue box) with a coefficient of 0.129.
- Acceleration** (blue box) has a path to **Acceleration** (blue box) with a coefficient of 0.297.

Error terms are shown for each latent variable:

- eX3=0.7** (white box) is associated with **Capacity** (red box).
- eX4=0.4** (white box) is associated with **Interest** (yellow box).
- eY1=0.9** (white box) is associated with **Acceleration** (blue box).
- eX5=0.8** (white box) is associated with **Participation** (green box).

Based on the model in the picture above, it can be stated the strategies of accelerating the regeneration of farmers in the chili farming community in Garut District are as follows: (1) The regeneration process of farmers is carried out in the young generation as early as possible. This study recommends that the regeneration process of farmers be accelerated at a younger age; (2) Involvement of young farmers in farmer organizations/institutions. The involvement of young farmers in farmer institutions can be done by forming specific institutions for young farmers or involve them in existing farmer institutions, increasing the interest of young farmers in the agricultural business. Increasing the interest of young farmers can be done through (a) Increasing the businesses capacity of young farmers with formal education, developing a cosmopolitan culture and strengthening the external factors of young farmers; (b) Increasing the participation of young farmers in agricultural activities. Research showed that the higher age, the development of cosmopolitan culture and the strengthening of external factors of young farmers can increase the participation of young farmers in agricultural activities.

Research on the acceleration of farmers' regeneration in chili farmers community has been carried out in Garut District. The results of the study can be concluded as follows: 1) Most respondents assess the acceleration of regeneration of farmers, interest, participation, business capacity and external factors of young farmers are in medium level. The average age of young farmers is 31.47 years, most of them are graduates from elementary school and have never been involved in organizations, and poor experience in doing internships/courses/training, however, cosmopolitan of young farmers are in high category; 2) The acceleration of farmers' regeneration is directly affected by age (negative), involvement in the organization and the interests of young farmers. The acceleration of farmers' regeneration is indirectly affected by formal education, non-formal education, cosmopolitan, external factors, business capacity, and participation; 3) The strategy of accelerating the regeneration of farmers in the chili farming community in Garut District can be done through (a) the regeneration of farmers is carried out in the young generation as early as possible. (b) Involvement of young farmers in farmer organizations/institutions. (c) Increasing the interest of young farmers in the agricultural business. Increasing the interest of young farmers can be done through: (1) Increasing the business capacity of young farmers through formal education, developing cosmopolitan culture and strengthening the external factors of young farmers. (2) Increasing the participation of young farmers in agricultural activities along with age increase, developing cosmopolitan culture and strengthening the external factors of young farmers.

The results of this study recommend 1) local extension workers need to initiate the growth of young farmer groups or encourage rural youth to join existing farmer groups; 2) It is necessary to introduce agricultural programs to rural youth as early as possible by extension agents and other stakeholders; 3) Activities to encourage increased youth's interest are needed through; a) increasing capacity with education, training, and counseling, b) providing opportunities to participate in the agricultural activities of their parents, and agricultural programs either by the government or other stakeholders.

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