

The Succession Patterns of Agricultural Lands in the Special Region of Yogyakarta Province, Indonesia

Yuhan Farah Maulida^{1*}, Ratih Ineke Wati¹, and Subejo¹

¹ Study Program of Agriculture Extension and Communication, Universitas Gadjah Mada, Indonesia

* Yuhan Farah Maulida, corresponding author. Email: yuhanfm@ugm.ac.id

Submitted: 28 September 2021, Accepted: 27 March 2022, Published: 8 May 2022

Volume 30, 2022. pp. 625–639. <http://doi.org/10.25133/JPSSv302022.035>

Abstract

With prolonged agriculture population aging, farmer regeneration has posed a widespread challenge for developing global agrarian communities. In Indonesia, the younger generation's disinterest in working in agriculture has evolved into a significant obstacle in the succession process. The study investigates the patterns, challenges, and strategies for farmer regeneration in the Special Region of Yogyakarta province. The analysis used a qualitative case study with data collection techniques through focus group discussions, interviews, and observations. Respondents are 33 experienced older and younger farmers residing in three distinctly allocated research locations in Yogyakarta, namely Sleman, Kulon Progo, and Gunung Kidul regions. The results demonstrate that the younger generation's career choices vary by rural-urban spatial differences. The study revealed different arrangements in the land inheritance system but no significant variance in the time when the succession happened. The geographical context, land conversion, socialization of the profession, and growing non-farm opportunities are inter-linked as the cognitive factors in farm continuation across generations. To procure an efficient succession process, the research established the implementation of determinants such as improved socialization, recognition of young farmers as innovators, promotion of agricultural-related educational opportunities, and strengthening incentives.

Keywords

Agriculture; farmers; human resources; population aging; succession

Introduction

Agriculture is exceedingly dependent on the successful process of farmer regeneration. The younger generation of the developing countries of South-East Asia, including Indonesia presumes that the agriculture sector is conventional, too fragile to access protection, and has constrained financial resources with limited extension and mentoring services (Firman et al., 2019; Yuniarti et al., 2020). Considering their low participation, regeneration and succession activity are experiencing profound challenges.

The main obstacle in the regeneration and succession process is the impassive outlook of the younger peer group toward the agriculture sector. Some scholars have documented that low enthusiasm, inferior perception, lack of parental support, reliance on others, the subpar role of extension agents, alternate trending activities, better employment opportunities, and reduced access to productive assets and commodities choice are some of the significant factors affecting the regeneration and succession practice in Indonesia (Ningsih & Syaf, 2015; Wardani & Anwarudin, 2018; Yuniarti et al., 2020). Both terms, i.e., regeneration and succession, are interchangeable and signify the process of promoting the new generation of a farmer (Yuniarti et al., 2020). Generally, succession involves the children inheriting the farms from the parents. In contrast, regeneration carries a more general meaning that involves non-family land succession, for example, the 'agrarianization' of the younger generation because of trends and even self-initiatives (Pitts et al., 2009; Wheeler et al., 2012; Yuniarti et al., 2020).

Indonesia ranked fourth in the world for population size, with about 28.5% of total employment in agriculture, compared to 1.36% in the United States and 25.33% in China (World Bank, 2021). In 2018, Indonesia had around 33 million farmers, or about 12% of the population (BPS-Statistics Indonesia, 2019). While younger farmers under 35 were only 15% of the total population, older adults (age 35–54) and older farmers (age above 55) comprised 51% and 34% of the population. With 85% of human resources in agriculture consisting of the older generation (BPS-Statistics Indonesia, 2019), Indonesia will face a more significant challenge toward the demographic bonus. With the increasing population, food demand will rise significantly (FAO, 2017). Moreover, the government's focus on programs directed at the nation's food sovereignty agenda will highlight human resource dynamics, especially ensuring that enough people are eager to produce food for others.

The slow process of farmer regeneration has become a significant challenge in global agrarian communities. While in Indonesia, farming is now considered the last career choice for the youth (Firman et al., 2018), there have also been many reports from other countries such as the United States, Brazil, Nigeria, Norway, Slovenia, and Australia exhibiting a similar issue of agriculture continuation across the generations (Arends-Kuenning et al., 2021; Arowolo et al., 2017; Brandth & Overrein, 2013; Carolan, 2018; Kerbler, 2008; Wheeler et al., 2012).

The succession process significantly impacts farm sustainability and the agricultural sector's structures (Leonard et al., 2017; Mishra et al., 2010; Wheeler et al., 2012). Despite the growing number of studies investigating the factors affecting succession, published evidence about the succession pattern and regeneration is still inadequate. Hence, this study aims to examine the patterns, challenges, and strategies for farmer regeneration in the Special Region of Yogyakarta.

This article will assist governmental leaders, policymakers, researchers, and other stakeholders interested in promoting the sustainability and future of farmland.

Methodology

Study design

The research was approved by the Research Ethics Committee of the Faculty of Agriculture, Universitas Gadjah Mada (No: 1656/PN/TU/2020).

The data were collected in 2020 during the COVID-19 pandemic in Indonesia. This study incorporated a qualitative case study in rural areas of three regencies in the Yogyakarta Special Region Province. The three regencies, i.e., Sleman, Kulon Progo, and Gunung Kidul, were selected because each region represents the main commodity sectors in each province, i.e., food crops, horticulture, and cash crops. Furthermore, the three sites are also within rural Java (Rigg, 2006). After conducting focus group discussions with village officers, extension officers, and the head of the farmer's group at three locations, we selected farmers to be targeted for the interview process. The purposive sampling method was applied to obtain rich information about farmer regeneration in rural areas. We targeted farmers who were selected as committeees in farmer's groups. The research involved 33 older and young farmers who were active members of the farmer's group. We categorize informants according to their productivity. May et al. (2019) and Rigg et al. (2020) argued that farmers under 50 were considered productive in their physical ability. Hence, we divided our respondents into two categories, productive and no longer productive. We subcategorized them into young adult farmers (ages 20–40), adult farmers (ages 41–50), approaching old farmers (ages 51–60), and old farmers (age > 65). We interviewed 10 farmers in the Kulon Progo region, 12 in the Nglangeran mountain in the Gunung Kidul region, and 11 in the Sleman region. Table 1 represents the demographic data concerning the respondents.

Study area

The Special Region of Yogyakarta is a provincial-level autonomous region of Indonesia located on southern Java Island. It is near the southern coast of Java, surrounded by Central Java Province on the north, west, and east side and bordered by the Indian Ocean on the south side. The area is 3,186 square kilometers, with almost 3.9 million people (BPS-Statistics Indonesia, 2021a). Sleman, Kulon Progo, and Gunung Kidul are rural areas in Yogyakarta Province, located around 20 to 50 kms from the center of Yogyakarta.

Sleman Regency is located in the north of the province and has an area of 575 square kilometers with over 1.2 million people as of the 2020 census (BPS-Statistics Indonesia, 2021a). The region has a relatively abundant and consistent water supply available for the whole year from the Mataram Canal to irrigate paddy fields. On the northern side of Sleman Regency, Mount Merapi is also a rich water and soil nutrients source, resulting in around 10,000 people participating in

farming activities. The most common commodities were paddy, with production accounting for 47,060 tons per year (BPS-Statistics Indonesia, 2021d).

Kulon Progo Regency is located in the western part of the Yogyakarta Province, which has an area of 586 square kilometers and roughly 435,000 people (BPS-Statistics Indonesia, 2021a). Agriculture accounts for approximately 15% of the GDP of Kulon Progo, where the most famous horticultural commodity in 2020 was chili (BPS-Statistics Indonesia, 2021c).

Gunung Kidul Regency is located in Yogyakarta southwest which has an area of 1,485 square kilometers and a population of about 749,000 people as of the 2020 census (BPS-Statistics Indonesia, 2021a). It is the largest regency and the most significant agricultural area in the province. Recently, agrotourism in Gunung Kidul Regency has been growing rapidly with the scenery of the forest landscape. Local food processing activities attract domestic and international tourists (BPS-Statistics Indonesia, 2021b).

Data collection

The data collection of this study used focus group discussions, interviews, and observations. Before formally collecting the data, secondary data, online resources, and information from key persons such as agricultural extension agents, heads of farmers groups, and village leaders were utilized to gather general information and perspective about the research locations. They suggested the Seyegan district in Sleman, Nglangeran district in Gunung Kidul, and Panjatan district in Kulon Progo as our research location based on the commodity arrangement. The pre-research action was conducted to increase the researchers' familiarity with the informants, contexts, and practices. The focus group discussions and the interviews were semi-structured using open questionnaires containing distinct criteria, including the problems, patterns, strategies, and challenges the informants face.

Data analysis

The data collected were analyzed using data reduction, display data, and conclusion data. Data correctness was conducted by checking the answers of the informant answers and discussing the data collection with the research team. To validate the responses, triangulation was used, including triangulation of the source, method, and theories.

Table 1: Respondent Demographics

Research Sites	Coastal Kulon Progo, Nglangeran Mountain, and Sleman
Age in Years	
20-40	6
41-50	12
51-60	9
60 or older	6
Commodity	Horticulture (chili, vegetables, rockmelons)
	12

Research Sites		Coastal Kulon Progo, Nglangeran Mountain, and Sleman
	Cash crops (durian, cocoa)	11
	Timber	1
	Food crops (paddy, sweet potato, maize)	9
Farming System	Monoculture	9
	Polyculture	24
Farm Size	0–0.2 Hectares	11
	0.21–1 Hectares	18
	1–3 Hectares	4
Total respondents		33

Results and discussion

Succession pattern in Indonesian modern agrarian communities

This qualitative study explored the pattern of succession in three distinctly allocated research locations. Table 2 summarizes the pattern of succession of the farmers by explicating three thematic issues, e.g.,, the children's career choice, inheritance pattern, and time of succession.

Table 2: Pattern of Succession Planning in Yogyakarta

Location	Commodity	Models of Succession		
		Children's Career Choice	Inheritance Pattern	Time of Succession
Sleman	Food crop	Some of the children inherit jobs as farmers. However, most cases illustrate that those current farmers fall short of inclining the younger generation. They are dispassionate to work on the farm.	Mostly shared equally among children (male or female; married or unmarried). Paddy fields and dry land are encouraged to be conserved. However, if the location is strategic (on the side of the road), the land is mainly sold or converted into a home or shop.	It depends on the family arrangement. It can be when the children are married, when older farmers are sick, or even pass away.
Kulon Progo	Horticulture	Predominantly the second generation becomes farmers.	Principally shared equally among children (male or female; married or unmarried). There is no strict rule on land utilization, but	It depends on the family arrangement. It can be when the children are married, when older farmers are sick, or even pass away.

			inherited land is mainly used for agricultural purposes.	
Gunung Kidul	Cash crop	Depends on the parents' land ownership. If the parents are landless, the children tend to select other jobs. The tourism boom may increase the attraction to agriculture.	Some share equally among the children; others shared among children with some religious and traditional considerations. Some of the inherited lands should be used for agricultural purposes only. The children who are not inherited land might rent.	It depends on the family arrangement: It can be when the children are married, when older farmers are sick, or even pass away.

As presented in Table 2, the research found that not every farm handover process is preceded by the succession of the farmer profession. All three locations demonstrated a contrasting pattern of professional choices by the younger generations. Continuation of agriculture across generations may occur in the Special Region of Yogyakarta. However, across the Sleman region, the reluctance of the younger generations to inherit their parent's occupations as farmers reveals a challenge. Most cases demonstrated that the current farmer parents are constrained to engage their children in farm management practices. Another important finding, not only the male youth farmers (ages 40 and younger) are scarce, but even female youth seemed equally dispassionate about working in the agricultural sector. Furthermore, widespread educational and career opportunities in the Sleman region make it even more challenging to allure them into cultivation.

“...children from better-off families have mostly become entrepreneurs, managing shops, producing roof tile. They looked for better income. Landless farmers' children have chosen to work in construction, mason or blacksmith...” [Farmer, 75 years old].

The younger generation in the Kulon Progo region perceives farming as a profession as most of them inherited their parent's occupation. This may be associated with the growing trend of chili farming in the Coastal Kulon Progo region, proving to be more profitable in some seasons, thereby increasing farmers' motivation to grow such profitable commodities in the region. Growing horticulture, especially chili, in the Coastal Kulon Progo region is profitable, inspiring most younger farmers (80%) aged 50 and under (Maulida & Subejo, 2020). In addition, evidence suggests that the land arrangement appeals to younger farmers to choose farming as their livelihood. The coastal area in the Southern region of Kulon Progo, including the Sultan Ground and Paku Alaman Ground, belong to the royal family in Yogyakarta. Despite the land being designated as a “common resource” where locals can use the land and the resources to sustain their livelihoods, it is still considered sacred. The land should be ecologically conserved (Subejo & Mewasdinta, 2019).

The pattern in the Gunung Kidul region displays that the regenerations are also subject to the parent's land ownership. If the parents own land, children are likely to proceed with the same as

their livelihood. However, if the parents do not possess any land, the children tend to select an alternative career. Larger farms are also more likely to be preserved as farms (Mishra & El-Osta, 2007).

On the other hand, the tourism boom in the Gunung Kidul region integrated cash crop farming and agrotourism, which increased the appeal of agriculture to the younger generation. Agrotourism imparts the potential to diversify the livelihood, executing agriculture and tourism as dual sources of household income. This was also illustrated in the Nglanggeran Village of Gunung Kidul Regency, where community-based tourism accomplished both success and sustainability (Manaf et al., 2018).

These geographical differences may be relatable to the fact that Sleman is situated in the peri-urban region of the province. In contrast, Kulon Progo and Gunung Kidul are considered rural areas (Rijanta, 2015). The peri-urban region offers better job opportunities with higher wages than the rural regions. Thus, it is plausible that the regeneration process in the peri-urban areas will face more significant challenges than that of rural areas.

Land handed over to the next generation will not be preserved as farmland. Land conversion is a significant threat to food security in the Sleman region (Harini et al., 2012). In Sleman, paddy fields and drylands are encouraged to be conserved as there is a regulation stating that those who want to convert paddy field requires a permit from the Governor. However, if the location is strategically positioned (on the side of the road), the land will primarily be sold or converted into a home or shop.

“...if the inherited lands are strategically located and across the street, it is mostly converted into houses. But if the land is far from the street, it will remain as farms...” [Farmer, 38 years old].

For some modern agrarian communities based in Sleman and Kulon Progo, gender issues on the continuation of agriculture across generations no longer hinder the farm inheritance process. Women are now perceived to have the same competencies and have exhibited equal willingness as men in taking over the farms. Barbosa et al. (2020) named five determinants that women believed would allow them to take over farms, namely rural appeal, family support, recognition of efforts, working and living conditions, and financial autonomy.

However, in the Gunung Kidul region, the local communities still consider only handing down their assets, including farms, to their male children because of religious and traditional considerations. During the survey, some respondents stated that they will always prioritize their male children inheriting their land because they believe that when their daughters get married, they will co-own the land with their husbands.

In other countries like Brazil and Slovenia, traditional gender norms hinder succession (Arends-Kuenning et al., 2021; Kerbler, 2008). Traditions often rule out women as successors in agriculture because women's work is undervalued and invisible. Instead of recognizing women as food producers, they are often perceived as second actors rather than as leading actors in farming activities. They have limited access to credit, extension services, and other productive assets (Brumer, 2008).

The moment when the succession process takes place also plays a significant role in determining its pattern. In addition, it also depends on the family heir arrangement. The period can be when the children get married when the parents cannot go to the land or are sick, and even when the parents pass away. Mishra et al. (2010) stated that succession and retirement time are inter-linked and conspicuously determine the life cycles of the farm household and family farming. Mostly succession happens when the parents are very old or pass away, which may challenge an effective regeneration process. This may also link with the older farmers who prefer to live independently and are afraid of becoming a burden to their children (Knodel et al., 2013). However, giving children opportunities to manage farmland as early as possible may attract them to participate in farming activities (Arowolo et al., 2017).

Succession planning is still underestimated. However, it is very personal (Kimhi & Lopez, 1999). The process often takes place when the previous generation is ready to retire. The degree to which someone is prepared for retirement varies, depending on personal condition, and the readiness for the succession process.

Challenges with farmer regeneration

The challenges are captured in this detailed discussion of the succession and regeneration process in the modern agrarian communities of the Special Region of Yogyakarta Province. Within this section, we thematically present common challenges associated with the regeneration issues in agrarian communities. Table 3 provides similar challenges in three distinctly allocated research locations. The research identified six broad challenges to agricultural succession: the unpredictability of natural forces, intergenerational socialization, the pressure of land conversion, non-farm and industrial jobs offering more profitable options, lack of farming incentives, and lack of the programs provided by the government to assist regeneration issues.

Table 3: Challenges of Succession Planning in Yogyakarta

Location	Commodities	Challenges
Sleman	Food crop	<ul style="list-style-type: none">• The willingness of young people to participate in farming activities• The availability of non-farm jobs (industry)• Farmland conversion• Funding and financial capital• Climate variability that impacts pest population• Price and market uncertainty for food crop commodities• No program provided by the government to address regeneration issues
Kulon Progo	Horticulture	<ul style="list-style-type: none">• Funding and financial capital• Climate variability impacts rainfall and pest population.• No program is provided by the government to address regeneration issues, but the farmer's group initiates programs to attract young people to participate in farming activities
Gunung Kidul	Cash crop	<ul style="list-style-type: none">• The availability of non-farm activities (tourism)• Climate variability impacts rainfall.

Location	Commodities	Challenges
		<ul style="list-style-type: none"> • No program provided by the government to address regeneration issues

Our respondents in three locations reported that climatic variability makes their income and livelihood highly vulnerable to uncontrollable factors. Climate change is turning the ideal growing conditions inconsistent, bringing in extremities with higher rainfall and severe drought, causing unpredictability and prompting younger farmers to resist cultivation. Climate change variability impacts water supply and pest population, which is beyond farmers' range of adaptability. Farmers who grow staple food commodities tend to complain about pest outbreak, while farmers who grow horticultural commodities mentioned climate change impact the hydrological and pest population. In Gunung Kidul, the cash crop farmers who primarily cultivate cocoa complained about the climatic variability that constrained them to dry cocoa.

The study also uncovers farmers' inadequate access to financial capital in Yogyakarta. Maulida and Subejo (2020) stated that the limited access to financial capital is due to the lack of access to information related to credit and loans and their potential exclusion from the farmer's group. Cultivators who do not participate in their local farmer's group cannot acquire credit. As a result, these farmers are without productive capital under particular circumstances, such as price shocks or climate uncertainties. While our respondents in Sleman and Kulon Progo mentioned inadequate financial capital, our respondents in Gunung Kidul did not mention financial capital as an issue. Compared to staple food and horticultural commodities, cash crop commodities might require relatively low inputs and seasonal costs.

“...we have low access to financial capital. However, if the young farmers are supported with financial capital, they will be more successful than we, the older generation. The bank just did not want to provide us with fund...”
[Farmer, 65 years old].

Another challenge against an efficient regeneration plan is the lack of socialization among parents to younger generations. Notwithstanding that farmers' children are involved in farming activities, some parents fail to motivate their children to continue farming. Compared to other locations, farmers in Sleman faced more complex challenges. Most older farmers in Sleman reported that they expected their children to have better occupations in non-farm sectors. This also accumulates the production of a “bad image” of the farmer's profession. Unfortunately, farms lacking a successor are unlikely to be managed intensively (Mishra & El-Osta, 2007).

“...younger generations have low enthusiasm in agriculture...” [Farmer, 51 years old].

The earlier discussion on the high land conversion rate in the Sleman region supports the study that the strategically positioned farms (on the side of the road) are more prone to either being sold or converted into houses or shops. With soaring regional taxes levied on lands and cutting back these expenses, more owners will consider reconstructing their land into houses or commercial buildings (Rijanta, 2015).

The industrial movement and its preference by the younger generation in the Sleman region pose another challenge to the regeneration process. Lucrative non-agricultural and industrial jobs are being prioritized due to the unpredictable nature of agriculture and the lack of incentives, subsidies, and insurance this sector offers. Besides that, extensive educational opportunities create circumstances where the younger generation tends to migrate, leaving their parents and farm to pursue further education. With more options in the cities, this poses challenges as the younger generation prefers urban living.

The tourism movement might also challenge the farm succession process if it instigates land conversion. However, tourism in Gunung Kidul has benefited the regeneration process as it is integrated with farming activities. In Gunung Kidul, agrotourism generates a second source of livelihood for farmers and potentially prevents land from being forcibly sold or converted. Agrotourism farms can be a potential source of tourist attraction where the host can involve the tourists to participate in various guest experiences such as farming, fruit picking, local coffee tasting, or even just enjoying the fresh air of rural areas. By incorporating the agrotourism concept, farmers can also gain the retail opportunity for their commodities (perishable, non-perishable, raw, and by-products) at the production site, reducing transportation and storing expenses. As tourism appeals to the younger generation, the combination of agriculture and tourism may motivate them to practice agriculture (Akpinar et al., 2005).

Our research also discovers that there was no program from the government in all regions to address regeneration issues. We only found that in the Kulon Progo region, the farmer's group's self-initiated programs attract young people to join farming activities.

Seeking strategies for farmer regeneration

The data gathered from interviews present attributes supporting farmer regeneration in the Special Region of Yogyakarta categorized as internal factors (parental support) and external factors (commodity selection decision, market reliability, assurance of a profitable selling price, and capital availability). With the evidence, strategies to promote farmer regeneration can be prescribed.

The research revealed that family relations play a conspicuous role in farm continuation. Brandth and Overrein (2013) noted that parenting methods of fathers originating from farming communities have considerably changed since the 1960s. Contemporary farming fathers tend to be busier with farm chores, resulting in less time with their children to engage and encourage them to get involved in the farming business. Moreover, children are unenthusiastic to participate in farming activities with more life choices. In addition, there has been a shift in the term good farmers. The previous generation practiced that as fathers, they are obliged to teach their children to become good future farmers. However, the younger generation of farming fathers does not perceive the successful regeneration process as a symbol of good farmers. Adding to the discussion, socialization also plays a crucial role in succession. Also, how families educate their next generation about the family farms is historically significant in the process of regeneration and prevents their children from pursuing other opportunities (Brandth & Overrein, 2013; Carolan, 2018).

However, considering that not every family is privileged and supportive enough to cultivate these practices in the next generation, other sources for mentorship can be regarded. Discussing the role of a mentor in farm succession, best practices established by the Iowa State University of United States should be incorporated. Farm Succession Coordinator Certification Training (FSCCT) is a training and certification program offered to agricultural practitioners working with farm businesses on succession issues (Carolan, 2018). The program has efficiently supported the certified professionals to become mentors for youth to help their participation in the farm succession process. Other strategies such as creating growing spaces for youth are worth mentioning. The growing areas involve intergenerational networking, where any gender can participate. Through networking and intergenerational knowledge transfer at gathering events, such as foodscapes or farmer's markets, there will be a chance to increase interest in the farming business (Carolan, 2018). In Indonesia, programs such as Youth Entrepreneurship and Employment Support Services (YESS) by the Ministry of Agriculture funded by the International Fund for Agricultural Development (IFAD) have focused on training and giving financial access to rural youth. Increasing the number of beneficiaries incorporating the program with certification for young farmers may be considered.

All the respondents mentioned the lack of government initiatives to address regeneration issues. Focusing on innovative young farmers can also be an excellent strategy for the government to engage the younger generations and incline them toward the agriculture sector. Offering scholarships, awards, and recognition to an exemplary younger peer group of farmers for their efforts to contribute to the local food system and developing innovative ideas in the agribusiness encourages and inspires the more youthful and experienced farmers to get more involved in the cultivation practices.

“...there is J, his achievement in developing Iles-iles tuber for shirataki noodle is awarded in 2012 by the farmer's group...” [Farmer, 20 years old].

“Mas P is his name. His achievement is growing various vegetables alongside his farm...” [Farmer, 67 years old].

“...young farmers won Durian champion in 2019, his name is B...” [Farmer, 45 years old].

Another study discovered the importance of the educational background of the successor and its effect on the regeneration process (Mishra et al., 2010). Providing access to agricultural-related vocational or higher education can prove to be beneficial in increasing the number of regenerations in the modern agrarian community. Parents can also encourage and support their children to study agriculture-related subjects to refine their educational skills. With more exposure to higher education, younger farmers can gain the opportunity to upskill themselves with growing trends in commodities, technologies, and innovation.

Succession planning is considered one of the critical processes in regeneration. Planning can be a positive attempt to ensure the continuation of farm organization from generation to generation. Initiating a plan with distinct strategies for farmer regeneration can be established. Scholars argue that succession planning is significantly vital for the sustainability of farm assets (Arowolo et al., 2017; Pitts et al., 2009). Both socialization (from parents or mentors) and agriculture-related

education should be planned to support the younger generation and encourage them to work on their farms.

Supports related to providing sustainable livelihood are still crucial in promoting farmer regeneration. We highlighted market and price uncertainty and funding availability as the significant challenges to attaining sustainable livelihood. Sustainable livelihood associated with farmers' viable access to five capitals, i.e., human capital, natural capital, financial capital, physical capital, and social capital, should be promoted (Ellis, 2000). To address the market uncertainty and financial capital, offering incentives to support agribusinesses such as marketing incentives, farming insurance, scholarships for agriculture-related studies, and subsidies can motivate the younger generation and thereby ensuring the continuation of agriculture across generations (Manaf et al., 2018; Maulida & Subejo, 2020; Subejo & Mewasdinta, 2019).

Conclusion

The study discovered distinct arrangements of land inheritance. However, substantial variance in the succession period was not observed. The younger generation's perception of choosing farming as a profession varies among regions. Compared to other locations, farmers in Sleman faced more complex challenges. As a result of industrialization, the younger generation is reluctant to inherit their parent's occupations as farmers. In addition, as a peri-urban area, Sleman faces a significant challenge regarding farmland conversion. The younger generation in the Kulon Progo region was recorded to better perceive farming as a profession as most of them inherited their parent's occupation. This may be associated with the growing trend of horticultural commodities, proving more profitable in some seasons. In Gunung Kidul, regenerations are subject to the parent's land ownership. If the parents own land, children are likely to proceed with the same as their livelihood. However, if the parents do not possess any land, the children tend to select an alternative career. Moreover, the tourism boom in the Gunung Kidul region integrated cash crop farming and agrotourism, which increased the appeal of agriculture to the younger generation.

The research identified six broad challenges in succession: agriculture uncertainties associated with natural factors, intergenerational socialization, the pressure of land conversion, more profitable non-farm jobs, lack of incentives, and lack of programs offered by the government to assist regeneration issues. The study establishes that to accomplish a successful regeneration process and address the challenges, implementation of cognitive factors such as socialization, recognition of the roles and achievements of young farmers as innovators, promotion of agricultural-related education to be pursued by the younger generations and strengthening access to productive assets is eminently crucial. This research highlighted that policymakers need to recognize that some agrarian communities face challenges regarding the continuation of the farm business. We hope that the information herein will assist governmental leaders, policymakers, researchers, and other stakeholders who are interested in promoting the sustainability and future of farmland

Acknowledgment

The authors thank the Universitas Gadjah Mada for research support for this project.

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