Chapter 4
The Conceptual Dynamic Model of Rural Development Towards Sustainable Self-Sufficiency

Athor Subroto and Vanda Ningrum

Abstract The inability of rural areas to accommodate inhabitants' aspirations and the dynamics of life among young people led to youth migration towards urban areas. This phenomenon causes villages to experience a shortage of labor. Development agents for an innovative and productive life in agricultural development are lost. Making the village attractive for youth requires a comprehensive rural development strategy in all aspects, including economic, social, and technical skill issues. This study built a conceptual model based on the causation relationship within a causal loop diagram of several relevant aspects, such as economic, social, and skill development facets in achieving sustainable rural area development. We draw the relationships and interaction among relevant variables in the system from in-depth interviews, focus group discussion (FGD), surveys, and the use of secondary data. The location is concerned with rural rice-producing villages in Central Java, which have been experiencing a youth-labor shortage. Alternative strategies were identified based on the conceptual model, such as (1) the development of modern rice agriculture to secure job availability, which can nurture juvenile farmers. Income security and flawless production activities for farmers to guarantee remuneration adequacy become the second priority. The third strategy improves the role of educational institutions in providing knowledge and developing skills for students in the agricultural-based village and rural development. Lastly, infrastructure building is vital to open up access to economic activities, reduce the cost of production, and foster the trading schemes capable of creating innovative young farmers, and a plethora of jobs.

A. Subroto (✉)
Department of Management, Faculty of Economics and Business, Universitas Indonesia, Depok, Indonesia

School of Strategic and Global Studies (SKSG), Universitas Indonesia, Jakarta, Indonesia
e-mail: athor.subroto@ui.ac.id

V. Ningrum
Indonesia Institute of Science (LIPI), Jakarta, Indonesia

Postgraduate Program in Social Welfare, Faculty of Social and Political Science, Universitas Indonesia (UI), Depok, Indonesia

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4.1 Introduction

4.1.1 The Aging of Agriculture: Some Empirical Evidence

Our paper considers the question of young people's aspirations in agriculture as a viable basis for development in rice agriculture. Indonesia, the world's fourth most populous nation, has committed itself to beef up its food security. However, most of the plans concerning food security are missing what we believe is the major issue: the retention of young farmers. The study of rural youth aspiration becomes necessary because young lives' choices and outcomes are affected partially by their aspirations. The nature and formation of youthful aspirations, therefore, have direct implications in emerging visions and models of future agriculture. Young peoples' aspirations inform the choices they make regarding their participation in these visions (Anyidoho, Leavy, & Asenso-Okyere, 2012).

The large numbers of rural youth who migrate to the city either for study or working purposes push the youthful labor shortages in agriculture. Youthful people escape from agriculture because their job aspiration is for work in the city. They expect to get adequate salary and secure jobs as an employee in prestigious companies or become a civil servant. Almost all of our young respondents (15–24 years old) in this research are not willing to be a farmer and regenerate their parents' job in agriculture as their career focus. This situation also happened earlier in Malaysia, where youth were unhappy about the prospects of agriculture as a means of livelihood in rural areas. The Malaysian experience offers some suggestions on how to cope with the rural-to-urban exodus (Argent & Walmsley, 2008; Weicker, 1993). These include improvement in rural work opportunities, improving the "meaningfulness" of jobs in rural areas, improving the socio-economic environment in rural areas, and overcoming the rural–urban imbalance in socioeconomic life (Nor Bin Abdul-ghani, 1979). Minza (2014) found that most of the rural youth who attended school in the city choose to work and live in the city (Liu, Shen, Xu, & Wang, 2017) rather than to return to their countryside.

Hannan (1969), based on field studies in Ireland, reports that migration decisions are based mainly on economic fulfilment and social mobility aspirations. Driving these decisions are local conditions, occupational and income earnings' aspirations as well as individual characteristics and discontent with the current youth unemployment situation and associated economic crisis in the European Union (Narciso Pedro & Carrasco Pons, 2017; Van Mol, 2016). Economic factors, such as perceived economic opportunity and perceived quality-of-life (Anastario et al., 2015; Wilson-Figueroa, Berry, & Toney, 2010), can explain 83% of the variation in young adult in-migration rates in Venezuela (Jones & Zannaras, 1976). In Yugoslavia

(which is now the Czech Republic and Slovakia), according to Rusinow (1972), a combination of an economically and socially unassimilable volume of rural–urban immigrants jeopardized agricultural production and productivity. This imbalance should lead planners either to create wider possibilities for the employment of unskilled labor coming from agriculture or more acceptably consider ways of tying youth to the village and its agricultural base. In the United States, a study using the logit model developed by Black in 1981 and the so-called Black's theoretical model (Black, 1981) estimates migration probability amongst the youth. The analysis yields several insights into the determinants of migration: local labor market conditions, an individual's employment success, migration experience before and after high school graduation, and personal characteristics such as aptitude, sex, family status, school experience, and family background (Black, 1983). Datta (2018), based on multi-site fieldwork in Bihar, India, urges that insertion of emotions [emotional geographies] in the analysis of migration helps to disentangle the dissonance between migrants' economic success and social rejection in the city.

Meanwhile, in Japan, a study concludes that the migration of young people to the city in search of employment or for higher education primarily causes changes in the age structure of the population of Tokyo (Alston, 2004; Kawabe, 1984). In Thailand, a study carried out by Funahashi (1996) found that there was a massive out-migration of young adults and an increasing tendency of those who remain in the villages to work in nearby factories or service industries. The outmigration has led to a severe agricultural labor shortage. In many rural villages, the population seems to be composed mostly of young children and their grandparents (Funahashi, 1996; Jampaklay & Richter, 2012). Now, in Indonesia, agriculture is populated by older people with an average age of 52 years old (Agriculture Census, 2013). Aging farmers are also phenomena in agrarian countries in the world. In Africa, 65% of African inhabitants are still living and working in rural areas (Leavy & Smith, 2010), with young people less interested in staying in the countryside (White, 2011). The departure of youth leaves fewer people to work the land because the able-bodied and working-age group will have migrated to the urban areas (Juma, 2007). Thirty years ago, some scholars had attributed the absence of youth in the rural areas as the main reason behind marginal production yields in smallholder farming. Recently, White (2011) stressed that the problem of young people turning away from agriculture causes lower food production. Turning away from agriculture also causes structural problems, including deskilling of rural youth, the downgrading of farming and rural life, chronic government neglect of small-scale agriculture, and limited rural infrastructure development. These well-documented problems may contribute to the decline in popularity of farming, particularly among the young.

Tuscia (2008) reports on an imbalance in European farming between farmers who exit from their farm and new agriculture run by young farmers. There the average farmer's age is 65 years old. Another study in Asia showed similar problems. In Japan, statistics reveal that the elderly now dominate the agriculture sector. In 2008, 46.8% were 70 years or over, and 57.8% of full-time farming households consisted of elderly full-time farmers with no males aged under 65 years (Yamashita, 2008).

4.1.2 The Indonesian Rice Agriculture Experience

Figure 4.1 shows that 60.79% of Indonesian farmers are over 45 years old and only a small proportion of young farmers are aged less than 30 years. The proportion of child labor is smaller than 20 years ago. A compulsory education program has a high impact on the decrement of child labor in agriculture. Government policy now requires children to attend school, and student tuition is subsidized. Every child, even in rural areas, now has access to junior high school.

In fact, 24.53% of the Indonesian population are young people (16–30 years old) and more than half of those youth live in the cities (53%). There have been a declining number of youthful people living in rural areas. Job availability in the cities attracts youthful people to move from their village. Every year, around 52,000 youthful people move to the city for a better living.

The statistics show that 51.05% of youthful people are employed, 20.25% are students, and 8.99% are unemployed. Although the numbers of youthful people working in agriculture are still high (25.23%), there has been a declining trend for the last 10 years. Nowadays, youth tend to choose to work in the trading and manufacturing sectors. From 2004 to 2014, the agricultural sector decreased by 10%, while the trading sector increased by more than 50% (58%), and the manufacturing sector increased by 40% (Table 4.1).

The shifting of young people away from agriculture is in line with a reduction in farm households by 5.1 million households during the last decade (Agriculture Census, 2013). Although the decline has increased the average farmer's holdings of agricultural land, rice production will decrease, and there are no farmer generations for the future. This decline has become a threat to the sustainability of national food production.

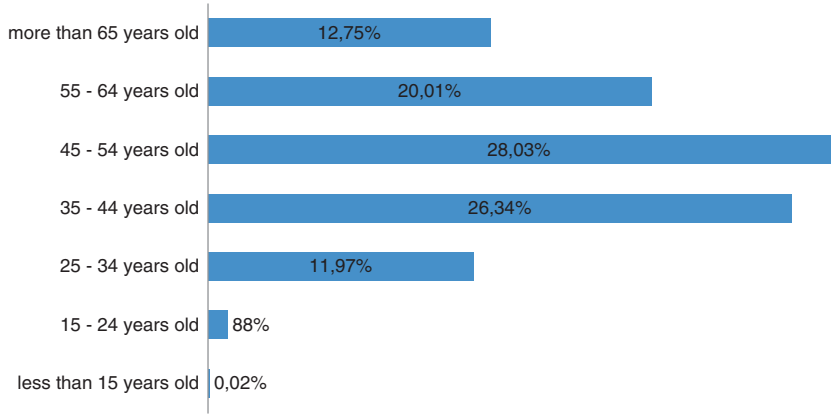

Fig. 4.1 The farmer in Indonesia, by age class in 2013. (Source: Badan Pusat Statistik (BPS) (2013))

Table 4.1 Percent labor change 2004–2014, by sector

Sector	Change (%)
Agriculture, forestry, hunting, fishery	−10
Mining	33
Manufacturing Industry	40
Electricity, gas, water	24
Construction	58
Trade, Restaurant, and Accommodation	27
Transportations, storage, and communication	−8
financing, insurance, business service	165
Community, Social, and personal services	72

Source: Badan Pusat Statistik (BPS) (2004, 2014)

Another issue of aging farmers in Indonesia is their very low education level. Seventy percent of farmers in Indonesia have only an elementary-level education. These farmers will have difficulty innovating and following new agricultural technologies that can help increase productivity. It means that turning the youth to agriculture is very important. According to Successor Theory, youth is the future successor to farmers who will be the basic role of developing regional agriculture (Man, 2012)

4.2 Research Method

Central Java is a reasonable location to study the cause of the aging farm population. This province is among the highest three regions for paddy agricultural household right after East Java Province and West Java Province. Central Java is also the second top province in rice production after East Java. Even though this province is one of the major rice source provinces; nowadays, the average age of the rice farmer is 52 years old. Most of the farmers (78%) are small farmers with an average tenure of 0.37 ha (Agriculture Census, 2013). Central Java is currently faced with the threat of no farmer regeneration. Youthful people in this province are more interested in leaving the village and agriculture. From 1980 to 2015, the province was listed as the largest source area for migrant which in average the net emigration is 515,214 (Badan Pusat Statistik (BPS), 2016)

We collected our data through direct, in-depth interviews in the rice farming villages of Sidodadi in the Sragen district, Sidowayah in the Klaten district, and Kepuh in the Sukoharjo district, all within Central Java. The interview protocol employed structured questions in 150 households (50 households in each village). Interviews were conducted with the head of the household and one child in the family (15–24 years old). Other than the interview, we used some other articles' data taken from

previous research at some different locations in Indonesia. The respondents' profiles can be seen in Table 4.2.

Most of the subjects in this study engaged in rice farming, especially the family head. The average size of their tenure is less than 1 ha. This hectarage does not support a passable living standard. The minimal poverty line, as set by BPS, is 0.65 ha (Susilowati & Maulana, 2016). The farmers are then forced to improvise strategies for their survival. Aside from being farmers, they also usually work in other sectors, such as being cattlemen, small traders, and dabsters. Seasonal work and unsecured income in the paddy field impel farmers to do many jobs in rural areas.

Table 4.2 shows the diversity of tenure ownership. Sidodadi has a tenure greater than Sidowayah and Kepuh, and most farmers will rent from the people who have moved into the city and leave the land inherited in the countryside. In Sidowayah, however, most of the farmers are workers for the landlord (sharecropper). The average land tenure is only 0.49 ha. They work the paddy fields belonging to neighbors or other families and then earn wages by agreement. There are three types of paddy production sharing agreement between landlord and tenants; there are *"Maro," "Mertelu*," and *"Mrapat*." In a *Maro* system, owners and farmworkers (sharecropper) share rice production at a proportion of 50%, excluding the cost of production. In the *"Mertelu*" system, farmworkers bear most of the costs of production and share one-third of the crop with owners. On the other hand, *"Mrapat"* differs from the first two systems, as the farmworker is paid as labor. All the decisions are made by the owners as long as the landowner controls production activities.

Most farmers have a low-level education in all three villages. When a farmer has a higher level of education, farming is not the main job in their lives. They will usually have another profession such as teaching, civil servant, or working as a wholesaler in the area. They will hire workers to carry out their agriculture with a production sharing system or rent their land to the farmworker.

The respondent's age data are consistent with national statistics: the vast majority of farmers (61%) currently are over 50 years old, and only 4% are 30 years of age. The old farmer who is still active in agriculture today started to be a farmer when they were aged less than 30 years. However, when this study was conducted, we did not find respondents who decided to become a farmer at a young age (less than 30 years) (see Table 4.3).

The scarcity of youth in rice agriculture is inseparable from the aspirations of the youth who choose to work outside paddy field activities. To understand their aspirations, the author used social reproduction analysis that occurs in the countryside. Wells (2014) defines social reproduction as the material and discursive practices which enable the production of a social formation (including the relation between the social groups) and its members over time. Furthermore, Muwi (2012) explains the relationships that occur within social formations are formed through the institutional field, both formal and informal. Formal relationship occurs in the school environment, and informal relationships occur in the family environment and peer group.

In the next section, we will explain the process of social reproduction in the field of family, school, and agricultural systems in shaping rural youth aspiration and answer why young people choose to move away from agriculture.

Table 4.2 Respondent profile

	Name of village		
	Sidodadi	Sidowayah	Kepuh
Number of household respondent	50	50	50
Is the family head works in the paddy field (as a main job or side job)?			
Yes	96%	98%	90%
No	2%	2%	8%
Blank data	2%	0%	2%
Education			
No education	14%	6%	24%
Elementary	16%	38%	22%
Junior high school	20%	12%	22%
Senior high school	30%	28%	24%
Diploma degree	12%	4%	2%
University degree	8%	12%	6%
Land ownership			
Owned by farmer	52%	14%	47%
Rent	23%	4%	21%
Owned by other party (sharecropper)	4%	71%	32%
No land	21%	11%	0%
Average land hectares	0.84	0.49	0.75

Table 4.3 Farmer's respondent by age (n = 151 farmers)

	Starting age as farmer			
Age farmer	>= 50	30–49	<30	Percentage by age
>= 50	11%	38%	51%	61%
30–49	2%	42%	56%	35%
<30	n/a	n/a	n/a	4%

4.3 The Participatory System Dynamics Modeling (PSDM)

Several scientific works have used Participatory System Dynamics Modeling as a robust method in understanding many stakeholders inside the system (Macmillan et al., 2016; Stave, 2010). According to Stave (2010), PSDM is the use of a System Dynamics perspective in which stakeholders or clients participate to some degree in different stages of the process, including problem definition, system description, identification of policy levers, model development, and policy analysis.

PSDM is more than simply eliciting knowledge from clients about the problem and the system. It involves building shared ownership of the analysis, problem, system description, and solutions or a shared understanding of the tradeoffs among different decisions.

The goal of a System Dynamics (SD) approach is to understand how a dynamic pattern of behavior is generated by a system and to find leverage points within the system structure that have the potential to change the problematic trend to a more desirable one. The dynamic patterns of behavior and the leverage points can be explored by the participation of all the problematic situation's stakeholder through a Group Model Building and its derivatives (Rouwette, 2011; Rouwette, Vennix, & Van Mullekom, 2002; Vennix, 1999)

The key steps in a System Dynamics approach identify one or more trends that characterize the problem, describing the structure of the system generating the behavior, and finding and testing leverage points in the system to manage the problematic behavior and wicked issues, especially in public sector.

The benefit of using SD to manage problematic behaviors and wicked issues is shown by Bianchi, Bovaird, and Loeffler (2017). These authors apply dynamics performance management to balance the outcome of three very contrasting objectives of stakeholders in the policy-making process—improving service quality, improving quality of life outcomes, and improving conformity to the principles of public governance support co-production. Other than that, SD also has been widely used in the strategic management field (Cosenz & Noto, 2016). Thus, System Dynamics is an appropriate modeling approach for sustainability questions because of the long-term perspective and feedback dynamics inherent in such questions.

4.4 The Conceptual Dynamic Model to Sustain Youth in Agriculture

In this section, we develop a theory of why young people leave agriculture and migrate to the cities that are addressed. To understand this question, a hypothetical model is built by building a dynamic hypothesis based on the principle of causality called causal loop diagram (CLD) that is commonly used in the System Dynamics literature (Forrester, 1961; Sterman, 2002). The use of the dynamic hypothesis to capture the problematic situation in the social system has been widely used in a variety of social research, which is formed in a developing society group (Kapmeier, 2006).

However, the development of the conceptual model in the CLD form is based on the qualitative approach and uses relevant variables based on empirical evidence that occurred in the three rice-farming-based villages through direct observation, in-depth interviews, and focus group discussion. Thus, the CLD model could not be comparable to the Collaborative Governance Model (Ansell & Gash, 2008) or, moreover, pertained as its amendment (Gibson, 2014).

The conceptual model comes through collaborative work and discussion with local government, farmers and their families, and non-government organizations (NGOs) as well. These efforts aim to deepen the understanding of how all the stakeholders' roles interact collaboratively in the governance in a rural area (Wellbrock et al., 2013) on the prevention of youth from abandoning the village. It could do so by providing enough sustainable employment from agriculture activities.

Even though by providing rapid growth employment opportunity, i.e., energy-related extractive industry (Seyfrit, 1986) and agriculture (Unay-Gailhard, Bavorová, Bednaříková, & Ponkina, 2019) per se does not guarantee the youth to stay in rural areas (Seyfrit, Bjarnason, & Olafsson, 2010), even if it is correlated with home place identification (Rönnlund, 2019). The model also tries to accommodate pressures coming from related parties to make a sustainable solution to sustain youth in comfortable agriculture professions (Ansell & Gash, 2008; Loorbach, 2010)

The model is built into three stages. The first hypothesis looks at how future job aspirations are formed from the productive population in the village (including youth) based on economic, demographic variables. The second hypothesis is formed from rice farming conditions in the villages affecting the aspiration of youth to engage in agricultural activities. Moreover, third, the aspirations of the youth to carry on the agricultural activities have an impact on the sustainability of rice production in a village (locally) and nationally (see Fig. 4.2).

We start our discussion by considering the young productive age population in the village, consisting of school-aged, graduated, and young people who have entered the labor market. They have job aspirations so that as the growing population reaches a productive age, the more jobs are expected. Data show that the revenue generated from such jobs strongly influences the expectation of the work. Remuneration becomes important for the youth because of life's constant desire for

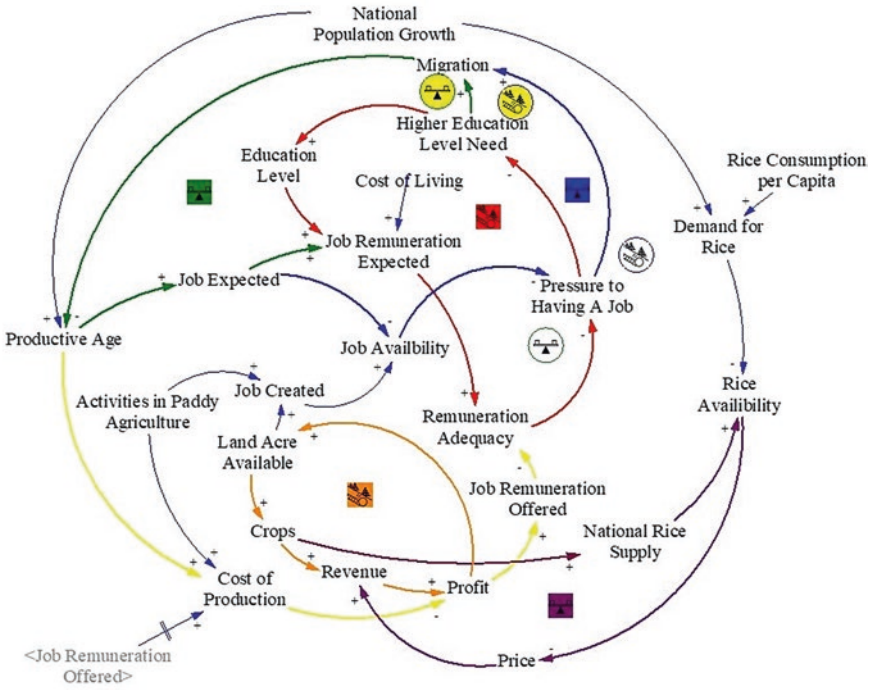

Fig. 4.2 Proposed model of youth aspiration to sustain food security

incremental gains and consumption patterns among the younger generation, as influenced by various social and technological factors. Professions and considerations that meet consumption demands as well as perceived remuneration from higher levels of education increase the attention of rural youth.

Besides economic and demographic factors, agricultural conditions of paddy fields in the village also provide experience for the youth in influencing future job aspirations. In general, the availability of work in the field is determined by the activities of rice production. Planting and harvesting activities are activities that require much human energy. Farmers spend more time in these actions as compared to other activities such as fertilizing or weeding. Because rice agriculture is a seasonal activity, income arrives irregularly. The availability of land, the rising cost of production, the harvest quantity fluctuation, and trade systems that do not benefit farmers also cause the farmer income to come under scrutiny. Thus, the more the land available and activities in paddy agriculture, the more jobs will be created, and more jobs become available. Job availability and remuneration adequacy together increase pressure to obtain rural employment. When jobs are scarce or remuneration low, young people decide to migrate to find a job for a better living outside of agriculture, that is, to get the regular time and income.

Youth are not interested in becoming farmers due to limited land held by the family; the average paddy field's land is less than 1 ha. The more children they have, the availability of land to guarantee their jobs in agriculture is, moreover, getting smaller. Each child in this family then will try to find a job outside agriculture and migrate from the village to the cities and to look for other jobs. On the other hand, the available jobs in cities with a fixed contract and secure income are limited, so most of the work is informal with no legal protection.

The gap between the job availability and welfare from agriculture eventually creates pressure for youth to get a job outside the village. The phenomenon of high migration in the 1980s, when most of the youth in Desa Kepuh migrated to the city and became food street traders, the remaining workers in older age were left with low productivity in rice agriculture. Likewise, with Sidodadi in Sragen district, farmers are very dependent on the availability of farm laborers from outside the village to work their paddy fields for planting and harvesting seasons. After the year 2000, when many paddy field areas were converted to factory buildings, the young people who were still living in the village would choose to work in a factory.

The loss of interest of young people to return to the fields is an existential threat and creates a crisis around farmer regeneration and the future of rice farming in the village. Such conditions threaten family food security. At a time when families can no longer produce rice, hence, the need for rice is highly dependent on the availability of imported rice on the market. USDA data show that the domestic rice production rate in Indonesia decreased on average as much as 6.5% from 2008 to 2015. In 2017–2018, it decreased only 0.4%, while the domestic rice consumption increased by 4% (USDA, 2019). Thus, the total rice consumption has still been rising faster than production, as the growth rate of national rice area and yield has faltered (USDA, 2012). A large amount of consumption that cannot be supported by domestic production led to the Government of Indonesia taking the rice import policy.

Although many factors of food security have not been identified in this study, the strategy to attract young people to turn back to rice agriculture is fundamental in supporting the sustainability of rice farming in the village. We tried to create some strategies, based on the conceptual model, that can attract young people to become involved in rice agriculture.

The first strategy is to introduce agricultural skills and knowledge in the schools' curriculum. By providing the knowledge and skills of rice farming at the level of primary and secondary schools, it prepares students to be smart farmers. This knowledge is vital to make future independent farmers and has bargaining power from production within the rice trading system. The security of income in rice agriculture can protect farmers from price fluctuations in the market and the number of tons of harvested. Guaranteed incomes will help farmers to meet the standard of life and provide a positive experience for the child, so that they will value agriculture as an essential thing in life.

The creation of off-farm employment opportunities in rural areas is arguably crucial because the rice field area in the village is limited to accommodating the growth of the youth labor force. The creation of more employment opportunities in rural areas will reduce unemployment and reduce youth migration to the city. Retaining youth in the village is very important to maintain rice production and would combat the current labor shortage for planting and harvesting. Their presence in the village will also be an asset to rural development, and it reduces the likelihood of land sold by the family farmers in the absence of youth generation in the village.

4.5 Preliminary Result of Research and Discussion

From the survey, 10% of young farmers aged 35 years and below were engaged in rice agriculture. There was some difference from the old farmers who relied on income sources from the paddy yield, whereas young farmers combined activities with a range of non-agricultural activities include a small trader, unskilled labor, or low-level employee, civil servant, bricklayer, and builder. This multitasking related to Dries, Pascucci, and Gardebroek's (2011) analysis, which mentions non-agricultural activities unconnected to the farm business and off-farm activities. This kind of multitasking is referred to as income diversification (Błąd, 2010). That kind of plurality is influenced by access to urban areas, farm size, arable crops, permanent crops, and farmer age (see Table 4.4).

Sidodadi, Sidowayah, and Kepuh villages are located near an urban area called Solo Raya, which has a high urbanization rate. Many studies indicate that urbanization increases the opportunity to find off-farm employment and correlates income diversification with proximity to an urban area (Alasia, Weersink, Bollman, & Cranfield, 2009; Christiaensen & Todo, 2014; Ingelaere, Christiaensen, De Weerdt, & Kanbur, 2018; Su, Eriksson, & Zhang, 2018; Xu et al., 2019). Farm size also is characterized as a determinant of income diversification. Furthermore, limited farmland forces young farmers to find other activities off-farm as a survival strategy

Table 4.4 Income diversification in three rice farming villages

Activities	All farmers		Youth farmer (35 years old and below)	
	n	%	n	%
Pure farmer	134	65	2	10
Small trader	11	5	2	10
Unskill labor or low-level employee	33	16	14	67
Civil servant	19	9	2	10
Bricklayer and builder	9	4	1	5
Total	206	100	21	100

in response to internal resource constraints. Arable crop and the permanent crop are also a determinant of diversification. Seasonality seems to be a key factor in explaining income distribution. Based on our discussion with young people in villages, they want to do many things at a young age for the experience, so they are very thirsty to try all the possible jobs they can do.

There are changes in the economic and social structure in the villages, which were previously dominated by farmers, but at this time, there has been a change in the structure of rural livelihoods. It is seen from the development of the growing manufacturing industry in Sragen and Sukoharjo district. Some areas of paddy field have been converted to an industrial area and bear alternative employment besides rice agriculture employment.

Based on the results of focus group discussion with young farmers in the villages, rice farming activities do not take time all day. They only need to be full time in the field during the planting and harvest season. Otherwise, young farmers still have time to do other gainful activities that could increase their income. Most young farmers have passed high school level and that allows them to enter the off-farm labor market without moving out of the countryside. They believe that reliance only from rice farming income is very unlikely to meet the needs of life. In a bad season where there are pests, drought, floods, and drops in the market price, the paddy yield cannot cover the cost of living and production cost for the next season. In this situation, income from off-farm activities can cover their needs, including farm cost production to continue.

It is evident that income generated from agriculture is insufficient for the continued viability and, thus, the reproduction of the farm itself. Income diversification has become a norm for the survival of farming families and farms (Bessant, 2006).

4.6 Conclusion and Implication for Further Research

This paper describes youth aspirations in rice farming with various aspects through social reproduction analysis. Similar to some literature, this aspiration is not constructed individually but formed through the institutional field, both formal and

informal. Families and schools drive young people to pursue a job in the city since they consider the income from rice farming to be very insecure about covering the household's needs. Our observation through the current school's curriculum, students are prepared to acquire, other than agricultural knowledge and skills, thus creating alienation of youth from agriculture. In the last 10 years, the rice producer-based villages have experienced a crisis of farmers' regeneration.

There are prospects for encouraging youth involvement in agriculture if the policy goes beyond the usual approach of directing youth involvement in rice farming. Despite farming not being the main aspiration of youth in rural areas, many youths are still optimistic about agriculture's future. The interesting point found in this study is that to encourage the youth involved in agriculture is by providing jobs for them, including non-agricultural jobs, i.e., pluriactivity (Bessant, 2006; Evans & Llbery, 1993; Loughrey, Donnellan, & Thia Hennessy, 2013). The availability of work in the rural area will reduce the exodus of youth to urban areas and provide opportunities for young people to be able to continue rice production on their parent's land. Today, agricultural land now is considered an investment and provides additional revenue and changes the traditional view that agriculture is a way of living.

Integrated government policies supporting rice agricultures should be created in rural areas. Rice production systems, rice trading systems, and educational curriculum all converge in agriculture development. This development encourages parents to demonstrate the positive side of being a farmer to their children and supports rural development that creates employment opportunities. In search of a sustainable and integrative policy to sustain youth in agriculture, it would be great if the next research agenda will simulate the data using the proposed model from this paper.

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Athor Subroto (AS) is a Senior Lecturer in the Department of Management, Faculty of Economics and Business (FEB) and Vice Director of School of Strategic and Global Studies (SKSG), Universitas Indonesia (UI). His research interests are management science, big data analytics, simulation, and system dynamics applied to policy engineering for public and private entities.

Vanda Ningrum (VN) is a researcher at the Research Center for Population—Indonesia Institute of Science (LIPI) since 2008 and postgraduate student in Social Welfare, UI. Her research interest covers the areas of youth study, rural development, agriculture, and middle-class economics as well as social welfare.