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Determinants of Youth Motivation in Agricultural Careers: A Systematic Review for Regeneration Strategy Formulation in Indonesia

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ABSTRACT

Keywords:

*Farmers;
Motivation;
Youth.*

Abstract

The agricultural sector in Indonesia faces serious challenges regarding the low interest and participation of the younger generation. This study aims to conduct a comprehensive systematic literature review to identify the key determinants or factors influencing farming motivation among Indonesian youth. This qualitative research employed a systematic and structured literature review approach by conducting an in-depth search through reputable journal databases. The review findings reveal negative perceptions of farming as a profession, low income and welfare among farmers, and inadequate infrastructure and institutional support are significant barriers to attracting youth interest. Thematic analysis identified 16 key factors motivating Indonesian youth to engage in farming: government support, creativity, family support, technology, social environment, mindset, training, extension services, digital communication, digital education, environmental awareness, formal education, cosmopolitanism, infrastructure availability, adoption and innovation, and community involvement. The policy implications emphasize strengthening technology-based training programs and financial incentives to address these challenges.

INTRODUCTION

Agriculture holds a vital role in Indonesia's economy. A significant portion of the country's population depends on this sector, supported by diverse and vast natural resources (Solichin, 2020). The agricultural sector is also a fundamental pillar of economic growth in rural areas, considering that the majority of Indonesia's population resides in such regions (Solichin, 2020).

Furthermore, the agricultural sector plays a crucial role in job creation. Millions of Indonesians are employed in this sector, ranging from farmers and farm laborers to workers in agricultural processing industries. Agriculture also supports other sectors, such as the food and beverage industry, by providing raw materials. Thus, agriculture not only ensures food supply but also contributes to the economic and social stability of society.

However, there are challenges in developing agriculture in Indonesia, particularly about the low interest among youth in pursuing agricultural careers (Nur et al., 2023; Rumetna et al., 2022). This is due to various factors, including negative perceptions of the agricultural sector, limited access to technology and capital, and the low productivity and income of farmers (Fkun & Pareira, 2021; Gina et al., 2023; Solichin, 2020). Many young people prefer to work in urban sectors, which are perceived as more promising and prestigious. They often regard farming as labor-intensive, unprofitable, and lacking in clear career prospects. Such negative stigmas need to be eliminated through efforts to raise public awareness about the importance of the agricultural sector to the national economy (Polan et al., 2021).

Considering that most farmers in Indonesia are elderly and that there is a lack of regeneration, the agricultural sector is at risk of experiencing a labor crisis. Engaging youth in agriculture will help ensure sustainability in this sector. Young people tend to be more open to innovation and technology. Their involvement can drive the adoption of modern agricultural technologies, thereby enhancing efficiency and productivity (Polan et al., 2021). Agriculture also offers opportunities for economic diversification, especially in rural areas. Youth can bring new ideas, such as agrotourism or organic farming, which can increase community income (Esty, 2022).

Due to the lack of in-depth research on youth perceptions and attitudes toward agriculture, including the factors influencing their interest, as well as the limited number of studies on how agricultural technology and innovation can be effectively integrated to attract youth, and the scarcity of research on how sustainability and environmental issues can serve as incentives to engage youth in agriculture, it is important to address these research gaps by identifying the factors that attract young people to the agricultural sector in Indonesia. To date, no systematic literature review has been conducted to map the determinant factors of young farmers' motivation in Indonesia based on existing published studies.

This study aims to contribute to the existing body of knowledge by conducting a systematic literature review to identify the factors that influence young people to engage in farming in Indonesia. Through rigorous analysis based on previously reviewed studies, this research will synthesize the factors that affect youth interest in agriculture. The findings are expected to offer valuable insights into the determinants of youth motivation in agriculture and to provide a foundation for more targeted and effective policy interventions to promote regeneration and sustainability in the agricultural sector, which is vital to Indonesia's economy.

RESEARCH METHODS

Research Design

This study employs a Systematic Literature Review (SLR) design based on the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) methodology. This design was selected for its wide recognition and use across various disciplines and its potential to enhance research consistency across surveys (Janjua et al., 2021). The SLR procedure began

with the formulation of research questions using the PICO method: 'P' for Problem or Population, 'I' for Interest, and 'Co' for Context. Document searches were planned and executed in three systematic stages: identification, screening, and eligibility (Abas et al., 2022).

The research setting is Indonesia, with a focus on literature discussing youth motivation to engage in farming in the country. This study includes literature covering both urban and rural areas across Indonesia.

The data used are secondary data obtained from reputable journals. The types of data collected include qualitative data in the form of textual analyses from various studies discussing youth motivation in farming, as well as quantitative data from analyzed articles and the frequency of identified motivating factors. Article searches employed the following keyword combinations: "Motivation"; "Motivasi"; "Anak Muda", "Generasi Milenial"; "Youth In farming"; "Bertani" dengan menggunakan *boolean* ("youth" OR "young farmer" OR "generasi muda") AND ("farming" OR "agriculture" OR "bertani") AND ("motivation" OR "motivasi") AND ("Indonesia"). The search was limited to articles in Indonesian and English to encompass both local and global contexts. Publications from the years 2010 to 2024 were included.

The primary sources of data were journals retrieved through Scopus and Google Scholar databases. These two databases were selected for their rigorous editorial processes, which ensure the quality of the published articles.

Data collection was conducted through the following systematic stages: 1) Identification: locating relevant keywords based on the research questions; 2) Screening: using the search strings to find relevant articles, 3) Eligibility: manually reviewing articles to ensure their suitability for inclusion in the review, and 4) Data Extraction: NVIVO 12 Plus was used to analyze and synthesize data from the selected articles.

Data Analysis was conducted using thematic analysis techniques. The steps included: a) Text search: using NVIVO 12 Plus to search for relevant keywords and phrases; b) Word tree: analyzing the relationships between keywords and phrases; c) Data synthesis: identifying themes and subthemes related to research patterns and trends; d) Reporting results: presenting the analysis results through detailed tables and narratives.

The main variable in this study is the set of factors influencing youth motivation to engage in farming. These variables were measured by the occurrence and frequency of such factors within the analyzed articles. The identified factors include: a) Government support, b) Creativity, c) Family support, d) Technology, e) Social environment, f) Mindset, g) Training, h) Agricultural extension, i) Digital communication, j) Digital education, k) Environmental awareness, l) Formal education, m) Cosmopolitanism, n) Availability of facilities and infrastructure, o) Adoption and innovation, dan p) Community involvement. Variable measurement was conducted by counting the frequency of each factor's occurrence in the analyzed articles using NVIVO 12 Plus.

Formulation of the Research Questions

The formulation of the research question is essential to guide the entire SLR process. The PICO method can assist researchers in developing a more refined research topic for SLR (Shaffril *et al.*, 2021). The present study includes the population, namely young people/youth residing in both urban and rural areas. The intervention refers to the factors that motivate young people to choose farming as a profession, covering economic, social, and technological aspects. The comparison involves youth who choose farming as a profession and those who do not. The outcome is the identification and comprehensive understanding of the key motivational factors that drive young people to pursue farming as a profession. The study design is a systematic literature review (SLR) incorporating various types of primary studies, both qualitative and quantitative. Therefore, the following research question is posed in this study: What are the main factors that motivate young people to choose farming as a profession?

Systematic Search Strategy

The paper selection procedure is divided into four stages: (i) database selection, (ii) paper extraction, (iii) abstract screening, and (iv) full-text screening, as illustrated in Figure 1. Subsequently, the extracted data are analyzed using qualitative data synthesis with NVIVO 12 Plus.

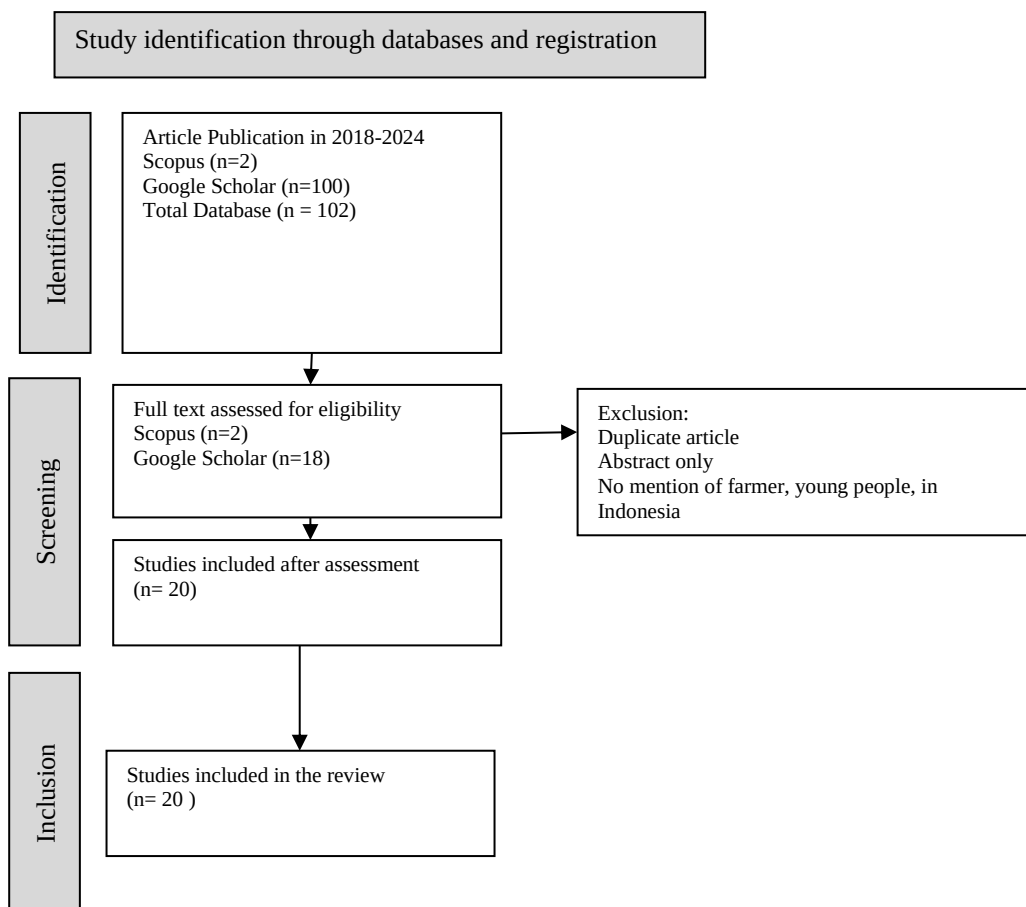


Figure 1. Modified PRISMA Diagram

Identification

Identification is the process of finding relevant keywords based on the research question. Several keywords used in this study were derived from database-recommended keywords and those used in prior research, as shown in Table 1: (motivation), (Motivasi), (Anak Muda), (Generasi Milenial), (Youth in Farming), (Bertani). The review practice follows the three-step approach proposed by the previous study (Ólafsdóttir & Tverijonaite, 2018): (1) literature search, (2) selection of relevant studies, and (3) categorization and synthesis of findings. Two databases were selected: Scopus and Google Scholar. The current researchers chose Scopus and Google Scholar over other search engines because all journals in these databases undergo rigorous editorial processes, ensuring the quality of published articles. The search technique using these two databases yielded 102 articles that aligned with the research objectives.

Table 1. Search Strings.

Database	Search Strings
Scopus	"Motivation"; "Motivasi"; "Anak Muda", "Generasi Milenial"; "Youth in farming"; "Bertani"
Google scholar	

Source: Processed Data, 2024

Screening

The second step involves the screening process, which includes filtering results from the Scopus platform (yielding 2 articles) and Google Scholar (yielding 18 articles), based on the search strings and the eligibility procedure. The full-text screening phase ensures that all eligibility criteria are met (Peira *et al.*, 2022).

Eligibility

The third procedure is eligibility, where the researchers manually examined the retrieved articles to ensure that all remaining articles met the inclusion criteria (Esty, 2022) and to address database limitations (Mohamed Shaffril *et al.*, 2021). This process required researchers to read each article in full to verify whether it was suitable for inclusion in the review (Shaffril *et al.*, 2021). This study ultimately identified 20 complete and relevant articles after a thorough examination.

Data Abstraction and Analysis

This step involves data synthesis. Research synthesis refers to a set of techniques used to summarize, integrate, and combine findings from multiple studies on a specific topic or research question. The final step of the SLR is to report the findings through results analysis and discussion (Salmah *et al.*, 2017). Thematic analysis was employed to determine the themes and subthemes related to research patterns and trends within the reviewed papers. Thematic analysis enables the identification of key themes and the organization of literature. This method is easily adaptable, offers flexibility to reviewers, and allows the integration of qualitative, quantitative, and mixed-method evidence. After reviewing the entire set of articles, several themes (factors) were identified in this study.

RESULTS AND DISCUSSION**Thematic Analysis – Motivational Factors for Youth Engagement in Farming in Indonesia**

An analysis was conducted on 20 articles that identified the factors influencing the motivation of young people to engage in farming in Indonesia. The factors were discovered through the NVIVO 12 Plus application using the text search menu. Using the word tree feature, we filtered the factors mentioned in the article texts. Sixteen factors were identified by NVIVO 12 Plus, including: 1) government support; 2) creativity; 3) family support; 4) technology; 5) social environment; 6) mindset; 7) training; 8) agricultural extension; 9) digital communication; 10) digital education; 11) environmental awareness; 12) formal education; 13) cosmopolitanism; 14) availability of infrastructure and facilities; 15) adoption and innovation; and 16) community involvement.

Data Mapping

The next step involves mapping the selected articles to detail the key points based on findings to address the research objectives. A total of 20 articles related to youth interest in farming in Indonesia were reviewed. After collecting the studies deemed to meet the inclusion criteria, a summary was developed for each article, which includes several factors such as the authors' names and publication year. These factors were organized based on the number of supporting files, from the most to the least. The following table presents descriptive information from the reviewed articles:

Table 2. Data Mapping

No	Factor	Author/Year
1	Government support	Prasetya & Kuncoro (2024); Purnama et al (2020); Solihin et al (2023)
2	Creativity	Firdausia et al (2023); Rukka et al (2023); Solihin et al (2023)
3	Family support	Polan et al (2021); Puryantoro et al (2023); Solihin et al (2023)
4	Technology	Rukka et al., 2023; Solihin et al., 2023)
5	Social environment	Rukka et al (2023); Solihin et al (2023)
6	Mindset	Oktavia & Suprapti (2020)
7	Training	Solihin (2023)
8	Agricultural extension	Purnama et al (2020)
9	Digital communication	Solihin (2023)
10	Digital education	Solihin (2023)
11	Environmental awareness	Solihin (2023)
12	Formal education	Solihin (2023)
13	Cosmopolitanism	Rukka et al (2023)
14	Availability of infrastructure	Solihin (2023)
15	Adoption and innovation	Firdausia et al (2023)
16	Community involvement	Solihin (2023)

Source: Processed Data (NVIVO 12 plus), 2024

Based on the mapping above, the factors can be grouped into two dimensions: External Dimension: Institutional and Environmental Support, and Internal Dimension: Individual Agency and Mindset

The External Dimension: Institutional and Environmental Support includes:

Government support

The government plays a strategic role in creating a conducive environment and encouraging youth participation in the agricultural sector. One form of government support that can increase young people's interest is through the provision of incentive programs, training, and mentorship (Mukti et al., 2023). The government can offer financial assistance schemes such as subsidies, low-interest credit, or start-up capital for young people who wish to pursue farming enterprises (Azizah et al., 2022). Additionally, the government can provide skills training and technical extension programs that equip youth with the knowledge and practical skills necessary to manage agricultural businesses (Sudarwati & Nasution, 2024). Mentoring and coaching provided by the government, including through agricultural extension officers, will help youth overcome challenges and obstacles they face. Through comprehensive governmental involvement and support, it is expected that young people will become increasingly interested and motivated to actively participate in supporting the development of a sustainable agricultural sector (Sudarwati & Nasution, 2024).

Technology

Technological advancements have transformed traditional agricultural practices into more efficient, productive, and appealing activities for young people Novisma & Iskandar (2023). The presence of digital technologies such as software applications, robotics, sensors, and automation systems can alleviate physically demanding tasks while enhancing effectiveness and productivity in agriculture. Youth raised in the digital era tend to be more inclined to adopt cutting-edge technologies in managing their agricultural ventures (Anjana et al., 2022).

Social Environment

Farming is still regarded as a noble profession in social environments that value and support the agricultural sector, which may further encourage young people to pursue this career. Moreover, the availability of social networks and mentorship within youth communities can influence their interest in farming (Mmbengwa et al., 2023). If young individuals have access to successful farming communities or receive guidance from experienced farmers, this can inspire them to engage in the agricultural sector (Gaase et al., 2022).

Training

One of the crucial aspects of training is the ability to provide the technical knowledge and skills required in modern agricultural practices (Trubilin *et al.*, 2022). Young individuals exposed to agricultural technologies, efficient cultivation techniques, and sound farm management practices through training are more likely to be interested in pursuing a farming career. The enhanced competence and self-confidence gained from training can motivate young people to view agriculture as a promising career path (Padma & M., 2018).

Agricultural Extension

Effective agricultural extension services can deliver up-to-date information and knowledge on current trends, challenges, and opportunities within the sector (Rai *et al.*, 2023). Youth exposed to accurate and relevant information about modern agricultural practices, technological innovations, and market prospects are more likely to take an interest in learning about farming as a profession (Fabregas *et al.*, 2022).

Digital Communication

Youth raised in the digital age tend to be more familiar with social media platforms, applications, and other digital channels. Through the utilization of digital communication, information, knowledge, and inspiration related to agriculture can be more easily accessed by young people (Unay-Gailhard & Brennen, 2022). Furthermore, digital communication can facilitate interaction and collaboration between young people and agricultural stakeholders (Ayamga *et al.*, 2023). Via online forums, community groups, or e-learning platforms, young individuals can connect with experienced farmers, researchers, and extension workers to share knowledge, experiences, and build networks. Digitally mediated interaction can broaden young people's access to informational resources and mentorship, thereby fostering their interest in farming as a profession.

Digital Education

Young people growing up in the digital era tend to be more interested in interactive, innovative learning formats that align with their learning styles (Borisova, 2023). Digital education platforms, such as online courses, virtual simulations, and educational games, can present agricultural learning materials in ways that are engaging and enjoyable for youth. Through captivating digital learning experiences, young people can gain a deeper understanding of modern farming practices via online platforms, for both learning and

professional collaboration. This can help them acquire a more comprehensive understanding of the opportunities and challenges within the farming profession, thereby increasing their interest and motivation.

Availability of Infrastructure

The availability of advanced technological infrastructure can serve as an attraction for the younger generation to enter the agricultural sector (Novisma & Iskandar, 2023). Consistent with the findings of Rudenko & Goryachikh (2020), young people also require support in terms of sound market infrastructure, such as marketing networks, storage and distribution facilities, and access to financial and credit institutions. This support can provide young people with greater certainty in marketing their produce and obtaining the funding they need.

Adoption and innovation

Young generations generally demonstrate greater enthusiasm in utilizing technology and adopting innovative approaches in agricultural activities (Novisma & Iskandar, 2023). As reiterated by Esty (2022), youth interested in farming often have a more open and progressive mindset toward technological developments in agriculture. They recognize that the application of technology and innovation can enhance efficiency, productivity, and profitability in farming ventures.

Community Involvement

The presence and active participation in agriculture-related communities can serve as an attractive factor for young people in choosing farming as a profession (Karahan *et al.*, 2023). This is further supported by Dhaka & Urmila (2023), who state that youth interested in farming tend to seek community environments that offer support, inspiration, and learning opportunities. Young farmers' groups, farming associations, and agricultural networks can serve as platforms for experience sharing, knowledge exchange, and relationship building among stakeholders in the sector. Through community involvement, young individuals can access mentorship, guidance, and support from experienced farmers. This can help them better understand agricultural practices, develop essential skills, and gain the practical insights needed to manage farming enterprises.

Internal Dimension: Individual Agency and Mindset

The internal dimension encompasses the following aspects:

Creativity

Creative young individuals tend to possess the ability to innovate, discover unique solutions, and develop more modern and efficient agricultural practices (Mukti *et al.*, 2018). When young people are allowed to express their creativity in the agricultural sector, it can foster a strong sense of interest and attachment to the profession of farming. Youth creativity can be manifested in various forms, such as the development of advanced agricultural technologies, the diversification of agricultural products, or the innovative utilization of local resources. For example, young people may design efficient automatic irrigation systems, create processed food products based on agricultural commodities, or turn agricultural waste into value-added products. The success of young individuals in implementing their creative ideas can inspire and motivate other youths to engage in agriculture (Marpaung & Bangun, 2023).

Family Support

When families provide support and appreciation for the interests of young people in farming, it can foster self-confidence and motivation. Families may serve as a source of inspiration and role models for youth, particularly when family members have previously

succeeded in agricultural ventures (Ogunjimi et al., 2023). Family support may take various forms, such as providing access to resources, guidance, and financial assistance to initiate farming enterprises (Nandi et al., 2022).

Mindset

Young individuals raised in the modern era tend to possess a mindset that is more innovative, creative, and technology-oriented (Островська, 2022). Growing up with exposure to digital advancements, they are inclined to adopt more modern and efficient approaches in their work. This mindset can attract young people to the agricultural sector, especially when they see opportunities to integrate technology into farming practices.

Environmental Awareness

Today's youth are generally more aware of the negative impacts of conventional, environmentally harmful agricultural practices. They are increasingly interested in learning about and applying more sustainable farming approaches, such as organic agriculture, agroecology, and urban farming. With a strong sense of environmental awareness, young individuals view the farming profession as an opportunity to directly contribute to environmental preservation and the production of healthy food (Alrawashdeh *et al.*, 2022; Karahan *et al.*, 2023).

Formal Education

A comprehensive and up-to-date formal education curriculum can provide young people with an in-depth understanding of modern agricultural practices (Alrawashdeh *et al.*, 2022; Cosby *et al.*, 2022). By delivering engaging, interactive, and relevant educational content, young people can gain broad insights into the potential and opportunities available in the agricultural sector.

Cosmopolitanism

Young individuals with broad perspectives and experiences, or a cosmopolitan outlook, tend to be more open and interested in exploring farming as a career choice. Cosmopolitan youth possess a profound global awareness of contemporary issues related to food, agriculture, and the environment (Cicchelli & Octobre, 2014). They understand that challenges and opportunities in the agricultural sector transcend geographical boundaries, thereby requiring more comprehensive and globally minded approaches. With this understanding, cosmopolitan youth are motivated to study and engage in innovative and sustainable agricultural practices across different parts of the world.

CONCLUSION

The motivation of young people in Indonesia to pursue farming as a profession is influenced by a complex array of factors, which can be categorized into two dimensions. The External Dimension: Institutional and Environmental Support includes: government support (policies, subsidies, training programs); technology (access to digital tools, precision farming); social environment (societal norms, peer support); training (capacity building by institutions); agricultural extension (support by agricultural advisors); digital communication (agricultural information platforms); digital education (agricultural technology literacy); availability of infrastructure and facilities (infrastructure, irrigation, markets); adoption and innovation (diffusion of agricultural innovations); and community involvement (farmer groups, youth farmer networks). Meanwhile, the Internal Dimension: Individual Agency and Mindset includes: creativity (ability to innovate in farming); family support (motivation from the nuclear family); mindset (positive perception of farming profession); environmental awareness (ecological concern); formal education (academic knowledge related to agriculture); and cosmopolitan outlook (global perspective on agriculture). A comprehensive understanding of

these determinants can help in designing more effective policy interventions to promote regeneration in the agricultural sector, which is vital to the national economy. These findings not only enrich the theoretical foundation regarding youth motivation in the agricultural sector but also provide an empirical basis for developing conceptual models and formulating more targeted policy frameworks to support farmer regeneration in Indonesia.

RECOMMENDATIONS

It is recommended that the government strengthen its support through incentive programs, such as low-interest credit subsidies and capital assistance for agricultural enterprises. Additionally, the provision of comprehensive skills training and technical extension services can assist young people in overcoming challenges in agriculture. One strategic effort would be the development of an "Integrated Agricultural Information System based on applications" (e.g., an e-extension module with a chat feature to connect with extension workers). Furthermore, young people should be encouraged to innovate and express their creativity in the agricultural field, such as through the development of processed food products, agrotourism, or organic farming, which can increase income and enhance the appeal of the agricultural sector.

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