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Determinant of Millennial Generation Work in Agricultural Sector West Java Province

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A B S T R A C T

Phenomenon of decreasing workers in agricultural sector has an impact on sustainability of agricultural businesses, one of which is in West Java Province. Role of millennial generation is expected to participate in agricultural businesses. This study analyzes determinant of millennial generation work in agricultural sector West Java Province. Sample in this study was number of millennial farmers (19-39 years) according to area in West Java Province. Data were analyzed using multiple regression models. Results showed that the level of education of a region and the characteristics of the region influenced the number of millennial farmers in West Java Province. The level of education has a negative effect and the characteristics of the region shows the difference in the number of millennial farmers in West Java Province.

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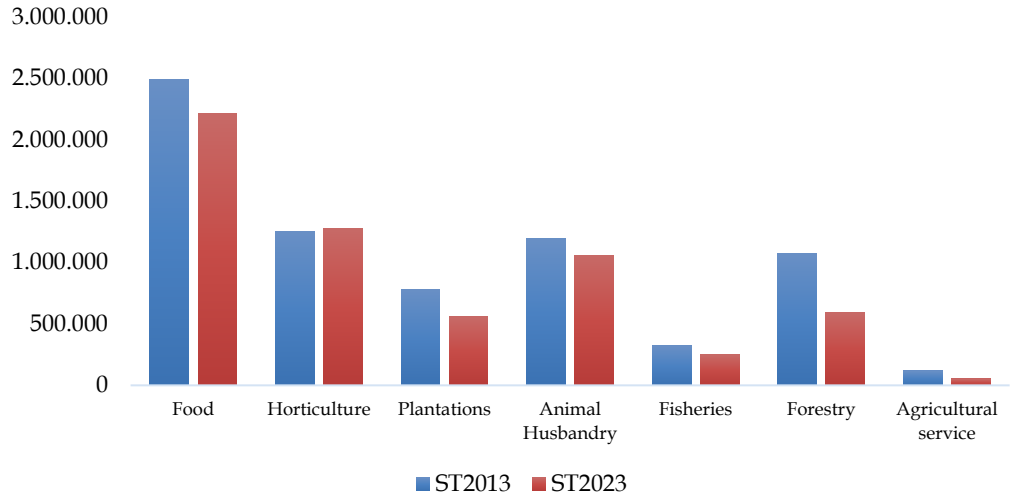
INTRODUCTION

Agricultural sector still makes a significant contribution in Indonesia. This role can be seen from GDP from the agricultural sector towards Indonesia's GDP. contribution value of the agricultural sector continues to grow with a positive trend with an average of 13.12 percent during the 2018-2021 period (BPS Indonesia, 2022). Agricultural sector is still maintain positive growth in the conditions of covid-19 pandemic in 2021, amounting to 1.84 percent. Contribution of the agricultural sector and its consistency during the pandemic, hoped that this sector can grow in the future. However, number of workers in the agricultural sector to continue to decline in recent years. This phenomenon occurs in agricultural center areas in Indonesia, one of which is West Java Province.

Agricultural censuses show changes in the number of individual agricultural businesses (UTP) with a significant decrease of 8.99 percent during 2013 - 2023 period in West Java Province. Agricultural business managers still dominated by the 45-64 age group with a contribution of 53 percent in 2023 in West Java Province (BPS Jawa Barat, 2023). The other side, farming households in six (6) of the seven (7) agricultural sub-sectors experienced a decline during the period 2013 and 2023 in West Java Province. Largest decline occurred in the forestry and food crops subsectors. Subsector that experienced an increase was horticulture. More details can be seen in Figure 1 as follows:



Source: BPS Jawa Barat (2023)

Figure 1. Agricultural households by subsector during 2013-2023 period in West Java Province

Furthermore, decline and dominance of the 45-64 age group in agricultural businesses, so need for participation of young farmers, especially the millennial generation, in agricultural businesses. Young farmers involved in managing agricultural businesses in West Java Province amounted to 27.23 percent. Meanwhile, data on the number of millennial farmers (19-39 years) in West Java Province is 14.73 percent (BPS West Java, 2023). The data shows interest millennial group is quite large in West Java Province. This condition has potential for agricultural operations in West Java Province. Afista, Rahayu and

Livia (2021) found a size of parents' land and parents' income are factors that have a positive influence on interest in becoming farmers.

Meanwhile, Sophan, Asdi and Erwin (2022) show interest in working in the agricultural sector is influenced by gender, type of education, intensity of helping parents, parents' work, family economic conditions, area of land cultivated by the family and opportunities of other job. Ibrahim, Nur and Putri (2023) found that low interest children of farmers in working in agricultural sector was due to tiring work in the agricultural sector and the income. Therefore, its necessary to explore factors that influence millennial generation in agricultural businesses in West Java Province. This investigation is expected as mitigation so that the same phenomenon does not occur in agricultural sector workers. Several previous studies, used data at farmer level. This research attempts analysis based on macro data at regional level in West Java Province. Based on these conditions, it is necessary to conduct research on what determinant millennial generation's interest in working at agricultural sector in West Java Province.

THEORETICAL REVIEW

Involvement of the millennial generation in agricultural businesses is influenced by interest. Dwipradnyana (2017) stated, decline in youth interest in agriculture was due to a lack of support in social and economic aspects. Anwarudin et al. (2019) that the interest of the younger generation is relatively low, as is the interest of parents in their children to work in agriculture which is relatively low.

Involvement of the millennial generation is influenced by internal and external factors. Kulsum andjauhar (2014), internal factors are factors that arise from within the individual and originate from two things is psychological and physiological. If a person's physiological system is disturbed, it will affect the formation of perception. Psychological factors are experience, feelings, thinking ability, frame of reference, and motivation. Several internal factors that influence farmer children are individual characteristics such as age, education, personal motivation and experience (Anggraini et al. (2019); Anwarudin et al. (2019); Santoso et al. (2020); Yuniarti and Sukarniati (2021)).

Kulsum and Jauhar (2014) also explained, perception is influenced by environmental factors or what are also known as external factors. Environment can be a stimulus that produces perception, especially when this factor is an integral part of the object being perceived. External factors that influence farmer children's decisions to work in the agricultural sector are wages, parents' land area, family support and the local environment (Wehantouw et al. (2018); Anwarudin et al. (2019); Kusumo and Mukti (2019); Afista et al. (2021); Yuniarti and Sukarniati 2021).

METHODOLOGY

This research uses cross-section data sourced from the Central Statistics Agency (BPS) of West Java Province in 2023. The samples in this research are 27 districts and cities in West Java Province. The data taken are changes agricultural land (percent), education index, millennial farmers and regional status in West Java Province during the 2023 period. The data was analyzed using a multiple regression model as follows:

$$Y_i = \alpha + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + \varepsilon_i$$

Y_i : number of millennial farmers.
X_1 : changes agricultural land (percent).
X_2 : education index (percent)
X_3 : ratin petani gurem ((percent)).
X_4 : Dummy area (1: rural; 0:urban).

Testing of classical assumptions including normality, heteroscedasticity and multicollinearity is carried out before estimating the coefficients of the regression equation. Normality testing uses the Jarque-Berra test. Heteroscedasticity testing uses a white test and multicollinearity testing uses the correlation value of the independent variables. Next, testing to prove whether or not there is an influence of each independent variable. This testing, a partially from each independent variable to dependent variable, with the following hypothesis:

$$H_0: b_i = 0$$
$$H_1: b_i \neq 0$$

(Persamaan 2)

There is an influence of the independent variable on the dependent variable if the null hypothesis (H0) is rejected. Conversely, there is no influence of independent variable on dependent variable if the null hypothesis (H0) is accepted in this test.

RESULTS

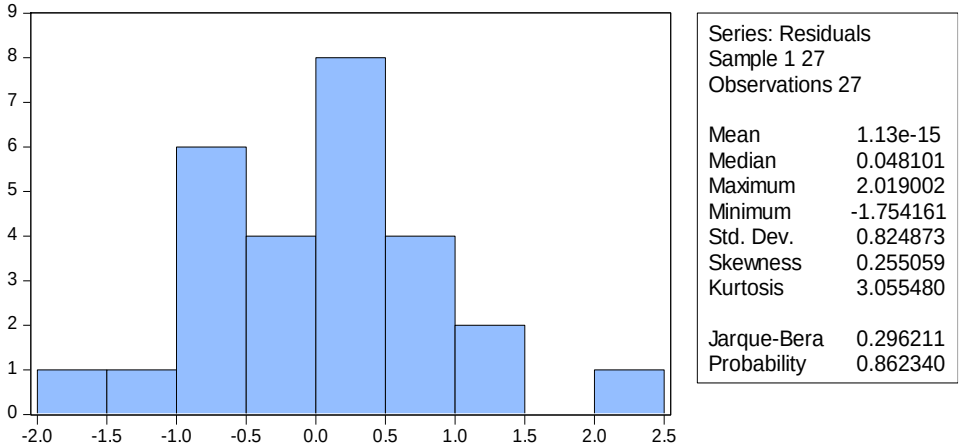
Descriptive analysis shows average change in agricultural land has decreased during 2022-2023 period in West Java Province. This can be seen from the average growth of agricultural land which has a minus sign. This condition is related to industrial activity which continues to grow in West Java Province. The largest decline in agricultural land occurred in urban areas like Depok City. Meanwhile, districts with largest decline in agricultural land are Tasikmalaya Regency and Karawang Regency as in Table 1.

Table 1. Result of Descriptive Statistic

Deskriptive	Millennial farmers	Education index	Changes agricultural land
Mean	19,286	64	-7
Minimum	308	56	-60
Maximum	71,169	77	28
Coefficient varians	108	10	-222

Source: Primer data (2024).

Education index in West Java Province is a fairly good category. However, this education index shows high inequality between districts and cities in West Java Province. Average education index in city areas is 72 points while in districts it is 60 points. Largest number of millennial farmers in West Java Province comes from Sukabumi, Cianjur and Garut Regencies. Changes of agricultural land large fluctuations compare of three variables during 2022-2023 period. Classical assumption testing shows good results. The results of normality test show a probability that is above 5 percent alpha (0.05) so that the error distribution In the entire sample is spread normally. The results of this test can be seen in Figure 2 as follows:



Source: Primer data (2024).

Figure 2. Result of Normality Test

Meanwhile, results of heteroscedasticity test also provide an alpha probability that is above 5 percent. Error variation for each sample is same diversity. More details can be seen in Table 2 as follows:

Table 2. Result of Heteroskedastisity Test

Heteroskedasticity Test: White			
F-statistic	1.990	Prob. F(8,18)	0.114
Obs*R-squared	17.971	Prob. Chi-Square(8)	0.158

Source: Primer data (2024).

Results of multicollinearity show a low correlation value between independent variables. Correlation value of each pair of independent variables is below 0,8. Its can be seen in Table 3.

Table 3. Result of Multicolinearity Test

Variabel	Pendidikan	Lahan	Daerah	Gurem
Pendidikan	1.000	-0.314	-0.625	0.598
Lahan	-0.314	1.000	0.142	-0.285
Daerah	-0.625	0.142	1.000	-0.573
Gurem	0.598	-0.285	-0.573	1.000

Source: Primer data (2024).

Hypothesis testing in this research a several and partial influences on number of millennial farmers in West Java Province. Test results using multiple regression model can be seen in Table 4.

Table 4. Results of Determinant of Millennial Farmers West Java Province

Variable	Koefisien	Std. Error	t-Stat	Prob.
Constant	18.222	2.653	6.867	0.000
Education index	-0.188	0.037	-5.071	0.000*
Changing agricultural land	-0.007	0.012	-0.625	0.538
Small farmet ratio	0.024	0.022	1.080	0.291
Dummy area	1.397	0.470	2.970	0.007*
R-squared	0.794	Durbin-Watson stat		1.777
Adjusted R-squared	0.756	Prob (F-statistic)		0.000
F-statistic	21.235			

*Significant at α 5 percent.

Source: Primer data (2024).

Results in Table 4 show a independent variables together have an influence on the number of millennial farmers in West Java Province. Its can be seen from the calculated F probability which is below 5 percent. Variation of number of millennial farmers can be explained by four independent variables is 79.40 percent and 20.60 percent is explained by other variables. R-square value shows that the use of independent variables in research is very good.

DISCUSSION

Education index has influences number of millennial farmers in West Java Province. Education index has a negative effect on number of millennial farmers in West Java Province. This means that an increase in the education index in city or district areas reduces millennial farmers. These findings, a better level of education in an area, the lower the interest in becoming farmers among millennials.

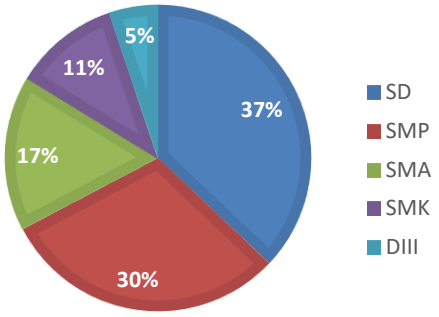


Figure 3. Distribution of Education Level of Millenial Genertion in West Java Province 2023

Average education level of the majority of millennials is at a low level of education in 67 percent (primary and junior high school). The decreasing tendency to become a farmer is also related to lower expectations for the results of agricultural businesses compared to other businesses. Data of exchange rate for agricultural businesses is 100.73 during the 2022 period in West Java Province. This value is lower than other businesses.

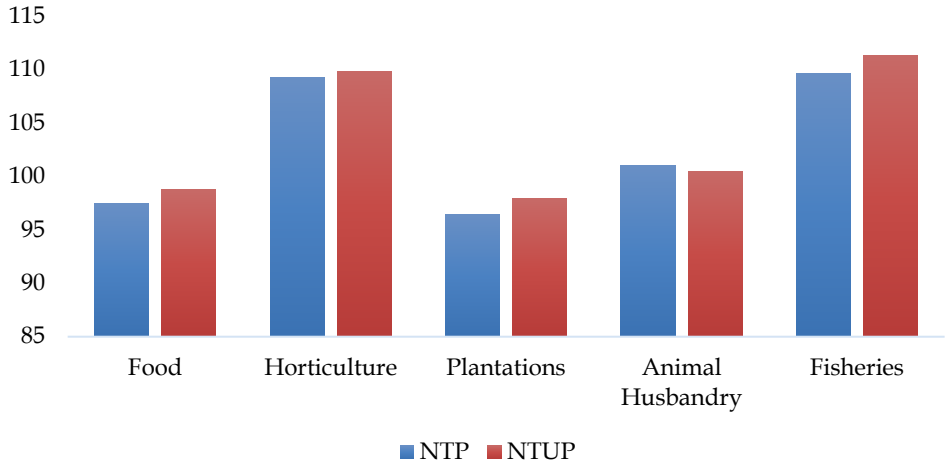
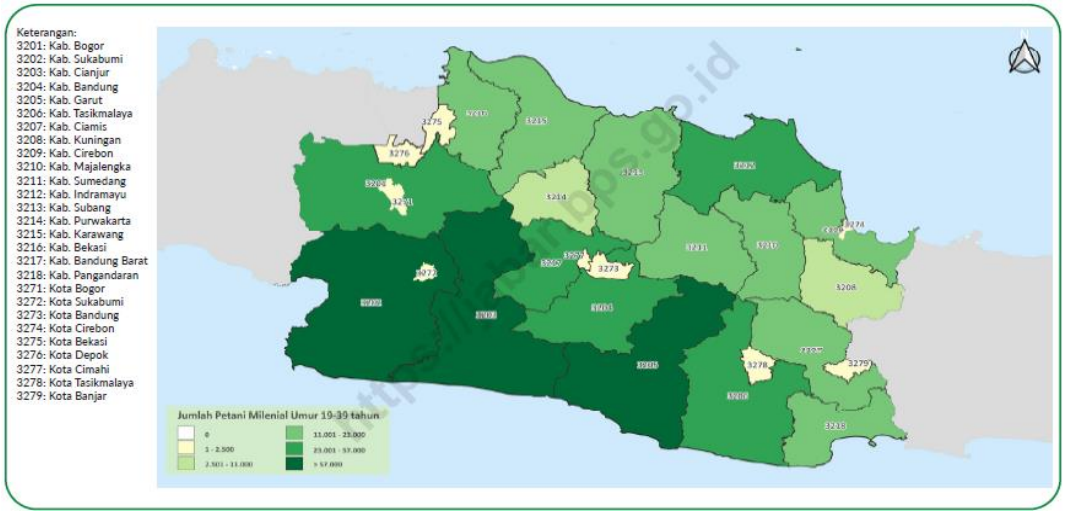


Figure 4. Farmer Exchange Rate (NTP) and Business Exchange Rate (NTUP) Agricultural Subsector in West Java Province During 2022 Period

Furthermore, farmer exchange rate (NTP) and agricultural business exchange rate (NTUP) there are three subsectors of five subsectors,whose values are ≤ 100 points. The horticulture and fisheries subsectors are able to provide scores above 100. The food subsector, which is dominated by agricultural workers, provides scores below 100 for both NTP and NTUP. Changes in agricultural land have no effect with the negative coefficient. This means that changes in agricultural land have no effect on changes in the number of millennial farmers in West Java Province. This is related to land ownership which is still small. Changes in small land areas have less impact on the number of millennial farmers. In other words, changes to small areas of land are of little interest to the millennial generation in West Java Province. These results are different from previous research findings. Panurat et al. (2014) explained larger areas of land have an effect on greater production results and conversely, if agricultural land is smaller, production will be less. The findings of Anim (2011) and Alassaf et al. (2011) stated that land size influences young farmers' interest in working in the agricultural sector.

The less agricultural land make less production received, so the interest of millennial farmers is decreasing. Kartini Kartono (2002) explains that there are various factors that influence a person's interest, one of which is extrinsic factors is opportunity. By looking at the decreasing condition of agricultural land area, the opportunities for agricultural businesses for millennial farmers are getting smaller. The existence of this condition means that changes in agricultural land have no effect on increasing the number of millennial farmers in West Java Province. Regional dummy (rural and urban) has an influence on the number of millennial farmers in West Java Province. The significant influence shows that there is a difference in the number of millennial farmers in the two regions. Millennial farmers in areas with urban characteristics is smaller than in non-urban areas. Areas with non-urban characteristics still have the potential to develop agricultural businesses in West Java Province.



Source: BPS Jawa Barat (2023).

Figure 5. Distribution of Millennial Farmers Aged 19–39 Years in West Java Province, 2023

Majority of millennial farmers aged 19-39 years are in the southern region of West Java Province. These areas include Sukabumi, Cianjur and Garut Regencies. Meanwhile, in the northern region of West Java, the majority of millennial farmers are distributed in Indramayu and Karawang regencies. Ratio of smallholder farmers to total farmers using land has no effect on millennial farmers in West Java Province. Small land ownership have no impact on changes in the number of millennial farmers in West Java Province.

The average ratio of smallholder farmers to land-using farmers in West Java Province is 81.36 percent. This contribution is very large compared to the number of farmers using land. Research by Sophan, Asdi and Erwin (2022) explains area of land cultivated has no effect on interest in choosing agricultural business as the main job. These findings illustrate that millennial farmers pay less attention to aspects of land control in farming. This is supported by the number of millennial generations who master technology in farming at 44.63 percent. Use of technology can increase production yields on small agricultural land.

CONCLUSIONS AND RECOMMENDATIONS

Education index and regional characteristics influence the number of millennial farmers in West Java Province. Education index has a negative effect on number of millennial farmers. Characteristics show positive differences in rural area compared with urban area. Changes in agricultural land and the ratio of smallholder farmers are factors that do not influence the number of millennial farmers. Increasing economic value and policy synergy in farming is expected to have an impact on the millennial generation's interest in farming in West Java Province.

FURTHER STUDY

Still conducting further research to find out more about the Determinants of Millennial Generation Work in the Agricultural Sector West Java Province.

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