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Willingness to accept farmers to maintain the sustainability of agricultural land in Sruweng District, Kebumen Regency

Imade Yoga Prasada[a*], Rila Bekti Wiguna[b], Dyah Kurnia Sefrina Azzahro[b], Armando Batistuta Rahawarin[d]
[a]Study Program of Agribusiness, Faculty of Science and Technology, Universitas Putra Bangsa, Kebumen, Indonesia

*Correspondence: imade.yogap@gmail.com

Abstract

Sruweng District is one of the areas in Kebumen Regency located in the suburbs. Its strategic location because it is close to the city center has consequences for the high potential for conversion of agricultural land to non-agricultural land in Sruweng District. Therefore, this study was conducted to determine the willingness to accept of farmers to maintain the sustainability of agricultural land. This study was conducted in Sruweng District, Kebumen Regency with a total of 30 respondents, samples taken using the simple random sampling method. Data were taken using structured interview techniques to respondents and then the data were analyzed using the willingness to accept approach with the bidding method to see the extent to which farmers are willing to maintain the agricultural land they manage. The results of the analysis showed that 96.67% of farmers refused to accept compensation, while 3.33% wanted to accept compensation as payment to maintain the agricultural land they managed. The final offer desired by farmers as compensation for maintaining their agricultural land was 5.24% of the level of farm income. However, the percentage of farmers who refused compensation was very dominant, indicating that the sustainability of agricultural land in Sruweng District, Kebumen Regency can still be maintained well.

Article History:

Keywords:
willingness to accept, sustainability, agricultural land, Kebumen Regency

1. Introduction

The drivers of the economy in a region involve several sectors, including the industrial sector, the agricultural sector, and the trade sector. The industrial sector is currently still the largest contributor to GRDP because it can create extensive employment opportunities for the community, and the agricultural sector supports the industrial process. The agricultural sector plays an important role in economic growth and is a provider of raw materials for production for the industrial sector (Abidin, Haseeb, & Islam, 2022). Regions whose economic drivers are dominated by the industrial sector tend to have a high level of land transformation. The use of areas for industry will accelerate the conversion of agricultural land (Paramasatya & Rudiarto, 2019). This is due to the shift of the agricultural sector into an industrial area. This phenomenon carries the assumption that the industrial sector is considered more profitable than the agricultural sector. The agricultural sector is considered to have output that does not match the input issued during the cultivation or production process. There is a tendency for farmers to sell their land because income does not match operational costs and there is financial pressure (Saqib, Kaleem, Yaseen,

Yang, & Visetnoi, 2024). Therefore, farmers are more interested in converting their agricultural land into a business or selling it to other people to get faster profits.

Economic growth in a region also triggers a significant increase in population. Where the population in one region will move to another region that has a higher economic growth rate than the previous region. The main factor in housing development on agricultural land is due to population growth (Debela et al., 2020; Giller et al., 2021). Population migration and growth require land to be used as more housing, so that agricultural land is used to meet the housing needs of the population. This is called land use exchange or land conversion. The conversion of agricultural land to non-agricultural land continues to increase over time. This affects the availability and sustainability of the agricultural sector in a region. The increasing conversion of agricultural land also causes changes in food availability conditions (Amondo, Nshakira-Rukundo, & Mirzabaev, 2023; Chen, Rizwan, & Abbas, 2022; Yuspin, Absori, & Harun, 2020). In addition, land conversion or conversion also causes a decrease in the absorption rate of labor in the agricultural sector and affects the social and economic structure (Grabowski & Self, 2020; Kusumastuti, M. Kolopaking, & Barus, 2019).

The conversion of agricultural land to non-agricultural land is often accompanied by urban or infrastructure development (Sekaranom, Nurjani, & Nucifera, 2021). Although it can encourage economic growth, its long-term impact on food security and environmental sustainability needs to be considered. The decrease in agricultural land area can result in greater dependence on food imports, which risks disrupting the stability of food supplies in the future (Mulyo, Prasada, & Nugroho, 2023). One of the causes of the decline in agricultural land area is due to a lack of understanding of land values from the perspective of farmers in maintaining their agricultural land. Many farmers view land as a source of income but also as a hereditary inheritance (Lukman, 2022). Therefore, it is necessary to conduct a Willingness to Accept (WTA) analysis to measure the compensation desired by farmers if they have to give up their agricultural land.

Previous research conducted by Prajanti, Lestari, & Primayesa (2023) used WTP and WTA parameters to see the availability of farmers and consumers in their ability to pay for organic horticultural commodities. Research in Pekalongan Regency related to WTA using the probit regression analysis method stated that the factors that caused farmers to accept compensation were the distance of their agricultural land which was close to the main road access, and farmers' perceptions regarding the sustainability of agricultural land in the future (Prasada & Masyhuri, 2019). The main factor causing the high conversion of agricultural land is also due to the high demand for land in the non-agricultural sector (Sudarma et al., 2024). In addition, length of education and income also influence farmers' decisions to sell their agricultural land (Iskandar & Jamhari, 2020).

Sruweng District is one of the areas in Kebumen Regency which has a percentage of agricultural land area of 29.87 percent (BPS, 2023). Sruweng District is located on the outskirts of the city and close to the main road to the city center. The strategic location of the area affects the level of population density. The closer an area is to the city center, the more population and economic growth will tend to increase, so that areas that are close to urban areas such as Sruweng District are more vulnerable to the loss of agricultural land for housing development, industrial sites, and city expansion, so it is necessary to know the level of sustainability of agricultural land in Sruweng District and the level of availability of farmers in receiving compensation for their agricultural land.

2. Methods

The location of this research is in Sruweng District, Kebumen Regency. The location selection was determined using the purposive sampling method. Sruweng District is one of the areas in Kebumen Regency located on the outskirts of the city. The strategic location has the potential for conversion of agricultural land to non-agricultural land (Prasada & Masyhuri, 2020). This study involved 30 farmer respondents. Farmer sampling was carried out using the simple random sampling method. Data were collected using structured interview techniques with respondents and analyzed using the willingness to accept method through a bidding approach to determine farmers' willingness to maintain their agricultural land. Bidding was used in this study to ensure that the WTA value obtained was the optimum WTA value (Prasada &

Masyhuri, 2019). The method begins by asking respondents about their desire to receive compensation. If the respondent responds that they want to receive compensation, then the question will be continued by asking the amount of compensation they want. Furthermore, after the respondent states the nominal compensation desired, the researcher will then submit an offer for the value proposed. Bidding will continue until the respondent is no longer willing to accept compensation. Therefore, initial bid and final bid data will be obtained, where initial bid data is data that shows the respondent's initial WTA value related to the amount of compensation desired, while the final bid shows the optimal WTA value desired by the respondent.

The lower WTA value indicates that farmers are willing to maintain the agricultural land they manage voluntarily without considering any compensation (Ward et al., 2020). However, the higher WTA value indicates that the agricultural land in the research location has a low level of sustainability, because to maintain the agricultural land, farmers need to get certain compensation. This illustrates that if compensation is not given, the opportunity for the conversion of agricultural land to non-agricultural land becomes greater.

3. Results And Discussion

Willingness to accept (WTA) is one method that can be used to see the value of agricultural land using the stated preference approach (Xie, Adamowicz, Kecinski, & Fooks, 2022). This method can produce biased results, so the approach in data collection needs to be considered carefully. This study uses the WTA method using the bidding method to reveal farmers' willingness to accept compensation in order to maintain the agricultural land they manage (Svenningsen & Jacobsen, 2018). The bidding approach can provide certainty about the optimum WTA value desired by farmers. The results of the analysis show that most farmers (96.67%) in Sruweng District, Kebumen Regency are not willing to accept any compensation in order to maintain the agricultural land they manage (Table 1.).

Table 1. Distribution of farmers' willingness to accept or reject compensation

Category	Total (person)	Percentage (%)
Reject (WTA=0)	29.00	96.67
Accept (WTA>0)	1.00	3.33
Total	30.00	100.00

Source: Primary data analysis, 2024

Some of the reasons that encourage farmers to remain willing to maintain their agricultural land even without compensation are first, agriculture is the main livelihood of farming households in Sruweng District. Second, agricultural land provides staple food consumed by farming households. Third, some of the agricultural land managed by farmers is inherited land from their parents, meaning that the agricultural land has a historical value that cannot be valued in money.

However, a small number of farmers want to receive compensation in return for maintaining the agricultural land they manage, which is 3.33%. Farmers who are willing to accept compensation have a WTA value greater than zero, so the WTA value needs to be stated by the respondents. The results of the analysis show that the initial bid requested by the respondents was IDR 1,351,628 or equivalent to 15.21% of the respondents' farm income. The WTA value must then go through a bidding process to reach its optimum point, namely the final bid value (Table 2.).

Table 2. WTA of farmers to receive compensation for maintaining agricultural land

Category	WTA (IDR / year)	Percentage of WTA (%)
Initial bid	1,351,628.00	15.21
Final bid	465,561.00	5.24

Source: Primary data analysis, 2024

The bidding process was able to reduce the WTA value by 9.97%, so that an optimum WTA value of IDR 465,561 or equivalent to 5.24% of the farm income level could be produced. Farmers who want to receive compensation are driven by their reluctance to continue farming activities. This is due to the high business opportunities outside the agricultural sector which are considered to have better income levels (Borda, Sárvári, & Balogh, 2023). In addition, the high risk in the agricultural sector puts pressure on farmers in managing their agricultural land (Ali, Ghosh, Osmani, Hossain, & Fogarassy, 2021). Therefore, policies to increase incentives for farmers, either in the form of output incentives or agricultural inputs incentives, are needed to maintain the sustainability of agricultural land. Furthermore, improvements to agricultural production facilities and infrastructure are also needed so that the risks in carrying out farming activities can be minimized.

4. Conclusion And Recommendations

Farmers in Sruweng District, Kebumen Regency are dominated by farmers who refuse to accept compensation in order to maintain the sustainability of agricultural land (WTA = 0). Therefore, it can be concluded that the sustainability of agricultural land in Sruweng District, Kebumen Regency can be maintained well in the future. However, a small number of farmers (3.33%) want to receive compensation with a WTA value from the bidding process of 4.24% of the level of farm income. Sustainability of agricultural land needs to be supported by the implementation of policies that can provide incentives for farmers, both output incentives and input incentives. In addition, improvements to the use of agricultural facilities and infrastructure need to be carried out properly, so that the risk of crop failure in farming activities can be minimized properly.

5. References

Abidin, I. S. Z., Haseeb, M., & Islam, R. (2022). Impact of Agricultural Irrigated Land and Raw Material Import, Labor, Labor Force and Capital Formation on Rice Production: Evidence from the Malaysian Economy. *Cuadernos de Economia*, *45*(127), 106–112. https://doi.org/10.32826/cude.v1i127.608

Ali, S., Ghosh, B. C., Osmani, A. G., Hossain, E., & Fogarassy, C. (2021). Farmers' climate change adaptation strategies for reducing the risk of rice production: Evidence from Rajshahi District in Bangladesh. *Agronomy*, *11*(3), 1–15. https://doi.org/10.3390/agronomy11030600

Amondo, E. I., Nshakira-Rukundo, E., & Mirzabaev, A. (2023). The effect of extreme weather events on child nutrition and health. *Food Security*, *15*(3), 571–596. https://doi.org/10.1007/s12571-023-01354-8

Borda, Á. J., Sárvári, B., & Balogh, J. M. (2023). Generation Change in Agriculture: A Systematic Review of the Literature. *Economies*. https://doi.org/10.3390/economies11050129

BPS. (2023). *Kabupaten Kebumen Dalam Angka 2023*. Kebumen: Badan Pusat Statistik Kabupaten Kebumen.

Chen, T., Rizwan, M., & Abbas, A. (2022). Exploring the Role of Agricultural Services in

Production Efficiency in Chinese Agriculture: A Case of the Socialized Agricultural Service System. *Land*. https://doi.org/10.3390/land11030347

Debela, D. D., Stellmacher, T., Azadi, H., Kelboro, G., Lebailly, P., & Ghorbani, M. (2020). The impact of industrial investments on land use and smallholder farmers' livelihoods in Ethiopia. *Land Use Policy*, *99*(July), 1–12. https://doi.org/10.1016/j.landusepol.2020.105091

Giller, K. E., Delaune, T., Silva, J. V., Descheemaeker, K., van de Ven, G., Schut, A. G. T., … van Ittersum, M. K. (2021). The future of farming: Who will produce our food? *Food Security*, *13*(5), 1073–1099. https://doi.org/10.1007/s12571-021-01184-6

Grabowski, R., & Self, S. (2020). Industrialization and deindustrialization in Indonesia. *Asia & the Pacific Policy Studies*, *7*(1), 95–111. https://doi.org/https://doi.org/10.1002/app5.295

Iskandar, M. J., & Jamhari. (2020). Efficiency of rice farming in the corporate farming model in central java. *Agraris*, *6*(2), 154–167. https://doi.org/10.18196/agr.6298

Kusumastuti, A. C., M. Kolopaking, L., & Barus, B. (2019). Factors Affecting the Converstion of Agricultural Land in Pandeglang Regency. *Sodality: Jurnal Sosiologi Pedesaan*, *6*(2), 131–136. https://doi.org/10.22500/sodality.v6i2.23234

Lukman, L. (2022). Evaluasi Alih Fungsi Lahan Pertanian Terhadap Pendapatan Petani di Kecamatan Bacukiki Kota Parepare. *Civil Officium: Journal of Empirical Studies on Social Science*, *2*(2), 1–9. https://doi.org/https://doi.org/10.53754/civilofficium.v1i2.352

Mulyo, J. H., Prasada, I. Y., & Nugroho, A. D. (2023). Impact of political and security stability on food security in developing countries : Case of Africa , Asia , Latin America and the Caribbean. *Agricultural Economics (Zemědělská Ekonomika)*, *69*(9), 375–384. https://doi.org/10.17221/142/2023-AGRICECON

Paramasatya, A., & Rudiarto, I. (2019). Impact of Agriculture Land Conversion on Growth Center Changes in Majalengka. In *ICESI* (pp. 1–9). https://doi.org/http://dx.doi.org/10.4108/eai.18-7-2019.2290098.

Prajanti, S. D. W., Lestari, E. P., & Primayesa, E. (2023). The Analysis of Willingness to Accept and Willingness to Pay of Farmers and Consumers on Organic Horticultural Commodities Through Android Application-Based Digital Marketplace. *Journal of Law and Sustainable Developmen*, *11*(12), e1675. https://doi.org/https://doi.org/10.55908/sdgs.v11i12.1675

Prasada, I. Y., & Masyhuri. (2020). Factors Affecting Farmers' Perception toward Agricultural Land Sustainability in Peri-Urban Areas of Pekalongan City. *Caraka Tani: Journal of Sustainable Agriculture*, *35*(2), 203–212. https://doi.org/10.20961/carakatani.v35i2.31918

Prasada, I. Y., & Masyhuri, M. (2019). Farmers' willingness to accept a compensation to protect agricultural land sustainability in peri-urban areas of Pekalongan City. *Agro Ekonomi*, *30*(2), 110–124. https://doi.org/10.22146/ae.48869

Saqib, S. E., Kaleem, M., Yaseen, M., Yang, S.-H., & Visetnoi, S. (2024). From green fields to housing societies: Unraveling the mysteries behind agricultural land conversion in Pakistan. *Land Use Policy*, *144*, 107256. https://doi.org/https://doi.org/10.1016/j.landusepol.2024.107256

Sekaranom, A. B., Nurjani, E., & Nucifera, F. (2021). Agricultural climate change adaptation in Kebumen, Central Java, Indonesia. *Sustainability (Switzerland)*, *13*(13), 1–16. https://doi.org/10.3390/su13137069

Sudarma, I. M., Sawitri, A. A. A. W., Geetha, D., Melts, I., Kadulin, A., & Syakur, A. R. A. (2024). Agricultural Land Conversion and its Impact on Farmers ' Income and Food Availability. *SOCA: Jurnal Sosial Ekonomi Pertanian*, *18*(2), 255–266.

Svenningsen, L. S., & Jacobsen, J. B. (2018). Testing the effect of changes in elicitation format, payment vehicle and bid range on the hypothetical bias for moral goods. *Journal of Choice Modelling*, *29*, 17–32. https://doi.org/https://doi.org/10.1016/j.jocm.2018.08.001

Ward, C., Stringer, L. C., Warren-Thomas, E., Agus, F., Crowson, M., Hamer, K., … Hill, J. K. (2020). Smallholder perceptions of land restoration activities: rewetting tropical peatland oil palm areas in Sumatra, Indonesia. *Regional Environmental Change*, *21*(1), 1. https://doi.org/10.1007/s10113-020-01737-z

Xie, L., Adamowicz, W., Kecinski, M., & Fooks, J. R. (2022). Using economic experiments to assess the validity of stated preference contingent behavior responses. *Journal of Environmental Economics and Management*, *114*, 102659. https://doi.org/https://doi.org/10.1016/j.jeem.2022.102659

Yuspin, W., Absori, & Harun. (2020). The dialectics of the illegal conversion of agricultural land: Lessons from Indonesia. *International Journal of Innovation, Creativity and Change*, *12*(2), 22–39.