SOCIAL AND ECONOMIC IMPACTS ON FARMERS RESULTING FROM THE CONVERSION OF AGRICULTURAL LAND IN BUDURAN DISTRICT, SIDOARJO REGENCY

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Abstract

The conversion of agricultural land has become an increasingly prevalent phenomenon alongside population growth, urbanization, and the expansion of industrial and residential sectors. The transformation of land use from agricultural to non-agricultural purposes not only reduces the area of land available for food production but also generates significant social and economic impacts on farmers. Buduran District, Sidoarjo Regency, as a peri-urban area, has experienced considerable pressure from agricultural land conversion due to its strategic location and proximity to regional growth centers. This condition has led to various issues related to the sustainability of farmers' livelihoods, changes in social interaction patterns, and income uncertainty. The main problem addressed in this study is how agricultural land conversion affects the social and economic conditions of farmers in Buduran District. Therefore, this study aims to analyze the social and economic impacts of agricultural land conversion on farmers in Buduran District, Sidoarjo Regency. The research was conducted from December 2025 to January 2026 using a survey method. The sample was determined using a stratified random sampling technique, divided into two strata: farmers who converted their agricultural land and those who did not, with a total of 84 respondents. Data were collected through interviews using questionnaires and field observations. Data analysis employed quantitative descriptive analysis. Social impacts were analyzed using a five-point Likert scale, while economic impacts were examined through mode and percentage calculations. The results indicate that agricultural land conversion produces diverse social and economic effects. Several behavioral indicators, such as diligence and discipline, showed improvement, whereas agriculture-based social interactions tended to decline. From an economic perspective, land conversion led to changes in occupational structure and variations in farmers' income levels. Overall, agricultural land conversion has selective social and economic implications for farmers.

Keywords: social impacts, economic impacts, agricultural land conversion

1. INTRODUCTION

The conversion of agricultural land is a phenomenon that has become increasingly intensive alongside rapid population growth, urbanization, and the expansion of industrial and residential sectors. Changes in land use from agricultural to non-agricultural purposes not only result in a reduction of food production areas but also generate significant social and economic consequences for farmers, who are the most affected group. The reduction of cultivated land can lead to shifts in livelihoods, income instability, and changes in the social structure of rural communities that previously depended on the agricultural sector.

The issue of agricultural land conversion in Sidoarjo Regency is clearly reflected in Buduran District. According to data from the Central Bureau of Statistics (Badan Pusat Statistik) of Sidoarjo Regency, Buduran District experienced the largest

decrease in agricultural land area compared to other districts during the 2020–2024 period, amounting to 40 hectares, from 527 hectares in 2020 to 487 hectares in 2024. This decline is driven by the district's strategic location and its proximity to the center of Sidoarjo Regency, which has encouraged the massive expansion of industrial, commercial, and residential areas.

These conditions have positioned Buduran District as a peri-urban area, namely a transitional zone between rural and urban regions that is subject to dynamic pressure from land-use changes. The ongoing conversion of agricultural land not only reduces land availability and agricultural production but also has direct implications for the social and economic lives of farmers. As a group that relies heavily on the agricultural sector for their livelihoods, farmers face the threat of losing their sources of income, changes in employment structures, and income uncertainty due to diminishing cultivated land.

In addition to economic impacts, land conversion also triggers social changes at the rural community level. These changes are reflected in shifts in social interaction patterns, the weakening of communal values, and an increasing orientation toward non-agricultural activities. Continuous pressure from agricultural land conversion has the potential to alter the social structure of farming communities and reduce the sustainability of local agricultural practices if it is not managed through appropriate policies. Based on this background, this study aims to examine the social and economic impacts of agricultural land conversion on farmers.

2. METHODOLOGY

This study was conducted from December 2025 to January 2026 in Buduran District, Sidoarjo Regency, considering the increasing tendency of agricultural land conversion into non-agricultural uses. The sample was determined using a stratified random sampling technique with two strata, namely farmers who converted their agricultural land and farmers who did not convert their land. The sample size was calculated using the Slovin formula with a 10% margin of error based on the total population of rice farmers in Buduran District, resulting in 84 respondents. The sample was allocated using disproportionate stratified random sampling, with an equal number of respondents in each stratum, consisting of 42 respondents per stratum. Respondents who did not convert their land were selected randomly, while data on farmers who converted their land were obtained from the Buduran District Agricultural Extension Center (Balai Penyuluh Pertanian/BPP). Data collection combined primary and secondary data. Primary data were obtained through interviews using structured questionnaires, complemented by field observations to gather information related to farmers' characteristics and the social and economic impacts arising from land conversion. Secondary data were collected from relevant institutions, such as the Central Bureau of Statistics (Badan Pusat Statistik/BPS) and the Sidoarjo Regency

Department of Agriculture, as well as from relevant literature and previous studies to support the analysis of land-use change.

Descriptive analysis was employed to examine the social and economic impacts of agricultural land conversion on farmers in Buduran District, Sidoarjo Regency. Social impacts were analyzed using three indicators: changes in behavior, patterns of social interaction, and community social values before and after land conversion. The data were obtained from questionnaires and measured using a five-point Likert scale, then analyzed by calculating mean values and interpreted based on Likert scale intervals (Sugiyono, 2020). Meanwhile, economic impacts were analyzed using descriptive statistics, including the calculation of modes and percentages, to assess changes in livelihood structures and farmers' income before and after land conversion.

3. FINDINGS AND DISCUSSION

3.1 Social Impacts

The social impacts of agricultural land conversion in Buduran District, Sidoarjo Regency, were measured using a five-point Likert scale. Based on the results of the analysis using the five-point Likert scale, each indicator within the social impact variable demonstrates variations in the level of change perceived by the farming community following the conversion of agricultural land. The assessment of each indicator was derived from the mean values of respondents' answers, which were subsequently interpreted according to the Likert scale intervals as proposed by Sugiyono (2020), namely: very decreased, decreased, unchanged, increased, and very increased, as presented in Table 1.

Table 1. Likert Scale Interval Values

Score Range	Category
1,00 – 1,80	Very Decreased
1,81 – 2,60	Decreased
2,61 – 3,40	Unchanged
3,41 – 4,20	Increased
4,21 – 5,00	Very Increased

Source: Sugiyono (2020)

Regarding social impacts, this study examines three main attributes. First, changes in community behavior during the period 2020–2025, which reflect the dynamics of social relationships, such as solidarity in the form of mutual cooperation, mutual concern among community members, diligence, time discipline, perseverance, resilience, and responsibility in farming activities. This attribute is used to assess the extent to which agricultural land conversion influences social behavior patterns within rural communities.

Second, changes in patterns of social interaction among community members over the same period, which illustrate the intensity and forms of social communication

both in agricultural activities and in institutional settings, such as communication in the fields and farmer group meetings. This attribute is important for identifying changes in the frequency and quality of social interactions resulting from the decline in collective agricultural activities due to land conversion, as stated by Ningsih and Rismawati (2022), who argue that land-use change has the potential to affect social cohesion and community social interactions.

Third, changes in community social values during the 2020–2025 period, which reflect shifts in farmers' perspectives on land ownership, economic orientation, and lifestyle. This attribute is used to evaluate the extent to which communities experience a transformation in values from a farm sustainability-oriented perspective toward a more pragmatic economic orientation, as explained by Erdhikawati and Kurniawati (2019), who note that land conversion can drive changes in the social and cultural values of rural communities.

Table 2. Frequency Results of Social Impact Analysis

No.	Indicator	Mean	Category
1.	Social Solidarity	4	Increased
2.	Social Concern	3	Unchanged
3.	Diligence	5	Very Increased
4.	Discipline	5	Very Increased
5.	Perseverance	4	Increased
6.	Resilience	4	Increased
7.	Responsibility	4	Increased
8.	Field Interaction	2	Decreased
9.	Farmer Group Interaction	2	Decreased
10.	Social Value of Land	3	Unchanged
11.	Social Value of Economic Orientation	3	Unchanged
12.	Social Value of Lifestyle	3	Unchanged

Source: Author's Calculation (2026).

Based on Table 2, which presents the frequency results of the social impact analysis, agricultural land conversion generally brings about diverse changes in the social conditions of the community. Several indicators show an increasing trend, particularly aspects related to work ethic, such as diligence and discipline, which exhibit the most significant improvements. In addition, social solidarity, perseverance, resilience, and responsibility also demonstrate positive changes, although the increases occur at a moderate level. These findings are consistent with the study by Pratiwi et al. (2024), which states that agricultural land conversion encourages farmers to adapt to new economic conditions, thereby fostering a stronger work ethic and more competitive individual attitudes.

On the other hand, social concern and several social values, such as economic orientation and lifestyle, tend to remain unchanged, indicating a degree of stability in certain social aspects despite changes in land use. However, social interactions

directly related to agricultural activities, both in the fields and within farmer groups, have declined. This condition aligns with the findings of Handayani et al. (2025), who report that the reduction in agricultural activities due to land conversion leads to the weakening of traditional social interaction patterns and collective work among farmers. Overall, land conversion affects not only economic aspects but also brings about selective social changes, characterized by improvements in individual-oriented aspects and declines in agriculture-based social interactions.

3.2 Economic Impacts

The economic impacts of agricultural land conversion in Buduran District were analyzed to identify changes in the economic conditions of farming households before land conversion 2020 and after land conversion 2025. The analysis focused on two main indicators: changes in livelihood structure and changes in farmers' income. Changes in livelihood structure were examined to identify shifts in community economic activities from the agricultural sector to non-agricultural sectors as a result of the reduction in cultivable agricultural land (Pratiwi et al., 2024). In addition, changes in income were analyzed to determine differences in the income levels of farming households before and after land conversion, which directly reflect community economic conditions (Hendrawan & Dewi, 2016). These two attributes form the basis for understanding the economic impacts of agricultural land conversion on farmers' livelihoods in Buduran District. The analysis was conducted descriptively using mode values to identify trends in respondents' answers and percentages to illustrate the proportion of changes in each indicator. This approach provides an overall picture of the economic dynamics of farmers before land conversion 2020 and after land conversion 2025.

Table 3. Frequency of Farmers' Occupations Before Land Conversion / Year 2020

No.	Type of Occupation	Respondents' Occupation	Frequency	Percentage (%)
1.	Primary	Farmer	84	100
2.	Secondary	None	53	63,1
		Employee	11	13,1
		Laborer	10	11,9
		Trader	10	11,9

Source: Author's Calculation (2026).

Based on Table 3, all respondents relied on the agricultural sector as their primary occupation prior to land conversion. However, not all respondents had secondary occupations. Some farmers did not have additional jobs and depended solely on agricultural activities as their main source of livelihood. Conversely, a number of respondents engaged in secondary occupations outside the agricultural sector, including employment as employees, laborers, and traders. This condition indicates that before land conversion 2020, the livelihood structure of farmers in Buduran District was still predominantly dominated by the agricultural sector, with varying levels of

respondents' involvement in non-agricultural occupations as supplementary sources of income.

Table 4. Frequency of Farmers' Occupations After Land Conversion / Year 2025

No.	Type of Occupation	Respondents' Occupation	Frequency	Percentage (%)
1.	Primary	Farmer	42	50
		Unemployed	28	33,3
		Employee	7	8,3
		Laborer	4	4,8
		Trader	3	3,6
2.	Secondary	None	67	79,8
		Trader	7	8,3
		Laborer	6	7,1
		Employee	4	4,8

Source: Author's Calculation (2026).

Based on Table 4, following the conversion of agricultural land in 2025, the occupational structure of farmers in Buduran District experienced fairly significant changes. Not all respondents continued to rely on agriculture as their primary occupation, and some shifted to non-agricultural sectors or were no longer employed. The range of respondents' primary occupations became more diverse, including employment as employees, laborers, and traders. In terms of secondary occupations, most respondents did not have additional jobs after land conversion, while a small proportion engaged in secondary occupations outside the agricultural sector. This condition indicates that land conversion has reduced the community's dependence on the agricultural sector while simultaneously limiting farmers' opportunities to obtain supplementary sources of income.

There were notable changes in respondents' livelihoods before land conversion 2020 and after agricultural land conversion 2025. Prior to land conversion in 2020, all respondents relied on the agricultural sector as their primary occupation, although some had secondary jobs outside agriculture. This condition demonstrates that agriculture remained the main source of livelihood for communities in Buduran District before changes in land use occurred. However, following land conversion, the livelihood structure shifted, as indicated by a decline in the number of respondents working as farmers, an increase in respondents' involvement in non-agricultural occupations, and the emergence of respondents who were unemployed. This finding is consistent with Pratiwi et al. (2024), who state that agricultural land conversion leads to changes in farmers' livelihoods due to the reduction in cultivated land and declining employment opportunities in the agricultural sector. Thus, land conversion not only

affects physical land use but also has direct implications for changes in livelihood structures and the economic sustainability of farming households.

In addition to its impact on livelihoods, agricultural land conversion also affects farmers' income. Changes in income were analyzed descriptively using mode values and percentages to identify the most dominant income change trends and the distribution of respondents across each income change category. The difference in income before and after land conversion was then grouped into class intervals to examine the distribution and frequency of respondents. This approach is consistent with Nazry et al. (2025), who argue that grouped frequency distributions can simplify data, making patterns of distribution and income change trends easier to understand. Accordingly, grouping income differences into class intervals provides a clearer picture of the economic impacts of land conversion on farmers' household income.

The minimum income difference was IDR 0, while the maximum income difference reached IDR 71,775,250. These income differences were used to form several class intervals. The number of classes was determined using Sturges' formula. Class width was obtained by dividing the data range by the number of classes, resulting in intervals used to examine the frequency distribution of respondents based on income changes. This is in line with Nazry et al. (2025), who state that grouped frequency distributions are used to organize statistical data to facilitate analysis and interpretation. Furthermore, grouping data into class intervals helps researchers identify trends and data dominance within specific groups, particularly in economic change analysis. The number of classes was determined using Sturges' formula with $n = 84$. The number of classes (k) is 7. The class width is approximately 10,253,607. Accordingly, the results of the interval calculations are presented as follows:

Table 5. Interval of Respondents' Income Differences

No	Income Difference Interval	Frequency	Percentage (%)
1.	0 – 10.253.607	42	50
2.	10.253.608 – 20.507.214	3	3,6
3.	20.507.215 – 30.760.821	6	7,1
4.	30.760.822 – 41.014.428	12	14,3
5.	41.014.429 – 51.268.035	8	9,5
6.	51.268.036 – 61.521.642	8	9,5
7.	61.521.643 – 71.775.250	3	3,6

Source: Author's Calculation (2025).

Based on Table 5, the income differences of respondents after land conversion are distributed across all established class intervals, indicating that the economic impacts experienced by farmers are diverse. The majority of respondents fall within the low to moderate income change intervals, suggesting that land conversion predominantly results in income changes on a moderate scale. Meanwhile, only a small proportion of respondent's experience income changes at very low or very high levels. This pattern indicates that although land conversion does not always lead to

extreme income changes, its impacts are nonetheless felt significantly by most farming households. These findings are consistent with the study by Pratiwi et al. (2024), which states that agricultural land conversion tends to generate varied economic impacts on farmers, with most farmers experiencing moderate income changes due to reduced cultivated land and shifts in livelihood sources. In addition, Nazry et al. (2025) emphasize that the use of grouped frequency distributions in income data analysis is effective in illustrating dominant trends and distribution patterns of respondents' economic changes, thereby facilitating researchers' interpretation of the impacts of policies or land-use changes on community economic conditions.

The observed changes in livelihoods and income levels indicate the economic impacts of agricultural land conversion. These impacts are reflected in shifts in farmers' work activities and variations in income levels received before and after land conversion. This condition is closely related to the economic considerations underlying farmers' decisions, whether to maintain their agricultural land or to sell it. Such decisions are generally influenced by the capacity of agricultural land to meet household economic needs, the availability of alternative livelihood options, and other economic opportunities that emerge as a result of land-use changes. An overview of the factors underlying farmers' decisions is presented in Table 6.

Table 6. Reasons Underlying Farmers' Decisions

No.	Type of Reason	Description of Reason	Frequency	Percentage (%)
1.	Maintaining Land	Inherited Occupation	19	22,6
		No Other Options	14	16,7
		Age Limitations to Work in the Non-Agricultural Sector	9	10,7
2.	Selling Land	Land Owned by a Company	32	38,1
		Reduction in Land Area	6	7,1
		Increasing Age	4	4,8

Source: Author's Calculation (2025).

Based on Table 6, farmers' decisions to retain their land are generally influenced by their attachment to agricultural work that has been carried out across generations, limited alternative employment opportunities outside the agricultural sector, and age-related factors that make it increasingly difficult for farmers to adapt to non-agricultural jobs. This condition indicates that agricultural land is still perceived as a "livelihood buffer," particularly for farmers with limited capital, skills, and labor mobility. Conversely, farmers' decisions to sell their land are more closely associated with changes or vulnerabilities in land tenure as well as household economic considerations when their capacity to manage the land declines. This pattern of reasoning is consistent with the findings of Pratiwi et al. (2024), who explain that relatively low agricultural income encourages farmers to seek alternative livelihoods

to improve their welfare, and that land sales often become one of the strategies to obtain capital or adjust to household needs. In addition, the study by Sumawardhani et al. (2023) demonstrates that decisions regarding land conversion are significantly influenced by farmers' socioeconomic characteristics, particularly age, number of household dependents, education level, farm income, and landholding size. These factors help explain why some farmers choose to retain their agricultural land, while others decide to relinquish it. This finding is also in line with Hidayat et al. (2021), who emphasize the importance of landowners' roles and their perceptions of tangible variables, such as income, in shaping land conversion decisions.

4. CONCLUSION

Based on the research findings, agricultural land conversion in Buduran District has had notable impacts on the social and economic conditions of farmers. From a social perspective, land conversion tends to enhance farmers' work ethic, reflected in increased diligence, discipline, and responsibility. However, it simultaneously leads to a decline in social interactions directly related to agricultural activities, particularly in the fields and within farmer groups. Several other social values remain relatively unchanged. From an economic perspective, agricultural land conversion results in changes to farmers' livelihood structures, as indicated by a decrease in the number of farmers relying on the agricultural sector and an increase in engagement in non-agricultural sectors. In addition, farmers' income levels exhibit varying degrees of change, with most falling within low to moderate levels of income change. These changes in livelihoods and income influence farmers' decisions to retain or sell their agricultural land, which are shaped by their socioeconomic conditions and the capacity of agricultural land to meet household needs.

REFERENCES

Handayani, S. P., Siradjuddin, I., AP, A. I., & Anshar, M. (2025). Dampak ekonomi alih fungsi lahan pertanian: Studi kasus Kecamatan Lalabata. *Jurnal Kajian Ruang*, 5(2), 219–237. https://journal.unhas.ac.id/index.php/jkr

Hendrawan, F. J. T. (2016). Analisis dampak alih fungsi lahan pertanian menjadi kawasan perumahan terhadap pendapatan petani Dusun Puncel Desa Deket Wetan Lamongan. *Jurnal Pendidikan Ekonomi (JUPE)*, 4(3). https://ejournal.unesa.ac.id/index.php/jupe

Hidayat, A. R. T., Hasyim, A. W., Prayitno, G., & Harisandy, J. D. (2021). Farm owners' perception toward farmland conversion: An empirical study from Indonesian municipality. *Environmental Research, Engineering and Management*, 77(1), 109–124. https://journals.vgtu.lt/index.php/EREM

Nazry, H. W., Rizky, F., & Syahra, Y. (2025). Frequency distribution in data analysis using R. In *Proceedings of the International Seminar on Islamic Studies* (Vol. 6, No. 1, pp. 1190–1198). https://jurnal.uinsu.ac.id/index.php/islamic

Ningsih, K., & Rismawati, R. (2022). Dampak alih fungsi lahan pertanian terhadap sosial ekonomi rumah tangga petani padi. *Jurnal Pertanian Cemara*, 19(2), 47–60. https://jurnal.untag-sby.ac.id/index.php/pertanian

Pratiwi, M. K., Nuddin, A., & Rahim, I. (2024). Perubahan mata pencaharian petani sebagai dampak alih fungsi lahan pertanian (Kajian penelitian di Kecamatan Bacukiki Kota Parepare). *Journal Galung Tropika*, 13(1), 35–44. https://jurnal.polbangtanmalang.ac.id/index.php/jgt

Sugiyono. (2020). *Metode penelitian kuantitatif, kualitatif, dan R&D* (2nd ed.). CV Alfabeta. https://www.cvalfabeta.com

Sumawardhani, M. C., Wisnujati, N. S., & Haryanti, E. (2023). Analisis faktor-faktor yang mempengaruhi alih fungsi lahan pertanian di Desa Kuwu Kecamatan Balerejo Kabupaten Madiun. *Jurnal Ilmiah Sosio Agribis*, 23(1), 43–49. https://journal.unmer.ac.id/index.php/socioagribis