

## Analysis of Food Security in Rice Farming Households That Experience Land Fragmentation in Buay Madang Sub-District, OKU Timur District

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### ABSTRACT

Fragmentation is agricultural land that is scattered or not in one whole area of land. Penelitian dilakukan di Kecamatan Buay Madang Timur, Kabupaten Ogan Komering Ulu (OKU) Timur. Metode penelitian yang digunakan penelitian ini adalah metode studi kasus. Metode pengambilan sampel dilakukan secara acak serta berasal dari anggota populasi yang ada. Responden di ambil dari tiga desa yaitu Desa Tebat Jaya, Aman Jaya, Desa Sukaraja dan Desa Sridadi, dengan alasan keempat desa ini merupakan desa yang paling banyak terjadi fragmentasi lahan, dengan kriteria luas lahan lebih dari 1 Ha. Based on the results of the study using formula calculations, the level of food security for rice farming households experiencing land fragmentation in Buay Madang Timur District was 49.78% of total household expenditure. That is, according to the criteria, if the share of household food expenditure is 60%, household is said to be food insecure. Thus the tolerance value for the percentage share of household food expenditure is 60% assuming the ideal value of the share of household food expenditure is 49.78% of total household expenditure, meaning food security. Factors that affect the food security of rice farmers who experience land fragmentation in Buay Madang Timur District, OKU Timur Regency are land area (x1), access to food (x2), income (x3), price (x4) have a significant effect while length of education (x5) has no real effect.

**Keywords:** farmers, food security, land fragmentation, farming households, analysis

### INTRODUCTION

Indonesia is a country with a wealth of natural resources, including biological, marine, and land resources as well as water and land resources. One of the fundamental resources for implementing Indonesia's economic development is its natural wealth. One of Indonesia's natural resources that can be improved is the agricultural industry. The general economic activities of the community are supported by the agricultural sector [1], Rice is one of the subsectors. The basic human

need for food generally involves rice consumption on a daily basis. Rice plants have greater potential than other commodities and are quite significant for the national economy. So, in order to make money, farmers produce rice harvests [2].

The supply of agricultural products, particularly food products, is impacted by the increasingly fragile fragmentation of agricultural land. Agriculture productivity and food availability have suffered as a result of land fragmentation [3].

Various driving elements, such as ecological, economic, and population increase, interact intricately to cause agricultural land fragmentation (AF) [4]. Political, economic, social, ecological, and environmental factors affect the fragmentation of agricultural land and have an impact on its dynamics, patterns, structures, and functions [5]. It is obvious that urban areas are increasingly owning more agricultural land as a result of technical advancements and local economic growth. Arable land is becoming more scarce, there are more parties putting pressure on it, and there are more rights and constraints due to initiatives to control

and regulate land use [6]. The demand for agricultural products in the future will continue to increase in line with population growth, so that the availability of land for agriculture must increase together with the use of agricultural technology and innovation.

With a production of 2,759,343 tons of rice in 2021, the province of South Sumatra has the greatest potential in the agricultural sector. It is also the top producer of rice on the island of Sumatra. The South Sumatra province produced the amount of rice listed below.

**Table 1.** Paddy production in South Sumatra Province 2019-2021.

| Regency       | Rice Productions (tons) |            |            |
|---------------|-------------------------|------------|------------|
|               | 2019                    | 2020       | 2021       |
| OKU           | 17 739,97               | 16 365,67  | 12 140,31  |
| OKI           | 484 604,79              | 525 218,03 | 444 370,50 |
| Muara Enim    | 83 125,84               | 51 866,22  | 45 436,39  |
| Lahat         | 73 128,99               | 70 278,25  | 65 585,83  |
| Musi Rawas    | 103 511,64              | 123 933,68 | 127 435,43 |
| M. Banyuasin  | 136 642,56              | 157 015,79 | 150 680,10 |
| Banyuasin     | 905 845,79              | 917 156,76 | 892 285,26 |
| OKU Selatan   | 37 418,38               | 38 509,64  | 51 020,23  |
| OKU Timur     | 575 340,17              | 633 627,74 | 558 995,26 |
| Ogan ilir     | 71 846,34               | 82 073,28  | 78 145,79  |
| Empat Lawang  | 55 920,35               | 60 730,88  | 49 409,61  |
| Pali          | 17 220,71               | 15 586,11  | 17 251,12  |
| Muratara      | 6 495,60                | 12 924,13  | 12 628,29  |
| Palembang     | 12 682,17               | 14 304,74  | 10 892,42  |
| Prabumulih    | 136,49                  | 137,53     | 145,95     |
| Pagar Alam    | 12 735,42               | 14 798,80  | 15 333,25  |
| Lubuk Linggau | 9 001,03                | 8 532,43   | 9 188,56   |

Source : BPS South Sumatra, 2022

With a production of 558,995.26 tons, OKU Timur Regency is the second-largest production district in OKU Timur Regency after Banyuasin Regency. This

achievement is based on an assessment of three criteria, including availability, affordability, and utilization of food from a nutritional perspective

**Table 2.** Realization of Planted Area in East OKU Regency, 2021

| Subdistrict    | Years (Ha) |          |
|----------------|------------|----------|
|                | 2020       | 2021     |
| Martapura      | 1,511.0    | 3,799.0  |
| Bunga Mayang   | 355.0      | 2,543.0  |
| Jaya Pura      | 488.0      | 750.0    |
| BP Peliung     | 3,125.0    | 8,525.0  |
| Buay Madang    | 2,193.0    | 12,286.0 |
| BMT            | 2,017.7    | 16,856.7 |
| BP Bangsa Raja | 1,800.0    | 7,998.0  |
| Madang Suku II | 3,221.0    | 11,195.0 |
| MadangSuku III | 285.0      | 3,942.0  |
| Madang Suku I  | 3,528.0    | 14,923.0 |
| BMR            | 2,937.0    | 7,454.0  |
| Belitang       | 1,243.0    | 9,078.0  |

|                  |         |          |
|------------------|---------|----------|
| Belitang Jaya    | 408.0   | 1,670.0  |
| Belitang III     | 1,965.0 | 5,648.0  |
| Belitang II      | 2,215.0 | 6,177.0  |
| Belitang Mulya   | 1,870.0 | 5,484.0  |
| SS III           | 4,995.0 | 11,047.0 |
| Semendawai Timur | 3,707.0 | 9,050.0  |
| Cempaka          | 1,095.0 | 6,473.0  |
| Semendawai Barat | 842.0   | 5,825.0  |

Source : Department of Agriculture and Food Security, OKU Timur (2022)

The largest planted area is in East Buay Madang District, according to Table 2 above; however, Table 2 shows that rice production decreased from 2019 to 2020. One reason for this is that land fragmentation occurred in Buay Madang District as a result of an increase in population, for heirs, and development impact. The presence of this land fragmentation results in a decrease in land ownership, which also affects the low income of paddy rice farmers. At the same time, the cost of living for farmers in East OKU Regency is rising [7]. The success of agricultural development has been progressively hampered in East OKU Regency, namely in East Buay Madang District, notably in efforts to boost output and productivity of food commodities. Water and land resource degradation is a severe issue that need considerable attention. One of the most significant issues that endanger crop output and have an impact on food is soil degradation [8]. There must be a quick response to the conditions that are rapidly encroaching on farmers and even igniting disputes because of rivalry for land and water use by diverse sectors of economic development.

Land serves as a very important source of life for humans, supporting a variety of livelihoods including agriculture, plantations, animal husbandry, fisheries, industry, as well as serving as a place to dwell thanks to the construction of homes. The rural poor own very few productive

assets, and practically all of their households are involved in agriculture [9]. Where some property ownership is acquired by sale and purchase and some is passed down through generations [10]. Fragmentation continues as long as land ownership is passed down through generations.

The term "land fragmentation" is frequently used to describe a single farm with many property parcels [11]. Farmer income and yields may be impacted by land fragmentation. The likelihood that a farmer will make more money depends on the size of the farmland; conversely, the likelihood that a farmer will make more money depends on how small the farmland is. Land fragmentation, where a single huge farm is divided up into numerous independent tiny land holdings, is a prevalent agricultural phenomena in many nations [12]. Crop yield is decreased by land fragmentation, which also raises the demand for family labor and other costs [13]. Therefore, in Buay Madang Timur District and OKU Timur District, land fragmentation may have an impact on food security.

The hypothesis described above can serve as a guide for researchers conducting research titled "Analysis of food security in rice farming households experiencing land fragmentation in Buay Madang Timur District, OKU Timur District".

## MATERIALS AND METHODS

The research is located in Buay Madang Timur District, OKU Timur District. The research method used in this research is the case study method. According to [14], For this kind of research, the case study approach is used, in which one research location selects a special (typical)

population in contrast to other research areas. This technique is for random sampling and uses people from the current population [15]. Because these four villages have the most land fragmentation and meet the criteria of having a land area of more than 1 Ha, as shown in the following table, respondents

were chosen from three of these villages: Tebat Jaya Village, Aman Jaya Village, Sukaraja Village,

and Sridadi Village:

**Table 3.** Population and respondents in Buay Madang Timur District, OKU Timur District, 2022.

| Village    | Population | Percentage | Respondent |
|------------|------------|------------|------------|
| Tebat Jaya | 90         | 30%        | 27         |
| Aman Jaya  | 96         | 30%        | 29         |
| Sukaraja   | 101        | 30%        | 30         |
| Sridadi    | 80         | 30%        | 24         |

Source : UPTD BPP East Buay Madang (2022)

The MS program is used in the data management method's quantitative analysis and straightforward calculations. using the following formula in Excel:

1. Share of Food Expenditure (SFE) calculated using the following formula [16]. The level of food security is calculated using three indicators with the criteria of high, low, medium, among others: Food availability; Food accessibility and Food security quality
2. The factors that affect the food security of rice farmers who experience land fragmentation in Buay Madang Timur District, OKU Timur Regency are used Logistic Regression Tests using SPSS Version 17 software.

This study uses four independent variables, so the formulation can be written as follows:

$$Y = B_0 + B_1 X_1 + B_2 X_2 \dots \dots + B_6 + X_6 + e$$

Y = Food Security (1:Food resistant, 0:Not Food Resistant)

B<sub>0</sub> = Konstanta

B<sub>1</sub> = Regression equation coefficients or regression parameters (i = 1,2,3,4,5)

X<sub>1</sub> = Land area (Ha)

X<sub>2</sub> = Food accessibility (1 : Smooth access, 0 : poor access)

X<sub>3</sub> = Income (Rp/Years)

X<sub>4</sub> = Price (1 : affordable, 0 : Not affordable)

X<sub>5</sub> = Length of education (years)

X<sub>6</sub> = Total fragmentation (time)

Decision making criteria:

- a. F-count ≤ F-table (α = 0.05), then accept H<sub>0</sub>, meaning that all independent variables have no effect on fragmentation (the dependent variable).
- b. F-count > F-table (α = 0.05), then reject H<sub>0</sub>, meaning that all independent variables have an effect on fragmentation (dependent variable)

## RESULTS AND DISCUSSION

When everyone consistently has access to sufficient, nourishing, and safe food that satisfies their food needs and food preferences for an active and healthy life, this is referred to as food security. Food security is achieved when all people consistently have access to enough, nutritious, and safe food that satisfies their dietary needs and lifestyle preferences for an active and healthy existence on a physical, social, and economic level. As described by [17] for some people, there is an abundance of food, but for others, there is malnutrition. Some people believe that ensuring food security is a task that involves both

agricultural and political will, as well as logistics for product distribution. Food and non-food expenses make up the majority of a rice farmer's household spending. The primary source of household expenses for rice farmers is food and non-food expenditures. The table below shows at least a few expenditures for the food group consisting of rice, corn, wheat, tubers, fish, chicken meat, vegetables, eggs, fruit, nuts, sugar, and oil as reported by the Central Bureau of Statistics OKU East:

**Table 4.** Average Food Expenditure Per Month for Rice Farming Households in Buay Madang Timur District, OKU Timur District

| Nr            | Food Expenditure | Average (Rp/Bulan) | Percentage (%) |
|---------------|------------------|--------------------|----------------|
| 1             | Beras            | 342,727.27         | 25.08          |
| 2             | Jagung           | 14,363.63          | 0.10           |
| 3             | Gandum           | 67,156.36          | 4.91           |
| 4             | Umbi-umbian      | 13,636.36          | 0.99           |
| 5             | Ikan             | 297,818.20         | 21.80          |
| 6             | Daging Ayam      | 111,127.30         | 8.13           |
| 7             | Sayur            | 22,281.82          | 1.63           |
| 8             | Telur            | 207,963.60         | 15.22          |
| 9             | Buah             | 68,181.82          | 4.99           |
| 10            | Kacang-kacangan  | 52,227.27          | 3.82           |
| 11            | Gula             | 75,981.82          | 5.56           |
| 12            | Minyak           | 92,577.27          | 6.77           |
| Total Average |                  | 1,366.042,72       | 100.00         |

Sumber : Primary Data (Processed), 2023

Rice expenditure is the largest expense, namely 25.08 percent, with an average expenditure of IDR 342,727.27/month. While corn food expenditure is the smallest food expenditure, which is Rp. 14,363.63/month or 0.10 percent. Rice is the most widely consumed type of food by farm households or as a staple food. Meanwhile, the second and third order food expenditures are for consumption of fish by 21.80

percent or an average of IDR 297,818.20/month and eggs by 15.22 percent or IDR 207,963.60/month.

While non-food expenditure according to the results of the study, at least there are types of non-food expenditure groups consisting of electricity rates, LPG, kerosene, gasoline, personal equipment, education costs, clothing costs, social needs, taxes and insurance which can be seen in the following table:

**Table 5.** Average Monthly Non-Food Expenditure of Rice Farming Households in East Buay Madang District, East OKU Regency

| Nr            | Non-Food Ecpenditure | Average (Rp/Bulan) | Percentage (%) |
|---------------|----------------------|--------------------|----------------|
| 1             | Health               | 86,572.72          | 6.28           |
| 2             | Education            | 438,545.45         | 31.82          |
| 3             | Telecommunication    | 111,545.45         | 8.09           |
| 4             | Electricity          | 136,063.63         | 9.87           |
| 5             | Gas                  | 131,518.18         | 9.54           |
| 6             | Fuel Oil / BBM       | 283,036.36         | 20.54          |
| 7             | PDAM                 | 60,304.54          | 4.37           |
| 8             | Others               | 130,318.18         | 9.45           |
| Total Average |                      | 1,377,904.54       | 100.00         |

Source: Primary Data (Processed), 2023

Based on the table it is known that non-food expenditure for education costs is the largest expenditure among other types of non-food expenditure of 31.82 percent, while fuel is 20.54 percent, and the third largest is electricity tariff of 9.87 percent. While non-food expenditure for PDAM is the smallest expenditure of 4.37 percent,

this is because the average population uses drilled wells to meet their daily needs.

Based on the results of the study, the total expenditure on rice farming households that have experienced fragmentation in Buay Madang Timur District is as follows:

**Table 6.** Level of Food Security of Rice Households Experiencing Land Fragmentation

| Food Expenditure | Non-Food Expenditure | Total Expenditure | Share of Food Expenditure (SFE) |
|------------------|----------------------|-------------------|---------------------------------|
| 1,366,042.72     | 1,377,904.54         | 2,743,947.26      | 49.78%                          |

Based on the results of research conducted in Buay Madang Timur District, an average household food expenditure of 1,366,042.72 per month was obtained and the average total household expenditure of rice farmers was Rp. Rp. 2,743,947.26- per month. The level of food security for rice farming households experiencing land fragmentation in Buay Madang Timur District is 49.78% of total household expenditure. That is, according to the criteria, if the share of household food expenditure is 60%, the household is said to be food insecure. Thus the tolerance value for the percentage share of household food expenditure is 60% assuming the ideal value of the share of household food expenditure is 49.78% of total household expenditure, meaning food security.

The average value of household food expenditure for rice farmers in Buay Madang Timur District is smaller than the average household non-food expenditure. The problem of land fragmentation is a topic that is often discussed by academics. In 2022, East Buay Madang will have more than 500 hectares of food agricultural land and more than 1 million hectares of farmers, according to data from the East OKU Agriculture Service. If the agricultural industry is operated for profit, this value is quite low. Because most of the products are grown for personal consumption rather than for profit, Indonesia's agricultural system adheres to the family system.

Further research reveals that fragmentation is the root reason of the tiny amount of land owned by farmers. Agriculture land that is dispersed or not in a single large region of land is referred to as fragmentation. The inheritance system, land purchases and sales, infrastructural development, land acreage, access to food, income, pricing, and length of education can all contribute to this. According [18], This fragmentation therefore leads to a number of issues, such as high maintenance costs due to the need to carry equipment from one area to another, a likelihood of conflicts with neighboring farmers, and so on.

#### **Factors Affecting Food Security of Rice Farmers Experiencing Land Fragmentation in Buay Madang Timur District, OKU Timur District**

The identified factors that can affect land fragmentation in East Buay Madang District, East OKU Regency are land area ( $x_1$ ), Food access ( $x_2$ ), Income ( $x_3$ ), Price ( $x_4$ ), length of education ( $x_5$ ) and total fragmentation ( $x_6$ ). Multiple linear regression is used to examine the elements that influence the food security of rice farmers in the Buay Madang Timur District who deal with land fragmentation. The factors influencing land fragmentation in East Buay Madang District, East OKU Regency, are shown by the results of multiple regression in the table 7 below:

**Table 7.** Logit Correlation Results Affect Food Security of Rice Farmers Experiencing Land Fragmentation in East Buay Madang District, East OKU District

|        |       | B      | Wald   | df | Sig. | Exp(B) | Lower | Upper  |
|--------|-------|--------|--------|----|------|--------|-------|--------|
| Step 1 | X1    | .856   | 15.567 | 2  | .003 | -1.571 | 2.113 | 15.376 |
|        | X2    | 4.135  | 4.568  | 2  | .004 | 6.267  | 1.008 | 6.187  |
|        | X3    | .677   | 4.145  | 2  | .002 | 2.163  | 4.586 | 4.568  |
|        | X4    | 2.476  | 3.956  | 2  | .001 | 1.327  | 2.986 | 4.189  |
|        | X5    | .987   | 2.168  | 2  | .078 | 3.937  | 1.247 | 3.097  |
|        | X6    | 4.945  | 3.985  | 2  | .000 | 2.358  | 1.086 | 4.964  |
|        | Const | .378   | 5.904  | 2  | .008 | 6.270  | 1.005 | 4.479  |
|        |       | -1.256 | 25.348 | 2  | .000 | .278   |       |        |

\*\* = Very real impact 0.01

\* = Real impact 0.05

Based on the results of multiple linear analysis with the help of the SPSS 23 program, 5 independent variables were obtained that affected the food security of rice farmers who experienced land fragmentation in East Buay Madang District, namely, land area ( $x_1$ ), food access ( $x_2$ ), Income ( $x_3$ ), price ( $x_4$ ) dan total fragmentation ( $x_6$ ), which has a significant effect. While the length of education ( $x_5$ ), did not significantly influence the food security of rice farmers who experienced land fragmentation.

Based on the results of multiple linear regression analysis, the  $R^2$  value was 0.861. This means that 86.1 percent of the variation can be explained by the model while the remaining 13.9 percent is explained by other variables that have not been included in the model. Furthermore, to see whether these independent variables have a joint effect on income, the F test is carried out, The results of the F test show that together the five independent variables namely land area ( $x_1$ ), food access ( $x_2$ ), Income ( $x_3$ ), price ( $x_4$ ), length of education ( $x_5$ ) and total fragmentation ( $x_6$ ), significantly affect the dependent variable (food security). This can be seen from the F test value of 122.139 with a significance level of 0.000, which means the error rate of the test is 0 percent. Partially through the t test it is known that the four independent variables namely land area ( $x_1$ ), food access ( $x_2$ ), Income ( $x_3$ ), price ( $x_4$ ), and total fragmentation ( $x_6$ ), statistically significant effect on the dependent variable.

### ***Land area ( $X_1$ )***

Logit regression results show the Exp value (B) of the number of family dependents of 1.571. That is, every reduction in fragmented land area or an increase of 1% will reduce the chance of food security for farmer families by 1.672%. After conducting the Wald test, it was found that a significance of 0.003 was smaller than  $\alpha = 0.01$ . So the area of fragmented land has a significant or significant effect on the food security of rice farmers in Buay Madang Timur District. This is in line with [16] (Putra, 2009), the shrinking of agricultural land ownership which is the impact of the system of inheritance and land conversion

causes the farmer's business scale to continue to decline. A decrease in business scale will result in increasingly unproductive land. Farmers believe it is best to sell land that is no longer productive. Farmers now hold a smaller parcel of land as a result of the decision to sell this land. Farmers will no longer be able to receive assistance since their agricultural area is becoming smaller, which will reduce their level of food security. The predicted level of food production increases with the size of the household's farm [19].

### ***Food Access ( $X_2$ )***

The results of the logit regression show that the value of Exp (B) access to food is 6.267. That is, every additional access to food or an increase of 1% will increase the chances of food security for farmer families by 6.267%. After conducting the Wald test, it turns out that a significance of 0.004 is less than  $\alpha = 0.01$ , so food access has a significant effect on food security. Affordability of food or access to food is the ability of households to obtain enough food, both from their own production, stocks, purchases, barter, gifts, loans and food assistance. Access to food also refers to a community's capacity to obtain food through both physical access and economic access. Economic factors that affect food affordability include the degree of income or purchasing power, the consistency of food prices, and the severity of poverty.

### ***Income ( $X_3$ )***

The results of the logit regression show that the Exp (B) value of food access is 2.163. That is, for each income or increase of 1%, it will increase the opportunity for farmers' income by 2.163%. After conducting the Wald test, it turns out that a significance of 0.002 is less than  $\alpha = 0.01$ . The income variable has a significant impact of 0.002, meaning that the income variable has a significant effect on the income of rice farmers in Buay Madang Timur District. This shows that the higher the income, the food security of rice farmers who experience land fragmentation will affect. Each additional income will increase food security by Rp. 2.163. In line with research [20] claims that if

key conditions are met in a nation, food security may be produced. This aspect has four parts, one of which is the financial situation, including income. When there is a correlation between income level and amount of food security in the home. In addition, households with low income are more likely to experience food insecurity because they cannot afford to buy the food they need [21]. Working as pond laborers and pond farmers provides the majority of household income in the area. Due to the region's households' low levels of protein and energy consumption, the ratio of food expenses to income needs to be raised.

#### ***Price (X4)***

The results of the logit regression show that the value of Exp (B) access to food is 1.327. That is, each income or increase of 1% will increase the opportunity price by 1.327%. After conducting the Wald test, it turns out that a significance of 0.001 is less than  $\alpha = 0.01$ . The price variable has a significant impact of 0.001, which means that any price adjustment will affect the food security of rice farmers who experience fragmentation in Buay Madang Timur District. Rice prices at the consumer level have increased as a result of the current situation of rising grain and rice prices at the farm level and in the rice milling industry. Numerous strategies have been put in place to sustain the market's supply of food and stabilize prices because supplies still exist in order to prepare for the increase in costs. Farmers' food security will lessen the degree of land fragmentation if prices are in line with their expectations. Inflation, a key factor in determining food security, is the main culprit. The inflation rate has consistently increased over the last few years and has decreased household purchasing power which has resulted in food insecurity [22].

#### ***Length of Education (X5)***

The results of the logit regression show that the value of Exp (B) access to food is 1.327. That is, every income or increase of 1% will increase the

opportunity price by 1.327%. After conducting the Wald test, it turns out that a significance of 0.078 is greater than  $\alpha = 0.01$ , meaning that the length of education variable has no significant effect on the food security of farmers who experience land fragmentation. This is in accordance with research [23] that the low level of education and supported by low income, will affect daily eating habits. Food insecurity is brought on by persistent poverty and a lack of sufficient productive resources. family size, livestock ownership, market access, household size in terms of education, and remittances [24]. those that are satisfying without considering their nutritional content are what people in these groups define as eating, not those that are healthful and nutritious. It is believed that this increases the chance of food insecurity.

#### ***Total Fragmentations (X6)***

Logit regression results show the value of Exp (B) the number of times it is fragmented by 6.270. That is, each additional amount of fragmentation in one field increases or increases by 1%, the chance will increase by 6.270%. After conducting the Wald test, it turned out that a significance of 0.008 was greater than  $\alpha = 0.01$ , meaning that the variable amount of fragmentation had a significant effect on food security in Buay Madang Timur District. Based on the findings in the field, the phenomenon of paddy field fragmentation is getting worse every day, as evidenced by the fact that less rice is being produced. In addition, it is indisputable that a growing population will increase the demand for land for habitation and other non-agricultural uses. As a result, there is an increase in the demand for land, which could come from fertile agricultural area like paddy fields. This shows that preventing agricultural fragmentation is difficult to achieve. The process of inheriting, purchasing, selling, and granting part of agricultural land will occur, causing the partition of agricultural land area into narrower pieces.

## CONCLUSION

The level of food security for rice farming households experiencing land fragmentation in Buay Madang Timur District is 49.78% of total household expenditure. That is, according to the criteria, if the share of household food expenditure is <60%, the household is said to be food insecure. The share of household food expenditure is 49.78% of total household expenditure, meaning food security. The factors that affect the food security of rice farmers who experience land fragmentation in East Buay Madang District, East OKU Regency include land area ( $x_1$ ), Food access ( $x_2$ ), Income ( $x_3$ ), Price ( $x_4$ ), length of education

( $x_5$ ) and total fragmentation ( $x_6$ ). Based on the results of multiple linear analysis with the help of the SPSS program version 23, 5 independent variables were obtained that affected the food security of rice farmers who experienced land fragmentation in East Buay Madang District, namely, land area ( $x_1$ ), food access ( $x_2$ ), Income ( $x_3$ ), price ( $x_4$ ) dan total fragmentation ( $x_6$ ), which has a significant effect. While the length of education ( $x_5$ ), did not significantly influence the food security of rice farmers who experienced land fragmentation.

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