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ANALYSIS OF FOOD CONSUMPTION PATTERNS OF LOCAL PADDY FARMERS' HOUSEHOLDS IN BARAMBAI DISTRICT OF BARITO KUALA REGENCY, INDONESIA

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ABSTRACT
Food consumption patterns at the household level have become critical for analysis. In particular, in the recessed land with poor physical, biological and chemical conditions soil soil production and productivity produced peasants are very low. Peasant land is generally more cultivated local peas because it is able to adapt to the conditions of the land. Local usahani peas production generally is relatively low, resulting in income obtained is also low, so will affect the patterns of food consumption of farmers households. The study aims to analyze the food consumption patterns of local peanut farmers' households, and to analyse the factors that influence the food consumer pattern of the local peat farmer's household. Sampling was done using two-stage random sampling; the first stage of 11 villages in the district took randomly as much as 1 village, namely Pendalaman Village. The second stage numbered the population of peasant farmers in the village as 186 and took as many as 86 people sample with simple random sampling technique. The results show that the food consumption patterns of households of local peanut farmers are not as varied as the rice-peanut pattern. The consumption of carbohydrates is dominated by foods that come from peas and protein sources from fish, the average ACE farm households were 1,587,64>1,470 kcal/capita per day, so the entire household of peasants included a well-being. Food consumption expenditure factors, the number of ideal households and the productive life of the head of the family have a significant influence on the food-consumption patterns of local peasant farmers, while the education of head of family and mother of household has no significant impact.

KEY WORDS
Food consumption patterns, energy scarcity, poor households.

Food is one of the basic human needs, therefore the provision of adequate, nutritious and safe food is the fundamental right of every Indonesian people to create quality human resources, so that they can implement national development. Food and nutrition development needs to be positioned as the Central of Development for the overall achievement of the "Sustainable Development Goals (SDGs)" for the period 2015 to 2030, which are shared commitments.

As in Act No. 18 of 2012, food is anything derived from biological sources of agricultural products, plantation and forestry, fishing, farms and water, whether processed or untreated, intended as food and beverages for humans, including food additives, food raw materials, and other materials used in the process of presentation, processing and manufacture of food and drink. In other words, the notion of food has become very broad and the government must be able to provide food for its people, because the need for food is one of human rights (Human Rights). If the government is unable to provide enough, nutritious, balanced, healthy food, then the government can be said to be a serious human rights violator.

The consumption of food by a population or household is the result of the development of a region's food resilience. The amount of food consumed by the population is expected to be varied, sufficiently nutritious and balanced and a condition for the physical development and quality intelligence of the population. And in this connection, the consumption of food by

residents or households needs to be monitored and monitored, one of which is through a survey of food patterns.

Factors that influence consumption such as low incomes, awareness of the importance of low education, the high amount of dependence in a household and the high rate of credit interest payments are expected to greatly affect household consumptions and consumer patterns in those households.

As is known, one of the sub-systems in food sustainability is the access of households or residents to food with indicators of the level of food consumption. Many of the variables that determine the patterns of consumption and supply of food are the conditions of the region in this case the villages and cities that can characterize the characteristics of their business that will affect the income pattern and eventually the pattern of consume. With the various patterns of food consumptions between villages, can be easily measured the level of energy, protein, fat and carbohydrate consume, which can be further determined the food sensitivity level of the population, the amount of food production consumed by the population and the extent of land used to meet the needs of such consumptive.

Food consumption patterns have become critical to be analyzed periodically, as it is one of the outcomes of successful agricultural development, and is the best measure to describe household food sustainability and well-being for farmers and communities. Based on this, the formula of the problem in this study is as follows: how the pattern of food consumption of local farmers households in Barambai district, Barito Kuala district; factors influencing food consumption patterns of local farmers in Barambai district of Barito Kuala.

Based on the formula of the problem, the purpose of this research is as follows: analysis of food consumption patterns of local farmers' households in Barambai district, Barito Kuala district; analyze the factors that influence the food consuming pattern of local farmer's household in Baramba District.

METHODS OF RESEARCH

The research was carried out in Barambai district of Barito Kuala. The research was conducted from July 2022 to December 2022, starting from the phase of making proposals, data processing, and data analysis to the writing of the report on the results of the research.

This research uses a survey method. The type of data collected in this study is primary obtained from interviews with selected respondents with the help of a previously prepared questionnaire. Secondary data obtained from related agencies such as the Barito Kuala Prefecture Food Safety Agency, the Central Statistical Agency of Barito Kuala, and the Food Plant and Horticulture Agriculture Agency, Barito and Kuala Preferences District Development Planning Agency, such data were acquired through annual, monthly reports and publications.

The sampling in the study uses the Two Stage Random Sampling technique, which is the process of taking samples in a gradual manner. The first phase of random village selection from 11 villages selected 1 village and selected Longitudinal Village. Further, the second phase selected a sample of local peat farmers selected randomly as many as 86 samples from the total population of local Peat Farmers approximately 186 farmers.

To analyze the patterns of food consumption of local farmers' households is done by descriptive methods, while to analyze factors influencing the pattern of consuming food of local farmer's household in Barambai district Barito Kuala district, binary logistic regression analysis is used with the following equation model:

$$\ln\left(\frac{P_1}{P_0}\right) = gx = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 \qquad (1)$$

Where:

- X1: Consumption Expenditure;
- X2: Heads of Family Education;
- X3: Maternity Education;

- X4: Ideal Number of Family Members;
- X5: Productive Age of Head Family.

Before the model is used to estimate the parameters used in the model, it is necessary to test the fit of the model with empirical data.

Test -2 log likelihood with the following formula:

$$G^2 = 2\sum_{i=1}^{I}\sum_{j=1}^{J} x_{ij} \log\left(\frac{x_{ij}}{m_{ij}}\right) \quad (2)$$

Where:

- χ_{ij}: observation value;
- m_{ij}: frequency of expectations.

Test goodness of fit, with the following formula:

$$\chi^2 = \sum_{i=1}^{I}\sum_{j=1}^{J} \frac{(x_{ij}-m_{ij})^2}{m_{ij}} \quad (3)$$

Both tests with statistical hypotheses:

- H_o: The model fits with the empirical data;
- H_1: The model does not fit the empirical data.

Theory of Decision:

- Reject Ho, if $X^2_{hit} > X^2(a,b)$ or $G^2_{hitung} > X^2_{(a,b)}$;
- Accept Ho, if $X^2_{hit} \leq X^2(a,b)$ or $G^2_{hitung} \leq X^2_{(a,b)}$.

Simultaneous Test is used to identify independent variables together to explain against variables used with the following formula:

$$G = -2Ln\left[\frac{L_o}{L_1}\right] \quad (4)$$

Where:

- L_0: *likelihood* with constants;
- L_1: *likelihood* model with independent variables;

Statistical hypotheses used as follows:

- H_0: $\beta_1 = \beta_2 = \ldots. \beta_p = 0$;
- H_1: At least one $\beta_j \neq 0$.

Theory of Decision:

- Reject Ho, if $G > X^2(v,a)$ or *P-value* $< \alpha$;
- Accept Ho, if $G_t \leq X^2(v,b)$ or *P-value* $\leq \alpha$.

The partial test is used to determine the influence of each independent variable used in this study (expenditure on food consumption, formal education of the head of the family and the mother of the household, the number of family members and the age of the heads of family) on its dependent variable in this case is the pattern of foodconsumption of farmers' households, with the formula as follows or by comparing the value of this level (p-value) with the alphabetical value of a certain significance.

$$W = \frac{\beta_j}{SE(\beta_j)} \quad (5)$$

Where:

- β_j: logistical regression coefficient to j;
- SE (β_j): standard error to j.

Statistical hypotheses used:

- H_0: $\beta_j = 0$;
- H_1: $\beta_j \neq 0$.

Theory of Decision:

- Reject Ho if W > $X^2_{(v,\alpha)}$ or *p-value* < α;
- Accept Ho if W ≤ $X^2_{(v,\alpha)}$ or *p-value* ≤ α.

Further to interpret the regression coefficient is combined with the odds ratio or trend ratio value. Such interpretation depends on the type of data used by the dependent variable. If discreet in this case nominal or ordinal, then the interpretation is different with the type of data interval and ratio.

RESULTS AND DISCUSSION

Based on the results of the research shows that the patterns of food consumption households of local peasants in Barambai district are not very varied. For breakfast and dinner the largest percentage is only rice. But for lunch has begun to vary with the addition of vegetables with the pattern of rice-orange, this is because of the diet or food habits already formed (Table 1).

Table 1 – Food consumption patterns of households

Food Consumption Patterns	Number of households	% Household
Breakfast		
Rice-Side Dishes-Vegetables-Fruits	-	-
Rice-Side Dishes-Vegetables	40	46.51
Rice-Side Dishes	46	53.49
Lunch		
Rice-Side Dishes-Vegetables-Fruits	-	-
Rice-Side Dishes-Vegetables	62	72.09
Rice-Side Dishes	24	27.91
Dinner		
Rice-Side Dishes-Vegetables-Fruits	-	-
Rice-Side Dishes-Vegetables	43	50.00
Rice-Side Dishes	43	50.00

Table 2 – Commodity types and average house

Type of Food/Type of Commodity	Gram/Capita/day	
	Barambai district	Barito Kuala Regency
Rice	648.86	670.82
Flour/Noodles	35.36	23.64
Corn	2.77	0.92
Banana	24.12	24.88
Cassava	17.19	12.83
Total	728.30	733.09
Fish	98.07	104.63
Chicken	9.15	18.91
Egg	10.42	9.23
Meat	0.00	0.00
Milk	3.23	6.94
Total	120.87	137.40
Fruits	-	14.28
Vegetables	98.86	112.36
Nuts	21.36	27.91
Sugar	4.54	10.52
Oil and fat	17.20	20.67
Spices and more	4.22	6.37
Coconut oily seed fruit	4.22	4.96
Total	150,40	197.06
Total	999,57	1.067.55

Source: Recall 24 hours and KP&P agency Barito Kuala Regency 2021.

Furthermore, based on the research results, it shows that overall; the consumption pattern of local rice farmer households is 72.86% carbohydrates. When compared with the

ideal consumption of only 50% coming from grains, it is still too high. Protein consumption of 12.09% from animal sources is considered ideal, in accordance with the ideal consumption of 12%. In contrast, the consumption of fats and oils of 15.05% is still higher than the ideal consumption of 12%.

In detail, household consumption patterns show that the largest proportion of food types of the amount consumed by local peasants in the district comes from rice foods that reached 89.13% of the total source of foods producing carbohydrates and almost equal to the population in Barito Kuala district. Consumption of fish reaches 81.79% of protein-producing foods, as this district is one of the largest fish producers in South Kalimantan. Meanwhile, vegetables accounted for 65.73% of vegetables from fat producing food sources (Table 2).

The average consumption of the various food groups was 999,57 grams per capita per day with an average amount of AKE of 1.587.65 kcal per capitan per day. If compared with 70% AKE that reached 1.470 kcal / capita a day, it is still greater, but if seen per household farmers will be different and there are still a lot below 70% ACE (Table 3).

Research shows that if you use 70% of the 2,000 kcal per capita daily, it's only 37.21%, and the number of well-off households is higher. But if you consume 2,100 kcal/capita per day, the number is doubled or 74.42% (Table 4).

Table 3 – Real per capita and energy consumption and PPH scores of local farmers' households

Group	Gram/Capita/day	Actual Energy (Calories)	% (AKE)*	Score PPH**
Grains	686.99	1167.88	58.39	25.00
Tubers	17.19	17.19	0.86	0.43
Oil and fat	17.21	68.83	3.44	1.72
Oily seeds	4.22	16.86	0.84	0.42
Sugar	4.54	14.07	0.70	0.35
Animal Food	120.87	205.48	10.27	20.55
Nuts	21.36	51.26	2.56	5.13
Vegetable and fruit	122,98	44.80	2.24	11.20
Miscellaneous (Condiments)	4.22	1.26	0.06	0,00
Total	999,57	1.587,64	79,38	64,80

Table 4 – Number of poor households based on energy availability

Household Criteria	70% EA 2.000	70% EA 2.100
Poor	37.21	74.42
Prosperous	62.79	25.58
Total	100.00	100.00

Based on the result of binary logistic regression of the equation (1) using SPSS 25 obtained the following food consumption pattern equation:

$$(gx) = -4{,}783 + 0{,}024X_1 + 0{,}076X_2 + 0{,}069X_3 + 2{,}199X_4 + 1{,}788X_5$$

Based on the fit test results of the model used that are made with a strong theoretical foundation, then the model should be tested based on the results of analysis using the Hosmer-Lemeshow test, where p-value = 0.646, larger than α (α = 0.05), according to the theory of decision, then the zero hypothesis (Ho) is accepted, so it can be concluded that the model made fit the empirical data. In other words, the model can be used for further analysis, to estimate the parameters in the model.

Simultaneous testing is also needed to determine whether the independent variable used jointly affects the dependent variable. The test statistics used are the χ2 test, with a p-value of 0,000 and < of α = 0,05, according to the theory of decision, then Ho is rejected and accepts an alternative hypothesis, so it can be concluded that there is at least one logistical regression parameter not equal to zero. By saying that collectively the independent variables used have a significant influence on farmers' food consumption patterns in the Barambai district.

Based on the results of binary logistical regression analysis obtained a consumption output coefficient of 0.024 significantly different from zero at α=0,05, so the zero hypothesis (Ho) was rejected and the alternative hypotheses (H1) accepted. Meanwhile, the value of the odd ratio is 1,024. The integration of the coefficient with the odd ratios suggests that if food consumption expenditure increases significantly by 1 unit, then the pattern of food consume will increase by 1,024 units. In other words, if the consumptions of food increase as a result of the increase in income, then significant patterns of food consuming will lead to the ideal food pattern is ≥ 2,100 kcal/capita/day.

Based on the results of such regression analysis, a coefficient of 0.076 is obtained and is not significantly different from zero at α = 0,05, so the zero hypothesis (Ho) is accepted and the alternative hypotheses (H1) rejected. In other words, that pattern of food consumption of household farmers is not significantly determined by the formal education of the head of the family of farmers.

The same thing as the mother's education obtained a coefficient of 0.069 and did not differ significantly from zero at α=0.05, so the zero hypothesis (Ho) was accepted and the alternative hypotheses (H1) rejected. In other words, that pattern of food consumption of households is not significantly determined by the formal education of the householder.

Table 5 – Partial testing of the influence of independent variables on dependent variables

Variabel	B	SE	Wald	P-val (Sig)	Exp(β)/Odd ratio
Constant	-4,783	1,477	10,483	0,001	0,008
Consumption Expenditure	0,024	0,123	4,906	0,027	1,024
Heads of Family Education	0,076	0,123	0,386	0,534	0,848
Maternity Education	0,069	0,128	0,289	0,591	1,071
The Ideal Number of Family Members	2,199	0,624	12.399	0,000	9,012
Productive Age	1,788	0,673	7,053	0,008	5,975

Sources: Output SPSS 26.

The ideal number of dependent families in accordance with the criteria set out by the National Population and Family Planning Authority is ≤ 3 persons consisting of a mother and two children. Based on the results of binary logistic regression analysis, a coefficient of 2,199 is obtained and significantly differs from zero at α=0,05, so that the zero hypothesis (Ho) is rejected and alternative hypotheses (H1) are accepted. The integration of the coefficient with the odd ratio suggests that if the number of family members belongs to the ideal category, then the pattern of food consumption will increase by 9,012 times when compared to the patterns of households whose family dependence is not ideal or ≥ 3 persons. In other words that the ideal family, or called the family of hope, has a significant tendency to move towards the ideal pattern or to ≥ 2,100 kcal/capita/day or will go towards a healthy and active family because the calorie needs of the family can be met.

The productive age of the head of the family is categorized according to the labour law criteria, i.e. if the age of head of family ≤ 64 years is included in the productive criteria. Based on the results of the analysis, the coefficient of 1,788 is significantly different from zero at α=0,05, so the zero hypothesis (Ho) is rejected and alternative hypotheses (H1) are accepted. Meanwhile, the odd ratio was 5,975, so the integration of the two shows that if the heads of households of peasant farmers are included in the productive criteria, then their patterns of consumption of food are significantly more likely to be 5,975 times better than the pattern of food consumptions of the farmers household with the head of their families who are already in the non-productive age.

In working age becomes one of the main factors, for the head of the family who are in the non-productive age tend more to survive with the current pattern of employment and relatively not too responsive to technological advances in working, so that the income earned is relatively lower and tends to stagnate, so patterns of consumption of livestock are <70%x2.100 kcal/capita per day. Unlike farmers who belong to the productive age more response to change and ability in business is also better, so production and productivity will increase.

CONCLUSION AND SUGGESTIONS

Based on the results of the analysis and discussion described earlier, some of the following can be concluded:

- Food consumption patterns of households of local peasants in the Barambai district do not vary more than the pattern of rice-fish;
- Based on the results of binary logistic regression analysis, the variables of consumption expenditure, the ideal number of family members and the productive age significantly influence the consumer patterns. Meanwhile, the formal education of the head of the family and the mother of the household had no significant influence on farmers' food consumption patterns.

Some things can be suggested from the findings of this research are:

- It is necessary to increase production and productivity of farmers through the application of superior farmers technology as well as fertilization technology, so that production and household productiveness increases, then household income will also increase, so expenditure on food consumption also increases;
- There is a need to diversify farmers' enterprises not just one kind of commodity grown, for example, local farmers integrated with horticultural crops.

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