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Food Security of Poor Farmer Households in Urban and Rural Areas in Banjar Regency, Indonesia

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Abstract

Differences in aspects of the physical environment, social environment, value of life, and diversification of staple foods between urban and rural areas will impact income and household food consumption discrepancies. The income earned by households will affect food and non-food consumption and the level of household food security. This study aims to examine the food security of poor households in urban and rural areas in Banjar Regency using the Household Food Insecurity Access Scale (HFIAS) method and the Maxwell method. The results of measuring the level of food security using the HFIAS method and the Maxwell method show that the level of food security of rural households is better than that of urban households. In addition, this study found that household size is an essential factor affecting household food security.

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Introduction

Sector agriculture is one sector that is important in growing the Indonesian economy. Sector agriculture provides food for domestic consumption, field profession for significant part population, market share for results production sector other economies and improves income domestically. Moreover, sector agriculture affects the nutrition Public by producing household food.

Food is one most essential needs for maintaining life. Besides that, a country yet said have endurance good food though availability the food enough at the level national and regional. However, if access to Fulfill does not need the food evenly, endurance food could still be fragile(Devine *et al*., 2009; Mayer *et al*., 2016). Banjar Regency experienced enough development fast, profound thing this could be seen from the growth residents who continue to increase yearly. Amount population Banjar Regency in 2021 based on Census Results, the population in September 2021 is as many as 565,635 inhabitants. By total amount population, the experience increases as significant as soul when compared with amount population results census population in 2011 which reached 509,091 people. In other words, for an extended period from 2011 to 2021, Banjar Regency grew 1.02 percent, experiencing an increased population of 56,544 people (BPS, 2022).

Life Expectancy Banjar District of year Keep going experience increase. However, this number is still more low compared to South Kalimantan province. In 2021 the numbers hoped for South Kalimantan's life reaches 68.83 years, 1.42 years adrift with Life Expectancy Banjar Regency, which is still lower, i.e., 67.41 years, meaning every new baby born in 2021 in Banjar Regency is estimated will have hope life until 67.41 years old duration (BPS, 2022).

One indicator used to determine the degree of health population is morbidity/number of pain. In 2021, as much as 15.23 percent of Banjar Regency's population ever experienced a health disturbance a month last (counting a month before time enumeration month March 2021). Pain Rate population man in 2021 by 13.62 percent, which is relatively lower than the population of a woman at 16.90 percent. In other words, the complaints of health experienced by men in 2021 are somewhat more minor than women.

If seen from Nutritional Status, Prevalence data results in Toddler Banjar Regency has toddler status nutrition not enough by 24.8% and toddler status nutrition inadequate by 10.2% of the total number of children under five in the district. This shows that many people in the Banjar district still have insufficient nutrition and are not fulfilled as they should be.

Temporary if seen from the development of Gross Regional Domestic Product (GRDP) per capita in Banjar Regency during period 2017-2020 nominal value of GRDP per capita on base price constant Keep going experience increase, however, no Thus in 2020, GRDP per capita on base price applies to know 2021 recorded experience drop by -1.93 percent from the previous 28.28 million rupiahs in 2020 to 27.74 million rupiahs in 2021. Meanwhile, on base price, constant GDP per capita in 2021 is down -3.26 percent, which means society's 3.26 percent drop in power (BPS, 2022).

Besides the above factors, society Relative Banjar Regency variety, thing this could see from GDP value by field business consisting of from sector agriculture, mining and quarrying, industry management, electricity, gas and water supply, building/construction, trade, hotels and restaurants, transportation and communications, finance, rental, and services company, as well as services. This shows that Public districts have diverse eye livelihoods like sector agriculture in general being in the countryside, as well as sector another common is at Urban. So that the place stays household is also suspected will influence to pattern consumption food household. Existence differences based on physical, environmental, social, value life, tendencies diversification food tree between urban and rural areas will give difference high income as well as

consumption food household. So the size of income earned household will affect the consumption of food and non-food carried out in both areas. Of course, this will impact the level of endurance of food households.

Based on the thing that, need this writing study endurance food poor farmer households in urban and rural areas in Banjar Regency with new method namely the Household Food Insecurity Access Scale (HFIAS) and the method Maxwell.

Materials and methods

The process of data processing in research includes coding, entry, cleaning, and analysis. Analysis statistics used in a study this cover analysis univariate and analysis bivariate. Collected data processed and analyzed using the Microsoft Excel 2010 computer program to save the research database and Statistical Program Social Sciences (SPSS) version 21.0 for Windows to explore each variable's connection. Variable the cover characteristics household (parental age, parental education, knowledge nutrition mother household, size household, type profession head household, ownership total household assets, and income), household energy sufficiency level & protein adequacy level and level endurance food measured household with HFIAS method and Maxwell method (Castell *et al.*, 2015).

Data about the level endurance food household earned with the HFIAS method and method Maxwell. Maxwell's method is a method (Jonsson, U. and Toole, D., 1991) that was later adopted and developed by Maxwell (Maxwell and Frankenberger, 1992). Maxwell's method combines two indicators of endurance food: level expenditure on food and energy consumption per equivalent unit adult (consumption energy all member household equivalent with adult).
Focus on food security metrics may comprise food availability, access, utilization, the stability of food security over time, or some combination of these domains. These measures may draw from national, regional, household, or individual data. Such tools may vary from easy and uncomplicated indicators for which data can be quickly collected and easily analyzed to more comprehensive measures that demand detailed, time and resource-intensive data collection and advanced analytic skills to yield results (Ihab et al., 2015; Mayer *et al.*, 2016; Swesi *et al.*, 2020).

Modification Maxwell's method is carried out on the consumption cut-off energy. Therefore, the determination of the cut-off on the Maxwell method (Ansah et al., 2019; Maxwell & Frankenberger, 1992; Silva *et al.*, 2016) is 80% sufficient if applied in Indonesia. Because of that, modifications conducted by conditions in Indonesia according to Minister of Agriculture Regulation No. 65 of 2010 concerning standard minimum service area endurance province and district/city and DKP 2009 household included category vulnerable food if consumption the energy not enough than 70% of condition adequacy energy.
Food coping strategy data is carried out with Interviews with the respondent with asked for 29 lists of coping behaviors that were then grouped into 7, namely: (1) increasing income ; (2) changing habits eat ; (3) addition access immediately on food ; (4) addition quick access for buy food ; (5) change distribution and frequency eat ; (6) live days without eating; and (7) steps drastically (Devine et al., 2009; Saaka *et al.*, 2017). Of the seven groups, shared Becomes three levels that is level 1 (increase income, change habit eat and hurry access to food), level 2 (immediate access to purchase cash, change distribution and frequency eat, pass days without eat), and level 3 (do step drastically). Level 1 consists of 13 questions, level 2 consists of 12 questions, and level 3 consists of 4 queries (Mjonono *et al.*, 2009; Abebe, 2021).

Results and discussion

Sufficiency Level Household Energy and Protein

Table 1 shows that part large Adequacy level energy urban farmer household includes in the Less category (60%), while rural farmer household includes enough (64.4%). Most Household protein adequacy levels are urban, including in the less category (65.3%), while part big households are rural, including enough (68.0%).

Energy sufficiency and protein adequacy levels are good in the countryside because they are rural, identical to area agriculture that can plant food like rice, cassava, and corn, which contribute significantly to the subsequent consumption and will take effect to endurance food households. Moreover, in research, families use the land around the house/yard to plant food and maintain animal cattle like chickens.

Table 1. Proportion household based on level adequacy energy and protein.

Criteria	Urban	rural	Total
	%	%	%
Classification Sufficiency Level energy			
Enough (≥ 70%)	34.7%	68.0%	51.3%
Not enough (< 70%)	65.3%	32.0%	48.7%
Classification Protein Adequacy Level			
Enough (≥ 80%)	41.3%	68.0%	54.7%
Not enough (< 80%)	58.7%	32.0%	45.3%

* *Chi-Square test.*

Resistance food household

HFIAS method: Research measuring food's endurance uses the HFIAS and Maxwell methods. HFIAS method reflects access physical (availability food at level household) earned with Interview use a questionnaire consisting of from nine showing question several things namely 1) uncertainty or worry on food (situation, resource, or supply); 2) perception that quantity (amount) intake food no enough related with availability physical in the household ; 3) perception that quality food no enough (including aspect diversity food, sufficiency substance nutrition, preferences); and 4) reports subtraction intake to eat. On the other hand, HFIAS does not measure food intake or nutritional status but the household's perception of access to food.

Table 2. Proportion household based on level endurance food which is measured use method HFIAS.

Level endurance food	Urban	rural	p *
	%	%	
Stand Food (0-1)	20.0%	29.3%	0.027
A little vulnerable Food (2-7)	22.7%	33.3%	
vulnerable Food Medium Level (8-14)	38.7%	21.3%	
vulnerable Food Level Heavy (15-27)	18.7%	16.0%	
Score HFIAS (Average ± SD)	8.7±5.2	7.1 ± 6.3	

* *Chi-Square test.*

HFIAS is an adaptation from the approach used to estimate the prevalence of vulnerability food in the United States (US) per year that is the *Household Food Security Survey Module* (HFSSM) used by the United States Department of Agriculture (USDA) and other agencies more in the US for seeing vulnerability food in the poor. A method based on ideas that experience vulnerability food in Thing access cause reactions and responses that can be captured and quantified by measurable through a survey and illustrated with ratings/scales (Coates *et al.,* 2007) HFIAS was released by the Food and Nutrition Technical Assistance Project (FANTA) in 2006 (Deitchler, M. Ballard, T. Swindale, A. and Coates, 2011). HFIAS measuring level vulnerability food During three twenty days / one month last reported themselves by the household who becomes respondents. HFIAS consists of nine later question scores (0-27); the taller the household, the more vulnerable the household. The proportion of households based on level endurance measured food use HFIAS method is shown in Table 2.

Table 2 shows that part of urban farmer households experience food insecurity of moderate level (38.7%), while part of rural farmer households experiences food slightly insecure (33.3%). Table 2 also shows that households included in the category Stand food more in rural areas (29.3%) than in urban areas (20.0%). The chi-square test results produce a *p*-value = 0.027, which means that there is a difference In level endurance measured by food using the HFIAS method in urban and rural households. The average household HFIAS score is 9 (8.7 ± 5.2), while the household is 7 (7.1 ± 6.3). Household HFIAS score in rural is lower than household HFIAS scores in urban. This shows that food endurance in rural households is good compared to level endurance in urban areas.

This shows that urban inequality is tall compared to rural areas. The higher the HFIAS score, the more Stand Food household that. This was related to adequate food in rural areas. (Mohammadi *et al.*, 2012; Pandey and Bardsley, 2019; Patel *et al.,* 2015).

Table 3. The proportion of households based on energy consumption per unit equivalent to mature.

Consumption o f energy per unit equivalent to mature	Urban	rural	p *
	%	%	
Enough (≥70% adequacy energy)	37.3%	66.7%	0.000
Not enough (<70% adequacy energy)	62.7%	33.3%	

* test *Chi-Square*

Rural areas identical to area agriculture that can plant food like rice, cassava, and corn which contribute significantly to the subsequent consumption, will take effect to endurance food household (Pandey and Bardsley, 2019). Besides, most households in rural areas still have land around the house/garden.

This significantly affects diverse food households, which will further take effect to level endurance food households. Moreover, households use the land around the house/yard in research to plant food like cassava and vegetables and maintain animal cattle like chicken.(Gebreyesus *et al.,* 2015; Otekunrin *et al.*, 2021).Musotsi *et al.* (2009) also stated that the matching plant could increase the endurance of food households. This is because match plants could provide direct access to food picked and consumed by household members daily, providing food sources for vegetables and fruits rich in vitamins and minerals (Musotsi *et al.*, 2009).

The more owned crops and livestock held, the more the household food supply could increase. This thing will impact the level of endurance food household. Livestock and plant agriculture have a connection with each other profitability. Cattle get food from grass or waste plant agriculture, and vice versa; dirt cattle could be used as fertilizer cages to nourish land agriculture and improve production plant agriculture (Ansah *et al.,* 2019; Knueppel *et al.*, 2010; Musotsi *et al.*, 2009).

Maxwell Method: The Maxwell method is the second method to measure the durability of food. The technique reflects access economy (level expenditure food household) and consumption food household. Expenditure rate food household is expenses incurred for food by a household every month and compared with total costs per month.

Modification Maxwell's Method: Modification is done to *cut off* the consumption of energy. As a result, the proportion of households based on consumption energy per equivalent unit mature with a cut-off of 70% is shown in Table 3.

Table 3 shows that energy consumption per equivalent unit mature part of big household urban including in Less category (62.7%), while most rural farmer households have Enough (66.7%).

Table 4. Proportion household based on level endurance measured food use modified Maxwell method.

Level endurance food	Urban	rural	p *
	%	%	
Stand Food	28.0%	30.7%	0.001
Susceptible Food	13.3%	38.7%	
Not enough Food	28.0%	13.3%	
vulnerable Food	30.7%	17.3%	

* test *Chi-Square*.

The chi-square test results produce a *p*-value = 0.000, which means that there is a difference Between consumption energy per equivalent unit in mature households in urban and rural areas. The result of the above modification combined with level expenditure food for then seen proportion household based on level endurance food use modified Maxwell method (Table 4).

Table 4 shows that urban households are in the insecure food category (30.7%), while part of households in rural includes susceptible food (38.7%). Table 4 also shows that households included in the category Stand Food are rural (30.7%) more than urban (28.0%). The chi-square test results produce a p-value = 0.001, which means that there is a difference In level endurance measured food using Maxwell's method in urban and rural households.

Therefore, more households are included in the category stand food in the countryside than in urban areas. This shows that the level of endurance food in rural households is good compared to endurance food in urban households.

Table 5. characteristics household based on level endurance measured food use HFIAS method.

Variable	food security level	mean	Std. Deviation	p *
age head of household (years)	insecure	41.5664	6.78	.106
	secure	41.00000	5.57	
age mother household (years)	insecure	36.0796	6.21	.320
	secure	37.2162	7.09	
old school head of household (years)	insecure	5.7788	1.89	.255
	secure	6.9189	1.70	
old school mother household (years)	insecure	4.4071	1.83	.797
	secure	6.6486	1.71	
knowledge mother household (%)	insecure	46.0973	14.89	.107
	secure	40.9459	12.60	
household size (person)	insecure	4.4602	1.321	.030
	secure	3.7297	0.99	
income (IDR)	insecure	1,138,573	1.873.40.31	.000
	secure	1,391,593	30.029.10	

* *Independent t-test*.

In research, this is also analyzed to compare characteristics household with level endurance measured food use HFIAS method and method Maxwell for guessing the factors that influence it. Factors are based on various literature that states that various influencing factors level endurance food. Factors include the age of parents, education of parents in thing this as old school parents, knowledge

of nutrition mother, size of household, total income, occupation head household, and ownership asset. Characteristics of households based on level endurance measured food use HFIAS methods are shown in Tables 5 and 6.

Table 5 shows independent t-test results, which offer a difference among variable size households (p=0.000) in the group household stand food and not stand measured food with the HFIAS method. Size household reflects amount dependents which are related characteristics in enhancement income, including expenditure and consumption food household, more many member households will need more cost big so that spending and consumption are also increasing (Pandey and Bardsley, 2019). The number of family members will influence the production and consumption of the household: the more many family members, the more expensive the food (Kabalo *et al.*, 2019). Small-member households will influence the consumption and expenditure of the household; the more members household so will, the more the number increases requested goods (Gebreyesus *et al.*, 2015).

Table 6. Characteristics household based on level endurance measured food use HFIAS method.

Variable	insecure	secure	P*
	%	%	
Type profession head household			
Power effort service and effort sale in shop and market	11.5%	83.8%	0.000
Processing and crafts	6.2%	16.2%	
Worker rough and powerful cleanliness	82.3%	0.0%	
Ownership asset productive			0.011
Not	2.7%	13.5%	
Yes	97.3%	86.5%	
Ownership asset non-productive			0.615
Not	3.5%	5.4%	
Yes	96.5%	94.6%	

**Chi-Square test.*

Table 5 also shows that variable age head household (p=0.106), age mother household (p=0.320), education head household (p=0.255), education mother household (p=0.797), knowledge mother (0.107), no difference Among group household stand food and not stand food. In contrast, household size (p=0.030) and total household income (p=0.000) distinguish between group stand food and not stand food that is measured using the HFIAS method.

Table 6 shows chi-square test results that show that variable parent's occupation (p=0.000) and ownership asset good asset productive (0.011) thinking difference Among group household stand food and not stand measured food use HFIAS method while non- productive (0.615) is not believed difference Among group. Although Thus, Table 6 shows the existing trend that households that don't have good asset productive or non-productive assets are more susceptible to experiencing no stand food. This is seen in more households in a group with no food that does not have excellent or non-productive assets. However, all households included in the group stand food have investment productive. 94.6% of the households in the group stand for food that has non-productive assets, and only 5.4% do not have non-productive assets. Table 6 also shows a trend that head working household as workers rough and powerful cleanliness more susceptible experience no stand food. This is seen from more households included in a group no stand working food as worker wild and powerful cleanliness (82.3%) while a working household in the field effort services and business sales in shops and markets including in group stand food (83.8%).

Conclusion

Characteristics of social household cover age head a household, age mother household, education head household, education mother household, and knowledge nutrition mother household. No, there is a difference between urban and rural areas, while the size of households and total household income are different among urban and rural areas. The characteristics of an economical household include the occupation of the household's head, total assets, and revenue. Type profession head household and total household income differ among urban and rural areas. Adequacy level household energy and protein adequacy level rural more good than farmer household urban. Measurement result endurance food use HFIAS method and method Maxwell shows that level endurance food household rural more good from level endurance food household urban. In research, the size household is an important factor influencing the endurance food household.

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