

# Food Security of Low-Income Households in Lampung Province and Its Relationship with Asset Ownership and Internet Access

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**Abstract.** Food security is a complex issue that intersects with various fields, including the economy, health, poverty, and development policies. This study focuses on Lampung Province due to its high poverty levels, making it one of the poorest regions in Sumatra. The study aims to assess the food security situation in the districts and cities of Lampung Province and to examine how it relates to asset ownership and internet access. The data used in this study is from the 2022 Susenas survey in Lampung Province. Food security is measured based on the percentage of food expenditure and the fulfillment of calorie adequacy per adult, which differs from the criteria set by the National Food Agency. The results obtained are that low-income households have a high potential to experience food insecurity. Land ownership is positively related to food security, but savings ownership and internet access are negatively related.

**Keywords:** Food Security, Lampung, Susenas.

## 1 Introduction

Food is one of the main things that must be fulfilled in human life because it is related to many things. Poverty is a problem that is close to food insecurity because poor people potentially become victims [1]. The role of food in society is vital for productivity, as it directly impacts physical and mental health, both of which are essential for achieving economic growth, reducing poverty, and creating trade opportunities. Additionally, food plays a crucial role in global security and health stability [3].

Lampung Province is located in Sumatra and has been a consistent focus for observation due to its geographical proximity to Java Island and its persistently high poverty rates, ranking third or fourth-largest for over a decade. Besides that, Lampung has an agricultural and plantation sector which plays a major role in GRDP [4] and is also one of the rice granary areas in Sumatra. Based on the Food Security Agency, the districts and cities in Lampung Province are evaluated based on food security criteria, including food availability, affordability, and utilization [5]. For a more comprehensive understanding, this research utilizes different measurements to assess food security [6].

## 2 Literature Review

The food security concept that is used as a reference is the concept issued by UNICEF. Household food security is a condition where food is met both in quantity and quality, which meets nutritional adequacy rates for all household members throughout the year. Household food security is only one of several aspects of household health.

## 3 Methodology and Data Analysis

The research uses data from the 2022 National Socio-Economic Survey (Susenas) at the household level in districts and cities in Lampung province. The total household data used at the beginning of the observation was 10,418 then this value shrank to 4,167 because the data was divided into three income levels. This data was reduced to 1,267 due to increased focus on households with food security conditions. Determining food security conditions uses the Jonsson and Toole approach [6] with the following conditions.

**Table 1.** Household Food Security Criteria

Adult Energy/capita (calories)	Percentage of food expenditure to Total Expenditure	
	High ( $\geq 60\%$ )	Low ( $< 60\%$ )
Less ( $\leq 80\%$ dari AKE)	Food insecurity	Food insecurity
Good ( $> 80\%$ dari AKE)	Food insecurity	Food security

Households are considered food insecure if the food consumption takes up more than 60 percent of their income and calories per day for each family member is less than 80 percent. The condition of food security will be worth one then the food insecurity will be worth zero. Another thing that will be assessed is the condition of asset ownership in the form of land, savings, and internet accessibility. Ownership of assets in the form of savings is ownership of a savings account in one's own or joint name. There is no limit specified as long as the savings status is active. Internet accessibility is related to usage activity in the last three months.

## 4 Research Result and Discussion

Respondents are households divided into several income groups, namely low, medium, and high. This division uses a quartile approach by dividing the data into quartiles. Household income below quartile two is classified as low income, above quartile two but below four is classified as medium income, and above quartile four is classified as high income. The distribution of income classes can be seen in Table 2 below.

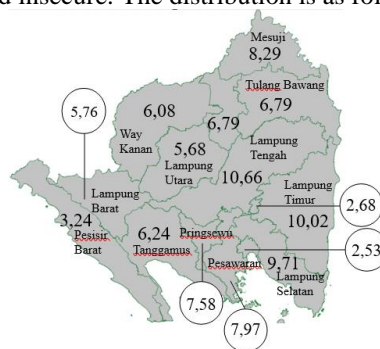
**Table 2.** Household Income Classification

Area	Low Income	Middle Income	High Income
Lampung Barat	73	266	92
Tanggamus	79	285	97
Lampung Selatan	123	368	170
Lampung Timur	127	323	128

Area	Low Income	Middle Income	High Income
Lampung Tengah	135	294	129
Lampung Utara	72	291	77
Way Kanan	77	293	125
Tulang Bawang	86	300	113
Pesawaran	101	221	70
Pringsewu	96	296	111
Mesuji	105	242	91
Tulang Bawang Barat	86	258	72
Pesisir Barat	41	233	143
Kota Bandar Lampung	32	285	403
Kota Metro	34	212	263
Total	4.167	4.167	2.084

The capital of Lampung Province, namely Bandar Lampung, and Metro City have the largest number of high-income households and the smallest number of low-income households. A city is an area that has dense economic activity with a high population density and is an area with extensive employment opportunities. The minimum wage in a city is also higher than in a district area. Despite these advancements, cities still encounter issues such as poverty, crime, and inequality in welfare. [7], [8]. This research focuses on observations in the low-income classification because of the potential for experiencing food insufficiency.

The method for determining food security was taken from Jonsson and Toole [6] and then adapted to the Nutritional Adequacy Rate based on the Republic of Indonesia Minister of Health Regulation No. 28 of 2019 [9]. The criteria for fulfilling calories are sufficient if the value is above 80 percent per person a day. These criteria are then paired with the percentage of food expenditure to total household expenditure with a good value if food consumption is below 60 percent of total expenditure. These criteria then determine household food security (Table 1). Of the 10,418 respondents in Lampung, the number of low-income households was 4,167, and of that number, 1,267 were food insecure. The distribution is as follows.



**Fig. 1.** Percentage of Food Insecure Low-Income Households in Districts and Cities in Lampung Province

Households with low incomes have the potential to experience food insufficiency in quantity and quality because food consumption requires financial support. This is experienced by households in Lampung Province. The percentage of households with low incomes that are food secure does not reach fifty percent of the total respondents. Conditions of food insecurity in the low-income classification can be caused by low purchasing power due to high prices of necessities (due to climate change, land conversion, high demand but low supply), high number of dependents, lack of knowledge about food processing and alternative food sources [ 10]–[14].

Of the many things related to food security, asset ownership is one of the factors that influences the food security conditions of low-income households [15]. Ownership of the land can help achieve food security in Africa by producing food for households and reducing expenses [17]. This research uses asset ownership data in the form of land ownership and savings. The land is an asset owned by 87 percent of respondents on the other side, savings are owned by 53.12 percent of respondents with low incomes and food security status.

**Table 3.** Correlation Between Food Security, Ownership of the Land, and Savings

Control Variables			FS	Lahan	Tabungan
KabKot	FS	Correlation	1.000	.046	-.108
		Significance (2-tailed)	.	.003	.000
		df	0	4164	4164
Lahan	Lahan	Correlation	.046	1.000	-.054
		Significance (2-tailed)	.003	.	.001
		df	4164	0	4164
Tabungan	Tabungan	Correlation	-.108	-.054	1.000
		Significance (2-tailed)	.000	.001	.
		df	4164	4164	0

Correlation testing was carried out to analyze the relationship between food security conditions and asset ownership. In line with the opinion of previous research that land ownership among low-income respondents can help achieve food security conditions, this is reflected in the positive correlation value. Different things happen with savings ownership; while food security conditions can be achieved, respondents may not have savings. People can only save money if they don't spend all their income on consumption. This is difficult for those with low incomes, whether they are individuals, households, or the government [18].

This research found that the relationship between food security and savings is negative, meaning that low-income respondents do not have the opportunity to save if they want to achieve food security. This occurs because more than 60% of their income is spent on purchasing food. Incidents like this are frequently experienced by people who are living in poverty [19]. Poor people are vulnerable to fraud and are trapped in high-risk funding due to limited financial capabilities and knowledge, as well as the drive to survive [20]. The availability of savings is also related to the respondent's knowledge of banking products, not all respondents want to be associated with a bank for reasons of usury, distance from branch offices, complexity, habit of transactions with cash, and so on.

The last thing that will be looked at in this research is the relationship between food security conditions and internet accessibility.

**Table 4.** Correlation Between Food Security and Internet  
**Correlations**

Control Variables			FS	Internet
KabKot	FS	Correlation	1.000	-.091
		Significance (2-tailed)	.	.000
		df	0	4164
Internet	Internet	Correlation	-.091	1.000
		Significance (2-tailed)	.000	.
		df	4164	0

A negative correlation was found between food security conditions and internet accessibility. This suggests that food security conditions could be achieved without internet access. This may happen in communities with low incomes. Financial limitations make them need to choose consumption patterns. Many studies have found that internet accessibility has a positive impact on creating conditions for food security. This happens when the internet is used to collect information that can increase the productivity of agricultural businesses or to improve food processing methods [21], [22].

## 5 Conclusion

Low-income households often experience food insecurity. Savings and internet access have the potential to create food insecurity. This happens because most of their expenditures are for food consumption. Saving means reducing consumption, including food consumption. This research still needs to be developed further by adding different variables.

## 6 Implication and Suggestions for Future Research

Low-income households are vulnerable to achieving food security because they are faced with financial limitations in obtaining sufficient and nutritionally adequate food. Land ownership is positively related to food security conditions, but the availability of savings and internet accessibility are negatively related. Food security should be explained by considering many branches of science such as agriculture, animal husbandry, economics, society, and medicine.

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