

# Household Rice Consumption Model in Lubuklinggau City, South Sumatera Province

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**Abstract**—This study is to examine the pattern of household rice consumption in Lubuklinggau City. The data used are primary data obtained from in-depth surveys of 80 households in two sub-districts, namely in West Linggau I and East Linggau II. The analytical method uses descriptive and quantitative approaches by using tabulation and the regression model of the Consumption Function. The results showed; *First*, households with the most higher incomes would be able to choose better quality rice consumption. *Second*, the proportion of rice consumption is lower or decreasing at higher incomes. *Third*, the estimation results indicate that the *marginal propensity to consume* for rice is higher in households with lower incomes, this proves that the higher the income the smaller the consumption of rice food. The proportion of rice food in the East Linggau II District is smaller than the proportion of rice consumption in the West Linggau I District because of the per capita income of households in the East Linggau II District is higher than households in West Linggau I District.

**Keywords:** *food consumption, household expenditure, rice consumption model*

JEL classification: D120, D150, C21

## I. INTRODUCTION

In 2001 with the Law of the Republic of Indonesia Number 7 of 2001 dated June 21, 2001 the status of Lubuklinggau was upgraded to become an autonomous city on October 17, 2001. The city of Lubuklinggau was declared a metropolitan city. Geographically, it is strategically located between Jambi Province, Bengkulu Province and the capital city of South Sumatera Province (Palembang). Lubuklinggau City is the middle lane of Sumatra connecting others the cities in Sumatra.

The population of the City of Lubuklinggau always increases from year to year and with growth above 1.1 percent. Lubuklinggau population in 2018 was 229,224 people or an increase of 1.45 percent from year 2015. Population growth is a challenge for local governments to add public facilities that can support the welfare of the population.

Welfare improvement can be achieved if there is sufficient food such as rice for a long period time. Rice is a food commodity that is generally used as a staple food for most of the population in Indonesia. Rice is processed products derived from agricultural products, namely rice. The position of the rice commodity for the majority of the Indonesian population is as the main food ingredient in addition to being an important source of nutrition in the structure of food, so that the aspect of providing rice becomes very important given the increasing population.

Increasing the population from year to year encourages the government to focus more on food availability in to improve the welfare of the community. Food is a primary need that must be met by the government and the community together as mandated by Law Number 18 of 2012 concerning food. In the Act stated that Food is the most basic human basic needs and fulfillment is part of human rights, the state is also obliged to realize the availability, affordability, and fulfillment of adequate, safe, quality, and nutritious food consumption, both at the national level and regions to individuals evenly throughout the territory of the Unitary Republic of Indonesia (NKRI) at all times by utilizing local resources, institutions, and culture

Based on the level of welfare of the Indonesian people as measured by the share of food expenditure, both in urban and rural areas is getting better. There is a change in the pattern of public expenditure from dominant in the grains group to the food and beverage group. While spending patterns for other food groups are relatively the same from year to year [1].

Table 1 provides precise information about the average growth in expenditure on household food consumption, as well as providing information on the proportion of household expenditure per capita for each food group in a month in Lubuk Linggau City [2]. The development of expenditure for food consumption has changed during 2016-2018, the change can be caused by rising food prices and household income, as well as the current pattern of household consumption that has changed.

**TABLE I. AVERAGE EXPENDITURES for FOOD CONSUMPTION in LUBUKLINGGAU CITY**

Food Group	Average monthly expenditure per capita (Rp)			Gro wth Rate (%)
	2016	2017	2018	
Grains	63.357	61.126	63.524	0,13
Tubers	5.589	4.701	6.047	4,02
Fish, Shrimp, Squid, Mussels	37.860	39.956	44.592	8,53
Meat	25.930	28.041	29.552	6,76
Eggs and Milk	31.212	32.590	30.972	-0,39
Vegetables	50.245	47.800	49.164	-1,08
Nuts	8.115	8.978	8.993	5,27
Fruits	26.438	20.173	31.928	9,89
Oil and fat	11.771	9.834	10.509	-5,51
Beverage Ingredients	17.138	15.547	17.302	0,48
Spices	8.864	7.514	8.005	-4,97
Other Consumption	10.982	12.137	12.916	8,45
Food and Beverage	147.976	132.43 3	195.78 4	15,0 3
Tobacco and Betel	63.684	61.399	66.248	1,99
Total	509.161	482.22 9	575.53 6	3,47

<sup>a</sup> Source: Central Bureau of Statistics, Lubuk Linggau City

An interesting phenomenon shows that the proportion of consumption for grains is now smaller than the consumption of the food and beverage group, and the tobacco and betel groups, this indicates that households have reduced the demand for food consumption with more practical consumption of food and beverages. The increasing trend of foods that contain protein such as fish, meat and nuts and fruits and the decline in consumption of eggs, milk, oil, and fat shows the choice of nutritious foods better.

Study of current food consumption patterns [3] is useful to look at the response of households to rising food prices and can guide for the government to implement appropriate food price policies, provide information on trends in changes in food consumption over time and be a guide for the development of food diversification during which will come.

Over time as the population increases, the need for the availability of food such as rice becomes very important. Food availability depends on national and global economic conditions. The response of households to the increase in rice food prices can be a guide for the government to implement rice food price policies, as well as adequate stock policies to anticipate trends in changes in rice food consumption over time as well as a guide for the development of food diversification in the future [4]. Therefore, the role of market policy will guarantee food security.

## II. LITERATURE REVIEW

According to Husaini study in 1989, food consumption behavior of a person or family is influenced by the level of education or knowledge about Food it self, in one family it is usually the mother who is responsible for family food [5].

In these countries, rural and urban consumption patterns tend to differ. Among basic food groups, rural residents eat more cereals and tubers and roots, and urban residents eat more meat, and fruits and vegetables. This and other changes in consumption patterns brought about by urbanization can significantly affect global food supply, markets, and trade [6].

Sayekti (2009) in his study about household food consumption [7] aims to explain whether there are differences in consumption patterns between households that have been divided according to several strata. The data used are data from SUSENAS with the data from the Provinces of West Sumatra, East Kalimantan and Papua as the study area. The results showed differences in food consumption patterns in different regions and income strata for some food groups.

Mufidah (2012) examining the consumption patterns of urban communities, using descriptive studies of the use of Foodcourt by families, concluded that there has been a shift in consumption patterns in urban communities that use Foodcourt as a gathering place not only to carry out joint consumption, also a place to meet, interact to plan activities and relax [8].

The results of research conducted by Fransiska 2013, on the analysis of the diversification of rice and non-rice food consumption, it was found that the number of household members had a significant and positive effect on household food consumption [9]. This is also supported by the results of research conducted by Bangun, Hutajulu and Salmiah 2013 showing that the number of family members has a significant effect on the level of rice consumption where the more family members the more rice consumed [10].

Central Bureau of Statistics Indonesian [11], examining the patterns of expenditure and consumption of Indonesian population in 2014, found that residents in urban and rural areas have different spending patterns. Expenditure on rural populations is more for food, while urban population spending is more non-food.

The relatively low effect of the population in influencing rice consumption in Indonesia is caused by the tendency of rice consumption per capita to decrease per year. Even though the population is growing, the consumption of rice growth is relatively not as high as the population growth. Moreover, the GDP is partially and significantly positive in influencing rice consumption in Indonesia. This indicates that rice is a normal (staple) food in Indonesia [12].

Based on data on food consumption expenditure, in urban areas, it tends to decrease the proportion of food expenditure in the 2010-2017 period, from 51.02 percent in 2010 to 49.65 percent in 2017 [13].

The pattern of rice consumption will differ between high-income groups and low-income groups. High-income household can choose high-quality rice at higher prices, compared to rice consumed by low-income groups [14].

**III. RESEARCH METHOD**

The scope of this study is focused on household rice food consumption in Lubuk Linggau City, while the areas that are the object of research are West Linggau District I and East Linggau II. The sample consists of families of rich, moderately wealthy, and underprivileged (poor) families determined incidentally in the field. The number of respondents was 80, consisting of 6.25 percent of poor families, as many as 76.25 percent were quite rich, and 17.5 percent of rich families.

This type of research is quantitative verification what is explained verification research basic wants to test the truth of data collection in the field [15]. This research will test the truth of the hypothesis carried out through data collection in the field, to get a picture of the function of rice consumption in Lubuklinggau. The analytical method used is a descriptive and quantitative approach to investigate consumption patterns, the proportion of household rice food consumption and the rice consumption function in Lubuklinggau.

The consumption pattern is estimated from the marginal coefficient of propensity to consume (MPC) using the rice consumption function as a function of income. The formula is as follows;

$$C_i = \beta_o + \beta_1 Y_{di} \tag{1}$$

were as;

$C_i$  = Rice food consumption in the  $i$  income group

$Y_{di}$  = The level of disposable income of the group  $i$  community

$\beta_o$  = autonomous rice food consumption

$\beta_1$  = marginal propensity to consume (MPC)

**IV. RESULTS AND DISCUSSION**

*A. Household Expenditure in Lubuklinggau City*

Household expenditure for food in the East Linggau II sub-district was slightly lower than West Linggau I sub-district. Households in the East Linggau II sub-district allocated their biggest expenditure on energy, which was Rp 50,265,000 or 25.54 percent, while food consumption was 22.96 percent. Expenditures in West Linggau I District were the largest allocations for food amounting to Rp 42,497,000 or around 34.01 percent and the lowest was for energy expenditure groups of 1.98 percent.

**TABLE II. DISTRIBUTION of HOUSEHOLD EXPENDITURES in LUBUKLINGGAU CITY**

Expenditures Group	West Linggau I District		East Linggau II District	
	Nilai (Rp)	Persen	Nilai (Rp)	Persen
I. Food	42.497.000	34,01	45.193.250	22,96
a. Rice	16.618.000	13,29	18.003.000	9,15
b. Non Rice	31.567.500	25,25	34.854.250	17,71
I. Education	8.312.000	6,65	13.452.000	6,83
III. Healthy	17.416.875	13,93	28.939.800	14,70
Iv. Energy	2.475.000	1,98	50.265.000	25,54
V. Housing	2.635.000	2,11	3.480.000	1,77
VI. Social Expenditures (Party)	3.480.000	2,78	2.635.000	1,34
Total	125.001.375	100	196.822.300	100

Source: Primary Data, (processed) 2019

The allocation for rice food consumption in the East Linggau II District is 9.15 percent of the total consumption or Rp 18,003,000. Whereas in West Linggau District I rice consumption was 13.29 percent of the total consumption or worth Rp 16,618,000. Non-rice food consumption in East Linggau II District was 17.71 percent or Rp 34,854,250. The biggest food allocation in West Linggau District I is for non-rice by 25.25 percent or as much as Rp 31,567,500. This difference shows the tendency to consume both food and non-food differently in the two districts.

*B. Rice Consumption Pattern Based on Price*

Based on Table 3 and Table 4, it shows that high-income households can able to choose high-quality rice at higher prices, compared to low-income households consuming cheaper rice much as Rp 31,567,500. This difference shows the tendency to consume both food and non-food differently in the two districts.

**TABLE III. RICE CONSUMPTION by PRICE DISTRIBUTION of RICE in WEST LINGGAU I**

Rice Prices	Rice Consumption West Linggau I District			
	Family Head	Family Head	Family Head	Family Head
9000 – 10000	20	20	20	20
10001 – 12000	16	16	16	16
> 12000	4	4	4	4
Total	40	40	40	40
Average	13.33	13.33	13.33	13.33

Source: Primary Data, (processed) 2019

Communities in the West Linggau I District prefer to buy rice with a price range of Rp 9,000-10,000 or as much as 774 kg equivalent to 44.20 percent.

**TABLE IV. RICE CONSUMPTION by PRICE DISTRIBUTION of RICE in EAST LINGGAU II**

Rice Prices	Rice Consumption East Linggau II Distric			
	Family Head	Kg	Value of (Rp)	Percent
9000–10000	19	730	7.220.000	40,10
10001–12000	21	932	10.783.000	59,90
> 12000	0	0	0	0
Total	40	1.662	18.003.000	100
Average	13.33	41,55	450,075	33,33

Source: Primary Data, (processed) 2019

On the other hand, with East Linggau II District the people prefer to buy rice at a price of 12,000 per kg. This relates to the high per capita income per month of people in East Linggau II District of Rp 1,340,958 compared to income per capita in West Linggau I District of Rp 1,151,518.

**C. Rice Consumption Model**

Rice consumption in the East Linggau II District and West Linggau I District are significantly influencing by the level of income. Both the models have fulfilled on classical assumptions about autocorrelation, heteroscedasticity, and multicollinearity.

The coefficient sign of income is a positive, and statistically significant on both in the District of East Linggau II and in the District of West Linggau I. In the theory, income effects to the consumption levels including rice food consumption.

The Keynesian rice consumption model in East Linggau II District has an autonomous consumption of Rp 22.69. meaning that if income is zero, then rice consumption is Rp. 22,690. The MPC coefficient in East Linggau II Regency is 0.04221. This means that for every increase in income of Rp 100,000 per month, rice consumption will increase by Rp 4,221. The deterministic coefficient (R<sup>2</sup>) is 0.383627, which means that the variation in the rice consumption variable is explained by the income variation of 38.36 percent.

**TABLE V. FUNCTION of RICE CONSUMPTION (Keynesian Consumption Model)**

West Linggau I District			
Dependent: Rice Consumption (C <sub>t</sub> )	Rice	Coefficient	t-test
C <sub>0</sub>		18.8106	2.8816***
Y <sub>d</sub>		0.05585	3.6663**
R <sup>2</sup> = 0.26    DW = 1,63			
F = 13.44    Prob F = 0.000749			

Source: Processed by Researchers, 2019  
 Note: \*\*\*\* = significant in α = 1%.  
 \*\* = significant in α = 5%.

Based on the Keynesian rice consumption model in West Linggau District I have an autonomous consumption of Rp. 18,810 which means that if income is zero, then rice consumption is Rp. 18.81.

**TABLE VI. FUNCTION of RICE CONSUMPTION (Keynesian Consumption Model)**

East Linggau II District			
Dependent: Rice Consumption (C <sub>t</sub> )	Rice	Coefficient	t-test
C <sub>0</sub>		22.6905	4.5309***
Y <sub>d</sub>		0,0422	4,8632***
R <sup>2</sup> = 0.38    DW = 2,01			
F = 23.65    Prob F = 0.000020			

Source: Processed by Researchers, 2019  
 Note: \*\*\*\* = significant in α = 1%.  
 \*\* = significant in α = 5%.

The MPC value of West Linggau I District is 0.05585, which means that for each increase in the average income of Rp 100,000, the monthly rice consumption will increase by Rp 5,585. The coefficient value R<sup>2</sup> of 0.26 means that the variation in income can explain the variation of rice consumption by 26 percent.

**V. CONCLUSIONS**

The results of the analysis showed that the pattern of rice consumption of the people in Lubuk Linggau City was dominated by the consumption of rice in quality II with indicators of fluffier rice, not fragrant and the physical form of relatively clean rice with a price range of IDR 10,000-IDR 11,000 per kg. Higher-income households can choose better quality rice consumption at higher prices. The higher the level of income per capita, the proportion of food consumption will be lower. The level of household income in the Lubuk East Linggau II Subdistrict is Rp1.340,958 higher than the income per capita of the population in West Linggau Subdistrict, which is Rp1,151,518. The proportion of food expenditure in the District of East Linggau II is 22.96 percent while for the District of West Linggau I is 34.01 percent. Spending allocation for rice was 9.15 percent in East Linggau II and 13.29 percent in West Linggau I.

Rice consumption in East Linggau II District and West Linggau I District are significantly influenced by the level of income. Both consumption models meet the classical assumptions. Autonomous consumption in East Linggau II Subdistrict is Rp22.69 higher than in West Linggau I of Rp18.81, but the marginal propensity to consume (MPC) value in West Lianggau I is 0.0558 higher than MPC in East Lianggau II of 0.04221. This means that every time there is an increase in income of Rp 100,000 per month in East Linggau II rice consumption will increase by Rp4,221 while in West Linggau I rice consumption will increase by Rp5,585 per month. Based on the coefficient of regression determination, the level of income can explain variations in rice consumption in the East Linggau II higher than in the West Linggau I.

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