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## FACTORS AFFECTING THE RESPONSE OF BEEF CONSUMPTION IN SOUTH KALIMANTAN, INDONESIA

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### ABSTRACT

This study aims to analyze the response to changes in beef consumption due to changes in commodity prices (beef, broiler meat, broiler eggs and fish), per capita income, population and beef availability in South Kalimantan in 1996-2019, and to analyze the amount of adjustment of the response to beef consumption due to changes in the variables that affect it. This research was conducted in South Kalimantan from February 2021 to January 2022. The analytical tool used was multiple regression with a partial adjustment model (PAM) approach. Based on the results of the study, it can be concluded that the diversity of beef prices, chicken meat prices, broiler egg prices, fish prices, per capita income, beef production, population and beef consumption in the previous year can explain the diversity of beef demand by 91.2%. Partially, it shows that the independent variables that have a significant effect are the price of beef, the price of chicken eggs, the price of purebred chicken, the price of fish, people's income, the population in South Kalimantan and the consumption of beef in the previous period. The response rate of the degree of partial change in beef consumption in South Kalimantan is 74.4% the difference between the expected beef consumption and the actual beef consumption. Own price elasticity of beef consumption, obtained values of -0.416, for the short term and -0.559 for the long term, this indicates that the price elasticity of beef to beef consumption has an inelastic nature of elasticity (inelastic) for the short term and long term. The cross-price elasticity (bred chicken meat, broiler eggs and fish) on beef consumption obtained values of 0.313, 0.357, and 0.135 for the short term and 0.421, 0.480, 0.181 for the long term, this indicates that the cross price elasticity (chicken meat) race, chicken egg prices and fish prices) on beef consumption have inelastic elasticity and are unresponsive in the short and long term. The positive effect of changes in the price of purebred chicken meat, broiler eggs and fish on the demand for beef shows that the relationship between beef and purebred chicken meat, broiler eggs and fish as substitute goods. The elasticity of income per capita and population on beef consumption in South Kalimantan is obtained by values of 1.333 and 3.139 for the short term and 1.792 and 4.219 for the long term, this indicates that the elasticity of income per capita and population of beef consumption has elastic properties (inelastic) and is a shift response in the short and long term.

### KEY WORDS

Beef consumption, partial analysis model, short and long term elasticity.

The main objectives of development in the agricultural sector are: 1) fulfilling public consumption, 2) increasing the income of farmers, ranchers and fishermen, 3) meeting the needs of agro-industry raw materials. Therefore, development in the agricultural sector must be focused in a sustainable, efficient, and modern direction.

One of the GRDP in South Kalimantan is in the form of the agricultural sector; the contribution of agriculture to GRDP in South Kalimantan in 2018 was Rp. 16,601,840,000 and increased in 2019 by Rp. 17,516,380,000 (BPS South Kalimantan, 2020). Meat, eggs and milk are products from the livestock sub-sector. Animal protein is high in meat and is indispensable for children and adults.

Based on the standard of beef demand in South Kalimantan, it is known that the level of consumption per capita in South Kalimantan is still far below the standard for meat



consumption needs, which is only 0.810 kg per capita in 2019 with the standard of meat consumption being 2.6 kg per capita (Dirjennak, Ministry of Agriculture, RI, 2020), this is due to the increase in meat prices, changes in consumption patterns and the low level of people's income.

Changes in food consumption are caused by an increase in income and awareness of fulfilling nutritious food, causing people to start switching to consuming meat, eggs and milk as food ingredients containing animal protein. According to data from the Plantation and Livestock Service Office of South Kalimantan Province (2020), meat is the largest contributor to animal protein consumption. In the 1996-2020 period, the average meat production of South Kalimantan increased by 1.23 percent per year and there was a tendency for meat demand in South Kalimantan to increase from year to year.

To analyze the response to beef consumption in South Kalimantan, it is necessary to understand the factors that influence it. In general, economic and price factors, as well as socio-cultural and religious factors are the most dominant influencing food consumption of Indonesian people (Mudanijah, 2004: 55). Certain traditions and beliefs related to food, both rational and irrational, must exist in every community group, so that it can have an impact on losses or gains in food availability (Eschleman, 1991: 38). The people of South Kalimantan are mostly Muslim, so having certain traditions and beliefs related to food, such as on religious holidays, will increase beef consumption in South Kalimantan.

Based on the above thought, it is suspected that there are factors that influence the response to beef consumption in South Kalimantan, namely the change in commodity prices of beef, purebred chicken, chicken eggs and fish, the level of income of the people per capita, the factor of increasing population, factors availability of beef, and factors of consumption habits that have been formed, so it is necessary to conduct research by examining the response to beef consumption in South Kalimantan in the short and long term.

The purpose of this research:

- To analyze the response to changes in beef consumption due to changes in commodity prices (beef, broiler meat, broiler eggs and fish) as well as income, population and beef availability in South Kalimantan;
- To analyze the magnitude of the adjustment of the response to beef consumption due to changes in the variables that influence it.

## METHODS OF RESEARCH

The research was carried out in South Kalimantan from February 2021 to January 2022. The data used in this study are secondary data from 1996 to 2022 in South Kalimantan, including: data on beef consumption; regional income data; population data.

All data were obtained from the Central Statistics Agency of South Kalimantan Province. Data on fishery commodity prices (cultivated and captured fish) were obtained from the Department of Marine Affairs and Fisheries of South Kalimantan Province. Data on livestock commodity prices (beef, broiler meat and broiler eggs) were obtained from the Food Security Service of South Kalimantan Province. Data on beef production was obtained from the Plantation and Livestock Service Office of South Kalimantan Province.

South Kalimantan Regional Income Data for 1996-2019 is based on constant prices (3 kinds of base years, namely 1990, 2000 and 2010 base years) then the data is adjusted based on the same base year. The coefficients used are real economic growth in 2000 of 4.84 percent and 5.06 percent in 2010.

For livestock and fishery commodity prices, first deflated using the 1996-2019 Consumer Price Index in South Kalimantan obtained from BPS South Kalimantan. This deflation process aims to eliminate the effect of inflation that occurs.

The beef demand function in South Kalimantan is approached with a partial adjustment model which is stated as follows:

$$\ln KDS_t - \ln KDS_{t-1} = \delta(\ln KDS_t^* - \ln KDS_{t-1}) \quad (1)$$



Where:  $\delta$  = partial adjustment coefficient;  $0 < \delta \leq 1$ ;  $\ln KDS_t - \ln KDS_{t-1}$  = actual change;  $\ln KDS_t^* - \ln KDS_{t-1}$  = desired change.

$KDS_t^*$  is the long-term demand for beef in South Kalimantan which is expressed as:

$$\ln KDS_t^* = \beta_0 + \beta_1 \ln HDS_t + \beta_2 \ln HAR_t + \beta_3 \ln HTR_t + \beta_4 \ln HI_t + \beta_5 \ln PR_t + \beta_6 \ln PDS_t + \beta_7 \ln JP_t + u_t \quad (2)$$

Where: KDS = Beef consumption (kg/year/capita); HDS = Beef price (Rp/kg); HAR = Price of broiled chicken (Rp/kg); HTR = Price of chicken eggs (Rp/kg); HI = Fish price (Rp/kg); PR = Per capita income (Rp/tahun); PDS = Beef production (kg); JP = Total population (orang);  $\beta_0$  = constant;  $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7$  = Regression coefficient;  $u_t$  = Error term.

Substituting equation (2) into equation (1) results in the following short-run beef demand:

$$\ln KDS_t = \delta\beta_0 + \delta\beta_1 \ln HDS_t + \delta\beta_2 \ln HAR_t + \delta\beta_3 \ln HTR_t + \delta\beta_4 \ln HI_t + \delta\beta_5 \ln PR_t + \delta\beta_6 \ln PDS_t + \delta\beta_7 \ln JP_t + (1 - \delta) \ln KDS_{t-1} + \delta u_t \quad (3)$$

Statistical estimation of equation (3) above uses the OLS method or the estimation is carried out by inferential analysis through:

- The coefficient of determination  $R^2_{adj}$ , with  $0 < R^2_{adj} < 1$ , to evaluate the goodness of fit (GoF);
- F test to determine the effect of independent variables simultaneously on related variables;
- T test to determine the effect of the independent variables partially / individually on the dependent variable;
- To test for self-correlation disorder, which is a form of violation of the classical error assumption which usually occurs in regression models involving time series data, it is shown by Durbin Watson statistics (autocorrelation test).

Equation (3) above can more concisely be rewritten as follows:

$$\ln KDS_t = b_0 + b_1 \ln HDS_t + b_2 \ln HAR_t + b_3 \ln HTR_t + b_4 \ln HI_t + b_5 \ln PR_t + b_6 \ln PDS_t + b_7 \ln JP_t + (1 - \delta) \ln KDS_{t-1} + \delta u_t \quad (4)$$

Where:  $b_0 = \delta\beta_0$ ;  $b_1 = \delta\beta_1$ ;  $b_2 = \delta\beta_2$ ;  $b_3 = \delta\beta_3$ ;  $b_4 = \delta\beta_4$ ;  $b_5 = \delta\beta_5$ ;  $b_6 = \delta\beta_6$ ;  $b_7 = \delta\beta_7$ .

The results of the OLS estimation of equation (4) produce information related to price elasticity, income elasticity and the influence of other determinants in the short term as well as adjustment coefficients with details:  $b_1$  = own price elasticity;  $b_2, b_3, b_4$  = cross price elasticity;  $b_5$  = per capita income elasticity;  $b_6$  = beef production elasticity;  $b_7$  = elasticity of population;  $\delta$  = adjustment coefficient.

Long-term elasticity is obtained through mathematical manipulation by dividing the short-term elasticity by the adjustment coefficient.

## RESULTS AND DISCUSSION

The results of the regression analysis of beef consumption in South Kalimantan are presented in Table 1.

The results of the estimation using the method of ordinary least squares (OLS) are shown in Table 17. With the coefficient of determination,  $R^2_{adj} = 0.912$  goodness of fit (or the level of "good" estimation) is quite good. The magnitude of 0.912 indicates that as much as 91.2% of the variance in beef consumption behavior in South Kalimantan can be explained by the presence of explanatory variables in model (4), namely beef prices ( $\ln\_HDS$ ), chicken meat prices ( $\ln\_HAR$ ), and eggs prices. ( $\ln\_HTR$ ), average price of fish ( $\ln\_HI$ ), per capita income ( $\ln\_PM$ ), beef production ( $\ln\_PD$ ), and population ( $\ln\_JP$ ). Thus, from the regression it can be concluded that the price of beef ( $\ln\_HDS$ ), the price of broiler meat ( $\ln\_HAR$ ), the price of eggs ( $\ln\_HTR$ ), the average price of fish ( $\ln\_HI$ ), regional income ( $\ln\_PM$ ), beef production ( $\ln\_PD$ ), population ( $\ln\_JP$ ) affect the variance of beef consumption ( $\ln\_KDS$ ).



The regression model prediction above is confirmed by the Durbin Watson coefficient,  $dW = 2,796$  not related to the violation of the self-correlation assumption (auto correlation) or serial correlation (serial correlation) which has the potential to occur in regressions containing series data variables time.. Based on the Durbin-Watson test criteria, the  $dW = 2.796$  is in the range between  $dW > dU$  ( $dU$  value = 2.3177) (or to be precise, the  $dW = 2.796$  is at a value above  $dU$ ). Based on the autocorrelation test using the Durbin Watson table at an error rate of 5%, the  $dL$  and  $dU$  values were 0.6659 and 2.3177, respectively. While the value of  $dW$  from the analysis results obtained is 2.796 for the test significance level = 0.05 and  $K = k + 1 = 9$  where  $k$  is the many explanatory variables in the model. Because the value of  $dL < dU < dW$ , it can be concluded that the regression equation model does not contain autocorrelation problems. or in practical words it is said that there is no self-correlation.

Table 1 – Partial adjustment model of beef consumption response in South Kalimantan in 1996-2019

Independent variable	Regression coefficient	t-hitung	Sig.
Konstanta	-26.664	-2.757	0.015
ln_HDS	-0.416***	-2.424	0.029
ln_HAR	0.313***	2.519	0.025
ln_HTR	0.357***	2.426	0.036
ln_HI	0.135***	1.469	0.048
ln_PM	1.333***	3.538	0.003
ln_PDS	0.004	0.022	0.983
ln_JP	3.139***	2.965	0.010
ln_KDS_1	0.256***	1.653	0.021
(R <sup>2</sup> <sub>adj.</sub> )	0.912		
F-hitung	29.502***		
Durbin Watson	2.796		

Note: \*\*\* on the F test is very significant with a confidence level of 90% ( $F_{table} = 2,59$ ).

Source: Results of data processing, 2022.

Based on the results of multiple regression analysis in Table 17,  $Ln\_HDS$ ,  $Ln\_HAR$ ,  $Ln\_HTR$ ,  $Ln\_HI$ ,  $Ln\_PM$ ,  $Ln\_PD$ , and  $Ln\_JP$  against  $Ln\_KDS$  above, it was found that the calculated F value (29,502) > from F table (2.59), and from the regression results obtained the probability value (sig) = 0.001, and it is smaller than the probability value of 0.05 or the value of 0.001 < 0.05; then  $H_1$  is accepted and  $H_0$  is rejected, meaning that simultaneously (simultaneously) has a significant effect (significant variable) on the dependent variable.

From the estimation of the regression model (4) as stated in Table 1 the following results are obtained:

$$ln\_KDS = -26,664 - 0.416 ln\_HDS + 0,313 ln\_HAR + 357 ln\_HTR + 0,135 ln\_HI + 1,333 ln\_PM + 0,004 ln\_PD + 3,139 JP + 0.256 ln\_KDS\_1 \quad (5)$$

This study analyzes the independent variables that are considered to have an effect on beef consumption in South Kalimantan.

Table 2 – This study analyzes the independent variables that are considered to have an effect on beef consumption in South Kalimantan

Variable	Short term	Long term
Konstanta	-26,664	-35.839
ln_HDS	-0,416	-0.559
ln_HAR	0.313	0.421
ln_HTR	0,357	0.480
ln_HI	0,135	0.181
ln_PM	1,333	1.792
ln_PDS	0,004	0.005
ln_JP	3,139	4.219
Regression coefficient ( $\delta$ )	0,744	

Source: Results of data processing, 2022.



From the calculation of the regression model (4) as stated in Table 2 following long-term equation results are obtained:

$$\begin{aligned} \ln\_KDS = & -35,839 - 0,559 \ln HDS + 0,421 \ln\_HAR + 0,480 \ln\_HTR + 0,181 \ln\_HI + 1,792 \ln\_PM + 0,005 \ln\_PD \\ & + 4,219 JP \end{aligned} \quad (6)$$

Adjustment of beef consumption in South Kalimantan that exists within a period of one period which is only partial or partial is indicated by the adjustment coefficient =  $(1 - \ln\_KDS\_1) = 1 - 0.256 = 0.744$ .

The adjustment coefficient on the response to meat consumption in South Kalimantan is 0.744 (= 1-0.256) which means that it shows the process of adjusting beef consumption in South Kalimantan to changes in livestock commodity prices (beef, broiler chicken and broiler eggs), fishery commodity prices., regional income per capita, beef production and population of South Kalimantan in each period (or year) progresses gradually, which is 0.744 part of the previous year's achievement.

The value of the adjustment coefficient in this model is 0.744, which can also be interpreted as the difference between the expected response to beef consumption in South Kalimantan and the fact that 74.4 percent can be adjusted.

The beef price factor is stated to have a significant effect on beef consumption by using a significance level of = 0.03, which is the sig. obtained 0.029. It is said to be "significant" because the value of sig. 0.029 is smaller than the significance value of = 0.03.

In Table 2 can be seen that the short-term effect of beef prices in South Kalimantan has a negative effect on beef consumption in South Kalimantan. The results of this study state that the coefficient value of the domestic beef price is -0.416 (negative sign) meaning that between the price of beef and beef consumption in South Kalimantan has a negative influence with the assumption that other factors are considered constant (*ceteris paribus*) then any increase the price of beef in South Kalimantan by 1 percent will reduce the level of beef consumption in Indonesia by 0.416 percent. The decline in purchasing power was due to a decline in demand in several areas in South Kalimantan.

Based on table 1 independent variable the price of broiled chicken in South Kalimantan has a sig value of 0.025 is smaller than the significance value of = 0.03, so it can be interpreted that the price of broilers has a significant and significant effect on beef consumption. This shows that every 1 percent increase in the price of chicken increases beef consumption by 0.313 percent. To confirm that the price variable for marked chicken produced in this analysis is in accordance with the theory, it means that if there is an increase in the price of avam meat, the opportunity for people to consume beef will increase. consumers shift to substitute goods from beef will also increase. In the long term, the effects increase all in the same direction as the short term effects. This is because the adjustment coefficient is positive. The price of purebred chicken in South Kalimantan in the long term has a positive effect on the demand for beef in South Kalimantan. For every 1 percent increase in the price of purebred chicken, beef consumption will increase by 0.421 percent in the long term, assuming the value of other variables does not change or remain constant.

Based on Table 1 independent variable the price of avam ras eggs in South Kalimantan has a sig value of 0.036 is smaller than the significance value of = 0.04, so it can be interpreted that the price of broiler eggs has a significant effect on meat consumption.

In the short term, the price of broiler eggs has a positive effect on beef consumption or in other words, the price of purebred eggs increases, the consumption of beef in South Kalimantan will increase or vice versa. Every 1 percent increase in the price of eggs will cause beef consumption to increase by 0.357 percent, assuming the value of other variables does not change.

In the long term, changes in the price of broiler eggs in South Kalimantan have a positive effect on beef consumption in South Kalimantan or in other words, egg prices in South Kalimantan increase, so beef consumption will increase or vice versa in the long term. Every 1 percent increase in the price of eggs will cause beef consumption to increase by 0.480 percent, assuming the value of other variables does not change.





Based on Table 1 independent variable the average price of fish in South Kalimantan has a sig value of 0.048 is smaller than the significance value of  $= 0.05$ , so it can be interpreted that the average price of fish has a significant effect on meat consumption.

In the short term, the average price of fish has a positive effect on beef consumption, or in other words, if the average price of fish increases, beef consumption in South Kalimantan will increase or vice versa. For every 1 percent increase in the average price of fish, the consumption of beef will increase by 0.135 percent, assuming the value of other variables does not change.

In the long term, changes in the average price of fish in South Kalimantan have a positive effect on beef consumption in South Kalimantan or in other words, the average price of fish in South Kalimantan increases, so beef consumption will increase or vice versa in the long term. Every 1 percent increase in the price of eggs will cause beef consumption to increase by 0.181 percent, assuming the value of other variables does not change.

Based on the above results, that the value of sig. of 0.033 is smaller than the significance value of  $= 0.04$ , so the interpretation results find that income per capita in South Kalimantan has a significant and significant effect on beef consumption. From this study it was found that there was an increase in beef consumption in South Kalimantan by 1.333 kg/cap/year which indicate that beef is included in daily necessities. if it is shown again that the higher the purchasing power of the people, the consumption of beef will increase. This shows that beef is a normal good. It can be seen that the income elasticity value is 1.333 percent in the short term. This means that if there is an increase in per capita income of 1 percent, the consumption of beef in South Kalimantan will increase by about 1.333 percent, meaning that changes in income to beef consumption are elastic.

In the long-term period, changes in income per capita in South Kalimantan have a positive influence on beef consumption in South Kalimantan or in other words, per capita income (income) in South Kalimantan increases, so beef consumption in South Kalimantan will increase or vice versa. Every 1 percent increase in income per capita in South Kalimantan will result in beef consumption in South Kalimantan as much as 4.220 percent, assuming the value of other variables does not change.

Based on the regression results, it was found that the independent variable beef production in South Kalimantan did not have a significant and insignificant effect with a significance level of  $> 0.10$ , and the value of sig. of 0.983, which is greater than the significance value of  $= 0.1$ . Meanwhile, the beef production coefficient value is 0.004 which means that if beef production in South Kalimantan increases by 1 percent, then beef consumption in South Kalimantan will increase by 0.004 percent, assuming that other independent variables are fixed. Changes in beef production variables are inelastic in relation to meat consumption, because every 1 percent increase in beef production in South Kalimantan is followed by an increase in beef consumption with a smaller percentage of 0.004 percent, there may or may not be an increase at all.

Thus, the beef production variable does not have a positive effect on beef consumption, so if there is an increase in beef production, it has no significant effect on beef consumption.

This is not in accordance with the theory, that one of the factors that affect the level of beef consumption in a region is the level of availability or production of beef, this is because maybe South Kalimantan is an area that is not the same as other regions, the dominance of the influence of the level of beef consumption is not on the level of availability of beef because with sufficient stock it does not really affect the interest of the people of South Kalimantan to consume beef. Social and cultural factors may be the more dominant influence.

Independent variable the population of South Kalimantan has a sig value of 0.010 is smaller than the significance value of  $= 0.02$ , so it can be interpreted that the population of South Kalimantan has a significant and significant effect on beef consumption in South Kalimantan.

In the short term, the population of South Kalimantan has a positive influence on beef consumption in South Kalimantan or in other words, the population increases, the



consumption of beef in South Kalimantan will increase or vice versa. For every 1 percent increase in the population of South Kalimantan, the consumption of beef in South Kalimantan will increase by 3,319 percent, assuming the value of other variables does not change.

In the long term, changes in the population of South Kalimantan will have a positive influence on beef consumption in South Kalimantan or in other words, if the population of South Kalimantan increases, beef consumption in South Kalimantan will increase or vice versa in the long term. For every 1 percent increase in the population of South Kalimantan, the consumption of beef in South Kalimantan will increase by 4.220 percent, assuming the value of other variables does not change.

The price elasticity of beef shows the relationship between beef prices and beef consumption in the short and long term. In this study, the value of the elasticity coefficient of beef prices in the short term is -0.416 and the long term is -0.559, this indicates that the elasticity of beef prices to beef consumption has an inelastic elasticity. This means that a relatively large change in beef prices will not change consumption in large quantities. This is in accordance with the theory of demand, where the price is inversely proportional to the quantity demanded. The value of the price elasticity of beef to beef consumption for the short term is greater than the elasticity of long term demand ( $-0.416 < -0.559$ ). The difference in short-term elasticity and long-term elasticity is due to the delay in adjusting the dependent variable to the independent variable so that the amount of beef demanded is different between the short and long terms.

Cross price elasticity of the price of chicken meat obtained a value of 0.313 for the short term, while for the long term 0.421. The positive effect of changes in the price of chicken meat on the demand for beef shows that the relationship between beef and chicken meat as a substitute good. The cross elasticity value obtained is less than one for the short and long term, this shows that the price of chicken meat is inelastic to beef consumption for the short and long term or in other words the percentage change in chicken meat prices is not responsive to changes in beef demand for the short and long terms.

The cross elasticity of egg prices based on the analysis results obtained a value of 0.357 for the short term and the cross elasticity for egg prices for the long term was 0.480. The cross elasticity value of the egg price is less than one, which means that demand is inelastic. The positive effect of changes in egg prices on demand for beef shows that the relationship between eggs and beef is a substitute good.

The cross elasticity of fish prices based on the analysis results obtained a value of 0.135 for the short term and the cross elasticity for fish prices for the long term was 0.181. The value of the cross elasticity of fish prices is less than one, which means that demand is inelastic. The positive effect of changes in egg prices on beef consumption shows that the relationship between fish and beef is a substitute good.

Income elasticity of value is 1.333 for the short term, while for the long term it is 1,792. The income elasticity value obtained is greater than one for the short and long term, this shows that people's income is elastic to beef consumption for the short and long term or in other words the percentage change in community income is responsive to changes in beef consumption for the short and long terms.

Elasticity of the population is obtained by the value of 3.319 for the short term and 4.22 for the long term. This figure implies that if the population increases by 1 percent, it will result in the percentage change in the amount of beef consumption increasing by 3.319 percent for the short term and 4.22 percent for the long term. The elasticity value of the population is greater than 1, indicating that the population is elastic and responsive to beef consumption in South Kalimantan.

## CONCLUSION

Based on the results of the discussion that has been carried out, the authors can draw the following conclusions:

- The diversity of beef prices, chicken meat prices, chicken egg prices, fish prices, community income, beef production, population and beef consumption in the previous



year can explain the diversity of beef demand by 91.2 percent. Partially, it shows that the independent variables that have a significant effect with a confidence level above 95 percent are beef prices, chicken egg prices, broiler chicken prices, fish prices, community income, population in South Kalimantan and beef consumption in the previous period;

- The response rate of the partial degree of change (coefficient of adjustment) of beef consumption in South Kalimantan is 74.4 percent the difference between the expected beef consumption and the actual beef consumption;
- Self-price elasticity – Consumption has a value of  $-0.416$  for the short term and  $-0.559$  for the long term, this indicates that the price elasticity of beef to beef consumption has inelastic elasticity for the short and long term;
- The cross-price elasticity of consumption of beef (breed chicken meat, broiler eggs and fish) obtained values of 0.313, 0.357, and 0.135 for the short term and 0.421, 0.480, 0.181 for the long term. The positive effect of changes in the price of purebred chicken meat, broiler eggs and fish on the demand for beef shows that the relationship between beef and purebred chicken meat, broiler eggs and fish as substitute goods indicates that the cross-price elasticity of purebred chicken, eggs broiler chicken and fish to beef consumption are inelastic and unresponsive in the short and long term;
- The elasticity of people's income towards beef consumption is 1.333 for the short term and 1.792 for the long term, this indicates that the elasticity of people's income towards beef consumption has elastic and responsive properties for the short and long term;
- The elasticity of beef production to consumption is 0.004 for the short term and 0.005 for the long term, this indicates that the elasticity of beef production to beef consumption has elastic properties that are inelastic and unresponsive for the short and long term;
- The elasticity of the population towards beef consumption is 3.139 for the short term and 4.219 for the long term, this indicates that the elasticity of the population towards beef consumption has elastic and responsive properties for the short and long term.

#### Recommendations:

- The partial adjustment model used in this analysis is quite good for the purposes of projecting the level of meat consumption in South Kalimantan. This condition can be seen from the efficiency of the estimated parameters of each explanatory variable simultaneously very well, which is indicated by the coefficient of determination above 90 percent. For the purposes of empirical analysis, this model is very suitable;
- Efforts must be made by the government to increase the productivity of the beef cattle breeding business, namely improving the quality of the mother and child with a quality beef cattle breeding program. Appropriate technology and quality of livestock human resources in accordance with the progress of the times;
- Apart from the internal efforts made by the government, there are more concrete efforts that can be made in stabilizing the price of livestock food prices, namely by cooperating with livestock business actors in regulating the supply and demand for livestock products. So that food price stabilization will be obtained and will increase the consumption of food from livestock;
- It is necessary to continue research by adding social and cultural variables that affect the level of meat consumption in South Kalimantan.

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