STRATEGIC FOOD DEMAND FOR NON-POOR HOUSEHOLDS IN INDONESIA

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INTRODUCTIONN

The poverty rate has an important role in development. Poverty rates are useful for: (a) formulating national development policies and plans, including poverty reduction strategies; (b) determining geographic location-based targets, individuals and households that are targeted by development programs; (c) determine the allocation of poverty reduction programs; (d) monitor and evaluate development programs, including the achievement of the Medium Term Development Plan / Long Term National Development Plan (RPJMN / RPJPN) and SDGs; (e) measuring the performance of the central and local governments (Adji, A., et al, 2020). Poverty reduction programs are a priority for Indonesia's development. This is in line with the first commitment of the Sustainable Development Goals (SDGs), namely reducing poverty and hunger. The availability of an accurate poverty rate in each region and at the national level is an absolute prerequisite for formulating poverty reduction policies.

Poverty is a parasite in the economy of a region, so if it is allowed to drag on, it will have very serious social and political consequences. Therefore, a strategy is needed to eradicate or minimize it. Assegaf (2015) argues that poverty reduction needs to be done using multiple perspectives, because poverty is a multidimensional problem. The world's concern for the problem of poverty is shown by the declaration of poverty alleviation in one of the main targets and targets of the concept of sustainable development. Sustainable Development Goals (SDGs) which will adorn the face of world development from 2015 to 2030 (Hoelman et al., 2015). As a commitment to poverty alleviation, various programs have been pursued by the Government, both central and regional, including the provision of basic needs such as Raskin, health and education services, expansion of job opportunities, agricultural development, provision of revolving credit systems, infrastructure development and assistance. sanitation extension and other programs (Suryahadi et al., 2010). However, the facts show that the reduced poverty rate is not comparable to the budget that has been disbursed by the government. Ministry of finance data shows that in the last 6 years the poverty alleviation budget has increased quite significantly, from 74.3 trillion rupiah (2011) to 212.2 trillion rupiah (2016) or 186 percent. However, ironically, the poor population was reduced by only 7% during that period or on average only was able to reduce poverty by around 1.17% per year (BPS, 2016). This condition shows that to lift someone out of poverty requires a fairly high budget.

This phenomenon shows that poverty alleviation is very difficult to do. As an alternative, research on food demand for non-poor households is needed. This research is needed in order to maintain the consumption ability of non-poor households. The results of further research can be used as a policy recommendation to maintain non-poor households in their condition. Several non-poor household studies were conducted by (Berges & Casellas, 2002). In his research, he analyzed the food demand system for poor and non-poorhouseholds in Argentina using the Linear Expenditure System (LES) model. Niimi (2005) using the Linear Approximation Almost Ideal Demand System (LA-AIDS) model researching food consumption patterns in Vietnam found that non-poor households have a more diverse choice of food commodities than poor households. Pangaribowo (2010) using the Quadratic Almost Ideal Demand System (QUAIDS) found that the food consumption patterns of non-poor households prioritized consumption of meat, snacks and processedfood commodities. Widarjono & Rucbha (2016)conducted a study on household food demand in Indonesia using the Quadratic Almost Ideal Demand System (QUAIDS) instrument and found that low-income households were more responsive to price changes than high-income households. Rice, which is a staple food, is less responsive to price changes in low-income households but has become very responsive as household income increases. In addition, meat is inelastic for poor households and becomes elastic for high- income households. The research aims to analyze the factors that influence the share of strategic food expenditure, and analyze the effect of changes in prices and householdincome on strategic food demand.

METODHOLOGY

The area study and data collection

This study used scondary data obtained from Susenas (Survei Sosial Ekonomi Nasional) data in 2016. The total sample size used of 259.178 households. This data is a sample of households collected by Susenas from thirty-four provinces in Indonesia, so that it can be considered as a generalization of the condition of all households in Indonesia.

The research was limited to 6 strategic foods namely rice, corn, beef, shallot, chili, and sugar. These 6 food commodities are part of Indonesia's seven strategic foods excepts soybeans. Soybeans are not included in the commodity studied because of the unavailability of data.

Analytical techniques

Analysis of strategic food demand for non poor households in Indonesia is done by using the Linear Approximation-Almost Ideal Demand System (LA-AIDS) model. Model LA-AIDS diturunkan dari model AIDS. The AIDS model flexibility, acceptability, and wider application has been reported in earlier studies (Green & Alston, 1990; Akinbode, 2015; Wadud, 2006). According to Deaton and Muellbauer 1980 the AIDS model is specified as:

$$W_i = \alpha_0 + \sum_j \gamma_{ij} \log p_j + \beta_i \log\left(\frac{X}{P^*}\right) + e_i \quad (1)$$

where X is total expenditure on the group of goods being analyzed, P is the price index for the group, PI is the price of the jth good within the group, w, is the share of total expenditure allocated to the ith good (i.e. w, = P,Q,/X), and the price index (P) is defined as

$$\ln P = \alpha_0 + \sum_i \alpha_j \ln p_j + \frac{1}{2}\sum_j \sum_i \gamma_{ij} \ln p_i \ln p_j \quad (2)$$

The LA-AIDS model is a linear demand model derived from Marshallian demand but in the proportion of expenditure or budget share, the LA-AIDS model is a flexible and easily applied in demand model for household expenditure data (Deaton & Muellbauer, 1980; Sacli & Ozer, 2017; Sengul & Tuncer, 2005; (Shiba et al., 2017). The LA-AIDS model isestimated using Seemingly Unrelated Regression (SUR). SUR is an estimation in a multivariate regression system that explains the value of each equation model not correlated (unrelated). So that each equation model can be analyzed simultaneously without causing correlation among the models. The use of the SUR method has been widely carried out, including (Hayat et al., 2016).

The LA-AIDS model was then developed by entering a variable number of household members, this was also done by Mwenjeri et al., (2016) and Weliwita & Epaarachchi (2003).

$$w_i = \alpha_i + \sum_j \gamma_{ij} \log p_j + \beta_i \log(x/p*) + \lambda_i \log ART_j + e_i \quad (3)$$

The use of the LA / AIDS model in research according to the variables under study is further described as follows:

$$\omega_1 = \alpha_{11} + \gamma_{11} LnP_1 + \gamma_{12} LnP_2 + \gamma_{13} LnP_3 + \gamma_{14} LnP_4 + \gamma_{15} LnP_5 + \gamma_{16} LnP_6 + \beta_1 Ln\left(\frac{X}{p}\right) + \delta_1 LnART + \sigma_1 LnIMR \quad (4)$$

$$\omega_2 = \alpha_{21} + \gamma_{21} LnP_1 + \gamma_{22} LnP_2 + \gamma_{23} LnP_3 + \gamma_{24} LnP_4 + \gamma_{25} LnP_5 + \gamma_{26} LnP_6 + \beta_2 Ln\left(\frac{X}{p}\right) + \delta_2 LnART + \sigma_2 LnIMR \quad (5)$$

$$\omega_3 = \alpha_{31} + \gamma_{31} LnP_1 + \gamma_{32} LnP_2 + \gamma_{33} LnP_3 + \gamma_{34} LnP_4 + \gamma_{35} LnP_5 + \gamma_{36} LnP_6 + \beta_3 Ln\left(\frac{X}{p}\right) + \delta_3 LnART + \sigma_3 LnIMR \quad (6)$$

$$\omega_4 = \alpha_{41} + \gamma_{41} LnP_1 + \gamma_{42} LnP_2 + \gamma_{43} LnP_3 + \gamma_{44} LnP_4 + \gamma_{45} LnP_5 + \gamma_{46} LnP_6 + \beta_4 Ln\left(\frac{X}{p}\right) + \delta_4 LnART + \sigma_4 LnIMR \quad (7)$$

$$\omega_5 = \alpha_{51} + \gamma_{51} LnP_1 + \gamma_{52} LnP_2 + \gamma_{53} LnP_3 + \gamma_{54} LnP_4 + \gamma_{55} LnP_5 + \gamma_{56} LnP_6 + \beta_5 Ln\left(\frac{X}{p}\right) + \delta_5 LnART + \sigma_5 LnIMR \quad (8)$$

$$\omega_6 = \alpha_{61} + \gamma_{61} LnP_1 + \gamma_{62} LnP_2 + \gamma_{63} LnP_3 + \gamma_{64} LnP_4 + \gamma_{65} LnP_5 + \gamma_{66} LnP_6 + \beta_6 Ln\left(\frac{X}{p}\right) + \delta_6 LnART + \sigma_6 LnIMR \quad (9)$$

Where:

w_{1-6} :proportion of food expenditure

$P_1 - P_6$:Prices of rice, corn, beef, shallots, chilies, sugar

X :Total expenditure on consuming food (Rp)

p* : Stone price index, where $\ln p^* = \Sigma w_i . \ln p_i \mu$

: error term

α, d : intercept parameter
β : expenditure parameters
γ : price parametersa
ART : number of household members (people)
Expd : Household expenditure (Rp / month)
i, j : 1 (rice), 2 (corn), 3 (beef), 4 (shallot), 5 (chili), 6 (sugar)
IMR_i : Inverse Mill Ratio, correction variable of the estimated price of commodity group i

Furthermore, the formula for the proportion of expenditure (budget share) of each household for the commodity-i (wi) group is:

$$w_i = \frac{\sum_{j=1}^{ji} e_j}{\sum_{i=1}^{j} e_i} \quad (10)$$

Household consumption data from Susenas is household consumption for one week. The short consumption time of consumption time that is one week, causes some households not to consume. This condition causes some zero value data so that if analyzed in OLS it will produce a biased value. To avoid the problem of bias in the analysis, Sacli & Ozer (2017) using predictive values from the probit model that results in Inverse Mill Ratio (IMR). The IMR is the ratio of the estimated value of the standard normal density functionto the estimated value of the normal standard cumulative distribution function. The IMR value is obtained from the following equation:

$$IMR_{ih} = \frac{\phi(x,\beta)}{\theta(x,\beta)} \; for \; y_{ih} = 1 \quad (11)$$

$$IMR_{ih} = \frac{\phi(x,\beta)}{\theta(x,\beta)} \; for \; y_{ih} = 0 \quad (12)$$

The value of x is the value of the social demographic factor, value β is log of commodity prices. $y_{ih}$is a dummy variable, valuable $y_{ih} = 1$ if the household consumes commodities and is valuable $y_{ih} = 0$ if the household does not consume the commodity.

Sengul & Tuncer (2005) using Heckman's two step estimation by including the IMR in the observations. So the LA-AIDS equation is obtained as follows.

$$w_i = \alpha_i + \sum_j \gamma_{ij} \log p_j + \beta_i \log(x/p*) + \beta_i \log ART_j + IMR_j + \mu_i \quad (13)$$

Where $w_i$is the share of food expenditure to -i; is the price of the commodity to -j; x is total food expenditure; IMR is the value of Inverse Mills. Ratio; α, d, β, γ are the estimation parameters, and μ is the error term. p * is the stone price index ($\ln p^* = \Sigma w_i . \ln p_i$). Whereas i, j for 1 (rice), 2 (corn), 3 (beef), 4 (shallot), 5 (chili), 6 (sugar). In order for the LA-AIDS model to be consistent with demand theory, the use of the AIDS model in a demand system must go through demand retention testing consisting of adding up, homogeneity, and symmetry.

1. Adding up
   Adding up in the demand model explains that the total expenditure or the total expenditure share is one, or $\sum_i a_i = 1$, $\sum_i a_{ij} = 0$, $\sum_i b_i = 0$. In this demand system, adding up restrictions is not tested because indirectly these restrictions will be fulfilled

when expenditure variables, expenditure shares and the price index are accumulated in the AIDS model.

2. Homogeneity

   Homogeneity in the demand model explains that changes in price and income do not proportionally affect the quantity of demand, or $\sum_{ij} c_{ij} = 0$. So that the hypothesis used is:

   H_0 = If value $\sum_{ij} c_{ij}$ equals zero ($\sum_{ij} c_{ij} = 0$) or the average amount of change in the quantity of each commodity for price changes is zero.

   H_a = If value $\sum_{ij} c_{ij}$ does not equal zero ($\sum_{ij} c_{ij} \neq 0$) or the average number of changes in the quantity of each commodity for price changes is not equal to zero.

3. Symmetry

   Symmetry in the demand model illustrates that the cross price coefficients are the same, so that consumers are consistent with their choices. The following are the hypotheses used in testing the symmetry restrictions:

   H_0 = If value c_{ij} equals valuec_{ji} ($c_{ij} = c_{ji}$) or price crossovers between commodities of symmetry

   H_a = If value c_{ij} does not equal valuec_{ji} ($c_{ij} \neq c_{ji}$) or cross prices between commodities are not symmetrical

Adding up: $\sum_i a_i = 1$, $\sum_i a_{ij} = 0$, $\sum_i b_i = 0$,

Homogeneity: $\sum_j c_{ij} = 0$,

Simmetry: $c_{ij} = c_{ji}$.

The results of LA-AIDS analysis can then be used to determine the effect of changes in prices and income on changes in demand. This analysis is called demand elasticity analysis. Demand elasticity can be analyzed by using the Marshallian and Hicksian demand function approaches. (Ackah and Appleton, 2007a) suggests that elasticity can be calculated using the following formula:

1. Marshallian/ uncompensated elasticity, where there is an income effect obtained from total expenditure, so that:

   Marshallian price elasticity/ Uncompensated price elasticity:

   $$\epsilon_{ii}^{M} = -1 + \frac{\gamma_i}{w_i} - \beta_i \quad (14)$$

   Marshallian price elasticity/ uncompensated cross price elasticity:

   $$\epsilon_{ij}^{M} = \frac{\gamma_{ij}}{w_i} - \beta_i \frac{w_j}{w_i} \quad (15)$$

2. Hicksian/ compensated elasticity only has an expenditure price effect, so the elasticity value is known by:

   Hicksian price elasticity/ Compensated price elasticity:

   $$\epsilon_{ii}^{H} = -1 + \frac{\gamma_i}{w_i} + w_i \quad (16)$$

   Hicksian price elasticity/ Compensated price elasticity:

   $$\epsilon_{ij}^{H} = \frac{\gamma_{ij}}{w_i} + w_j \quad (17)$$

3. Expenditure elasticity:

   $$\eta_i = \frac{\partial \log q_i}{\partial \log x} = 1 + \left(\frac{1}{w_i}\right)\left(\frac{\partial w_i}{\partial \log x}\right) = 1 + \left(\frac{\beta_i}{w_i}\right) \quad (18)$$

4. Marginal Expenditure share:

$$m_i = \eta_i . w_i : \qquad (19)$$

Where ϵ_{ii}^{M} is uncompensated price elasticity, ϵ_{ij}^{M} is uncompensated cross price elasticity, ϵ_{ii}^{H} is compensated price elasticity, ϵ_{ij}^{H} is compensated cross price elasticity, η_i is income elasticity, m_i marginal *Expenditure share,* is w_i share of expenditure, is parameter of price commodity, β_{i-j} is expenditure parameter, γ_{i-j} for the dependent variable commodity, and j for the independent variable commodity.

RESULT AND DISCUSSION

Factors affecting strategic food demand

Price and income affect consumption patterns and household strategic food demand. The finding of LA-AIDS analysis shows the income, price, and socio-demographic factors significantly influence the demand for strategic food. Table 1 shows the estimated results of the parameters of demand for strategic food in Indonesian non poor households. Estimation of this parameter has passed the LA-AIDS restriction test that is adding-up, homogeneity, and symmetry (Dávila, 2010).

Rice prices, corn prices, beef prices, shallot prices, chili prices, and sugar prices have a very significant effect on strategic food demand. The number of household members greatly influences the demand for rice and beef. Total expenditure greatly influences the demand for rice, and chili. The total variable expenditure on rice and corn is negatif, indicating that rice and corn are normal items because the increase in income decreses demand rice and corn

Table 1 shows R^2 value of 0.4823 indicates that 48% of the influence of the independent variables can be explained in the model. The number of household members has a positive effect on demand for rice, corn, and sugar, while with beef, shallot, and chilli is negative. It can be interpreted that the increase in the number of household members one person increases the consumption of strategic food food, rice, corn, and sugar. But unlike beef, shallot, and chilli that the increase in household size decreases beef, shallot, and chilli demand. This phenomenon explains that Indonesian non poor households consume an enormous amount of strategic from the beef, shallot, and chilli group.

The variable number of household members negatively affects beef, shallot, and chilli commodities. This condition is caused by non poor households having a limited income, so the higher the number of family members, the household will reduce consumption of beef, shallot, and chili. The increase in the number of household members causes spending on purchases of food sources of carbohydrate (rice, corn) relatively high, so that the consequences are done by reducing the consumption of beef, shallot, and chili. This is also reinforced by the variable coefficient value of the number of household members that is positive for rice and corn. This means that the higher the number of household members, the share of expenditure on rice and corn also increases. The positive value of this rice commodity is consistent with the results of the study (Akbay et al., 2007 and Tekgüç, 2012) in Turkey, where demand for staple food is greatly influenced by the number of household members. The estimation of the IMR parameters of all equations is statistically significant at

one percent level, this shows that the estimation ignoring the value of zero consumption will produce a biased and inconsistent parameter estimation (Weliwita & Epaarachchi, 2003).

Table 1. Parameter Estimates of Strategic Food for Non Poor Households

Variable	rice	Corn	beef	Shallot	Chili	Sugar
Intercept	1.4316*	0.5788*	-1.7488*	0.6063*	-0.6852*	0.8173*
Rice prices	0.1007*	0.0178*	-0.0820*	-0.0084*	-0.0263*	-0.0017*
Corn prices	0.0178*	0.02497	-0.03723	-0.00070	-0.00465	-0.00014
Beef prices	-0.0820*	-0.0372*	0.1059*	0.0036*	0.0104*	-0.0007*
Shallot prices	-0.008*	-0.0007*	0.0036*	0.0053*	-0.0004*	0.0006*
Chili prices	-0.0264*	-0.0047*	0.0104*	-0.0004*	0.0205*	0.0004*
Sugar prices	-0.0017*	-0.0001*	-0.0007*	0.0006*	0.0004*	0.0016*
total expenditure	-0.0701*	-0.0186*	0.0453*	0.0076*	0.0313*	0.0045*
the number of Household Member	0.1878*	0.0078*	-0.1728*	-0.0035*	-0.0229*	0.0035*
Inverse Mill's Ratio	0.6637*	-0.2140*	0.5424*	-0.7311*	0.6463*	-0.9072*
Stone index	-0.0518*	0.0003*	0.0980*	-0.0119*	-0.0206*	-0.0138*
R^2	0.4823					

Note: *indicate significant at the 1% significance level, repectively

Source: research findings

Income Elasticities and Marginal Expenditure Share

Table 2 displays the income elasticity and Marginal Expenditure share of strategic food for non poor households. Rice, corn, and sugar are staple foods because the value of expenditure elasticity is greater than zero and less than one ($0 < \eta < 1$). Beef, shallot, and chilli are luxury items because the value of expenditure elasticity is more than one ($\eta > 1$).

Another interesting finding is the value of income elasticity for corn commodities is very low for non poor households (0.1429). This means that the increase in household income has almost no effect on corn consumption. This condition is due to corn commodity in Indonesia is no longer a staple food commodity. Corn commodity is a strategic commodity that functions as input for animal feed.

Table 2. Income Elaticities and Marginal Expenditure share

Food Group	Income	Marginal Expenditure Share
Rice	0.8435	0.5792
Corn	0.1429	0.0022
Beef	3.8407	0.1294
Shallot	1.0315	0.0707
Chilli	1.2377	0.1317
Sugar	0.9750	0.0868

Sources: research findings

Beef has the highest income elasticity value 3.8407 for non poor households. Beef is the commodity that responsive to changes in income. A one percent increase in non poor household income will increase beef consumption by 3.8407 percent. The income elasticity value for beef is greater than one, indicating that beef is a luxury item for non poor households. These findings support the findings of (Anindita et al., 2020), which examined The demand for beef in Indonesian urban.

The elasticity value of the income of the six strategic food groups is positive. This shows that the six strategic foods are normal goods, so that an increase in income will increase the consumption. The results of this study are the same as some research results from other countries. Example (Abdulai & Aubert, 2004) by using cross-section data on 6 food groups, the value of income elasticity is positive. other than that (Erhabor & Ojogho, 2011) conducting research in Nigeria, the results of the analysis showed that an increase in income would increase spending on food. So are (Mwenjeri et al., 2016) who conducted research in Kenya, that increasing household income will increase consumption.

The value of income elasticity for rice, corn, and sugar in non poor households is positively smaller than one. This illustrates that rice, corn, and sugar are inelastic commodities. The increase in income in non poor households will increase consumption of rice and corn, with a lower proportion than the increase in income. This supports the results of the study (Kumar et al., 2011) that income elasticity for basic food is positive and less than one. Table 2 illustrates the Marginal Expenditure share of strategic food for non poor households is used to see the effect of changes in income on household expenditure for strategic food in the long run. Share of marginal expenditure is calculated based on opinion (Ma et al., 2003), The marginal expenditure share is a multiplication of expenditure elasticity and budget share for each strategic food category. The results of the calculation of marginal expenditure share show that non poor households will allocate their income more proportionally to rice, beef, and chilli.

Uncompensated (Marshalian) Own-Price and Cross-Price Elasticity

The elasticity shows how much does the households respond to the price or income changing. Marshalian elasticity describes the percentage change in the number of goods demanded as result of price changes. Table 3 illustrates uncompensated own and cross-price elasticity. All own price elasticities are negative, ranging from -0.0073 to -1.5943. The most elastic beef in Marshalian. Beef is the highest of Marshalian price elasticity is 1.59%, followed by corn (1.11%), shallot (0.90%), sugar (0.89%), rice (0.21%), and chilli (0.01%). The most responsive price is beef. This means that beef is a luxury item for non poor households. This is in line with the results of the study (Bilgic & Yen, 2013).

Table 3 shows uncompensated cross-price elasticities for non poor households. The uncompensated cross-price elasticity analysis results showed that rice has a complementary relationship with beef and chilies. This is indicated by the value of its elasticity which is negative. Meanwhile, rice also has a substitution relationship with corn, shallots and sugar, because the elasticity value is negative. Another finding is that the compensated cross elasticity values for all rice are positive, meaning that rice has a substitution relationship to all other strategic foods (corn, beef, shallots, chilies, and sugar.

Table 3. Uncompensated Own-price and Cross-price Elaticity of Strategic Food in Indonesian Non Poor Household

Commodity	Rice	Corn	Beef	Shallot	Chili	Sugar
Rice	**-0.2074**	0.1083	0.1112	0.1166	0.1225	0.1198
Corn	31.0275	**-1.1105**	3.1488	4.6344	6.2526	5.5111
Beef	-2.5789	-0.6725	**-1.5943**	-0.8226	-0.9303	-0.8809
Shallot	0.0072	0.0283	0.0278	**-0.9027**	0.0276	0.0260
Chili	-0.1559	0.0036	-0.0007	-0.0090	**-0.0073**	-0.0139
Sugar	0.0050	-0.0119	-0.0114	-0.0105	-0.0096	**-0.8962**

Sources: research findings

Compensated (Hicksian) Own Price Elasticity and Cross Elasticity

Compensated price elasticity is a better measure of subtitution between two goods because it only measures the effect of substitution without calculating the income effect. Compensated own-price elasticities of demand for all food groups are negative and consistent with the a priori expectation (Khoiriyah et al., 2020; Anindita et al., 2020;Andreyeva et al., 2010). The absolute amounts of these elasticities for all food groups are lower than unity in non poor households as displays in table 4.

Table 4 shows that the six strategic commodities (rice, corn, beef, shallots, chilies, and sugar) are normal goods for non-poor households. Beef is a luxury item for rural households, urban households, non-poor rural households, and poor households (Sa'diyah et al., 2019), but it is a normal item for non-poor households.

Table 4. Uncompensated Own-price and Cross-price Elaticity of Strategic Food in Indonesia

Commodity	Rice	Corn	Beef	Shallot	Chili	Sugar
Rice	**-0.1059**	0.1215	0.1396	0.1744	0.2123	0.1949
Corn	1.4152	**-0.2559**	0.7621	0.7969	0.8348	0.8175
Beef	0.0587	-0.6124	**-0.6280**	-0.5595	-0.5216	-0.5390
Shallot	0.7156	0.0445	0.0625	**-0.0288**	0.1352	0.1179
Chili	0.9571	0.2860	0.3040	0.3388	**-0.6233**	0.3593
Sugar	0.7015	0.1047	0.1227	0.1575	0.1954	**-0.0122**

Sources: research findings

The value of own price elasticity for the commodities of rice, corn, beef, shallot, chili, and sugar in non poor households is respectively -0.1059, -0.2559, -0.6280, -0.0288, -0.6233, and -0.0122. It means the increase in the price of rice, corn, beef, shallot, chili, and sugar commodities by one percent will reduce the demand for rice, corn, beef, shallot, chili, and sugar commodities by 0.1059 percent, 0.2559 percent, 0.6280 percent, 0.0288 percent, 0.6233 percent, and 0.0122 percent. In table 4, most of the cross-price elasticity is positive, it means that there is subtitute relationship between strategic foods. On the other hand shows that non poor households rice and beef have a substitution relationship with all strategic foods.

CONCLUSION

The strategic share of food expenditure in non poor households is influenced by food prices related, other food prices, total expenditure, the number of household members, the stone index, and the IMR. Beef, shallot, and chilli are luxury items because the value of expenditure elasticity is more than one ($\eta > 1$). Beef is the highest of Marshalian price elasticity is 1.59%, followed by corn (1.11%), shallot (0.90%), sugar (0.89%), rice (0.21%), and chilli (0.01%). The value of Hicksian elasticity for the commodities of rice, corn, beef, shallot, chili, and sugar in non poor households is respectively -0.1059, -0.2559, -0.6280, - 0.0288, -0.6233, and -0.0122. The Marshalian and Hicksian cross price analysis shows that rice has a substitution relationship to all other strategic foods (corn, beef, shallots, chilies, and sugar).

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