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The impact of changes in prices and income on demand patterns for food commodities in Banjarmasin City and Banjarbaru City, South Kalimantan Province, Indonesia

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Abstract

Changes in commodity prices and incomes affect the demand for commodity bundles and, in turn, have an impact on the overall pattern of demand for these commodities. Apparent changes in prices and income are indicated to occur in 2019, which was before the COVID-19 pandemic, and 2021, which was the time of the COVID-19 pandemic. The research aimed to construct the demand for food commodities using the LA/AIDS model as well as to analyze changes in the pattern of demand for food through the budget share as well as the price and income elasticity. The study used secondary data from National Socio-Economic Survey in March 2019 and in March 2021 in Banjarmasin City and Banjarbaru City, each with 1,210 and 1,310 samples of households. The results showed that there was a sharp decrease, which was 5.11%, in consumption of the ready foods and beverage (RFB) group. The decline was, among other things, triggered by the emergency response policy for COVID-19 in the form of minimizing movement and crowds of people so that the behavior of consuming RFB outside was reduced or no longer made. Instead, food consumption had been shifting to other raw food groups, such as grains and tubers, eggs and milk, vegetables, fruits, fish, and meat, which was marked by an increase in the budget share of these food groups. This shift in consumption patterns to raw food groups was also indicated by an increase in price elasticity. It could be interpreted as the seriousness of consumer demand for these food groups.

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Introduction

The harmful effects of the COVID-19 pandemic are not only related to the number of people who have been confirmed positive for the virus or the victims who have died from it but also its rapid and widespread spread to 234 countries. Since the first and second reported cases of COVID-19 in Indonesia were identified, a 64-year-old woman and her 31-year-old daughter who were participated in a dance club event in Jakarta recognized by the Indonesian Government on March 2, 2020 (Djalante *et al*., 2020), as of October 7, 2022, 6,439,292 people were positively exposed to COVID-19 in Indonesia — 6,264,184 of whom managed to recover, while 157,493 others had their lives taken (https://covid19.go.id/id, 2022). As a result of the COVID-19 pandemic, all sectors were affected and contracted. A few health protocol policies were imposed by the Government in the form of physical distancing and social distancing to handle the spread of the virus, such as work-from-home, school-from-home, Large-Scale Social Restrictions (PSBB), and delaying or even stopping and eliminating some potential economic activities. The release of the Official Statistics News by Statistics Indonesia (2021) states that the Indonesian economy in 2020 experienced a growth contraction of 2.07 percent (c-to-c) compared to 2019. As of September 2020, the number of people below the poverty line increased to 27.55 million from the previous year. A year earlier, as of September 2019, as many as 24.79 million people —or an increase of 2.76 million people (BPS, 2021).

The compilation of Santoso (2020) and Susilawati *et al*. (2020) in Table 1 recorded the slowdown and sluggishness in the economic sector that occurred in 2020. Layoffs that occurred in 1.5 million employees resulted in reduced and lost potential income for the community or household. Meanwhile, the March 2020 inflation rate of 2.96% year on year (y.o.y.) indicated an increase in the prices of goods and services. Changes in income and commodity prices will affect the demand for commodity bundles and, in turn, have an impact on the overall pattern of the commodity market and can be further reduced to express the level of community welfare. The magnitude of the impact of changes in income and prices on demand is expressed in terms of the elasticity of commodity prices and the elasticity of income, which vary according to economic conditions and the time trend that surrounds them.

Constructing the behavior of people's demand for food commodities and estimating the price elasticity and income elasticity can be done with a single equation or with a simultaneous equation. Estimation with a single equation is pragmatic and simple yet has multiple fundamental problems because the formulation of the demand function and the selection of the variables in it tend to be determined arbitrarily without being based on demand theory which refers to budget constraints that limit total expenditure (Sadoulet and de Janvry, 1995). A more reliable alternative is the simultaneous approach. The demand for commodities is formulated in a system to accommodate the effects of their interactions with other commodities and is based on the theory of demand in determining the functional structure and the variables involved in it. One model of the simultaneous equation of demand is AIDS (Almost Ideal Demand Systems) developed by Deaton and Muellbauer (1980a and 1980b). From the estimation of the AIDS model, elastic quantities are obtained, which are even used later to reduce the CV (Compensating Variation) interpretation of community welfare.

The AIDS model is the model of choice for advanced demand analysis. This model is based on a well-structured analytical framework, accommodates several types of aggregation, is easy to estimate, and meets the standard restrictions of classical demand theory. Deaton and Muellbauer (1980a) mentioned some of the advantages of the AIDS model that lie in its properties, namely: (1) generating demand systems with first-degree approximations; (2) fulfilling the axiom of choice; (3) can aggregate various consumers by income class without requiring parallelism requirements on Engel's linear curves; (4) the functional structure is consistent with the household budget data; (5) can be estimated by a simple method; and (6) meet the homogeneity and

symmetry restrictions. Although AIDS is a nonlinear model, its variant, known as the LA/AIDS (Linear Approximation/Almost Ideal Demand Systems) model, was developed by proposing Stone's geometric price index (1953), $\log P^* = \sum_i w_i \log p_i$ as a linear approximation of the price index P contained in the model. The performance of the approximation is better if there is high collinearity between the price and time factors (Sadoulet and de Janvry, 1995). This linear version is widely applied because it simplifies the estimation process (Buse, 1994). Yuzbashkandi and Mehrjo (2020) stated that in many empirical studies, the LA/AIDS model was used more often than the nonlinear AIDS model.

The objectives of this study were to construct a simultaneous model of food commodity demand by people with LA/AIDS and analyze changes in the pattern of demand for food commodities through the budget share and the amount of income and price elasticity.

Materials and methods

Research location and time

The research location is Banjarmasin City and Banjarbaru City, South Kalimantan Province, Indonesia. The choice of the two cities is based on the research focus aimed at urban household communities. In urban areas, the work of the head of the family is generally concentrated in the industrial and service sectors. The occurrence of the COVID-19 pandemic, which caused the economic downturn and affected household income, typically had more of an impact on these two sectors.

The research was carried out for a period of ten months, starting from February to November 2022, which includes activities ranging from proposal preparation, research implementation, report and output preparation, and research results publication.

Data

The primary data used in this study is secondary data in the form of raw data from the National Socio-Economic Survey (SUSENAS) under the Consumption/Expenditure and Household Income Module (VSEN19.KP) of Banjarmasin City and Banjarbaru City, carried out in March 2019 and March 2021 totaled 1,210 and 1,310 sample household records, respectively. Data obtained on demand from Statistics Indonesia. The March 2019 SUSENAS data is specified as a condition before the COVID-19 pandemic, while the March 2021 SUSENAS data is a representation of the situation when the COVID-19 pandemic was raging.

From each observed sample household record, data were collected for the following variables: income value (estimated through expenditure aggregation value); the quantity and value of household expenditure per month on the possibility of 188 types of food commodity specifications according to the Statistics Indonesia definition (referring to the COICOP (Classification of Individual Consumption According to Purpose) code). From the 188 specifications for food commodities, they were then aggregated into six basic food groups, namely: 1) rice and tuber groups; 2) group of eggs, milk, and their products; 3) group of vegetables, nuts, fruits, spices, fats, and oils; 4) fish and meat groups; 5) ready foods and beverage (RFB) groups, and 6) other food groups.

This food grouping is not only for simplification concerning model estimation but also to minimize the disposal or inability to use household records because the household has a zero value in certain food price variables if it does not consume the food. In the estimation, the LA/AIDS model, which used price variables, was expressed in logarithmic units.

Data analysis

The demand for food commodity aggregation groups was formulated using the following LA/AIDS model approach,

$$w_i = \alpha_i^* + \sum_{j=1}^{6} \gamma_{ij} \log p_j + \beta_i \log \left(\frac{x}{P^*}\right) + e_i \quad \ldots\ldots 1$$

where:

i,j food commodity aggregation group, i, j = 1, 2, ..., 6;

w budget share

α_i^*	constant, $\alpha_i^* = \alpha_i - \beta_i \log \Phi$
p	commodity unit price
x	income
P*	Stone price index, $\log P^* = \sum_i w_i \log p_i$
e	disturbance terms

To make it meet consumer theory, the LA/AIDS model (1) was restricted to general assumptions of demand: adding-up, homogeneity, and symmetry (Yuzbashkandi and Mehrjo, 2020). Estimation of the model was carried out using the SUR (Seemingly Unrelated Regression) procedure.

The use of the SUR procedure was because there is a correlation between the dependent variable in the LA/AIDS model, namely the budget share, since each of these variables is limited to meet budgetary constraints (Sadoulet and de Janvry, 1995). With the classical OLS procedure in regular use, estimates can be made by applying them one by one to each equation and producing an estimator that is consistent and unbiased yet not efficient. With the SUR procedure, the resulting regression coefficient estimation is more efficient, especially if the independent variables between various equations are not highly correlated. However, the error between different equations is highly correlated (Zellner, 1962). The completion of the SUR estimation was carried out using the SAS ver. 9.1.

From the results of the estimation of the parameters of the demand model above, it is then calculated: own price elasticity, E_{ii}; cross price elasticity, E_{ij}; dan income elasticity, η_i of each food group,

(1) own price elasticity $E_{ii} = -1 + \frac{\gamma_{ii}}{w_i} - \beta_i$;

(2) cross price elasticity $E_{ij} = \frac{\gamma_{ij}}{w_i} - \frac{\beta_i}{w_i} w_j$; and 2

(3) income elasticity $\eta_i = 1 + \frac{\beta_i}{w_i}$

(Green & Alston, 1990, Ngui, Mutua, Osiolo & Aligula, 2011).

The elasticity quantities above represent the behavioral response to public food demand due to the shock effect of changes in income and prices, which can be the basis for consideration for formulating government intervention or populist policies that defend both consumers (especially those with low incomes) and farmers as one of the food producers.

Results and discussion

Budget share

One representation that showed changes in food consumption patterns of the people of Banjarmasin City and Banjarbaru City and the impact due to changes in the economic environment that affected it was the budget share. The budget share is the share of expenditure to the total spending made by households. Table 2 shows the budget share percentage for each food group in Banjarmasin City and Banjarbaru City in 2019 and 2021.

Table 1. Indonesia's economic downturn in 2020 due to the COVID-19 pandemic.

Variable	Impact
Workers	1.5 million employees affected by layoffs
Purchasing Manager Index (PMI)	below level 50
Flight	canceled: > 12,703 flights from 15 airports
Flight service	lost income more than IDR 20
Tourists	the flow of tourists dropped dramatically to only 6,800 people per day
Hotel and restaurant	hotel occupancy level decreased to only up to 50%
Import (January – March 2020)	decreased to 3.7% year to date (y.t.d.)
Inflation (March 2020)	2,96% year on year (y.o.y.)

Source: Santoso (2020) and Susilawati *et al* (2020).

Comparing the two different years, two things stand out. First, the largest allocation of the budget share for urban food in Banjarbaru City and Banjarmasin City is the RFB group —by 42.13% in 2019 and 37.02% in 2021. This food group includes bread, cakes, biscuits and snacks, processed foods (white

rice, fried rice, *rames* rice, *lontong*, *ketupat*, *gado-gado*, *pecel*, *ketoprak*), cooked vegetables, cooked chicken/meat, cooked fish, packaged drinks, and RFBs. Cooked food and RFBs may be consumed on the spot or taken home to be eaten at home as the family's daily menu. The existence of cooked food and RFBs replaces other food groups, such as grains, tubers, eggs and milk, vegetables, fruits, nuts, and meat and fish, which are raw and must be prepared and processed first. The tendency of consumption choices for this food group may be related to the availability of these goods and their practicality that characterizes urban communities. In addition, this is because some actors and controllers of household consumption do numerous activities outside the home and do not have sufficient time to process other raw food groups into ready-to-serve and ready-to-eat foods.

Table 1. Food group budget share and its changes.

Food groups	Budget share (%)		Changes (%) 2019-2021
	2019	2021	
w_1	8.79	9.90	1.11
w_2	5.60	7.24	1.64
w_3	15.09	16.81	1.73
w_4	14.86	15.84	0.97
w_5	42.13	37.02	-5.11
w_6	13.52	13.19	-0.33

where:

w_1 rice and tuber groups;

w_2 group of eggs, milk, and their products;

w_3 group of vegetables, nuts, fruits, spices, fats, and oils;

w_4 fish and meat groups;

w_5 RFB groups; and

w_6 other food groups.

Apart from the above behavior, which encourages the large quantity of prepared food and RFB groups consumed, the unit price of the goods is also relatively expensive because it includes the costs of processing and serving them into ready-to-eat foods. Therefore, the share of consumer spending on this food group is somewhat considerable, and consequently, the budget share is also extensive.

Second, there was a sharp decline in consumption of the RFB group, which was 5.11% in a row between 2019 and 2021 and 0.33% for other food groups. These other food groups include tea, coffee, chocolate, sugar, syrup, crackers, cigarettes, and other tobacco. The cause of this decline, among others, stemmed from the extraordinary events of the COVID-19 pandemic that affected the social life of the community. The emergency response to the pandemic and the treatment of social distancing in the PSBB (Large-Scale Social Restrictions) policy had limited the movement of people in public areas to minimize crowds to prevent the spread of the pandemic, which contributed to the reduced budget share for RFB groups and other food groups.

Because of the restriction of movement, the behavior of consuming RFB outside was reduced or no longer practiced. Instead, consumers shifted to other food groups, such as rice and tubers; a group of eggs, milk, and their products; a group of vegetables, nuts, fruits, spices, fats, and oils; as well as groups of fish and meat, which are generally raw, need to be prepared and processed first and served only at home. The shift in public consumption to these food groups was marked by an increase in the budget share from 2019 to 2021.

Table 2. The results of the LA/AIDS model estimation on the March 2019 and March 2021 SUSENAS data

Food Groups	ln p_1	ln p_2	ln p_3	ln p_4	ln p_5	ln p_6	x/P*	Const.	RMSE	R-sq
Data: SUSENAS March 2019										
w_1	0.0776***	-0.0115***	-0.0322***	0.0072	-0.0249**	-0.0162	-0.0373***	0.2148***	0.0225	0.5661
w_2	-0.0115***	0.0247***	-0.0062	-0.0185***	0.0100	0.0015	-0.0611***	0.3893***	0.0458	0.6053
w_3	-0.0322**	-0.0062	0.0652**	-0.0146	-0.0667**	0.0544**	0.0002	0.2230**	0.0655	0.1349
w_4	0.0072	-0.0185***	-0.0146	0.0294	-0.0484**	0.0449**	-0.0320*	0.3226***	0.0485	0.3630
w_5	-0.0249**	0.0100	-0.0667**	-0.0484**	0.1063**	0.0237	0.0151	0.4989***	0.1129	0.1685
w_6	-0.0162	0.0015	0.0544**	0.0449**	0.0237	-0.1083***	0.1151***	-0.6485***	0.0704	0.5012
Data: SUSENAS March 2021										
w_1	0.0336	-0.0091***	-0.0242*	0.0030	-0.0261	0.0229*	-0.0472***	0.3503***	0.0486	0.3864
w_2	-0.0091***	0.0277***	-0.0026	-0.0126***	-0.0030	-0.0004	-0.0602***	0.3628***	0.0356	0.4444
w_3	-0.0242*	-0.0026	0.0249	0.0088	-0.0473***	0.0404***	-0.0249**	0.2230***	0.0602	0.1868
w_4	0.0030	-0.0126***	0.0088	0.0509**	-0.0222	-0.0228*	-0.0605***	0.2964***	0.0634	0.2246
w_5	-0.0261	-0.0030	-0.0473***	-0.0222	0.1190***	-0.0204	0.0535**	0.1920***	0.1245	0.0654
w_6	0.0229*	-0.0004	0.0404***	-0.02279*	0.0204	-0.0145	0.1392***	-0.4807***	0.0852	0.4681

where:

w_i budget share of food groups

i food group identification guide, i = 1, 2, ..., 6

1 – grains and tubers;

2 – eggs and milk;

3 – vegetables, fruits, nuts, spices, fats and oil;

4 – meat and fish;

5 – RFB; and

6 – other food

p food groups price —expressed in ln :

x income

P* Stone index

*** significance level of $\alpha \leq 0.01$

** significance level of $\alpha \leq 0.05$

* significance level of $\alpha \leq 0.1$

Estimation of the LA/AIDS model

Estimation of demand for food which is aggregated into six food groups is carried out with a systematic approach using the LA/AIDS model as stated in equation (1). LA/AIDS is a variant of the AIDS model proposed by Deaton and Muellbauer (1980a, 1980b). Compared to the single equation approach, demand estimating with this systematic approach is considered to be preferred because of some advantages, namely: (1) generating demand systems with first-degree approximations; (2) fulfilling the axiom of choice; (3) can aggregate various consumers by income class without requiring parallelism requirements on Engel's linear curves; (4) the functional structure is consistent with the household budget data; (5) can be estimated by a simple method; and (6) meet the homogeneity and symmetry restrictions (Deaton and Muellbauer (1980a). The single equation approach, which is commonly used due to its practicality and simple solution, has the following disadvantages. Firstly, the selection of the functional structure of the model, as well as the variables involved in it, is carried out arbitrarily based on one-sided thoughts and perspectives, interest in the variables, as well as the ease of completion of the estimation —therefore, it is doubtful whether the formulated demand function is based on consumer behavior or not. Secondly, the amount of elasticity obtained from the estimation of the demand function model is constant and, therefore, when used as a basis for policy analysis, is only valid in the short term. In addition, goods classified as luxury (with a high value of income elasticity) are generally classified as necessity goods with a low value of income elasticity if

there is an increase in income. Thirdly, the expected demand equation for prediction purposes does not meet the budget constraint that limits total expenditure because, in general, the equation does not meet the restrictions in the theory of demand (Sadoulet and de Janvry, 1995).

The estimation results of the LA/AIDS model are shown in Table 3. The model was restricted by the general assumption of demand: adding up: $\sum_i a_i = 1$, $\sum_i \gamma_{ij} = 0$, and $\sum_i \beta_i = 0$; homogeneity: $\sum_j \gamma_{ij} = 0$; and symmetry: $\gamma_{ij} = \gamma_{ji}$ (Deaton and Muellbauer, 1980a; Buse, 1994). Restrictions were applied through an iterative procedure for the estimation. The first thing that can be observed from the estimation results is the value of RMSE (the root of mean square error) and R-sq. for simultaneous estimation of each food group. RMSE can be interpreted as the deviation between the results of the estimation of the relationship between the variables that make up the model and the actual relationship that exists. On the one hand, R-sq. is a measure of the goodness of fit of estimation. As a representation of the deviation, the lower the RMSE value, the smaller the deviation and, thus, the better the estimation results of the model. Each RMSE quantity, which had a small value, would correspond to the amount of R-sq. value tended to increase.

Table 4. Price elasticity (Marshallian) and income elasticity.

Food groups	Price elasticity (Marshallian)						Income elasticity, x
	p_1	p_2	p_3	p_4	p_5	p_6	
Data: SUSENAS March 2019							
f_1	-0.0802	-0.1072	-0.3019	0.1453	-0.1039	-0.1273	0.5751
f_2	-0.1098	-0.4975	0.0544	-0.1687	0.6379	0.1740	0.0903
f_3	-0.2133	-0.0409	-0.5682	-0.0968	-0.4425	0.3607	1.0011
f_4	0.0675	-0.1126	-0.0655	-0.7699	-0.2351	0.3312	0.7845
f_5	-0.0622	0.0217	-0.1637	-0.1203	-0.7627	0.0513	1.0360
f_6	-0.1949	-0.0367	0.2741	0.2054	-0.1837	-1.9156	1.8514
Data: SUSENAS March 2021							
f_1	-0.6134	-0.0575	-0.1648	0.1055	-0.0873	0.2940	0.5236
f_2	-0.0435	-0.5573	0.1044	-0.0422	0.2668	0.1036	0.1682
f_3	-0.1296	-0.0045	-0.8271	0.0759	-0.2264	0.2597	0.8520
f_4	0.0566	-0.0519	0.1200	-0.6182	0.0011	-0.1257	0.6181
f_5	-0.0849	-0.0185	-0.1520	-0.0829	-0.7320	-0.0743	1.1446
f_6	0.0690	-0.0797	0.1287	-0.3785	-0.5456	-1.2491	2.0552

where:
w_i food groups
i food group identification guide, i = 1, 2, ..., 6
1 – grains and tubers;
2 – eggs and milk;
3 – vegetables, fruits, nuts, spices, fats and oil;
4 – meat and fish;
5 – RFB; and
6 – other food
p food groups price.

The second thing is related to the significance of the estimator of the model parameters. In general, the parameter estimator is statistically significantly different from zero because it has a magnitude of P > z which is smaller than the significance level starting from $\alpha \leq 0.01$ (marked with three asterisks, ***), $\alpha \leq 0.01$ (marked with two asterisks, **), up to $\alpha \leq 0.1$ (marked with one asterisk, *). Thus, it can be said that

typically the price or income variables associated with these parameters influence the budget share of each food group. However, it cannot be stated so in several other estimators because the magnitude of P > z it has is relatively greater than 0.1.

Elasticity

From the coefficient estimation result of the LA/AIDS model, it can be deduced the amount of elasticity of demand in the form of own price elasticity, cross price elasticity, and income elasticity. Elasticity is a measure of responsiveness to changes in demand for goods caused by changes in the factors that influence it, namely the price of the good itself, the price of other goods, and income. The results of the elasticity calculation are presented in Table 4.

Own price elasticity

The own price elasticity value for each food group was in the main diagonal position in Table 4. The value of the price elasticity itself (in absolute terms) was less than one (or is said to be inelastic) specifically for necessary food items. As daily necessities, price changes do not have a significant impact on the demand for these items. However, the negative sign represented the law of demand which stated the inverse relationship between price and demand for goods. The value of own price elasticity that was more than one was found in groups of goods that are specified as other foods.

Compared to the situation "before" the COVID-19 pandemic, the own price elasticity, based on the situation as of March 2021 "when" the COVID-19 pandemic occurred, was of greater value in the grains and tubers group; eggs and milk; and vegetables, fruits, nuts, spices, fats, and oils; and coupled with the value of the own price elasticity of meat and fish groups that were already large. This finding showed the seriousness of consumer demand for these food groups as a consequence of the shift in food consumption patterns by the community, which tended to lead to food processed and served by themselves from raw food ingredients. The cause of the change was the desire to consume more hygienic food and because it was limited by the COVID-19 pandemic emergency response policy, which minimized mobilization and crowds so that prepared and ready-to-eat foods were no longer a priority option.

Cross price elasticity

Cross-price elasticity reflects the relationship between specific food groups and other food groups: whether they are substitutive or complementary. Substitutive nature means that if the price of an item increases, it will be responded to by a decrease in consumer demand for the item. Regardless, because of the need for the commodity, the consumer replaces it with another good that is the substitute. The opposite will happen if the price of the item decreases. Connectivity between goods is said to be complementary when there is an increase in the price of a commodity followed by a decrease in consumer demand for the item. Subsequently, other goods that are located as complements or complements will also experience a decline. The opposite will happen if the price of the entity decreases.

The relationship between goods is said to be substitutive or complementary, which can be identified through the sign of the coefficient on the demand function related to the prices of other goods. It is said that the connectedness is substitutive if the sign of the coefficient is positive, and it is said that the connectedness is complementary if the sign of the coefficient is negative. Meanwhile, the strength of the connectedness is expressed by the magnitude of the cross-elasticity value. Referring to Table 4, the value of the cross-price elasticity was in the off-diagonal position that brought together the rows representing the demand for each food group i with the aggregate prices of other food groups, p_j, $i \neq j$, with $i, j = 1, 2, \ldots, 6$. From Table 4, it is shown that food groups were generally bound by complementary relationships.

However, several food groups had a substitution relationship, for example, between the grains and tubers group and the meat and fish group, and the egg and milk group with the RFB group.

Taking into account the food consumption patterns of the people of Banjarmasin City and Banjarbaru City in general, the justification for the substitutive relationship between the grains and tubers group and the meat and fish group was difficult to demonstrate, especially if it specifically represents the grains and tubers group with food in the form of rice and associating it with groups of meat and fish which are seen as side dishes. In contrast to the substitutive relationship between the egg and milk group and the RFB group. The types of food that fall into the two food groups can be substituted for each other.

In the time difference between March 2019 and March 2021 above, there were dynamics of connectedness between food groups, both in terms of substitution or complementary linkages and the strength of their connectivity represented by the amount of cross elasticity. At that time, the connection between several food groups was consistent, but there were also some exchanges: previously substitution became complementary, or formerly complementary became substitution. The power of connectedness is also changing.

Income elasticity

Income elasticity indicates the responsiveness of demand for food groups to changes in income and the status of food groups as ordinary goods. Foods that become daily food needs are typical goods, which means that the direction of the relationship between demand and income is directly proportional.

Based on the March 2021 SUSENAS data, the income elasticity of the RFB group, as well as other food groups, had increased compared to the income elasticity of the March 2019 SUSENAS data. A higher income elasticity value meant that the decrease in income indicated to occur in the period had an impact on a more significant decline in demand for that food group. Meanwhile, the decline in demand for other food groups, namely grains and tubers, eggs and milk, vegetables and fruits, and fish and meat, as a result of the decline in income, was relatively slighter. This finding is in line with the previous conclusion, which indicated a shift between the consumption of RFB and eating out the behaviour with the consumption of raw food processed by themselves for daily household consumption.

Conclusion

The budget share for RFB groups and other food groups was relatively the largest compared to the existing food groups. In the period between before and during the outbreak of COVID-19, there was a shift marked by a decrease in the share of the budget for the ready food and beverage group and other food groups, as well as an increase in the budget share for the grains and tubers, eggs and milk, vegetables and fruit, and fish and meat groups. The own price elasticity of grains and tubers, eggs and milk, vegetables and fruits, and fish and meat, which was more prominent than before, represented the seriousness of consumer demand for these food groups as a consequence of shifting food consumption patterns by people who tend to focus on raw food. The shift in food consumption patterns from previously RFB to raw food groups was caused, among other things, by the Government policy of limiting crowds and mass mobilization in the context of handling the spread of COVID-19, which restricted eating out behavior and the public's concern for processing their daily food to ensure hygiene and nutritional content was mainly associated with efforts to increase endurance and health.

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