ANALYSIS OF ASPECTS OF FOOD SECURITY: A STRATEGIC ANALYSIS OF APPROACH TO SUSTAINABLE FOOD CONSUMPTION PATTERNS AS AN EFFORT TO REALIZE FOOD POLICY IN INDONESIA

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Abstract

Adequacy of basic food is the desire of all parties, both the government and society as a whole in the economic system. Furthermore, food plays a very high role in the formation of quality human resources. For this reason, a strategy is needed to achieve food security that can realize the availability of food in sufficient quantity and quality, distributed at affordable prices and safe for consumption for every citizen. This study focuses on the strategy of consumption patterns for food improvement in Indonesia. The purpose of this study is to analyze the classification of food security and the share strategy of sustainable food consumption patterns according to important food groups to realize food policy in Indonesia. The object of research includes the level of food consumption according to important food groups per capita and the level of nutritional adequacy. The research method is based on quantitative descriptive statistical analysis method in which all data are collected, grouped and analyzed according to the needs of the research objectives. The results show that the classification of food security in Indonesian society is in the normal category based on the level of energy consumption and the level of protein consumption, which is greater than the recommended nutritional consumption and the percentage level of nutritional adequacy. Strategy analysis with the share approach of Indonesian people's food consumption patterns based on the results of the study shows that consumption patterns according to important food groups have a uniform pattern, with the composition of the dominant important food commodities, namely local rice/glutinous rice, chicken eggs/village and sugar with an average change in consumption per capita of 1.53 and a decrease in consumption patterns from 2018-2021 so that the share strategy for sustainable food consumption patterns that can be used is variety of staple foods and increasing consumption patterns of strategic staple foods. Based on the basic food variation strategy and increasing consumption patterns, the food policies that can be implemented are policies that are relevant to the food security strategy. 53 and a decrease in consumption patterns from 2018-2021 so that the share strategy for sustainable food consumption patterns that can be used is a variety of staple foods and an increase in strategic staple food consumption patterns. Based on the basic food variation strategy and increasing consumption patterns, the food policies that can be implemented are policies that are relevant to the food security strategy.

Keywords: Strategy for the share of food consumption patterns, Food Security, food policy

1. INTRODUCTION

Food security is one of the important aspects to realize the economic stability of a country. One of the indicators of the assessment of the condition of food security and vulnerability in Indonesia can be analyzed based on the food security and vulnerability Atlas-FSVA (Food Security and Vulnerability Atlas-FSVA). Food issues in Indonesia are highly dependent on various...
elements (multi-dimensional) that affect aspects of food security and security. In accordance with these conditions, to realize national food stability, the government implements a series of community development programs based on increasing national food security and availability as well as efforts to prevent food insecurity.

The aggregate or macro economic system can also trigger problems of food availability and security. An example is the influence of the inflation variable, where this variable is able to significantly affect the economic system and cannot be separated from economic variables, both macro and micro, such as inflation variables, marketing aspects and food policy. The inflation rate is one of the important economic indicators in the economic system where all countries, especially developing countries, always strive to keep this inflation variable at a low and stable level. Inflation can also affect the balance of supply and demand in the market mechanism. This will affect the availability of food needed by the community. The high price of staple food will shift the demand for goods and services in the economy which can have an impact on economic instability in the long term. So that to overcome this unstable economic problem, of course, it can be solved by keeping prices of staple food stable through the availability of staple food that is able to meet the needs of the community. The government also seeks to realize food availability so that the realization of equitable food security and availability in all regions so that the tendency of food vulnerability can be well known in each region (Food Security Agency, 2005). One of the variables that can be implemented to create food policies needed by the community is population variable. Based on data from the Ministry of Health, the projected population growth of Indonesia in 2021 is 271,066,366 people, consisting of 136,142,501 male residents and 134,923,865 female residents. (Ministry of Health of the Republic of Indonesia, 2015). The high number of Indonesians is one of the factors driving the growth of the macro economy so that national economic growth will increase marked by the high level of public welfare and low inflation (Mankiw, 2008). The relevance between food security and economic growth is on the variable of food availability. With the high availability of food, people in an area will be able to realize food security. High economic growth will also form conditions of sufficient food availability. Figure 1 shows population growth and population in Indonesia from 2016 to 2020 by gender. The largest decline in population growth occurred in 2019-2020 from 3.06 million per year to 2.99 million per year. The decline in population growth is due to Covid-19 and the high level of nutritional insecurity so that if this continues in the long term, it will cause a decrease in the percentage of Indonesia's HDI Index which will ultimately affect the quality of Indonesia's human resources as a whole. The largest decline in population growth occurred in 2019-2020 from 3.06 million per year to 2.99 million per year. The decline in population growth is due to Covid-19 and the high level of nutritional insecurity so that if this continues in the long term, it will cause a decrease in the percentage of Indonesia's HDI Index which will ultimately affect the quality of Indonesia's human resources as a whole.
The unstable condition of food security is caused by many factors that influence each other, including the change in prices of strategic food commodities which are relatively rising due to the global Covid-19 pandemic. This factor, of course, also significantly affects the decline in the purchasing power of the Indonesian people, especially in the main food consumption, which in turn will affect the low quality of nutrition and food security in Indonesia. The factor of decreasing activity in agribusiness due to COVID-19, social and economic turmoil, politics and security and other variables also had a negative impact on the quality of national food security and availability. related to the availability and security of food for a country in realizing the stability of the economic system by implementing policies in various fields. The structured pattern of individual/group spending in the use of goods and services produced to meet needs shapes consumption performance (Samuelson and Nordhaus (2004)

The pattern of public expenditure will change if there is a change in people's income in the sense that the income of the community has increased. that too. One of the factors that influence changes in food expenditure patterns is the factor of changes in demand for food which will increase so that food consumption patterns become varied. when income is higher, the proportion of food expenditure decreases and will shift to needs for non-food aspects such as clothing, recreation, luxury goods, and savings.

Public spending with a high level of variation will affect various economic and social aspects of the economy such as production, availability in an unpredictable time period, lower product variety and fluctuating demand levels. Furthermore, the fluctuating level of food consumption will lead to a diversity of types of staple food produced. Inflation will manifest in conditions of fluctuating important food expenditures caused by rising prices of certain staple foods and unequal distribution factors in the economy.

Figure 1. Number of Indonesian Population by Gender in 2016-2020 (in Millions)
Source: BPS Data (Processed)
2. RESEARCH METHOD

Qualitative and quantitative statistical approaches were used to analyze this research problem. Aspects of the statistical approach used to answer the research objectives, whether the food security aspect can be realized through a strategy with a consumption pattern share approach and is able to realize food policies. The large proportion of per capita expenditure according to the main food commodity groups, and whether the proportion of per capita expenditure according to the main food commodity groups can achieve food availability and food security. Furthermore, to answer each research objective, a multilevel quantitative statistical method was used.

The data categories are based on the grouping of food and non-food expenditures following the categories/groupings carried out by BPS. Furthermore, the data included in the table include times series data. The data collection method in this study is an instrument method with an interval measurement scale for food security analysis.

The analytical model used in the study was carried out with 2 stages for each research analysis model, namely an analysis model of the proportion of food consumption with a ratio scale based on Energy and Protein Consumption quantitatively with the parameters of Energy Consumption Level (TKE) and Protein Consumption Level (TKP). (Food Security Agency, 2018)

\[ TKE = \left(1\right) \sum_{\text{Konsumsi energi}_{\text{AKE yang dianjurkan}}} \times 100\% \]

\[ \text{crime scene} = \left(2\right) \sum_{\text{Konsumsi protein}_{\text{AKE yang dianjurkan}}} \times 100\% \]

This study uses the standard for determining the recommended nutritional adequacy rate based on the Regulation of the Minister of Health of the Republic of Indonesia Number 28 of 2019 concerning the recommended nutritional adequacy rate for the Indonesian people.

Classification of energy and protein adequacy levels:
1) Severe level of deficit: < 70% RDA
2) Moderate deficit: 70-79% RDA
3) Mild deficit: 80-89% RDA
4) Normal: 90-119% RDA
5) Pros: >120% RDA

Furthermore, the stages of the food security analysis model are carried out using the normal ratio scale category method and ordinal probit with categorization of in ordinal, ie for 1 is categorized as = 1, for 1 ≤ 2 is categorized as = 2,…, for 1 ≤ categorized by = , …, for > categorized by = (2000) so that

\[ (Y = 1) = (\gamma 1) \]

\[ (Y = 2) = (\gamma 2) (\gamma 1) \]

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\[ 1 (\gamma c - 1) (Y = ) \text{ or } \]

\[ 1 (\gamma c - 1) (Y = ) \]
The study uses food consumption data classified according to the category of important food ingredients, with the consideration that important food ingredients are the reference used to calculate the Nutrient Sufficiency Number sourced from the Energy and Protein Sufficiency Level for the accumulation of national food security. In addition, the group of important foodstuffs is included in the main food commodity group with the largest percentage of consumption in Indonesia. Food consumption used in the study is information about the type and amount of food consumed by a person or group of people (family or household) at a certain time. (Food Security Agency, 2018)

3. RESULTS AND DISCUSSION
3.1. Analysis of Consumption of Important Foodstuffs on Food Security in Indonesia

Food security is a condition where food is fulfilled up to the individual level (Law No. 18 of 2012). The condition of food security is reflected in the availability of sufficient food in terms of quantity and quality. Furthermore, the condition of food security also reflects the condition of high security, has varied variations, and the aspect of affordability by the community is also high. Important aspects that reflect the state of food security that are the government's target to achieve sustainable food include the availability of food based on the use of local resources, physical and economic affordability by the community, and the use or consumption of food (Food Security Agency, 2017). The decrease in quantity and the occurrence of fluctuations in the types of food consumed by the community are caused by economic factors and demographic factors with demand levels that tend to decline. If in the long term the consumption pattern of important foodstuffs at the national level is only dominated by 3 types of local rice/glutinous food, chicken eggs/village and sugar, then this condition will lead to high food insecurity due to the low variation of various types of ingredients. food that can cause malnutrition and cause low quality of human resources so that it will negatively affect national food security and the macro economy.

Based on the results of the study on consumption patterns with low variation (3 food commodities, namely local rice/glutinous rice, chicken eggs/village and sugar) and the decrease in demand for the quantity of these important food commodities, a strategy for increasing consumption patterns from the variable diversity of important food commodities and increasing demand for these important food commodities. Thus, the food policy that can be implemented is the existence of assistance programs, subsidies and increasing people's purchasing power through increasing productivity in various economic sectors by the government to realize national food security.
Graph 1 shows that the lowest consumption of important foodstuffs is soybean with an average consumption level from 2018-2020 is 0.046 kg. Meanwhile, broiler/village chicken eggs are the commodity with the highest consumption level, namely: 113,835 kg on average per year from 2018 to 2021. The pattern of food consumption that tends not to vary is thought to be caused by the low level of community income and is also thought to be caused by social factors, namely the lack of information and public knowledge about the quality of food ingredients that can improve community nutrition.

3.2. Analysis of Food Security Strategies and Sustainable Consumption Patterns

The development of household food consumption is one of the basic information in food policy, both from the economic side such as the share of expenditure for food and the dynamics of the composition/diversification of food intake, distribution policy.

One of the variables that can be used to determine a food security strategy is through the aspect of food utilization in the household or per capita. More specifically, an important variable for food security indicators as an entry point is to look at aspects of food use in households or per capita, namely consumption and proportion of food expenditure. Through the transformation process, information on food expenditure will be converted into information on energy consumption. Therefore, energy adequacy will be correlated with the level of food expenditure. The Central Bureau of Statistics categorizes expenditures into two groups, namely expenditures on food and expenditures on non-food goods.

Based on the analysis of data on consumption of important foodstuffs according to energy and protein as well as the level of nutritional adequacy per capita, it can be explained that the average energy (kcal/capita/week) and protein (gramcal/capita/week) of the community from 2018-2021 is at an adequate level. normal energy and protein with a TKE lift of 99.57% and a TKP of 95.70% from the accumulation of 2 stages of analysis, namely Energy Adequacy and Protein Adequacy with amounts of 2053.77 and 62.20, respectively, based on a comparison with the recommended RDA.

The analysis of food security resulting from this study shows that the classification of food security of the Indonesian people is in the normal category based on the ratio of the percentage level of nutritional adequacy and the recommended nutritional adequacy rate. In other words in Indicator of Energy Adequacy Level (TKE), Protein Adequacy Level (TKP) is greater than the recommended Nutrient adequacy rate as a reference standard for determining food security criteria in the territory of Indonesia nationally.

4. CONCLUSION

Consumption patterns are one of the indicators that have a close relationship with aspects of food security where one of the national community development programs is the government's efforts to improve food security. Improving food security is a top priority in development because food is the most basic need for humans so that food plays a very important role in national economic growth.

The results show that the period 2018-2021 Indonesia's food security is in the normal category, this is obtained from the analysis of food security with a comparison of one of the indicators of food security, namely the energy and protein consumption variables and the level of household nutritional adequacy is at a percentage of the nutritional adequacy level greater than the recommended nutritional adequacy rate as a standard set by the government for evaluating food security policies that are able to realize Indonesian food sovereignty in the future. The consumption pattern of Indonesian people's food consumption according to groups of important foodstuffs has a uniform pattern, with the composition of important food commodities dominated by food ingredients.
Based on the strategy of the share approach to sustainable food consumption patterns, the government can formulate various agricultural development programs to realize national food security. The strategy for the share of sustainable food consumption patterns that can be used is the variety of staple foods and the increase in consumption patterns of strategic staple foods. Based on the basic food variation strategy and increasing consumption patterns, the food policies that can be implemented are policies that are relevant to the food security strategy.

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