

# Food Security Policy: A Model Line of Food Security Policy in Indonesia

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## ABSTRACT

This research was carried out to see how food security policy is by looking at how much per capita consumption is carried out by lowland rice farmers within one year. With this, it can be known when rice farmers experience rice shortages and cannot afford to buy rice and how to overcome this food security policy problem. This study will collect quantitative and qualitative data relating to food production. Analysis of data utilizing both quantitative and qualitative methods. Food Security policy Lines and Farmers' Fear Ratio: Quantitative and Qualitative Modeling Using this Food Security policy Line Model, rice farmer families' food security policy will be characterized as either robust or weak. Calculating the Farmer Fear Ratio in order to evaluate if farmers are pessimistic or optimistic about the fulfillment of rice consumption needs. This study found that the amount of rice consumption in village X for rice farmers reached 121 kg of rice per capita per year, while in village Y, it reached 185 kg per capita per year. In the meantime, when rice farmers face rice shortages and cannot afford to purchase rice in the market, they borrow rice from mills. In village X, the food security policy line is over 1, while in village Y it is below 1. This indicates that village X has a higher level of food security policy than village Y.

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## I. Introduction

National food security policy is a very important condition for the survival of the Unitary State of the Republic of Indonesia (NKRI). If food security policy is weak, various socio-economic and political upheavals will certainly occur. The end is the collapse of the Unitary State of the Republic of Indonesia. Therefore, efforts to strengthen food security policy in real terms in the field are an absolute thing that must be maintained [3].

A few months ago, the reality of rice prices was volatile. Data on the availability of rice was questioned. Several agencies that have data on the availability of rice are significantly different. If the data alone is different and each agency claims to be the most correct, this is a vulnerability in another form. It could be that the data is not following the reality on the ground [16].

It seems that it is only a matter of time before the situation of real rice (food) availability crisis occurs. Why? Because according to the data, the government still considers it safe. Even though in the field, the rice is empty. Impromptu imports can indeed be done. But it will not always be able to overcome the crisis quickly because they have to deal with tough global markets and transportation mechanisms [2]. It is feared that the food mafias will play a role in confusing and deepening the food supply crisis. Perhaps this illustrates how food security policy at the local, regional and national levels needs to be strengthened [6].

The upstream of food security policy (rice) is the food security policy of lowland rice farmer families. How is it possible that food security policy, especially rice, can be said to be strong and stable if the food security policy of lowland rice farmers' families is still uncertain? Until the Indonesian people's dependence on lowland rice farmers remains high one day, maybe flour can be

made synthetically utilizing a factory that can imitate how rice plants produce flour [21]. This has been studied by scientists for decades ago but seems to have not been found. The key is the secret of chlorophyll in the process of photosynthesis. Who knows who will be able to find it later will be Indonesian scientists [20].

It is important to know food security policy at the level of lowland rice farmers as the main component of food security policy at the village and national levels. Indonesians generally consider rice a staple food with a higher prestige than other staple foods such as cassava, sweet potato, and taro. In this regard, research and modeling food security policy, especially rice, is necessary..

## II. Methods

This research was conducted by collecting qualitative and quantitative data from two villages in Sulawesi Province. This research will be conducted by calculating food security policy and looking at the fear ratio of farmers. After the researcher has collected the data, it will be examined by applying the food security policy formula and the fear ratio of farmers. Analyses of data with quantitative and qualitative methodologies. The quantitative and qualitative modeling of food security policy lines and the fear ratio of farmers.

## III. Result and Discussion

### A. *Farmers as Producers: Surviving Development Bias*

Farmers as producers seem to be getting older, ranging from 50-60 years. These elderly farmers' education revolves around elementary and junior high schools. Younger farmers have the same education as their parents, namely elementary school, while others have a better education, namely high school. The younger generation seems to become farmers because they have no other choice. However, in Village Y, farmers' education level is better, and there are even graduates who become farmers. Village Y shows a better social situation because there are still relatively more smallholder farmers.

Meanwhile, in Village X, relatively many sharecroppers do not own their fields. In addition, many agricultural lands have changed hands to other parties, fellow villagers outside the village, and even city owners. As long as the new owners maintain the existence of paddy fields, the effect on rice production is not large. But if the land is only used as an investment and at any time ready to be used as non-agricultural land, this will be a blow to food security policy, especially rice. The phenomenon of blurring farmers' socio-economic resilience cannot be separated from their food security policy. If his food security policy is weak, he will experience a slight shock in his business because of illness or sending his children to school, and then he will sink (sell) his field, and eventually, this farmer becomes a sharecropper in his land.

The social welfare indicators show that sharecroppers generally live in permanent houses, while sharecroppers live in semi-permanent houses. What if the rice farmers who are the key to food security policy are getting old, more prone to poverty, and are increasingly losing in the face of the market? Rice food cannot exist by itself but requires the intervention of farmers to produce it. This is a challenge for agricultural policies, especially rice, so later, rice farmers are not always poor and lose in facing the market [17].

If rice fields are bought by non-agricultural people who deliberately make rice fields as investment assets, the rice fields have lost their "spirit". The field's spirit is as a food provider for human farmers and non-farmers in cities. If the rice fields have changed functions as investment assets controlled by urban people and investors in villages, sooner or later, the rice fields will switch functions following market trends. What is certain is that the trend of the rice field market as a food producer is far less than that of the rice field market as a place for housing, factories, and roads. If the rice fields are in the hands of farmers, then the rice fields as agricultural land have a spirit. Farmers treat the fields as part of their body and soul. Because together with the rice fields, farmers paddle life daily until death picks him up and then passes it on to his children.

What causes farmers to be willing to give up part of their body and soul, namely rice fields, to be sold to other people. Are fellow farmers or non-farmers? This is where the bias in agricultural development, especially rice (rice) farming, lies. Policymakers are too pampering non-agricultural

parties with low rice prices in the hope that one day after non-agricultural livelihoods experience an increase in living standards, the impact will trickle down to rice farmers. It turns out that the droplets never reach the farmers, on the contrary, the farmers are constantly being squeezed to “feed” the non-farmers who are too spoiled and always toddlers, never become a prosperous adult society [24].

East Asian countries, which are now prosperous as industrial countries, were also initially “feeding” rice farmers. However, after succeeding in prospering, policymakers have never broken promises to repay farmers through agricultural development policies, for example, the high price of rice and cheaper rice from abroad are intentionally protected by high tariffs. Thus, food crop farmers are protected and share in the drops of prosperity produced by non-agricultural communities (industrial societies) that have matured. Indonesia’s industrial society has never grown up, always behaves like children and even toddlers, and needs to be continuously subsidized by rice farmers for who knows how long. Therefore, along with the biases of agricultural development, agricultural land is less prominent than some non-agricultural lands.

The government can’t increase the price of rice as high as possible to stimulate rice farmers to produce because non-agricultural communities who need food still do not have strong purchasing power as a result of decades, the government has implemented a policy of stable rice prices at low levels. This makes non-agricultural communities feel that their food security policy is guaranteed. Even the farmers themselves dare to sell most of their rice production shortly after harvesting, and later they will buy rice when supplies run out.

This phenomenon is seen in the research villages and occurs in almost all rice farming centers. This can be interpreted as rice farmers have pinned their hopes on the market. The market is currently the farmer’s granary because if the rice supply runs out, farmers can easily buy rice at the mill or in the markets. The problem is that if there is no purchasing power, what will happen? The mill seems to have a way of lending so that the farmer is bound to grind to that mill in subsequent harvests.

#### *B. Food Security policy Line: What If Rice Farmers Are Weak Even Non-Farmers*

The food security policy lines in the two research villages show different numbers in Village X > 1 while in Village Y < 1. See Table 1.

*Table 1 Food security policy line*

Food Security policy Line	Village	
	A	B
	Kg Rice/Year	
Food Adequacy (KP)	628	400
Family Rice Consumption (KBK)	486	740
Food Security policy Line (GKP)	1.29	0.54
	> 1	< 1

Suppose the food security policy line > 1 means that lowland rice farmers have strong food security policy. The higher the number above 1, the stronger the food security policy. Farmers in Village X are only 0.29 above the number 1, which shows that their food security policy strength is slightly above the boundary line. Suppose there is a slight production disruption at any time, for example, due to rice pest attacks, climate disturbances or lack of capital to buy production facilities. In that case, it can mean that farmers easily fall below the food security policy line. This means that his rice farm cannot meet his family’s needs, so he must try to fulfill it through non-agricultural work or borrow more from the mill or shop (market).

Lowland rice farmers in Y Village have a worse fate. They are below the food security policy line. This means that even though they are listed as rice farmers, the fulfillment of their food needs depends on the market, not on their own rice fields. This sad situation causes it to be only a matter of time, and the rice fields will fall into the hands of investors because farmers sell them. Lowland rice farmers in Y Village are very deep below the food security policy line because they are far from number one.

This incident is due to the tradition of selling most of the harvest (about 70-80%) after harvest. This means that farmers need cash for various purposes. Because rice prices are relatively stable, farmers don't really care if they have to give rice in the following months.

If productivity can be increased and land ownership area can be increased, the line of food sufficiency will rise. But this endeavor is not easy. Increased productivity requires larger inputs, and this means additional capital. Meanwhile, the expansion of land ownership is even more difficult, in fact, what happens is that ownership is getting narrower because it is sold. Many who used to be sharecroppers have become sharecroppers without their land [8].

If the rice farmers have low food security policy, our non-farmer communities will also have low food security policy. As a result, the government has to import rice to cover the weakness of food security policy. This means that food security policy has shifted to the market. At first, it only revolved around farmers, rice fields, and farming families. After there is intervention from the government (policy), then the market season will enter and price control through the national food barn (Bulog) [9]. The habit of selling rice harvests in large quantities and after harvesting has the effect of circulating cash from the village in all directions. For example, after selling rice, farmers buy industrial products or pay their children's school fees in the city. This means that market energy flows from the village to the city to turn on the national economic cycle. However, the sector outside the village (industry) always sucks more voraciously from market energy from the village [11]. Agricultural products, especially rice controlled by the government, cannot surprise farmers, such as coffee, cloves, nutmeg, and others. Clove farmers can suddenly become rich if the price of cloves spikes drastically and bite their fingers if the price of cloves falls below the cost of production [18].

Self-sufficiency in rice means increasing farmers' food security policy beyond the number 1 ( $>1$ ) line, which must be pursued. Otherwise, dependence on imports from abroad and supplies from other regions shows a latent danger that can suddenly become real, namely uncontrolled harvest prices and food disappearing from the market.

The phenomenon of the increasing number of rice farmers selling their fields needs attention. One is protecting paddy fields so they are not easily converted into non-agricultural uses. Productive paddy fields should not be allowed to become idle land because the owners just wait for the land price to rise and resell it. This is like rice fields that have become an object of investment. In paddy fields, it is the farmer's soulmate, not the capital owner's greed to wait for even greater profits.

### *C. Rice Consumption Per Capita*

Rice consumption per capita per year describes the level of prosperity of a society. The more prosperous the community, the less rice consumption is usually replaced with protein, fruit, milk, and others. Even in developed societies in other countries, the level of consumption is very small, for example, the Japanese, whereas several hundred years ago, the situation in Japan was similar to the current situation in Indonesia [15].

Rice farmers in Village X consume 121 kg of rice per person each year. Annually, rice farmers in Village Y consume 185 kg of rice per person. Compared to the national level per capita rice consumption in 2017, according to BPS, which was 114.6 kg per capita per year, the per capita annual rice consumption in both villages is above the national figure. Meanwhile, the average annual per capita consumption of rice per province in 2017 was 117.58 kg. Thus, the annual per capita rice consumption in the two research villages exceeds the provincial average in Indonesia.

If you look at rice consumption, it seems that farmers in X are more prosperous than those in Y because they increase their consumption of other foods. Farmers in Village Y have a high rice consumption, which is related to their low food security policy. It could also be related to ethnicity, which has consumed a lot of rice from generation to generation. The reality on the ground shows that only a small portion of rice purchased or borrowed from mills accounts for 8% of total family consumption.

### *D. Is Food Security policy Undermining the Market?*

Rice has become a market commodity. Rice farmers are one of the market players with the weakest economic power. Farmers immediately sell most of their agricultural products when harvesting because they need cash. When there is a lot of supply, the price will be lower [19]. If later farmers have to buy rice because of their household needs, the price has followed the market price.

How does the market undermine the food security policy of lowland rice farmers? See Table 2.

*Table 2 Market and food security policy for lowland rice farmers*

Market Engagement	Village	
	X	Y
	Food Security policy Line	
Food Adequacy (KP)	1.29	0.54
Family Rice Consumption (KBK)	7.63	4.46

Table 2 shows how strong the food security policy of lowland rice farmers would be if they were not involved with the market at all. This means that farmers do not sell their crops at all. The Food Security policy Line at 7.63 and 4.46 means that farmers can save their rice supply for about six years (X) and three years (Y). But is it possible that rice farmers are completely unrelated to the market? This is impossible because industrial products from urban areas have penetrated far and wide into rural areas. Farmers buy industrial products that they cannot produce themselves.

On a national scale, this phenomenon requires protection from the government through a rice import mechanism if the market is volatile so that rice farmers themselves have no trouble buying rice if they need it. If development is biased because it favors industrial farmers, especially rice farmers, it is controlled by the government through a rice price policy mechanism that protects industrial workers [14]. Who protects farmers? There isn't any. Farmers fear themselves like orphans. When pests attack, they don't know who to complain to. There may be a place to complain, but there is no one who takes direct action in the field. Farmers have to cope on their own.

#### *E. Rice Farmers Short of Rice*

The Rice farmer's lack of rice seems strange to the ear. But on the field, it happens. Usually, the rice shortage is before harvest because the rice supply has run out while the harvest has not yet occurred [23].

Farmers who can plant three times a year and own land are safer than those who only plant twice or once a year. Moreover, the land belongs to someone else. However, once again, because of the farmers' habit of selling most of their harvest to meet their cash needs, the symptoms of a shortage of rice for family needs spread throughout the year, not only during the famine before harvest [5]. When the need for cash is so great that they are forced to sell almost all of their harvest, they have to buy rice in the following months. What if there is no cash? The involvement of mills in providing rice loans is very common. But of course, there is no free lunch. The mill binds the borrowing farmer to grind his crop for the next harvest. The market can provide help, but that help comes at a price [12].

#### *F. Farmer Fear Ratio (RKP)*

It turns out that paddy rice farmers harbor a fear that their paddy production will not meet the food needs of their families. Table 3 shows farmers in Villages X and Y with different characters. Lowland rice farmers in Village X are very pessimistic. They are scared this year, five years ago, and five years from now. Meanwhile, farmers in Y Village are optimistic that their paddy fields will be able to meet the family's food needs.

*Table 3 The fear ratio of lowland rice farmers*

Farmer's Fear Ratio	Village	
	X	Y
This year	0.80	1.40
Five years ago	0.40	1.00
The next five years	0.46	2.71

$RKP > 1$  means the atmosphere is optimistic and not afraid

$RKP < 1$  means the atmosphere shows a pessimistic fear

This year, Rice farmers in X Village are less afraid than they were five years ago. However, they will remain more pessimistic for the next five years. The trauma of pest attacks, lack of capital, and uncertain climate change make farmers unable to escape the fear of their harvest failure. What does this have to do with the Food Security policy Line (GKP) in Village X, which is  $> 1$ ? This can be explained because of a pessimistic sense of fear, farmers work harder and consume rice more efficiently. In certain circumstances, they mix rice with corn for family food. If corn farming is considered more profitable economically as well as climate and pests, then farmers do not hesitate to plant corn.

Lowland rice farmers in Y are more optimistic. However, because of his optimism, Y's level of consumption per capita is quite high. Even though  $GKP < 1$ , farmers in Village Y are not afraid even for the next five years, they are optimistic that their food needs will be fulfilled ( $RKP = 2.71$ ).

#### IV. Conclusion

The annual rice consumption per capita for lowland rice producers in Village X is 121 grains. Y Village's lowland rice farmers utilize 185 kg of rice per person per year. When the lowland rice farmers in the two research villages ran out of rice and were unable to purchase it at the market, their families borrowed rice from the mill. The food security policy lines in the two research villages in Village X are greater than 1 whereas in Village Y they are less than 1. This indicates that the food security policy of lowland rice farmers in Village X is greater than in Village Y. Meanwhile, this year, lowland rice farmers in Village X feel less fear than they did five years ago. However, they will remain more pessimistic for the next five years. Y's lowland rice farmers are more upbeat.

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