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Risk Analysis of Rice Price in Related to Ceiling Price of Rice Regulation in South Sumatra Province

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Abstract

Rice is a basic need of Indonesian people which are sensitive in case of price changes. Various price policies have been implemented by the Government to ensure the stability of rice prices. The aim of this research was to analyse the risk of rice prices before and after the stipulation of rice ceiling price. The research was conducted in South Sumatra Province as one of the national food barns. Price risk was measured using the coefficient of variation analysis and the lower price limit. The data used were the time series data of 78 weeks before and 78 weeks after the stipulation of rice ceiling price. The results show premium rice had a higher price risk than medium rice before stipulation of rice ceiling price. But after the establishment of rice ceiling price, medium rice actually has a higher price risk than premium rice.

Keywords: *ceiling price; premium and medium rice; risk of price*

Abstrak

Beras adalah kebutuhan dasar masyarakat Indonesia yang peka jika terjadi perubahan harga. Berbagai kebijakan harga telah dilaksanakan Pemerintah demi menjamin kestabilan harga beras. Penelitian ini bertujuan menganalisis risiko harga beras sebelum dan sesudah ditetapkannya HET beras. Penelitian dilaksanakan di Provinsi Sumatera Selatan sebagai salah satu lumbung pangan nasional. Risiko harga diukur menggunakan analisis koefisien variasi dan batas bawah keuntungan. Data yang digunakan adalah data runtut waktu 78 minggu sebelum dan 78 minggu sesudah penetapan HET beras. Hasil penelitian menunjukkan bahwa sebelum penetapan HET, beras premium memiliki risiko harga yang lebih tinggi daripada beras medium. Tetapi setelah penetapan HET, beras medium justru memiliki risiko harga yang lebih tinggi dibandingkan beras premium.

Kata Kunci: harga eceran tertinggi; beras premium dan medium; risiko harga

INTRODUCTION

Risk is the possibility of deviations from expectations that can cause harm (Aini et al., 2014). The type and level of a risk will depend on the type and characteristics of the related business. Some types of risks in a business include strategic risk, operational risk, financial risk, and market risk. Strategic risk is closely related to risks arising from the rules made by the government as a regulator. On the other hand, strategic risks can also arise due to poor strategic decisions taken by business managers. While operational risk is the risk of loss due to failure of internal processes, people and systems, as well as those caused by external events. Financial risk is the fluctuation of the financial target or monetary size of a business due to the turmoil of various macro variables. While market risks arise due to tarif competition, substitute products, and weak distribution channels (Giriningtyas et al., 2015).

However, different risks and benefits can occur in the same type of business. The cause of this difference is internal and external factors. Internal factors include management,

marketing, financial condition, product quality, and competitiveness. While external factors consist of government policies, political, economic, social, cultural, defence and security conditions, competitors, tastes, and people's purchasing power (Zuhara et al., 2012).

Agriculture is a risky business because it is influenced by various external and internal factors. Farmers face a variety of risks from production risk to market risk, and from financial risk to institutional risk (Novickyte, 2018). In an agricultural business, farmers face two main of risks, namely production risk and price risk. Production risks are caused by weather uncertainty, pest attacks and plant diseases. These various factors cause production to fluctuate, resulting in price risk due to uncertainty in the price of production (Patrick et al., 1985). Affirmed by (Broll et al., 2013), that price risk is a critical problem in agriculture.

Price risk can be interpreted as the difference between the expected price and the actual price of a commodity. Besides being influenced by production risk, price risk is also influenced by market speculation, and market imperfections. This condition can influence farmers as producers on production and marketing decisions. This is related to the use of inputs and labour based on prices expected to be received during the harvest season, which may differ from actual prices (Banterle and Vandone, 2013).

Rice is the first order of various types of food consumed in Indonesia (Fachrizal and Mekiuw, 2018; Sitorus and Sitepu, 2021). Almost all Indonesians make rice as their main food. In addition, rice is also an important source of nutrition in food structures. This causes the high volume of rice trading and increase the risk of price changes in rice trading (Karmini, 2005).

The indicators of price risk can be seen from the price fluctuations that occur. Prices that fluctuate sharply are not profitable for rice farmers because they cause uncertainty of revenue from farming activities. Furthermore, the risk of price faced by rice market players will affect their interest and willingness to sell rice and other types of goods. In addition, high price fluctuations also provide opportunities for traders to manipulate price information at the farm level. The higher the fluctuations in product prices, the higher the business risks faced by farmers (Karmini, 2005; Rahmawati and Fariyanti, 2018).

To reduce risks due to price changes, the government has adopted various policies related to rice prices. The government has issued a price policy to protect producer farmers, starting with the basic price policy in 1985 through Presidential Instruction 3/1985, then changing to the basic purchase price in 2001 stipulated in Presidential Instruction 8/2000, and changing again to the government purchase price through Presidential Instruction 2/2005 with a different concept. Through the basic price policy, the government through BULOG buys large quantities of excess rice from farmers, and has the obligation and responsibility to guarantee the prices received by farmers to always be above the basic price. Whereas the government purchase price, which is still valid today, is actually the government purchase price to replenish the BULOG stock of 8-10% of the total national production. Thus, the government is no longer obliged and responsible to guarantee the price of grain received by farmers is always above the stipulated government purchase price (Purbiyanti et al., 2017).

The price policy described previously is a price policy to protect producers. From the consumer side, the latest price policy is the stipulation of rice ceiling price through Regulation of the Minister of Trade of the Republic of Indonesia Number 57/M-DAG/PER/ 8/2017. The rice ceiling price regulation has been implemented on September 1, 2017. The purpose of this regulation is to maintain the stability and certainty of rice prices, as well as the affordability of rice prices for consumers. In this regulation, rice ceiling price is classified into ceiling price of premium and medium rice. With the provision of ceiling price, packaged and/or bulk rice in the

traditional market, modern stores, and other retail outlets may not sell rice beyond the stipulated ceiling price (Peraturan Menteri Perdagangan Republik Indonesia, 2017).

Several studies have been carried out including (Karmini, 2005) who examined the risk of price changes in the marketing of local and imported rice in Indonesia. (Jusar et al., 2017) examined the analysis of variations in rice prices in Riau Province and supplier areas. (Suryana et al., 2014) examined the dynamics of rice price policies in support of national food security. Furthermore, (Kim and Choi, 2018) conducted a study which concluded that the implementation of government policies could affect the market environment and market prices for pork commodities. But does the same thing also apply to rice commodities? Is rice ceiling price policy able to maintain rice price stability so as to minimize risk of price? In fact, the rice ceiling price policy has only been implemented in Indonesia, therefore the research related to price risk after the determination of ceiling price is still limited or not even done. For this reason, it is interesting to analyse the risks of price changes before and after the determination of rice ceiling price.

METHODS

This research was conducted in South Sumatra Province as one of the centres of rice production in Indonesia. The research used secondary data in the form of weekly data on retail prices of rice (78 weeks before and 78 weeks after the determination of rice ceiling price). Data obtained from the Prices Panel Information System of the Food Security Agency.

The risk of rice prices before and after the determination of rice ceiling price was measured using the coefficient of variation analysis and the lower price limit (Maryam and Suprapti, 2008). If E is the expected average price of rice, Ei is the price of the observation rice to i, and n is the number of observations, then it can be denoted as in Formula (1).

$$E = \frac{\sum_{i=1}^{n} Ei}{n} \tag{1}$$

Furthermore, the risk of rice prices is determined based on the coefficient of variation (CV) as in Formula (2).

$$CV = \frac{V}{E} \tag{2}$$

Standard deviation (V) is the root of the variance (V^2) obtained through Formulas (3) and (4). Whereas to measure the lower limit of the rice price (L), formula (5) is used.

$$V^2 = \frac{\sum_{i=1}^{n} Ei - E)^2}{(n-1)} \tag{3}$$

$$V = \sqrt{V^2} \tag{4}$$

$$L = E - 2V \tag{5}$$

From these formulas the relationship between the lower limit of rice price and the coefficient of variation is obtained. If the CV value > 0.5, then the value of L < 0, which means every change in the price of rice has the opportunity to get a loss. Conversely, if the CV value < 0.5 then the value of L ≥ 0, which means that changes in the price of rice will potentially get a profit.

RESULT AND DISCUSSIONS

Rice Price Development in the Province of South Sumatra

The price of rice continues to change from time to time and tends to increase every year. The increase in rice prices will have an impact on the purchasing power of low-income households and increase inflation. An increase in rice prices psychologically can influence the behaviour of traders to increase other food prices (Suryana et al., 2014). The same condition also occurs in South Sumatra Province which is one of the national food barns. The amount of rice production was 4.8 million tons in 2017, making South Sumatra the sixth largest rice producing province in Indonesia (Katadata, 2019). However, the price of rice in South Sumatra Province continues to changes. The development of rice prices in South Sumatra Province can be seen in Figure 1.

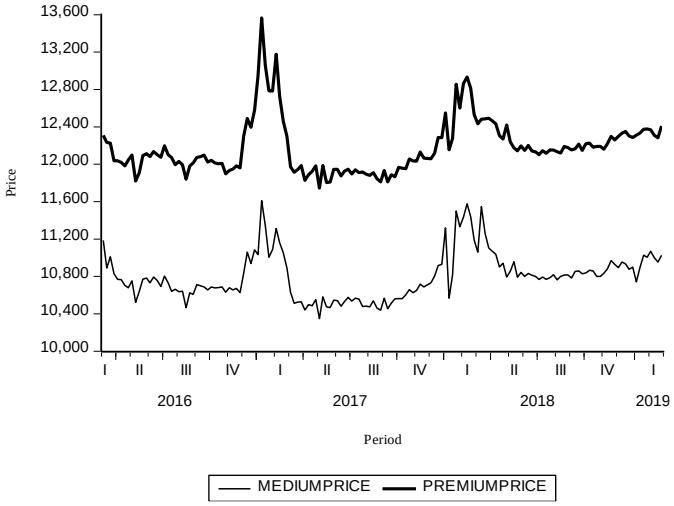

Figure 1. Development of premium and medium rice prices in South Sumatra Province

Figure 1 shows that the development of premium and medium rice prices in South Sumatra Province has the same trend. The price of premium and medium rice have a tendency to increase, both before and after the determination of rice ceiling price. Rice prices go up and down following seasonal patterns. At the time of harvest, prices will fall because of abundant production, while when there is no harvest season, prices will rise. Figure 1 explains in the fourth quarter at the end of the year to the first quarter of the following year (November to January), the price of rice will rise because there is no big harvest. Then the price fell again in February to April because farmers have a big harvest.

In accordance with the regulation of the Minister of Trade of the Republic of Indonesia, the ceiling price of premium rice in South Sumatra Province is IDR 12,800.00 per kg, while the ceiling price of medium rice is IDR 9,450.00 per kg. If the prices compared with the provisions of the ceiling price, it turns out that the price of premium rice is in accordance with the ceiling price. Even though the price of premium rice is still increasing after the ceiling price determination, but it still does not exceed the ceiling price. Instead, the price of medium rice has exceeded the ceiling price both before and after the ceiling price stipulation. Even the price of medium rice more and more increased compared before the ceiling price determination. This means that ceiling price is quite effective applying in premium rice, but it is still less effective in medium rice.

The results showed that the average price of premium and medium rice before the determination of ceiling price was lower than price after the determination of ceiling price. When compared based on the type of rice, it turns out that the average price of premium rice is higher than the average price of medium rice. The different prices are determined by differences in quality. Premium rice has better quality, so the price is more expensive than medium rice. If a price risk analysis is carried out on both types of rice, the results obtained are as in Table 1.

Table 1. Risk analysis of premium and medium rice prices in South Sumatra Province

Description	Premium rice		Medium rice	
	before ceiling price	after ceiling price	before ceiling price	after ceiling price
Mean (E)	12,110.54	12,250.23	10,711.59	10,889.03
Standard deviation (V)	333.69	215.28	235.64	233.47
Coefficient of variation (CV)	0.028	0.018	0.022	0.021
Lower price limit (L)	11,443.16	11,819.67	10,240.31	10,422.09

Table 1 shows that the lower limit value of premium rice prices is higher than medium rice both before and after the determination of ceiling price (before ceiling price 11,443.16 > 10,240.31 and after ceiling price 11,819.67 > 10,422.09). This means that in terms of price, premium rice is more feasible to be traded, because the lowest price of premium rice from observations is still higher than the price of medium rice. From the coefficient of variation side, both premium and premium rice have coefficient of variation less than 0.5 (CV < 0.5). That is, every time there is a change in price, then the business of selling premium and medium rice is likely to get a loss. Interestingly, before ceiling price was established, premium rice was more at risk of suffering losses than medium rice (0.028 > 0.022). But after the ceiling price stipulation, the risk of premium rice loss due to price changes is actually lower than the risk of medium rice loss (0.018 < 0.021).

The lower of risk of premium rice losses after the establishment of ceiling price can be one of the factors explaining why the risk of medium rice losses due to price changes actually increases. As a result of the stipulation of rice ceiling price into two groups, namely premium and medium with a price difference of IDR 3,350.00, of course traders will try to switch more to selling premium rice. So, the rice that should be included in the medium category is strived to be processed into premium rice, in order to get a higher price. As a result, the availability of medium rice becomes scarce, the price of medium rice continues to increase. In fact, the demand for medium rice is higher because it has more consumers than premium rice. This condition is in line with the results of research by Aryani et al. (2019) and Rachman et al. (2019). However, the two studies did not compare the price risk that occurred between the quality of rice after the HET was established.

It can be stated that after the determination of the ceiling price, the price of premium rice is more stable than the price of medium rice because its stock increases. On the contrary, medium rice stocks actually become scarce, causing higher price variations compared to premium rice. This condition causes the risk of loss of premium rice due to price changes actually decreases after the establishment of ceiling price, while the risk of loss of medium rice is higher than premium rice.

Actually the price of rice in South Sumatra Province is categorized as stable, because the percentage of coefficient variation is below 9%. The price in a city or province is said to be

stable if the price coefficient value is in the range of < 9%, in accordance with the target of the Ministry of Trade of the Republic of Indonesia until 2019. If the coefficient of variation is more than 9%, the price indicates high and unstable fluctuations (Jusar et al., 2017). The stable price of rice in South Sumatra Province is also due to the fact that the Province is one of the national food barns, so that it always experiences a surplus of production and is a regional rice supplier for other regions in Indonesia. The availability of rice in South Sumatra is indeed guaranteed throughout the year so that the price of rice is relatively stable, but rice is not produced throughout the year. The main source of risk, especially for farmers in developing countries, is environmental conditions, for example, rainfall patterns. Small-scale farmers are very vulnerable to adverse weather conditions (UNCTAD, 2019). Therefore, the Government have to monitor and control rice stocks regularly. Government policies can be a good strategy to maintain the sustainability of the rice industry by improving the balance of consumption and stock management (Kim and Choi, 2018). The government through the active role of the Department of Trade, the Department of Agricultural Food Crops and BULOG must always maintain the balance of production, stock, and the need for rice in an area. Both in areas of surplus, and in areas of rice deficit. If the balance condition has been created, the stability of the price of rice will be maintained and the risk will be minimal.

Some strategies in order to overcome price risk are cropping patterns, vertical integration by establishing partnerships between farmers and traders, increasing value added by processing, and increasing bargaining position. Arifuddin et al. (2020) have examined that farmers have a weak bargaining position which is also an indication that rice marketing channels are not efficient. The government must also make its role effective in overcoming price fluctuations. Policy instruments to maintain price stability at the farmer and consumer level have been established. But various policy programs must be pursued in order to be implemented effectively (Rahmawati and Fariyanti, 2018). In line with that, Karmini (2005) provides alternative strategies to overcome price risk, namely diversification, application of technology, and upfront contracts. Traders can order rice in the future at the current price. So that price fluctuations do not affect the agreements that have been made.

CONCLUSIONS

The risk of premium rice prices prior to the determination of ceiling price is higher than that of medium rice. But after the establishment of ceiling price, the risk of premium rice prices would actually be lower than that of medium rice. Ceiling price is one of the policies aimed at maintaining rice price stability, but its application has not been effective for medium rice. The ceiling price policy in the fact has not been able to guarantee the business of selling rice to avoid the risk of loss.

The government is expected to work on a solution so that the price of premium and medium rice is always stable by maintaining the balance of production, stock, and the need for rice in an area through the active role of the Department of Trade, the Department of Agriculture, and BULOG. The stability of prices is expected to reduce the risk of loss for the business of selling premium and medium rice, and in the macro can reduce inflation considering that rice is a basic food requirement for the community.

The analysis in this study still used a simple method. Therefore, it is recommended to use more complex methods with more variables in future studies. Thus, in addition to knowing the level of risk, it can also be analysed various factors that affect risk, and various other information in the field of rice.

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