



The Effect of Farmers' Exchange Rates on Rice Prices in 2017-2019

Pujiono Eddy^{a*}, Sudarno^a, Nicholas Renaldo^a, Marice Br Hutahuruk^b, Muhammad Pringgo Prayetno^c

^aBusiness Faculty, Institut Bisnis dan Teknologi Pelita Indonesia, Indonesia

^bBusiness Faculty, Institut Teknologi dan Bisnis Master, Indonesia

^cEconomics and Business Faculty, Universitas Brawijaya, Indonesia

*Corresponding Author: pujiono.eddy@lecturer.pelitaindonesia.ac.id

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ABSTRACT

This research aims to predict the price of rice in the mill according to quality (Rupiah/Kg) at a premium, medium and low levels in Indonesia. Then also to find out whether there is an effect of farmer exchange rates on the price of rice in mills at a premium level. The study used purposive sampling, namely samples in Indonesia. Data analysis using simple linear regression. The results showed that there was an effect of the farmer's exchange rate on the price of rice in the mill at the premium level of 69.16%, the farmer's exchange rate affected the price of the rice in the mill according to the quality (Rupiah/Kg) at the premium level. The recommendation that can be given is that the government can take steps to maintain the stability of farmers' currency exchange rates, especially in the face of global economic fluctuations. Appropriate fiscal and monetary policies can help reduce the risk of exchange rate volatility and have an impact on rice price stability at the mill. A robust monitoring system is needed to monitor exchange rate fluctuations and rice prices on a regular basis.

Keywords: Farmers' Exchange Rates, Rice Prices, Premium

INTRODUCTION

Research Background

Indonesia is a country that has a very wide area. In addition, fertile land can be used by the community for farming activities. Most of Indonesia's population make a living in the agricultural sector, especially farming and paddy fields. Farming and paddy fields can create livelihoods for the community, especially people in villages. The staple food in Indonesia is rice. Rice is already a political and security commodity, not only as a food or economic commodity (Kusumaningrum et al., 2010).

The issue of rice in Indonesia is also a central issue that influences national economic policy. Availability and equitable distribution of rice as well as affordability by the people's purchasing power are problems that seem to have not been resolved until now. Rice itself has a strategic value in strengthening food security, economic security, and national political security/stability. Experience in previous years and even today, shows that soaring food prices can cause shocks in society, so that the issue of rice is always a serious concern for the government and society.

At the end of August 2017, the government through the Ministry of Trade has set the Highest Retail Price (*Harge Eceran Tertinggi* / HET) for medium and premium rice as stated in the Regulation of the Minister of Trade of the Republic of Indonesia Number 57/M-DAG/PER/8/2017 which became effective on 1 September 2017. The determination of the HET is aimed at maintaining the stability and certainty of rice prices, affordability of rice prices to consumers and preventing price speculation. Apart from these objectives, the determination of the HET for rice is still controversial. One of them is the negative impact arising from the determination of the HET which has the potential to harm various parties, especially farmers (Dambe & Hamsiah, 2023).

Identification of problems

Based on the description of the background, several problems can be formulated that need to be examined:

1. What is the Price of Rice in the Mill by Quality (Rupiah/Kg) at premium, medium and low levels in May'19 in Indonesia?

2. Is there an effect of the farmer's exchange rate on the price of rice in the mill at a premium level?

Research purposes

Based on the identification of the problems above, the objectives of this study are as follows:

1. To forecast the price of rice in the mill according to quality (Rupiah/Kg) at premium, medium and low levels in Indonesia
2. To find out whether there is an effect of the farmer's exchange rate on the price of rice in the mill at a premium level.

Research Usability

The use of this research is expected to be useful as:

1. As input for consumers so they can find out information about rice prices in May'19.
2. As information and reference material for students who conduct research related to this research.

LITERATURE REVIEW

Rice

Rice ranks first in the types of foodstuffs consumed by the Indonesian population, although consumption is decreasing. This decrease in consumption can be caused by an increase in people's welfare. The higher the income, the portion of expenditure will shift from spending on food to spending on non-food. In addition, the increase in income does not lead to an increase in consumption of carbohydrates, but switches to the fulfillment of protein, such as meat, chicken, milk, eggs, and so on. Thus, it can be concluded that the proportion of spending on rice in total spending on food at the urban and national levels is uniformly influenced by the price of rice and consumer income.

Rice Strategic Position

As a strategic commodity, the role of rice is very important for the Indonesian people. In addition to functioning to meet the basic food needs of the majority of the population, the rice sector also has close links with people's lives in various economic, social, employment, rural development and political fields. Rice issues have always been a concern of various components of society and rice issues are often a hot issue and an important agenda for the government.

The position of rice as a staple food has made this commodity an indicator of economic growth and the level of social prosperity. Rising and falling rice prices directly affect inflation and the number of poor people in Indonesia.

The government through its policies can regulate rice prices to remain stable. The government's interference is evident in the policy regarding the basic purchase price of grain. The aim of this policy is to protect consumers from high prices due to low supply during the lean season and to protect producers from low grain prices during the harvest season.

METHODOLOGY

Research Area Determination Method

The method of determining the area is determined purposively (Sekaran & Bougie, 2016), namely deliberately choosing in Indonesia.

Method of collecting data

The data used in this study used data obtained from the Central Bureau of Statistics. In this study the type of data used is annual data, namely from 2017 – 2019.

Data analysis method

Data were analyzed using a simple linear regression method (Lind et al., 2018), namely predicting the price of rice in the mill according to quality (Rupiah/Kg) at premium, medium and low levels in Indonesia:

$$Y = a + bx$$

Information:

Y1 = Premium Rice

Y2 = Medium Rice

Y3 = Low Rice

a = constant

b = coefficient of the regression variable

X = month

Farmers' exchange rate data were also analyzed using a simple linear regression method with rice price data at the mill at a premium level.

RESULTS AND DISCUSSION

Price of Rice in the Mill by Quality (Rupiah/Kg)

Rice is a staple that is consumed by the majority of Indonesian people. Along with the increase in population, the need for rice is also increasing. Therefore, as consumers, we can predict the price of rice in the mill according to quality (Rupiah/Kg) at premium, medium and low levels in Indonesia.

Table 1. Prices of Rice in the Mill According to Quality (Rupiah/Kg) at premium, medium and low levels in May'19 in Indonesia

Harga Beras di Penggilingan Menurut Kualitas (Rupiah/Kg)												
Kualitas Beras	2019											
	Januari	Februari	Maret	April	Mei	Juni	Juli	Agustus	September	Oktober	November	Desember
Premium	10111.08	10007.91	9814.53	9464.68	-	-	-	-	-	-	-	-
Medium	9902.68	9799.57	9555.35	9144.20	-	-	-	-	-	-	-	-
Rendah	9536.30	9474.50	9271.13	8936.36	-	-	-	-	-	-	-	-

Harga Beras di Penggilingan Menurut Kualitas (Rupiah/Kg)												
Kualitas Beras	2018											
	Januari	Februari	Maret	April	Mei	Juni	Juli	Agustus	September	Oktober	November	Desember
Premium	10349.91	10381.74	9892.56	9524.96	9523.88	9478.05	9519.93	9458.07	9572.03	9645.30	9770.97	9818.07
Medium	10177.05	10215.16	9698.23	9220.84	9190.37	9135.41	9197.78	9172.27	9309.98	9395.39	9603.63	9798.38
Rendah	9792.59	9987.10	9554.06	8991.36	9001.50	8941.38	9014.56	8976.97	9125	9193.73	9425.68	9432.32

Harga Beras di Penggilingan Menurut Kualitas (Rupiah/Kg)												
Kualitas Beras	2017											
	Januari	Februari	Maret	April	Mei	Juni	Juli	Agustus	September	Oktober	November	Desember
Premium	9431.37	9408.39	9388.53	9324.60	9436.19	9444.28	9383.68	9436.74	9470.59	9502.67	9538.75	9860.39
Medium	9099.52	9047.57	8705.43	8653.80	8790.17	8794.48	8743.86	8823.05	8935.02	9116.50	9279.52	9526.01
Rendah	8669.30	8583.76	8339.21	8306.48	8374.33	8380.34	8357.87	8436.37	8672.42	8833.99	9039.44	9308.90

Source: <https://www.bps.go.id/>

Premium

Regression Statistics	
Multiple R	0,43152027
R Square	0,18620974
Adjusted R Square	0,15491012
Standard Error	264,988921
Observations	28

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	417752,1464	417752,146	5,9492642	0,021857193
Residual	26	1825697,337	70219,1283		
Total	27	2243449,483			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	9422,16389	102,900917	91,5654026	3,6564E-34	9210,648025	9633,67975	9210,64802	9633,67975
X Variable 1	15,1213328	6,199525395	2,43911135	0,02185719	2,378025831	27,8646397	2,37802583	27,8646397

Column1	
Mean	9641,42321
Standard Error	54,4750013
Median	9521,905
Mode	#N/A
Standard Deviation	288,254612
Sample Variance	83090,7216
Kurtosis	1,0633762
Skewness	1,35119713
Range	1057,14
Minimum	9324,6
Maximum	10381,74
Sum	269959,85
Count	28

$$Y = a + bx$$

X = 29th month (May'19)

$$Y = 9422,1638888889 + (15,1213327859879 \times 29)$$

$$Y = 9860,68254$$

So, in May'19 the price of rice in the mill according to quality (Rupiah/Kg) at the premium level was Rp. 9,860.68254 and experienced a price increase of Rp. 396 in the previous month.

Medium

<i>Regression Statistics</i>	
Multiple R	0,58193564
R Square	0,33864909
Adjusted R Square	0,31321251
Standard Error	357,705322
Observations	28

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	1	1703499,863	1703499,86	13,3134711	0,001160229
Residual	26	3326780,54	127953,098		
Total	27	5030280,403			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95,0%</i>	<i>Upper 95,0%</i>
Intercept	8844,06786	138,9046966	63,6700419	4,4444E-30	8558,545164	9129,59055	8558,54516	9129,59055
X Variable 1	30,5352709	8,368663946	3,64876295	0,00116023	13,33323583	47,737306	13,3332358	47,737306

<i>Column1</i>	
Mean	9286,82929
Standard Error	81,5708898
Median	9194,075
Mode	#N/A
Standard Deviatio	431,632577
Sample Variance	186306,682
Kurtosis	-0,36663
Skewness	0,55210192
Range	1561,36
Minimum	8653,8
Maximum	10215,16
Sum	260031,22
Count	28

$$Y=a+bx$$

$$X= 29\text{th month (May'19)}$$

$$Y= 8844.06785714286 + (30.5352709359606 \times 29)$$

$$Y= 9729.590714$$

So, in May'19 the price of rice in the mill according to quality (Rupiah/Kg) at the medium level was Rp. 9,729.590714 and experienced an increase in price of Rp. 585.39 in the previous month.

Low

Regression Statistics	
Multiple R	0,65514807
R Square	0,42921899
Adjusted R Square	0,40726588
Standard Error	358,758804
Observations	28

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	2516447,67	2516447,67	19,5516209	0,000154636
Residual	26	3346404,865	128707,879		
Total	27	5862852,536			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	8460,32571	139,3137862	60,7285606	1,5082E-29	8173,962126	8746,6893	8173,96213	8746,6893
X Variable 1	37,1128818	8,393310582	4,42172149	0,00015464	19,86018478	54,3655788	19,8601848	54,3655788

Column1	
Mean	8998,4625
Standard Error	88,0630226
Median	8996,43
Mode	#N/A
Standard Deviation	465,985715
Sample Variance	217142,687
Kurtosis	-0,7091958
Skewness	0,17237213
Range	1680,62
Minimum	8306,48
Maximum	9987,1
Sum	251956,95
Count	28

$$Y = a + bx$$

X = 29th month (May'19)

$$Y = 8460.32571428571 + (37.112881773399 \times 29)$$

$$Y = 9536.599286$$

So, in May'19 the price of rice in the mill according to quality (Rupiah/Kg) was at a low level of Rp. 9,536.599286 and experienced a price increase of Rp. 600.24 in the previous month.

Effect of Farmers Exchange Rate on Rice Prices in Mills at the Premium level

Nilai Tukar Petani dan Nilai Tukar Usaha Rumah Tangga Pertanian (April 2018-April 2019)

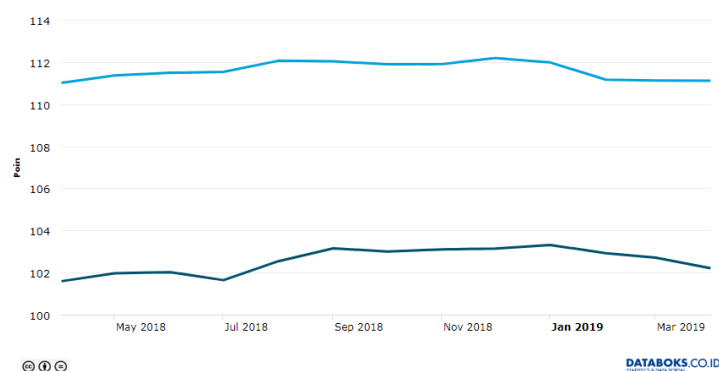


Figure 1. Farmer Exchange Rates and Agricultural Household Business Exchange Rates

Source: <https://databoks.katadata.co.id/datapublish/2019/05/03/nilai-tukar-petani-april-2019-turun-049-dari-bulan-sebelumnya>

	bulan	Nilai Tukar Petani	Premium	x ²	y ²	XY	ŷ		(Y-ŷ) ²
1	Apr-18	101,61	9.524,96	10.324,59	90.724.863,00	967.831,19	9.431,01	93,95	8.827,10
2	Mei-18	101,99	9.523,88	10.401,96	90.704.290,25	971.340,52	9.524,47	-0,59	0,35
3	Jun-18	102,04	9.478,05	10.412,16	89.833.431,80	967.140,22	9.536,77	-58,72	3.447,61
4	Jul-18	101,66	9.519,93	10.334,76	90.629.067,20	967.796,08	9.443,30	76,63	5.871,41
5	Agust-18	102,56	9.458,07	10.518,55	89.455.088,12	970.019,66	9.664,66	-206,59	42.679,86
6	Sep-18	103,17	9.572,03	10.644,05	91.623.758,32	987.546,34	9.814,69	-242,66	58.884,52
7	Okt-18	103,02	9.645,30	10.613,12	93.031.812,09	993.658,81	9.777,80	-132,50	17.555,89
8	Nop-18	103,12	9.770,97	10.633,73	95.471.854,74	1.007.582,43	9.802,39	-31,42	987,45
9	Des-18	103,16	9.818,07	10.641,99	96.394.498,52	1.012.832,10	9.812,23	5,84	34,08
10	Jan-19	103,33	10.111,08	10.677,09	102.233.938,77	1.044.777,90	9.854,04	257,04	66.067,74
11	Feb-19	102,94	10.007,91	10.596,64	100.158.262,57	1.030.214,26	9.758,12	249,79	62.393,78
12	Mar-19	102,73	9.814,53	10.553,45	96.324.999,12	1.008.246,67	9.706,47	108,06	11.676,37
13	Apr-19	102,23	9.464,68	10.450,97	89.580.167,50	967.574,24	9.583,50	-118,82	14.117,51
	total	1333,56	125.709,46	136.803,07	1.216.166.032,02	12.896.560,40	125.709,46		292.543,68

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0,691609066
R Square	0,4783231
Adjusted R Square	0,430897928
Standard Error	163,0793663
Observations	13

ANOVA					
	df	SS	MS	F	Significance F
Regression	1	268231,9237	268231,9237	10,08584836	0,008826594
Residual	11	292543,6767	26594,8797		
Total	12	560775,6004			

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%	Lower 95,0%	Upper 95,0%
Intercept	-15560,10298	7944,546834	-1,958589119	0,075997042	-33045,93267	1925,726701	-33045,93267	1925,726701
X Variable 1	245,9512874	77,44491065	3,175822469	0,008826594	75,49618831	416,4063864	75,49618831	416,4063864

$$R^2 = 0.691609066 \rightarrow 69.16\%$$

$$th = 4.130534169$$

$$df = 11$$

regression test

$$\alpha = 5\%$$

2 sides = significant (there is influence) \neq }
 Left = not significant (no effect) \geq } $> =$ there is a positive influence
 Right = significant (there is influence) $>$ }

So, as much as 69.16% of the farmer's exchange rate influences the price of rice in the mill according to quality (Rupiah/Kg) at the premium level, while 30.84% is influenced by other factors.

CONCLUSION

Conclusion

Based on the results of the research and discussion described in the previous chapter, it is concluded as follows:

1. The price of rice in the mill according to quality (Rupiah/Kg) at a premium level in May'19 was Rp. 9,860.68254 and experienced a price increase of Rp. 396 in the previous month.
2. The price of rice in the mill according to quality (Rupiah/Kg) at the medium level in May'19 was Rp. 9,729.590714 and experienced an increase in price of Rp. 585.39 in the previous month.

3. The price of rice in the mill according to quality (Rupiah/Kg) at a low level in May'19 was Rp. 9,536.599286 and experienced a price increase of Rp. 600.24 in the previous month.
4. There is an influence of the farmer's exchange rate on the price of rice at the mill at the premium level, namely: as much as 69.16% of the farmer's exchange rate affects the price of rice at the mill according to quality (Rupiah/Kg) at the premium level, while 30.84% is influenced by other factors.

Implication

The finding that as much as 69.16% of the price of rice at the mill at a premium level is influenced by the farmer's exchange rate shows the importance of government intervention in maintaining the stability of the exchange rate and rice prices. The government can formulate policies that support farmers in dealing with exchange rate fluctuations, such as subsidies for fertilizers or agricultural technologies that can increase rice productivity and quality. The implications of this research show the need for protection for farmers from the risk of exchange rate fluctuations. The government can provide financial instruments or insurance mechanisms to help protect farmers' incomes and reduce the impact of exchange rate changes on rice prices.

Recommendation

The recommendation that can be given is that the government can take steps to maintain the stability of farmers' currency exchange rates, especially in the face of global economic fluctuations. Appropriate fiscal and monetary policies can help reduce the risk of exchange rate volatility and have an impact on rice price stability at the mill. A strong monitoring system is needed to monitor exchange rate fluctuations and rice prices on a regular basis. Regular analysis of the data will help detect changes in trends and provide insight into their impact on premium rice prices.

Subsequent research can use other variables such as tourism development (Nyoto et al., 2023), exchange rates (Ayodeji, 2020; Firmansyah et al., 2022; Islam et al., 2017), inflation (Abdoh et al., 2016; Mirchandani, 2013; Yunita et al., 2017), and other factors.

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