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COVID-19 AND FOOD PRICE: STUDY IN INDONESIA

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Abstract

This paper identified the long run term relationship between COVID-19 and food prices in ten food commodities by using Autoregressive Distributed Lag (ARDL). Based on bound testing, the test statistics fall below the lower bound, the null hypothesis cannot be rejected. Therefore, there is no level of the long run relationship between COVID-19 and food prices, such as rice, chicken, chicken eggs, shallots, cayenne pepper, beef, garlic, red chilies, cooking oil, and sugar. It means that crisis within crisis will not happen in Indonesia. The highest volatility in shallots, cayenne pepper, and red chilies occurred due to another factor, such as climate change and special moments.

Keywords: *Food Price, COVID-19, Indonesia*

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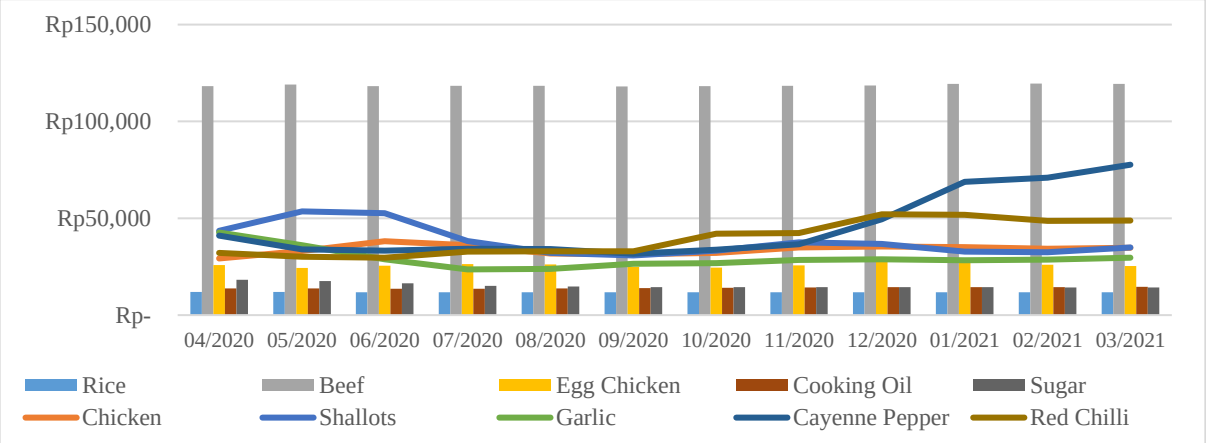
INTRODUCTION

Coronavirus Disease (COVID-19), a respiratory infection disease due to coronavirus, was firstly detected in Wuhan City of China (Simorangkir et al., 2021). This virus has spread very quickly to other countries. Therefore, the World Health Organization (WHO) declared the coronavirus outbreak a pandemic on 11 March 2020, due to the large number of infected cases and the high mortality rate caused by the virus (Putri, 2020). In Indonesia, the first case of COVID-19 was confirmed on 2 March 2020. Only within 8 days, coronavirus spread to 34 provinces in Indonesia and 8 months after COVID-19 entered the country, the number of cases reached 440,569 cases (CNN Indonesia, 2020)

Coronavirus affected almost all sectors, including the economic sector. Restrictions on community activities—dining in a restaurant, shopping in a store, travelling to some places—have effects on business activities. Producers must minimize their spending to be able to survive; thus, many people become jobless. Furthermore, producers will decrease their production to catch up with the decrease in the purchasing power of consumers. Therefore, the prices will increase because of the scarcity of goods. If this phenomenon occurred in the food sector, there would be a hunger crisis. FAO (2020) showed that the number of infections in vulnerable countries grows a crisis within crisis. It means that the health crisis will be compounded by a hunger crisis. This is because many hungry people are susceptible to the virus.

Indonesia has ten food commodities that have significant contribution in inflation rate formation, especially for inflation volatile food (PIHPSN, 2021). There are rice, chicken, beef, chicken eggs, shallots, garlic, cayenne pepper, red chilies, cooking oil, and sugar (graph 1.). Almost all commodities have stable prices; only shallots, red chilies, and cayenne pepper have the highest volatility in prices. The prices of those started to crawl up at the beginning of the pandemic era.

Graph 1. Price of 10 food Commodity Strategies April, 2020 – March, 2021



Source: Pusat Informasi Harga Pangan Strategis Nasional (PIHPS) Nasional, 2021

The impact of COVID-19 on food prices has been studied in several countries. Yu et al. (2020) empirically conducted the study in China, especially in Beijing, Shandong, and Hubei Provinces on four major food products (rice, wheat flour, pork, and Chinese cabbage) and used an iGARCH model. The findings are (1) no significant impact on rice and wheat flour prices, (2) a significantly positive impact on cabbage prices, and (3) various impacts on pork prices. Note that the outbreak and the severity of COVID-19 have different impacts. The outbreak itself may have a relatively large impact on pork and cabbage prices, which may result from social panic, while the magnitude of the impact of severity is relatively small, and some are negative, perhaps due to more reduced demand during the quarantine.

Akter (2020) studied the impact of COVID-19 related to restrictions for people to just stay at home on food prices in 31 European countries by combining the European Union's Harmonized Index of Consumer Price (HICP) with Stay-at-Home Restriction Index (SHRI) from the Oxford COVID-19 Government Response Tracker (OxCGRT) data set from January to May 2020. The finding is prices of bread & cereal, fruits, milk, cheese & eggs, and oils & fats did not increase significantly. The correlations between food prices and stay at home restriction were significant after the restrictions for cross country variations in COVID-19 effectiveness and other mitigation and adaptation measures, such as international travel controls, road closures, and the size of the economic stimulus packages.

Kaicker et al. (2020) studied the COVID-19 Cumulative Severity Ratio (CSR) impact on agricultural market arrivals and prices on rice, onions, potatoes, and tomatoes in 17 Indian states from July 2019 to June 2020 by using Panel VAR. The result is no effect of the COVID-19 pandemic growth on fractional changes in market arrivals, while the former negatively influences fractional food price changes in the short run. Furthermore, Payal Seth et al. (2020) also compared the prices of cereals and non-cereals before and during the lockdown to the prices in the same period last year, in an attempt to isolate the effect of the

lockdown on food prices. Data were collected by weekly average prices from 11 cities, from 1 March 2020 to 31 May 2020, to the same period in 2019. The findings of the report are: (1) following the lockdown, there was a rise in prices across food groups compared to last year; (2) the rise in prices was higher for non-cereals than for cereals, (3) following the lifting of the lockdown, prices stabilized quickly to pre-lockdown levels for cereals, chicken eggs, and vegetables, such as potatoes, onions, and tomatoes, and (4) the prices of nutritionally rich crops, such as pulses, remained high, despite the ease of the lockdown.

Bhattacharjeea, Amitab, & Jahanshahi (2020) collected from an opinion survey from 821 entrepreneurs (production oriented and retail business oriented in agro & pharmaceutical industries) regarding the ongoing business threats due to the COVID-19 pandemic, and the data were processed with the Pearson correlation in Bangladesh during the first quarter of 2020. The study reflected that the prices of agricultural items and pharmaceutical products are increased by local syndicators at present. As a result, the exogenous uncertainty has been increasing among entrepreneurs and raising the retail prices of commodities in the pharmaceuticals industry as well as in the agro-industry.

Singh et al. (2020) analyzed changes in food commodity prices and estimated the potential effects of food price change on nutrition security in Nepal in the context of COVID-19 contagion control measures. The analysis is based on actual school meal food baskets which represent culturally and nutritionally optimized food baskets, developed by the local community and notional typical household food baskets. The end of May/early June of 2020 is the 'Post-COVID-19' reference point, the same time period in 2019 i.e. June 2019 was the 'Pre-COVID-19' reference point. The study found a substantial increase in food commodity prices across food groups and districts with marked inter-district variation.

This paper adopted the model from Yu et al. (2020) to identify the long run term relationship between COVID-19 and food prices in ten commodities. The data were collected daily from the Ministry of Health of the Republic of Indonesia and the National Information Center for Strategical Crop Prices (PIHPS) from 23 April 2020 to 31 March 2021. By using Autoregressive Distributed Lag (ARDL), hopefully, there is no significant correlation in the long term between COVID-19 and food prices. Therefore, crisis within crisis will not happen in Indonesia. The results of this paper will become new findings in the context of Indonesia during the pandemic era.

LITERATURE REVIEW

In economy, equilibrium is formed from demand and supply. This study applies the theory from Sun et al. (2017) and Yu et al. (2020) to determine the impact of COVID-19 on food prices. The model is shown below:

$$D\,(C,P) = S\,(C,P) \ldots\ldots\ldots\ldots\ldots (1)$$

Total derivative to equation (1)

$$\frac{\partial D}{\partial C}\, dC + \frac{\partial D}{\partial P}\, dP = \frac{\partial S}{\partial C}\, dC + \frac{\partial S}{\partial P}\, dP \ldots (2)$$

$$\frac{\partial D}{\partial C}\, dC - \frac{\partial S}{\partial C}\, dC = \frac{\partial S}{\partial P}\, dP - \frac{\partial D}{\partial P}\, dP \ldots (3)$$

$$\frac{dP}{dC} = \frac{\frac{\partial D}{\partial C} - \frac{\partial S}{\partial C}}{\frac{\partial S}{\partial P} - \frac{\partial D}{\partial P}} \ldots\ldots\ldots\ldots\ldots (4)$$

To obtain the food price elasticity with respect to COVID-19, the formula is:

$$\frac{dP}{dC} \cdot \frac{C}{P} = \frac{\frac{\partial D}{\partial C} \cdot \frac{C}{D} - \frac{\partial S}{\partial C} \cdot \frac{C}{S}}{\frac{\partial S}{\partial P} \cdot \frac{P}{S} - \frac{\partial D}{\partial P} \cdot \frac{P}{D}} \ldots\ldots\ldots\ldots\ldots (5)$$

$$\epsilon_{P,C} = \frac{\varepsilon_{D,C} - \varepsilon_{S,C}}{\varepsilon_{S,P} - \varepsilon_{D,P}} \ldots\ldots\ldots\ldots\ldots (6)$$

$\varepsilon_{D,C}$ and $\varepsilon_{S,C}$ are demand and supply elasticities with respect to COVID-19, and $\varepsilon_{D,P}$ and $\varepsilon_{S,P}$ are demand and supply elasticities with respect to food prices. In economics, the sign of price elasticity of supply is positive and the sign of price elasticity of demand is negative, so the denominator is constantly positive because it is independent of COVID-19 condition. For the numerator, there are two results that are shown below:

1. If $\varepsilon_{D,C} > \varepsilon_{S,C}$ or $\varepsilon_{D,C} < \varepsilon_{S,C}$ we will have $\epsilon_{P,C} > 0$ or $\epsilon_{P,C} < 0$. It means that $\epsilon_{P,C} \neq 0$. It can be said that there is a long-term relationship between COVID-19 and food prices.
2. If $\varepsilon_{D,C} = \varepsilon_{S,C}$, we will have $\epsilon_{P,C} = 0$. It means that there is no long-term relationship between COVID-19 and food prices.

RESEARCH METHOD

Data

The dependent variable of this research is the number of cases daily. It was collected from the website of the Ministry of Health of the Republic of Indonesia (Kemenkes, 2021). The independent variable of this research is food prices in ten commodities, such as rice, chicken, chicken eggs, shallots, cayenne pepper, beef, garlic, red chilies, cooking oil, and sugar. It was collected daily from the National Information Center for Strategical Crop Prices (PIHPS). Both of them were collected from 23 April 2020 to 31 March 2021.

Technic Analysis Data

Lag length is determined by using the best model chosen by automatic selection in Akaike Information Criteria (AIC) and Schwartz Criteria (SC). According to Pesaran (1999), the dependent variable must be in the first difference variable or I(1), but the independent variable/repressors can be in level I(0) or the first difference I (1), and the research model is shown below:

$$\Delta Commodity_t = \propto_0 + \beta_1 Commodity_{t-1} + \beta_2 COVID19_{t-1} + \sum_{i=1}^{p} \beta_3 \Delta Commodity_{t-i} + \sum_{i=0}^{q} \beta_4 \Delta COVID19_{t-i} + u_t$$

$$\Delta Commodity_t = \propto_0 + \propto_1 t + \beta_1 Commodity_{t-1} + \beta_2 COVID19_{t-1} + \sum_{i=1}^{p} \beta_3 \Delta Commodity_{t-i} + \sum_{i=0}^{q} \beta_4 \Delta COVID19_{t-i} + u_t$$

Commodity consists of rice, chicken, chicken eggs, shallots, cayenne pepper, beef, garlic, red chilies, cooking oil, and sugar, and there are twenty models in this study. Coefficients β_1 and β_2 represent the long-term dynamics from the model, but coefficients $\beta_3$and β_4 represent a short-term connection

from that model. Based on the equation, the following hypothesis can be made:

$$H_0 : \beta_1 = 0 \text{ and } \beta_2 = 0$$

$$H_1 : \beta_1 \neq 0 \text{ and } \beta_2 \neq 0$$

If hypothesis $H_0 : \beta_1 = 0$ and $\beta_2 = 0$ cannot be rejected, it can be defined that there is no level relationship between food prices and COVID-19 in the long term (vice versa). To determine which hypothesis is answered, it depends on the final result of statistical F-test that is compared to critical value, I(0) and I(1), shown in output of the e-views table at 5% significance level. Lower bound critical value assumes that the independent variable is cointegrated to order zero or I(0). Meanwhile, upper bound critical value assumes that the independent variable is cointegrated to order one or I(1). If the F-statistic is above the upper bound, the null hypothesis of no level relationship in the long run term can be rejected. If the test statistics fall below the lower bound, the null hypothesis cannot be rejected. Furthermore, if F statistics have the value between lower and upper values, the result cannot be concluded (Eric Fosu & Magnus, 2006).

RESULTS AND DISCUSSION

The best model in this paper was selected by Akaike Information Criterion (AIC) and Schwarz Criterion (SC). Lag was determined by automatic selection. The result shown below:

Tabel 1. Output Autoregressive Distributed Lag (ARDL)

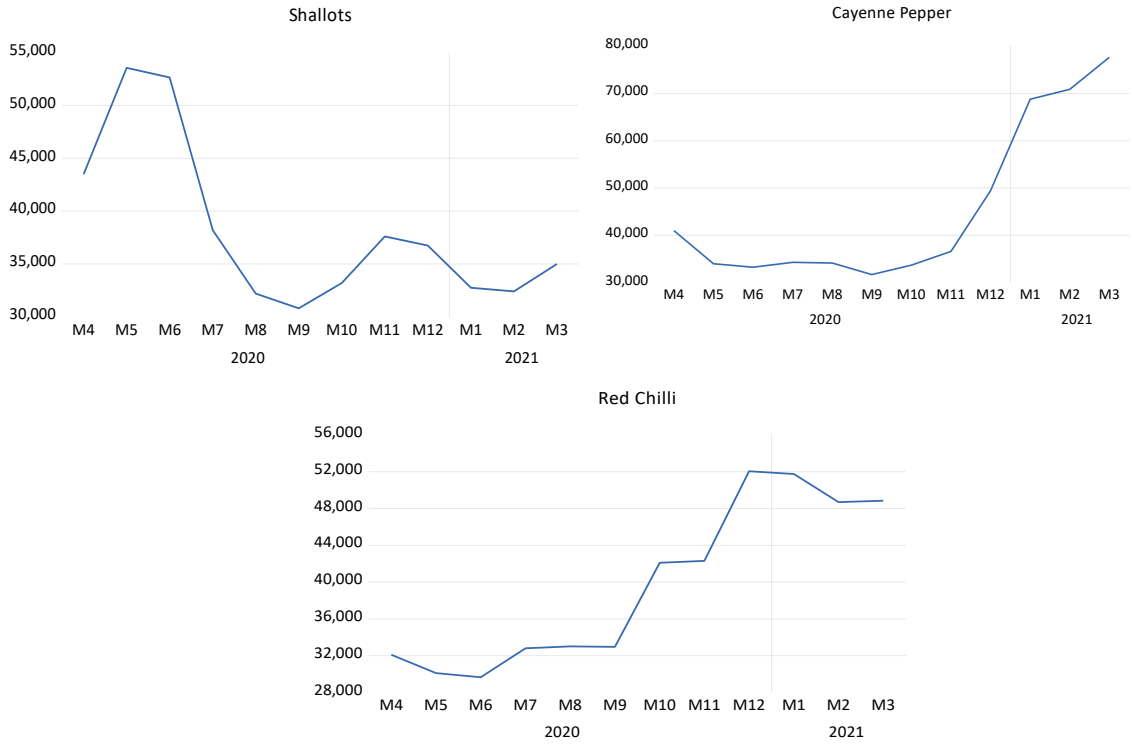
Comodities	AIC				SC			
	F_C	Conclusion	$F_{C\&T}$	Conclusion	F_C	Conclusion	$F_{C\&T}$	Conclusion
Lnrice	3.845	No Levels Relationship	0.742	No Levels Relationship	11.660	I(1) Level Relationship	5.530	No Levels Relationship
Lnchicken	3.836	No Levels Relationship	0.691	No Levels Relationship	11.739	I(1) Level Relationship	5.606	No Levels Relationship
Lneggchicken	3.874	No Levels Relationship	0.784	No Levels Relationship	11.771	I(1) Level Relationship	5.631	No Levels Relationship
Lnshallot	3.878	No Levels Relationship	0.658	No Levels Relationship	11.742	I(1) Level Relationship	5.634	No Levels Relationship
Lncayennepepper	3.810	No Levels Relationship	0.675	No Levels Relationship	11.361	I(1) Level Relationship	5.381	No Levels Relationship
Lnbeef	3.844	No Levels Relationship	0.744	No Levels Relationship	11.660	I(1) Level Relationship	5.531	No Levels Relationship
Lngarlic	3.916	No Levels Relationship	0.704	No Levels Relationship	11.750	I(1) Level Relationship	5.660	No Levels Relationship
Lnredchili	3.876	No Levels Relationship	0.766	No Levels Relationship	11.653	I(1) Level Relationship	5.561	No Levels Relationship
Lncookingoil	3.850	No Levels Relationship	0.738	No Levels Relationship	11.667	I(1) Level Relationship	5.544	No Levels Relationship
Lnsugar	3.863	No Levels Relationship	0.740	No Levels Relationship	11.673	I(1) Level Relationship	5.548	No Levels Relationship

Notes: **F**C represented F-Statistic from the model with *unrestricted intercept* and *no trend*, **F**C&T represented F-Statistic from the model with *unrestricted intercept* dan *unrestricted tren*

Based on bound testing, the test statistics fall below the lower bound, the null hypothesis cannot be rejected. Therefore, there is no level of the long run relationship between COVID-19 and food prices, such as rice, chicken, chicken eggs, shallots, cayenne pepper, beef, garlic, red chilies, cooking oil, and sugar. It means that crisis within crisis will

not happen in Indonesia. Yu et al. (2020) also did not find any effect between COVID-19 and food prices on rice and wheat flour. However, different results were found in other commodities. Akter (2020) also found that prices of bread & cereal, fruits, milk, cheese & eggs, and oils & fats did not have a significant impact due to COVID-19. Furthermore, Kaicker et al. (2020) found that there is no effect of the COVID-19 pandemic growth on fractional changes in market arrivals, while the virus negatively influences fractional food price changes in the short run. Hence, the results of this paper are in line with those of the previous studies.

Figure 1. Price Shallot, Cayenne Pepper and Red Chili M4 2020- M3 2021



Source: Pusat Informasi Harga Pangan Strategis Nasional (PIHPS) Nasional

The highest volatility in shallots, cayenne pepper, and red chilies occurred due to another factor. The factor of a significant increase in shallots prices was because of the depletion of stocks on the market due to decreasing production and damaged stocks. There was a crop failure due to the floods that hit the end of February 2020 (Citradi, 2020b). Because many shallots were damaged, eventually the seeds that were saved by the farmers were reduced. Shallot seeds produced in February and March were planned to be planted 2 months later on. However, considering that the number of seeds produced in February and March decreased, the planting in May to June also decreased (Yuniartha, 2020). Furthermore, the demand of shallots increased because of Eid Al-Fitr moment. The second increase of shallot prices occurred in November and December. It

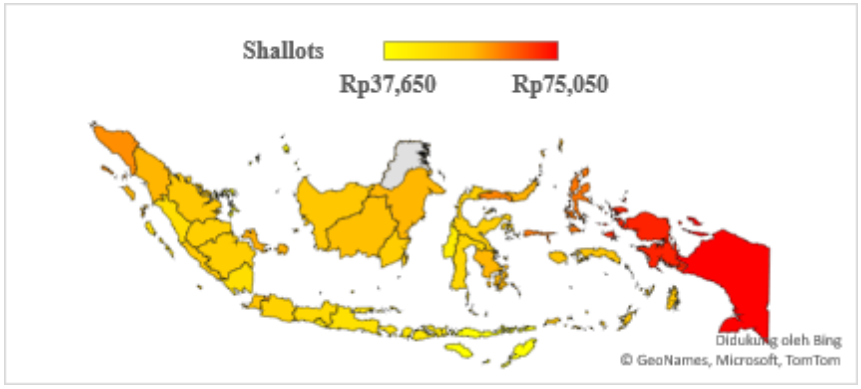
was caused by Christmas and new year moments.

In line with shallot prices, the increase in cayenne pepper prices was due to the increasing demand in Christmas and new year moments. The price increase lasted up to March 2021. This is because crop damage in several chili center areas was between 40% and 70% (Idris, 2021). On the other hand, the increase in red chili prices was encouraged by Eid Al-Adha moment in July 2020 (Oktalia, 2020). In October 2020, there was a La Nina phenomenon that had impacts on crop damage (Citradi, 2020a). The price increase lasted up to January 2021 which coincided with the moments of Christmas and new year.

From the explanation above, it can be concluded that the increasing prices of shallots, cayenne pepper, and red chilies were caused by climate change and special moments (a long weekend). It is a classic problem annually. The government should make a grand design for food—especially on whether vulnerable foods and a great quantity of those foods are needed during long holidays—such as farming properly when the climate has changed, the land is getting smaller, and the soil fertility is decreasing so that this classic problem does not repeat itself (Yuniartha, 2020). If the food stock is well maintained, the price increase will not occur.

If we examine the prices more deeply, there are some provinces that have the three highest prices in shallots when the prices spike (Mei 2020). Those are Papua, West Papua, and North Malukus. The price of shallots reached Rp 63,650/kg in North Maluku, Rp 71,700/kg in West Papua, and Rp 75,050/kg in Papua. This is because the three provinces are far from the center of shallot production, such as North Sumatera (Tapanuli, Samosir, and Dairi), West Sumatera, South Sumatera (Ogan Komering Ulu, Lahat, and Palembang), West Java (Indramayu, Kuningan, Garut, Cirebon, and Majalengka), Central Java (Brebes, Tegal, Boyolali, Pemalang, Magelang, Rembang, Kebumen, and Pati), DIY, East Java (Malang, Probolinggo, Nganjuk, Banyuwangi, Mojokerto, Magetan, Tuban, Pamekasan, and Sampang), Bali, NTB (East Lombok, Bima, Central Lombok, Sumbawa, West Lombok, and Dompu), and South Sulawesi (Enrekang).

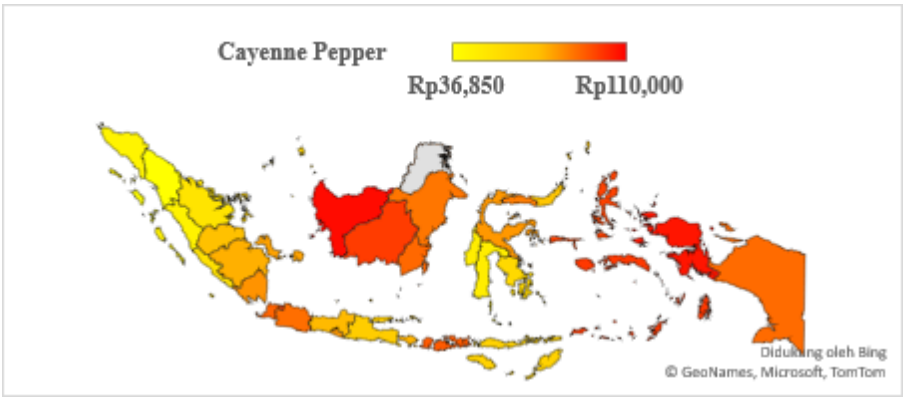
Figure 2. The Highest Shallot Price in Provinces



Source: Pusat Informasi Harga Pangan Strategis Nasional (PIHPS) Nasional

There are some provinces that have the three highest prices in cayenne pepper when the prices spike (March 2021). Those are North Kalimantan, West Kalimantan, and West Papua. The price of cayenne pepper reached Rp 105,950//kg in West Papua, Rp 107,900/kg in West Kalimantan, and Rp 110,000/kg in North Kalimantan. The prices are almost the same as the prices of meat. This is because most of the cayenne pepper comes from South Sulawesi. The supply from South Sulawesi has decreased due to the large demand from other regions (Zuraya, 2021)

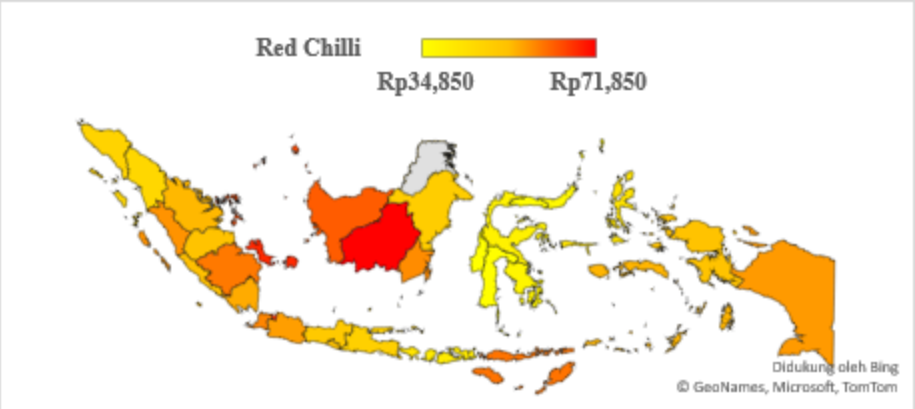
Figure 3. The Highest Cayenne Pepper Price in Provinces



Source: Pusat Informasi Harga Pangan Strategis Nasional (PIHPS) Nasional

There are some provinces that have the three highest prices in red chilies when the prices spike (December 2020). Those are DKI Jakarta, Kepulauan Bangka Belitung, and Central Kalimantan. The price of red chilies reached Rp 66,850//kg in DKI Jakarta, Rp 67,950/kg in Kepulauan Bangka Belitung, and Rp 71,850/kg in Central Kalimantan. This is because the highest demand is from those areas.

Figure 4. The Highest Red Chili Price in Provinces



Source: Pusat Informasi Harga Pangan Strategis Nasional (PIHPS) Nasional

Furthermore, the absence of price increases during the pandemic can be explained by the realization and prognosis availability and food needs in 2020, as the domestic production has been able to fulfill the estimated needs for almost all commodities, except for garlic, beef, and sugar. The government has carried out the realization of imports to meet estimated food needs, especially in garlic and meat. Thus, food prices can be stable, as shown in the table below:

Table 2. Realization & Prognosis Availability and Food Needs in 2020

Commodity	Stock of Des'19	Domestic Production	Redistribution	Realization of imports	Total	Estimated needs
Rice	5,937,243	31,593,704			37,530,947	30,082,347
Shallots		1,077,715			1,077,715	995,615
Garlic	119,949	48,821		575,473	744,243	560,390
Red Chilies		1,197,632			1,197,632	1,032,404
Cayenne Pepper		1,418,205			1,418,205	936,340
Beef		422,533		298,266	720,799	677,726
Chicken		3,104,628			3,104,628	2,722,994
Chicken Eggs		5,044,396			5,044,396	4,947,222
Sugar	239,999	2,068,599	307,100	971,295	3,586,993	2,782,307
Cooking Oil	574,000	5,029,000			5,603,000	5,090,500

Source: Badan Ketahanan Pangan Kementerian Pertanian RI, 2020

CONCLUSION RECOMMENDATION AND CONCLUSION

Based on ARDL testing, there is no level relationship in the long run between COVID-19 and food prices (rice, chicken, chicken eggs, shallots, cayenne pepper, beef, garlic, red chilies, cooking oil, and sugar). It means that crisis within crisis will not happen in Indonesia. The highest volatility in shallots, cayenne pepper, and red chilies was caused by climate change and special moments (long weekend). It is a classic problem annually.

RECOMMENDATION

The government should make a grand design for food—especially on whether vulnerable foods and the great quantity of those foods are needed during long holidays—such as farming properly when the climate has changed, the land is getting smaller, and the soil fertility is decreasing, so that this classic problem does not repeat itself. If the food stock is well maintained, the price increase will not happen.

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Appendix

Average Price April 2020- March 2021

Date	Shallot	Cayenne Pepper	Red Chilli
04/2020	Rp 43,500	Rp 41,000	Rp 32,100
05/2020	Rp 53,550	Rp 34,000	Rp 30,100
06/2020	Rp 52,650	Rp 33,250	Rp 29,650
07/2020	Rp 38,200	Rp 34,300	Rp 32,800
08/2020	Rp 32,200	Rp 34,150	Rp 33,000
09/2020	Rp 30,800	Rp 31,700	Rp 32,950
10/2020	Rp 33,200	Rp 33,700	Rp 42,100
11/2020	Rp 37,600	Rp 36,600	Rp 42,300
12/2020	Rp 36,750	Rp 49,450	Rp 52,050
01/2021	Rp 32,750	Rp 68,800	Rp 51,750
02/2021	Rp 32,400	Rp 70,900	Rp 48,700
03/2021	Rp 35,000	Rp 77,650	Rp 48,850

Shallot Price in Mei 2020 Per Province

Province	Shallot	
Aceh	Rp	61,200
Sumatera Utara	Rp	57,300
Sumatera Barat	Rp	47,650
Riau	Rp	54,000
Kepulauan Riau	Rp	39,100
Jambi	Rp	51,950
Bengkulu	Rp	53,500
Sumatera Selatan	Rp	51,800
Kepulauan Bangka Belitung	Rp	57,850
Lampung	Rp	47,550
Banten	Rp	55,000
Jawa Barat	Rp	51,050
DKI Jakarta	Rp	59,350
Jawa Tengah	Rp	48,850
D.I Yogyakarta	Rp	44,750
Jawa Timur	Rp	46,500
Bali	Rp	45,900
Nusa Tenggara Barat	Rp	44,350
Nusa Tenggara Timur	Rp	37,650
Kalimantan Barat	Rp	54,250
Kalimantan Selatan	Rp	52,400
Kalimantan Tengah	Rp	56,300
Kalimantan Timur	Rp	57,200
Kalimantan Utara	Rp	56,700
Gorontalo	Rp	62,050
Sulawesi Selatan	Rp	49,500
Sulawesi Tenggara	Rp	57,200
Sulawesi Tengah	Rp	51,950
Sulawesi Utara	Rp	57,700
Sulawesi Barat	Rp	42,850
Maluku	Rp	54,650
Maluku Utara	Rp	63,650
Papua	Rp	75,050
Papua Barat	Rp	71,700

Cayenne Pepper Price in March 2021 Per Province

Province	Cayenne Pepper	
Aceh	Rp	43,350
Sumatera Utara	Rp	36,850
Sumatera Barat	Rp	44,500
Riau	Rp	52,250
Kepulauan Riau	Rp	62,450
Jambi	Rp	73,000
Bengkulu	Rp	54,350
Sumatera Selatan	Rp	76,400
Kepulauan Bangka Belitung	Rp	78,900
Lampung	Rp	82,000
Banten	Rp	91,100
Jawa Barat	Rp	89,000
DKI Jakarta	Rp	97,750
Jawa Tengah	Rp	74,550
D.I Yogyakarta	Rp	80,800
Jawa Timur	Rp	66,050
Bali	Rp	75,950
Nusa Tenggara Barat	Rp	92,800
Nusa Tenggara Timur	Rp	63,100
Kalimantan Barat	Rp	107,900
Kalimantan Selatan	Rp	90,100
Kalimantan Tengah	Rp	98,550
Kalimantan Timur	Rp	87,600
Kalimantan Utara	Rp	110,000
Gorontalo	Rp	86,150
Sulawesi Selatan	Rp	47,350
Sulawesi Tenggara	Rp	58,800
Sulawesi Tengah	Rp	81,100
Sulawesi Utara	Rp	70,200
Sulawesi Barat	Rp	47,350
Maluku	Rp	99,400
Maluku Utara	Rp	97,400
Papua	Rp	89,700
Papua Barat	Rp	105,950

Red Chili Price in December 2020 Per Province

Province	Red Chili	
Aceh	Rp	47,800
Sumatera Utara	Rp	46,450
Sumatera Barat	Rp	57,700
Riau	Rp	54,100
Kepulauan Riau	Rp	64,800
Jambi	Rp	52,550
Bengkulu	Rp	53,300
Sumatera Selatan	Rp	60,200
Kepulauan Bangka Belitung	Rp	67,950
Lampung	Rp	55,350
Banten	Rp	59,050
Jawa Barat	Rp	56,650
DKI Jakarta	Rp	66,850
Jawa Tengah	Rp	50,700
D.I Yogyakarta	Rp	52,900
Jawa Timur	Rp	48,550
Bali	Rp	42,650
Nusa Tenggara Barat	Rp	40,850
Nusa Tenggara Timur	Rp	60,750
Kalimantan Barat	Rp	62,950
Kalimantan Selatan	Rp	58,350
Kalimantan Tengah	Rp	71,850
Kalimantan Timur	Rp	49,450
Kalimantan Utara	Rp	59,350
Gorontalo	Rp	35,600
Sulawesi Selatan	Rp	35,250
Sulawesi Tenggara	Rp	37,850
Sulawesi Tengah	Rp	38,850
Sulawesi Utara	Rp	36,950
Sulawesi Barat	Rp	34,850
Maluku	Rp	54,400
Maluku Utara	Rp	42,750
Papua	Rp	57,050
Papua Barat	Rp	52,500