



World Food Programme



WFP/Josh Estey

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INDONESIA

Food price update - March 2020

Focus: Effect of COVID-19 outbreak on food prices

Vulnerability Analysis and Mapping (VAM) - Indonesia Country Office. Contact: wfp.indonesia@wfp.org

SAVING
LIVES
CHANGING
LIVES

Preface

The Novel Coronavirus Disease (COVID-19) has been rapidly evolving across the globe and categorized as a pandemic by the World Health Organization (WHO). Enormous number of cases in China have impacted the country's economic activities including production and trade.

This analysis was conducted in Indonesia in order to understand the impact of COVID-19 on domestic prices of several strategic food commodities. The main output of this analysis is whether there is a risk of significant changes in food prices as consequence of the outbreak.

The analysis focused on 10 strategic commodities in Indonesia: rice, chicken, beef, garlic, red onion, red chili, bird's eye chili, egg, sugar, and vegetable oil at the national and sub-national levels. In addition, the trend and price analysis of other commodities such as ginger and curcuma are also presented.

The methods used in this analysis are limited to price indices for the past 3 months and the first two weeks of March using a range of comparisons across different time points and regions. In addition, a long-term time-series analysis is conducted to detect abnormal price changes using WFP's Alert for Price Spike (ALPS) analysis.

The analysis used data primarily from official Government sources, with media updates to triangulate the analysis results.

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COVID-2019 Global Outlook

COVID-19 has spread rapidly over the past two months. By 15 Mar 2020, there were 110,029 confirmed cases across the globe and over half of them (53%) were reported in mainland China. For outside China, Italy stands with the highest number of cases, followed by Iran and South Korea.

In regards to the global food trade, COVID-19 has impacted multiple countries from both the demand and supply side. As the epicentre, China's food distribution and processing system was disrupted due to manpower shortages and transport restrictions. Given that China is a major food producer globally, production and supply chain issues in China have the potential to affect the rest of the world.



3-Month Trend Analysis (Dec 2019 - Feb 2020)

In Indonesia, garlic and sugar prices rose from Dec 2019 to Feb 2020, while the remaining commodities showed no significant price change. Compared to Dec 2019 level, the average garlic price rose by **+56.4%** and sugar price by **+5.4%** in Feb 2020.

At the provincial level, the largest price increase between Dec 2019 and Feb 2020 for garlic occurred in Bali (**+89.5%**), while for sugar it occurred in East Java (**+9.3%**). Out of the top 20 districts experiencing the greatest price increase for both commodities, most were situated in Java and Bali. The primary cause of these increases had been reported to be delays in import. By mid-Mar prices for garlic have started to decrease across the country, but sugar prices have still been increasing.

Rises in the prices of red chili, bird's eye chili, and red onions were also observed during this period, but compared to their long-term trend, these changes were less significant. WFP's ALPS analysis yields the corresponding results by showing garlic and sugar prices at a crisis level in Feb 2020.



COVID-19 in Indonesia and Food Price Change (Mar 2020, Week I - II)

Following the report of confirmed COVID-19 cases in Indonesia on 2 Mar 2020, there was an obvious price movement for two commodities: sugar and red chili. However, the direction was opposite: sugar prices were rising while prices for red chili dropped gradually. The remaining commodities showed no significant price change.

The province level sample showed the same trend. Week-on-week comparison showed that in Bali and DKI Jakarta, sugar experienced the largest price change. At the local level, the most significant increases occurred in Ps. Panorama, Kota Bengkulu (**+37.3%**), Ps. Wonomulyo Kab. Polewali Mandar (**+33.3%**), and Ps. Peunayong, Kota Banda Aceh (**+32.1%**). Price hikes for perennial herbs were observed primarily for red ginger and curcuma.

Conclusion

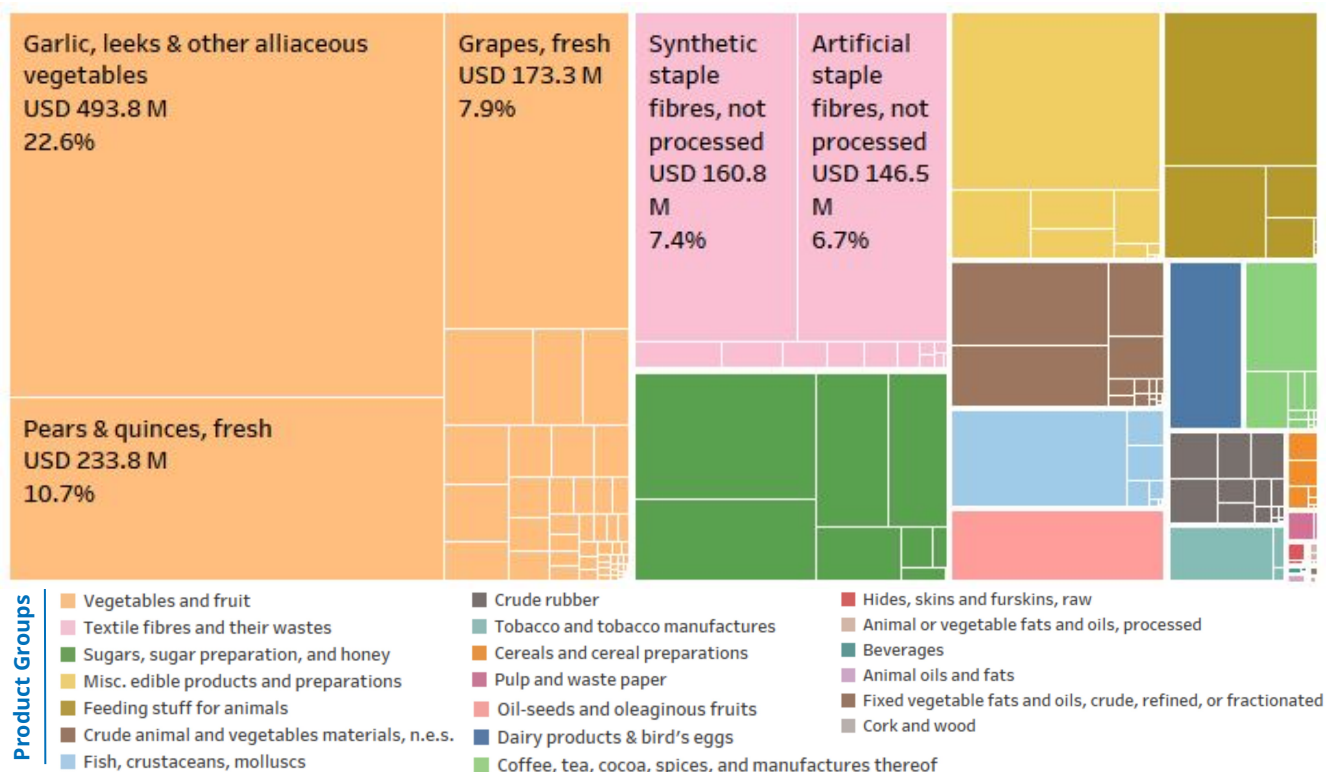
Overall analysis results suggest that until mid Mar 2020 there was no significant impact of the COVID-19 outbreak on the prices of 10 strategic food commodities in Indonesia, except for garlic and sugar that was recorded in Feb 2020. Following the detection of COVID-19 cases in Indonesia, only sugar prices were observed to rise in selected regions. However, a direct link to the outbreak could not be confirmed due to lack of available data. On the other hand, perennial herb prices seem to have been more affected by the outbreak, particularly red ginger and curcuma, compared to prices of strategic food commodities. So far the impact of the outbreak on food security seems to have been limited, however care must be taken to ensure sufficient food stocks are available within the country in a timely manner to avoid price spikes for food commodities that are currently primarily sourced from imports.

Background: Indonesia - China Trade in Agricultural Products

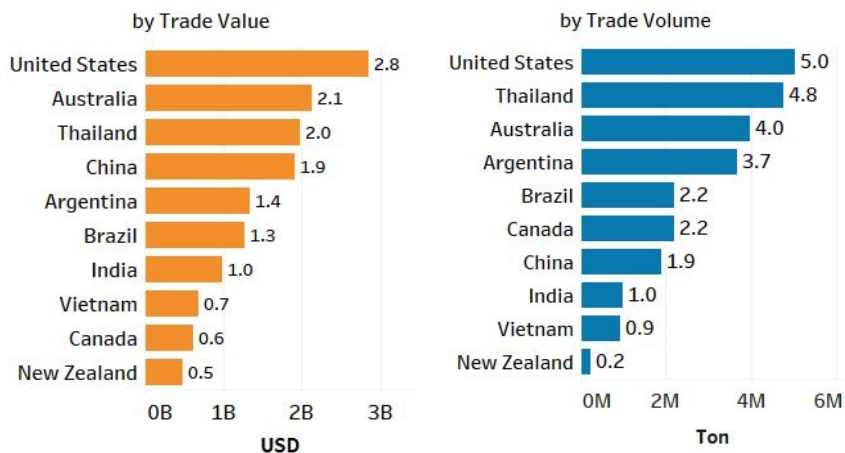
In 2018, China was the fourth largest exporter of agricultural products to Indonesia in terms of trade value (USD 1.9 billion), and eighth largest in terms of trade volume (1.9 million tons). Horticultural products are the bulk of Indonesia's agricultural imports from China, with garlic, leeks, and other alliaceus vegetables alone contributing roughly one-fifth (22.6%) of the total value of agricultural imports from China.

Indonesia's domestic garlic consumption is roughly 500 thousand tons annually. Although domestic production has almost quintupled between 2014 and 2019, from 16,892 tons to 81,000 tons, it was only sufficient to meet 15.4% of domestic demand, and thus the gap had to be filled by imports. In 2018 and 2019, 99.6% and 100% of Indonesia's garlic imports originated from China, respectively. Between 2018 and 2019, however, Indonesia's overall garlic imports decreased by 20.1%. In Dec 2019 and Jan 2020, Indonesia imported 106,894 tons and 1,508 tons of garlic from China, respectively.

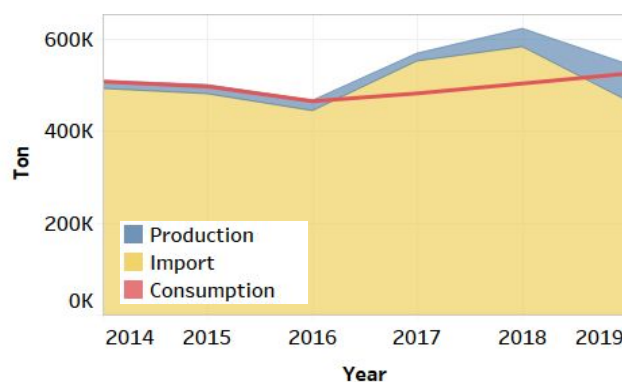
Value of Agricultural Products imported from China (2018), by Product Group



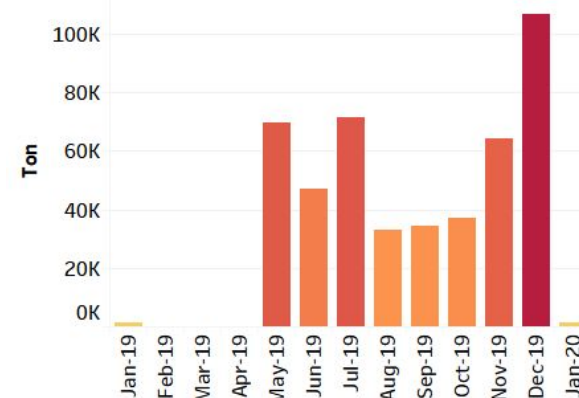
Top 10 Exporters of Agricultural Products to Indonesia (2018)



Indonesia Garlic Production, Imports, and Consumption (2014-2019)



Volume of Garlic Imports from China (Jan 2019 - Jan 2020)



Data Source: World Integrated Trade Solutions (WITS) database; Statistics Indonesia; Ministry of Agriculture

Note: Consumption data for 2017 - 2019 uses projected figures from Ministry of Agriculture

Media updates: Disruption in Garlic Imports from China



Home > Ekonomi > Berita Bisnis

Bawang Putih Sumbang Inflasi Karena Virus Corona di China

CNN Indonesia | Selasa, 03/03/2020 07:17 WIB

Bagikan :  



Bloomberg



Economics

Garlic Prices Jump in Indonesia on Worries About Chinese Exports

By Yoga Rusmana

- ▶ China makes up about 90% of Indonesia's total garlic imports
- ▶ Country urged to seek alternative supply from Thailand, Laos

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Indonesia is grappling with surging garlic prices as the fast-spreading

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Outbreak impact: Scarcity makes garlic price skyrocket in North Sumatra

Apriadi Gunawan

The Jakarta Post

Medan / Fri, February 7, 2020 / 06:13 pm



Main points:

Garlic prices in Indonesia have risen in the first two weeks of Feb 2020 and contributed to monthly inflation⁹. As mentioned in the preceding section, China is the main source of Indonesia's garlic imports and according to media reports, the COVID-19 outbreak may have caused garlic prices to soar through several pathways: first, labour shortages and logistical problems^{1,3}, coupled with increasing demand within China itself have caused the domestic price of garlic in China to rise³; second, initial concerns that imported garlic from China may be contaminated with the virus have led Indonesian distributors to refrain from releasing their garlic stocks to the market and the Government to delay the import decision until the safety was confirmed¹⁰. Consequently, supply shortages in the market coupled with rising concerns regarding the diminishing stock within the country have triggered the soaring garlic price in many regions of Indonesia^{11,12}.

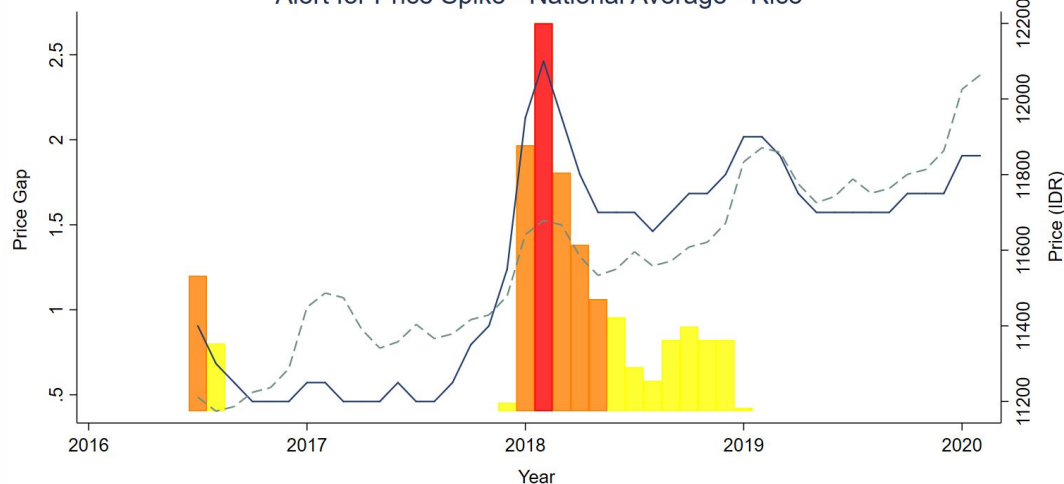
On 7 Feb 2020, the Ministry of Agriculture (MoA) issued a recommendation to import 103,000 tons of garlic, and as of 6 Mar 2020, the Ministry of Trade permitted import of 34,825 tons of garlic¹³. Media reports indicate that imported garlic has been entering the markets since early Mar 2020¹⁴. Several news sources have also reported that garlic prices in the US market have ascended due to supply disruptions from China¹.

National trend: ALPS analysis

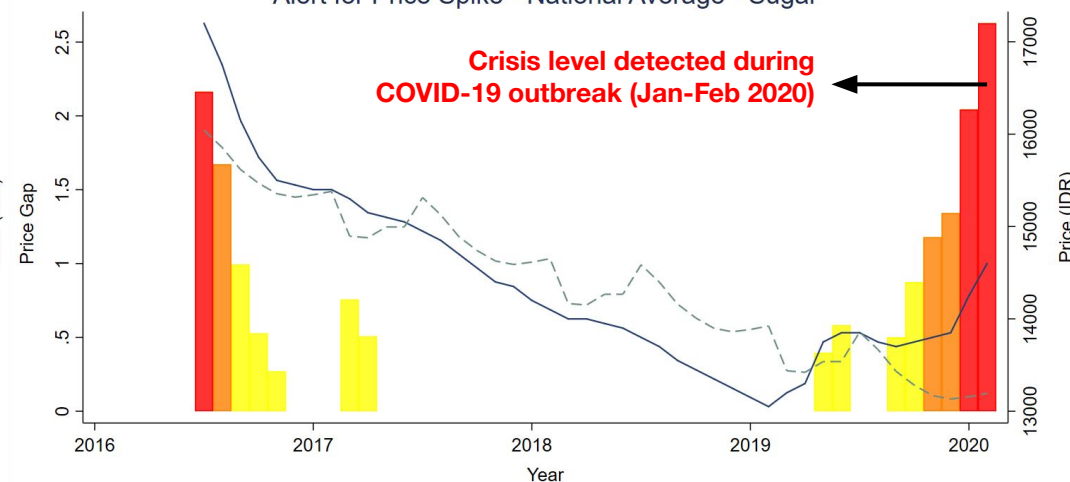
The Alert for Price Spikes (ALPS) indicator detects an abnormally high level of food prices. It enables identification of which commodities and markets are experiencing abnormal price levels and the severity and persistence of such price abnormalities. The ALPS indicator was developed for basic commodities in Indonesia using historical market data for the monthly national averages from Jul 2016 to Feb 2020.

ALPS was used to detect whether an abnormal price level of several strategic commodities existed during the COVID-19 outbreak: Jan and Feb 2020. However, due to price data for some commodities not fulfilling the prerequisite of this analysis, the analysis was carried out for 6 commodities only: rice, garlic, red onion, bird's eye chili, red chili, sugar and vegetable oil*.

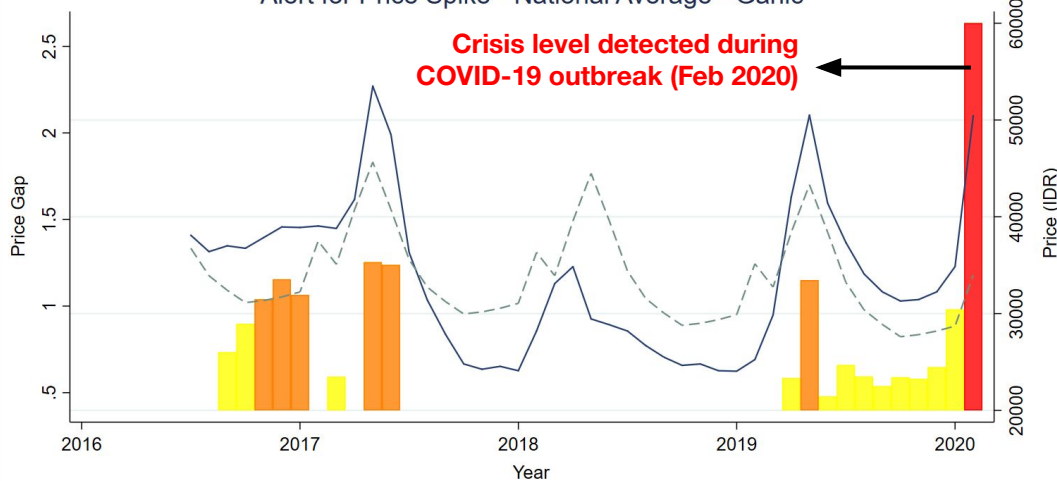
Alert for Price Spike - National Average - Rice



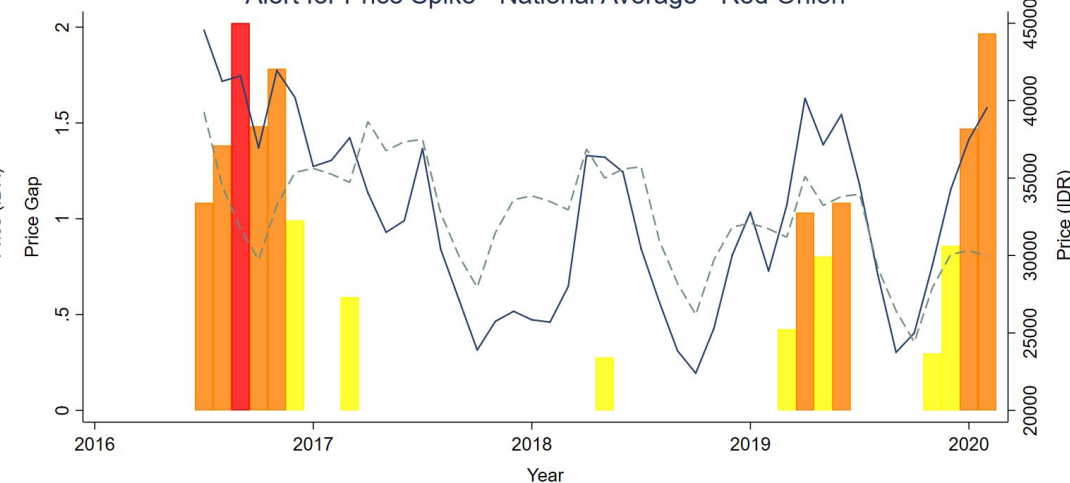
Alert for Price Spike - National Average - Sugar



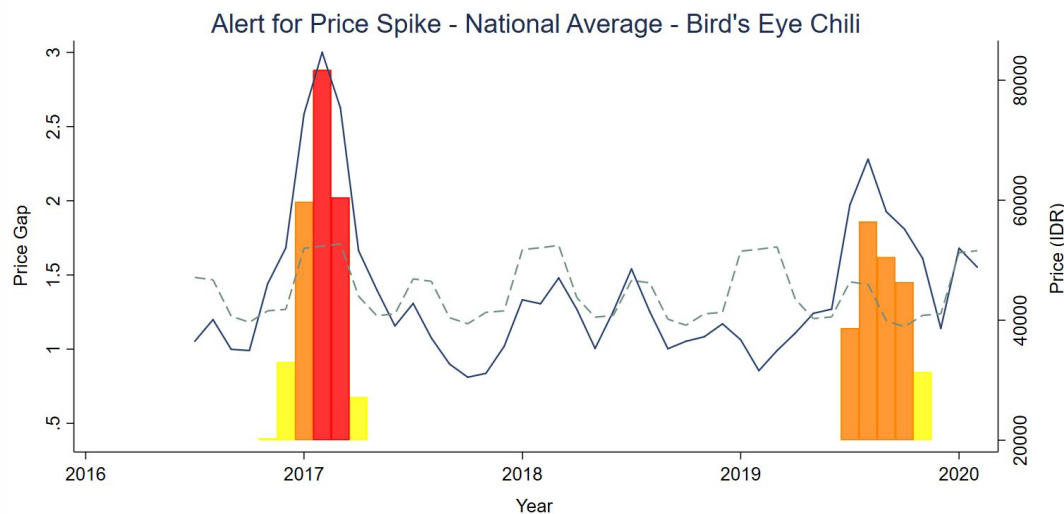
Alert for Price Spike - National Average - Garlic



Alert for Price Spike - National Average - Red Onion

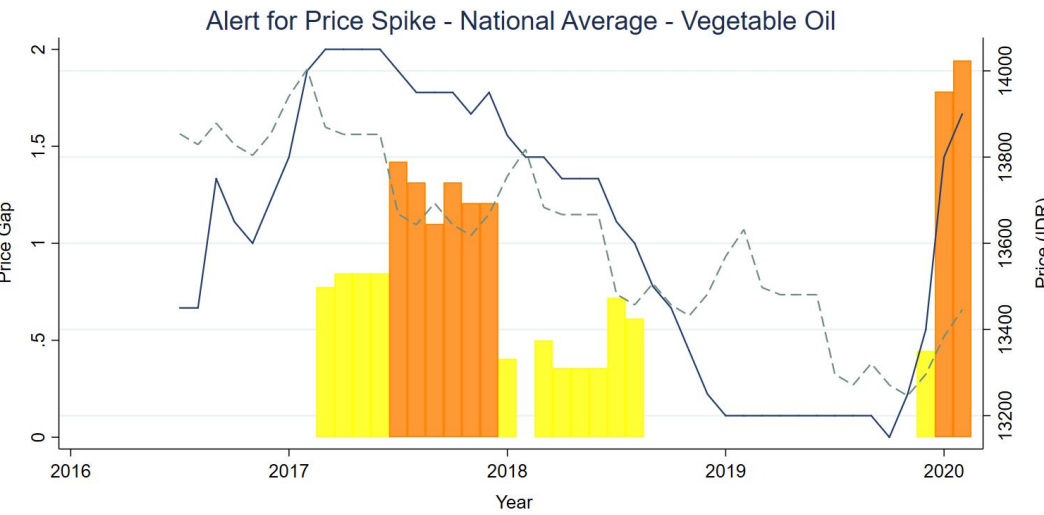
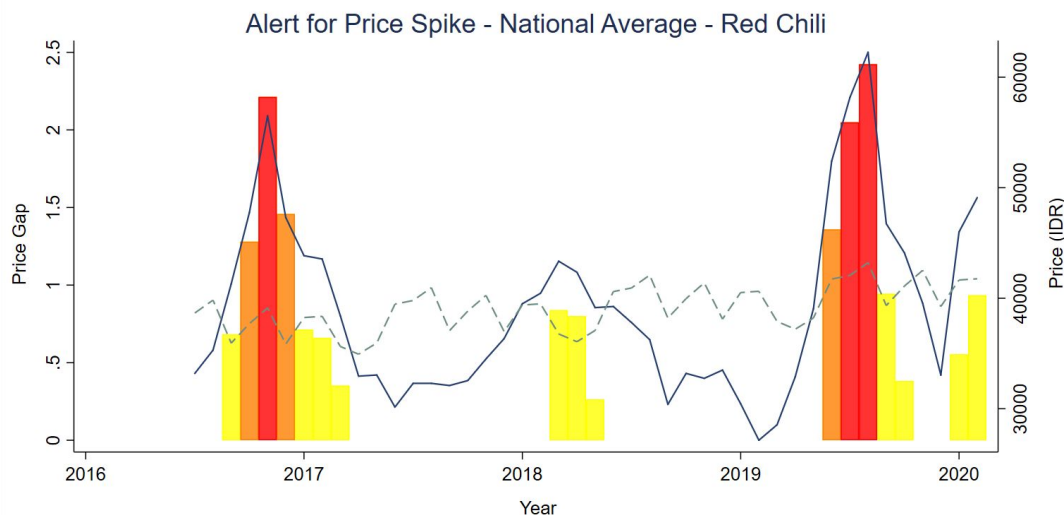


National trend: ALPS analysis



During the COVID-19 outbreak, garlic prices in Indonesia rose significantly in Feb 2020, while a big increase in sugar price was observed in Jan-Feb 2020. It is the first time garlic prices were detected at such high rates in over 3 years. The so far highest garlic price was recorded in May 2017 at IDR 53,500/kg or roughly 6 percent above the Feb 2020 level. The crisis level was detected due to an extreme deviation from the linear prediction of the long-term trend*.

Rice and bird's eye chili show no price alerts, while onion and vegetable oil were found at an alert level, and red chili was found only at stress level. Nationally, so far there has been no crisis price level detected in those commodities during the COVID-19 outbreak, except for garlic and sugar.



Note (*):

- Definitions of "crises", "alert" and "stress level" described in the Methodology section (Page 18)
- Commodities that were excluded from the analysis: beef, chicken and egg.



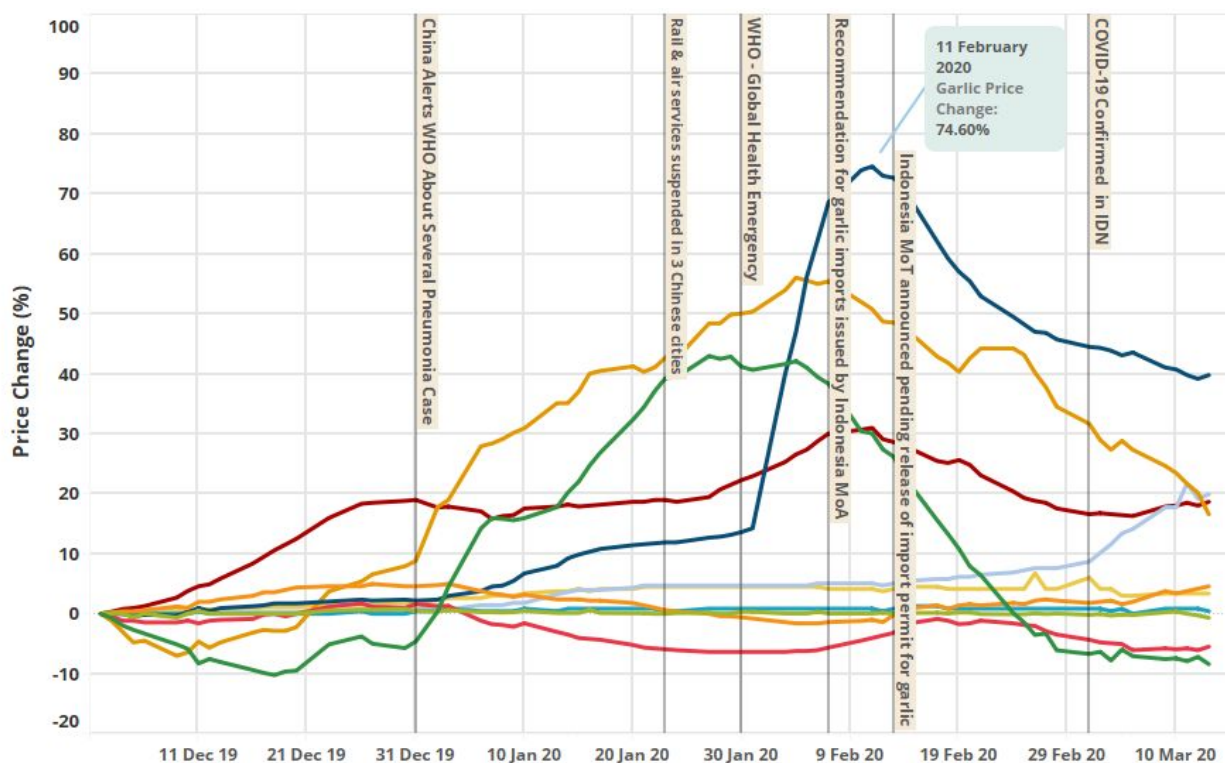
National trend: Daily and monthly trend

Following China's report to the World Health Organization (WHO) regarding pneumonia cases on 31 Dec 2019, there was a steady increase in the price of red chili, bird's eye chili and garlic. The price of garlic rose sharply on 3 Feb 2020 by roughly **+26%** from 31 Jan 2020 level, three days after the WHO declared the COVID-19 outbreak as a Public Health Emergency of International Concern. On 7 Feb 2020, the Ministry of Agriculture issued a recommendation for garlic import. Garlic prices reached a peak on 11 Feb 2020 at **+74.6%** from the baseline level. On 13 Feb 2020, the Ministry of Trade announced the pending release of import permit for garlic, after which the garlic price slowly declined. Nationally, the monthly garlic price rose from Dec 2019 to Feb 2020 by **+56.4%**. It jumped from IDR 32,250/kg in Dec 2019 to IDR 50,450/kg in Feb 2020.

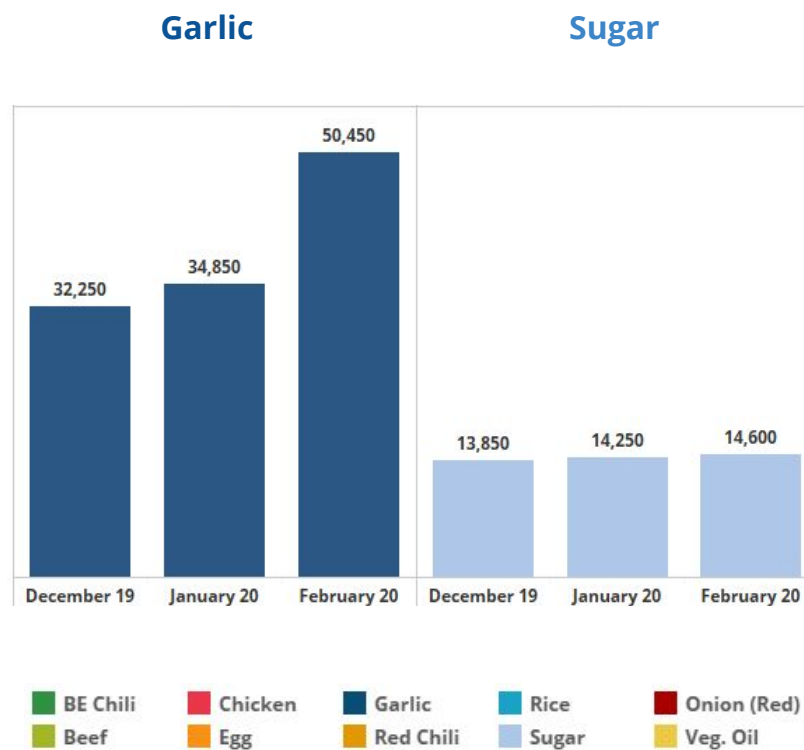
Sugar prices started to increase in late 2019 and prices began to further climb in early 2020. The monthly sugar price rose from IDR 13,850/kg in Dec 2019 to IDR 14,600/kg in Feb 2020, which corresponds to a change of **+5.4%**. Although the price change is observed to be relatively lower than garlic, the price level in Jan-Feb 2020 is still considered high compared to its long-term trend (see slide 6-7 on ALPS analysis). The Feb 2020 price is **+16.8%** higher than the ceiling price set by the GoI (IDR 12,500/kg) and sugar prices were observed to continue to increase throughout the first half of Mar 2020. Increases in the national average price of garlic and sugar, are presented in the below daily price chart.

The prices of red and bird's eye chili also increased, however, compared to garlic and sugar, the deviation from their long-term trend was not as drastic, as chili prices are typically volatile. For other food commodities, no significant increase was recorded.

Daily Price Trend (Up to March 13th 2020) Baseline = Price on December 1st 2019



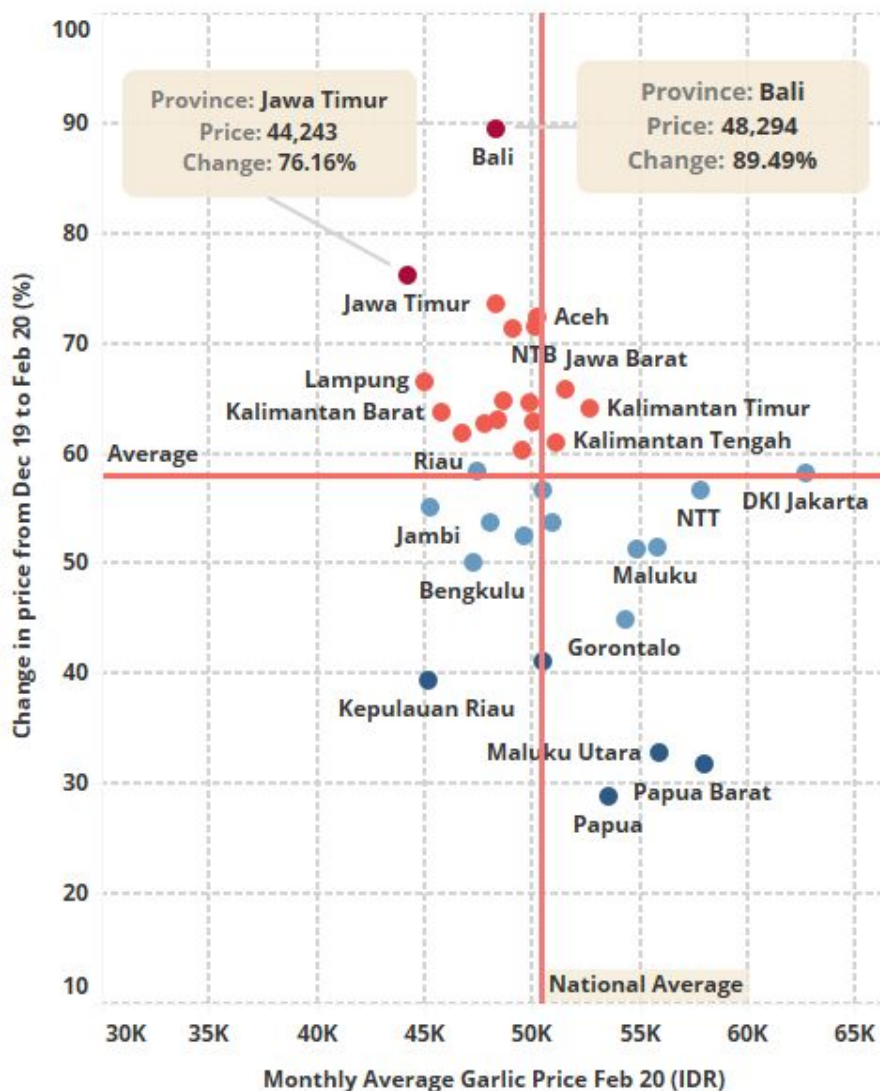
Monthly Price Trend (IDR/Kg):



Sub-national trend: Garlic prices across provinces

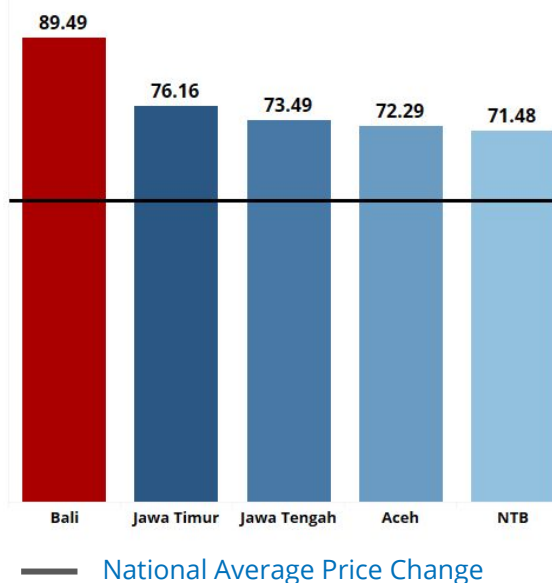
Province-level Comparison

Price Change [Dec 2019 to Feb 2020] vs Price Level



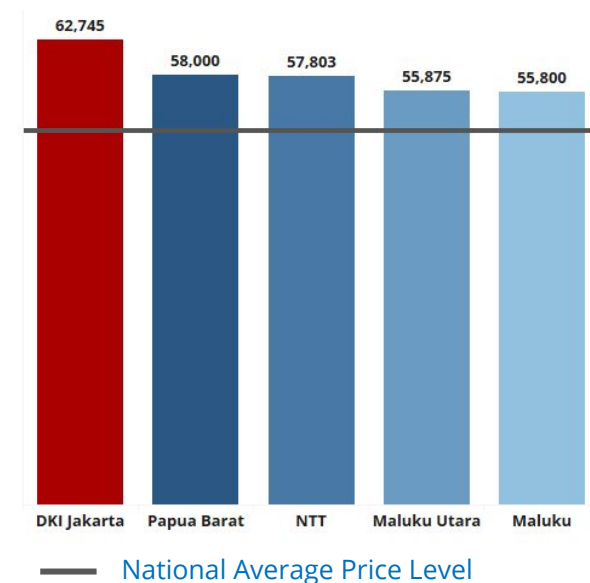
Top 5 Provinces

Price Change (%): Dec 2019 to Feb 2020



Top 5 Provinces

The Highest Price: Feb 2020 (IDR/Kg)



In Feb 2020, DKI Jakarta was the most expensive province to purchase garlic, followed by West Papua, East Nusa Tenggara, North Maluku and Maluku. Prices in DKI Jakarta (IDR 62,745/kg) had been **1.4 times higher** than prices in East Java, which reported the lowest prices in Feb 2020 (IDR 44,243/kg). However, considering the price change from Dec 2019 to Feb 2020, Bali experienced the highest percentage change across Indonesia at **+89.5%**, followed by East Java and Central Java.

The scatter plot indicates that provinces experiencing higher levels of change in percentage terms between Dec 2019 to Feb 2020 are not necessarily the ones observing the highest price levels in Feb 2020. For instance, Bali and East Java were the two provinces experiencing the highest price change, **+89.5%** and **+76.2%** respectively. However, prices in these two provinces were actually lower than the national average, with East Java actually reporting the lowest price levels in Feb 2020. Conversely, West Papua experienced the second lowest price change in percentage terms, but garlic prices within the province had been the second highest nationally.

It is also interesting to note, that several provinces experiencing the highest price change such as East Java, Central Java, and West Nusa Tenggara were among the 10 largest producers of garlic in Indonesia in terms of production and harvested area*.

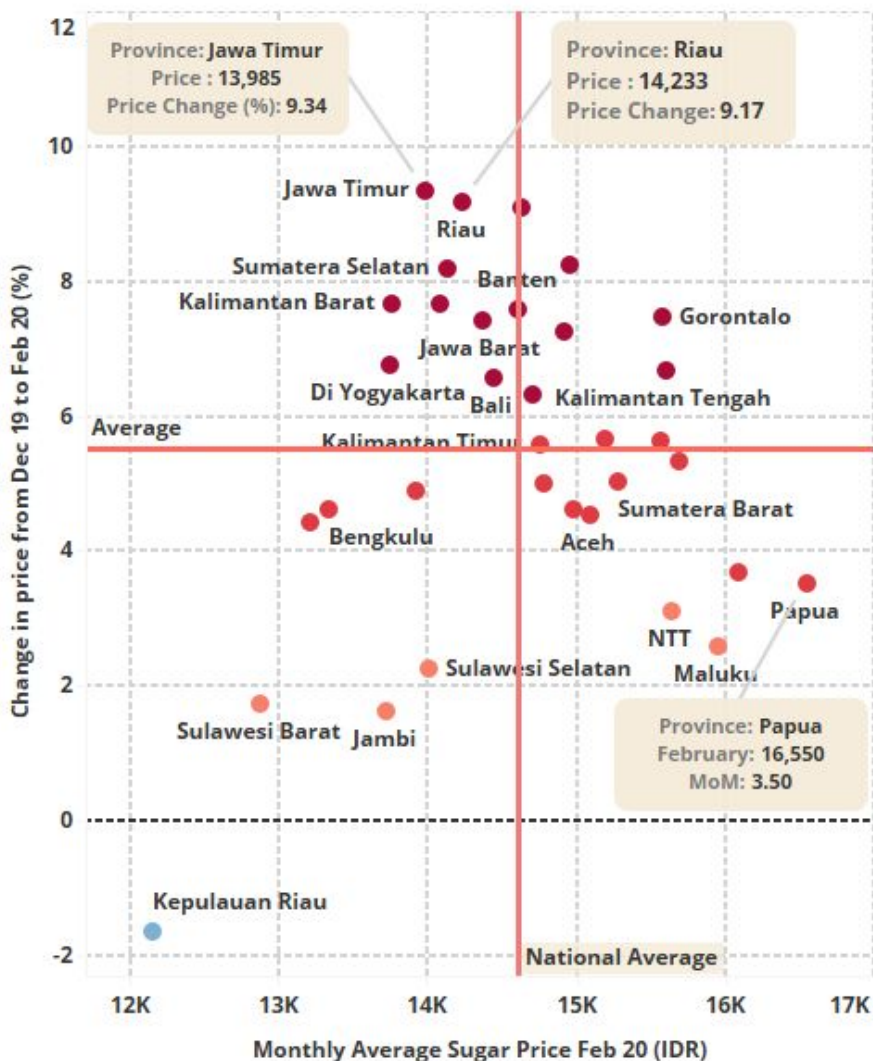
Data Source:

Center for Information of Strategic Food Price (PIHPS) | *Ministry of Agriculture (Kementerian Pertanian-RI)

Sub-national trend: Sugar prices across provinces

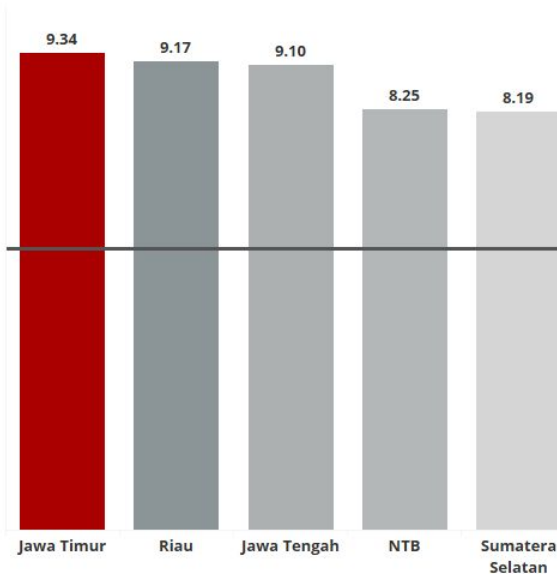
Province-level Comparison

Price Change [Dec 2019 to Feb 2020] vs Price Level



Top 5 Provinces

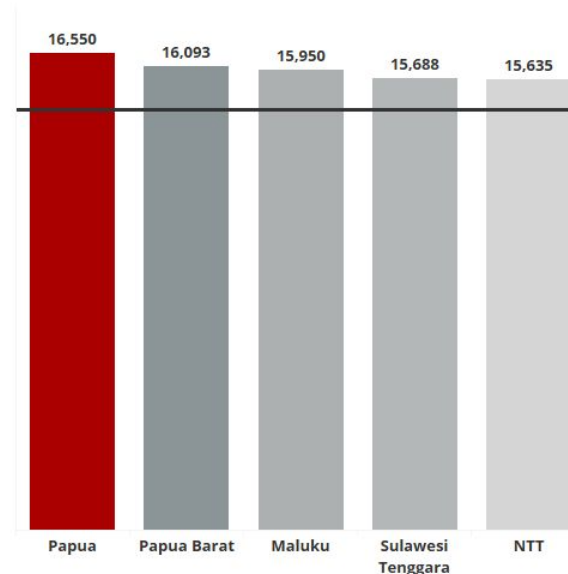
Price Change (%): Dec 2019 to Feb 2020



— National Average Price Change

Top 5 Provinces

The Highest Price: Feb 2020 (IDR/Kg)



— National Average Price Level

The province with the highest sugar price in Feb 2020 was Papua, followed by West Papua, Maluku, Southeast Sulawesi and West Nusa Tenggara. The price in Papua (IDR 16,550/kg) were **1.4 times** higher than prices in Riau Island, which reported the lowest prices in Feb 2020 (IDR 12,155/kg). This finding suggests that the eastern region of Indonesia observed the highest sugar prices. However, considering the price change from Dec 2019 to Feb 2020, East Java experienced the highest percentage change across Indonesia at **+9.3%**, followed by Riau, East Java, West Nusa Tenggara and South Sumatera. However, there was a province that experienced a decrease in price, namely Riau Island. Compared to Dec 2019, It dropped about **-1.6%** in Feb 2020.

The scatter plot demonstrates a similar situation with garlic. Provinces experiencing higher levels of change in percentage terms between Dec 2019 to Feb 2020 are not necessarily the ones observing the highest price levels in Feb 2020. For instance, East Java and Riau were the two provinces experiencing the highest price change, **+9.3%** and **+9.2%** respectively. However, prices in these two provinces were actually lower than the national average, with Riau Island actually reporting the lowest price levels in Feb 2020. Conversely, Papua and West Papua experienced the price change below the national average in percentage terms, but sugar prices within the province had been the second highest nationally.

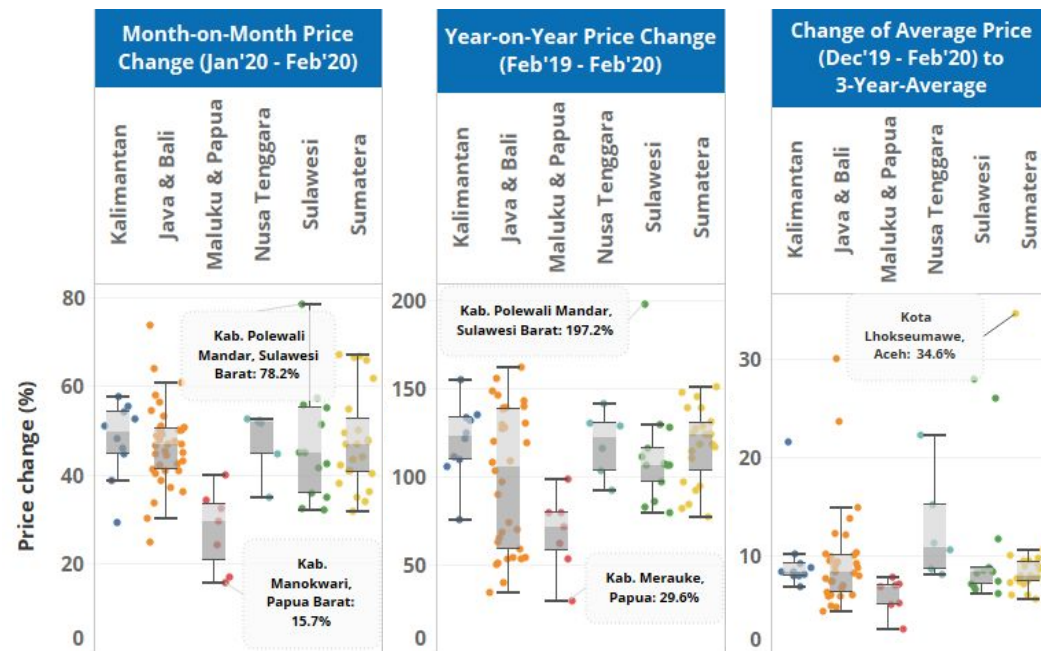
Data Source:

Center for Information of Strategic Food Price (PIHPS)

Sub-national trend: Garlic prices across districts

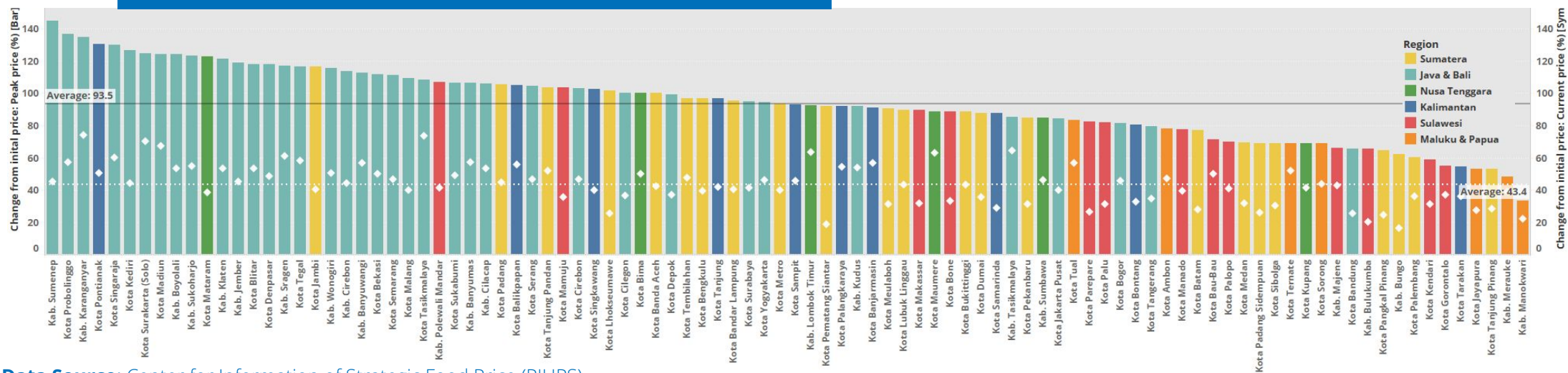
In Feb 2020, garlic prices rose throughout Indonesia with varying magnitudes across regions: Eastern Indonesia experienced the least change in percentage terms. Between Jan and Feb 2020, the price of garlic at the district level rose between **+15.7%** in Kab. Manokwari, West Papua and **+78.2%** in Kab. Polewali Mandar, West Sulawesi. Compared to last year, however, prices in Feb are between **+29.6%** (Kab. Merauke, Papua) and **+197.2%** (Kab. Polewali Mandar, West Sulawesi) higher. Even when accounting for seasonality and 3-year-averages, the Dec 2019 to Feb 2020 average garlic prices were considerably higher. Out of 93 recorded districts, 5 districts experienced an increase between 0% and +5% (**5.4%** of districts), 68 experienced an increase between +5% and +10% (**73.1%** of districts), and 20 experienced an increase greater than +10% (**21.5%** of districts). Kota Lhokseumawe in Aceh experienced the greatest increase (**+34.6%**), followed by Kota Blitar in East Java (**+30.0%**) and Kab. Polewali Mandar in West Sulawesi (**+27.9%**).

The peak of the price increase occurred during the first two weeks of Feb 2020. During this period, districts experienced higher prices between **+29.0%** (Kab. Merauke, Papua) and **+144.9%** (Kab. Sumenep, East Java) compared to prices on 1 Dec 2019. Out of the top 20 districts experiencing the greatest price increase, 17 were situated in Java and Bali. By mid-Mar 2020, prices have started to go down across the country following the issuance of garlic import recommendations by MoA.



Note: Initial price is defined as price on 1 Dec 2019. Peak price is the maximum price for each district reached between 1 Dec 2019 and 13 Mar 2020. Current price is price on 13 Mar 2020.

Price Change from Initial Price to Peak and Current Price (%)

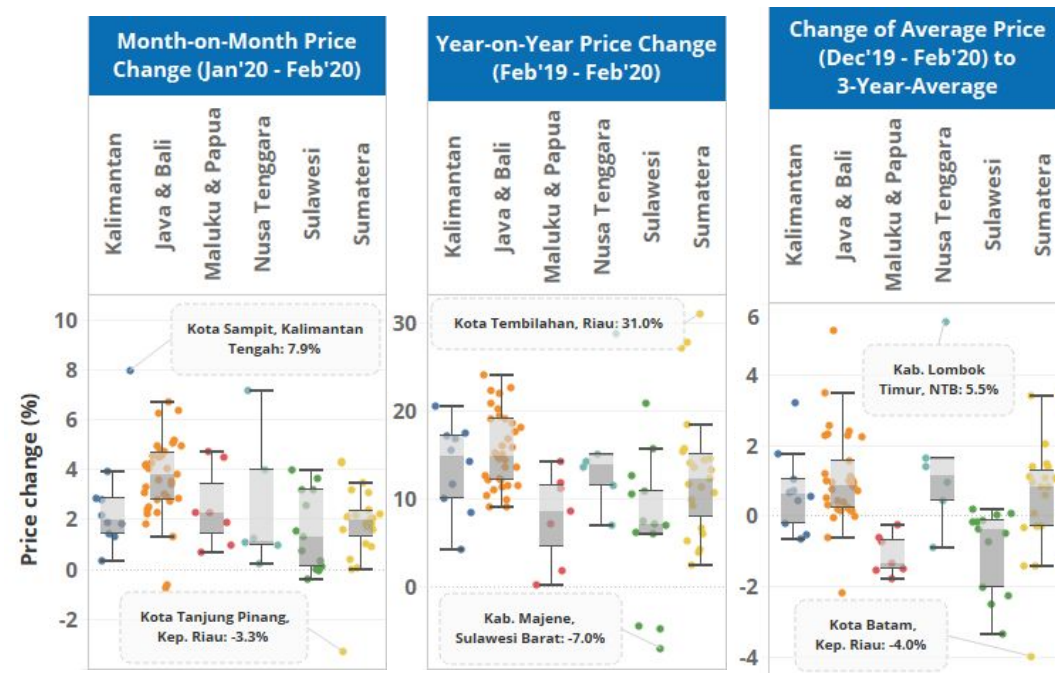


Data Source: Center for Information of Strategic Food Price (PIHPS)

Sub-national trend: Sugar prices across districts

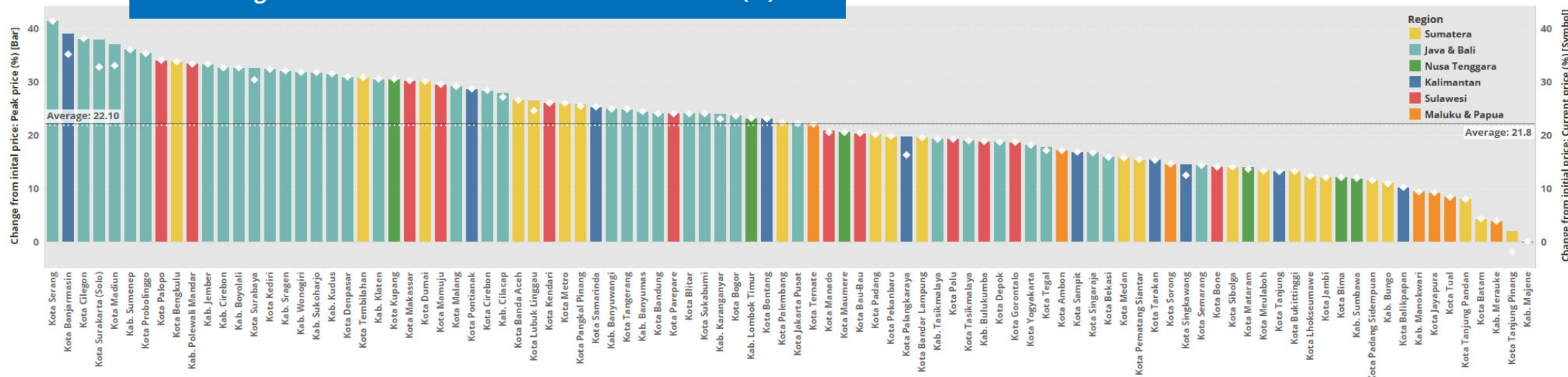
Sugar prices also experienced increases across Indonesia with districts in Java generally recording higher changes in percentage terms. A few districts, however, reported decreases in sugar prices. Between Jan and Feb 2020, the change in sugar prices ranged from **-3.3%** in Kota Tanjung Pinang, Riau Islands to **+7.9%** in Kota Sampit, Central Kalimantan. Compared to Feb 2019, however, prices in Feb 2020 differed by **-7.0%** (Kab. Majene, West Sulawesi) to **+31.0%** (Kota Tembilahan, Riau). When compared to 3-year-averages, the 3-month-average sugar prices (Dec 2019 to Feb 2020) are slightly higher for most districts, although a third of the districts reported lower prices than average. Out of 93 recorded districts, 33 districts reported negative price changes (**35.5%** of districts), 58 districts experienced an increase between 0% and +5% (**62.4%** of districts), and 2 districts experienced an increase between +5% and +10% (**2.2%** of districts). Kab. Lombok Timur in West Nusa Tenggara experienced the greatest increase (**+5.5%**), while Kota Batam in Riau Islands experienced the greatest decrease (**-4.0%**).

The peak of the price increase, however, occurred in March 2020*, where districts experienced price changes between **+0%** (Kab. Majene, West Sulawesi) and **+41.4%** (Kota Serang, Banten) compared to prices on 1 Dec 2019. Of the 20 districts experiencing the greatest increase, 16 were in Java and Bali. Prices on the latest available date (13 Mar 2020) were peak prices for the majority of districts, indicating that sugar prices are still likely to increase further in these districts.



Note: Initial price is defined as price on 1 Dec 2019. Peak price is the maximum price for each district reached between 1 Dec 2019 and 13 Mar 2020. Current price is price on 13 Mar 2020.

Price Change from Initial Price to Peak and Current Price (%)



Data Source: Center for Information of Strategic Food Price (PIHPS)

*Monthly price data for Mar 2020 is not yet available for use in the monthly price comparison. Only daily price data for Mar 2020 is available at the time of analysis.

Media updates: Announcement of confirmed COVID-19 in Indonesia and mass panic buying

NEWS > NATIONAL

BREAKING: Jokowi announces Indonesia's first two confirmed COVID-19 cases

Marchio Irfan Gorbiano

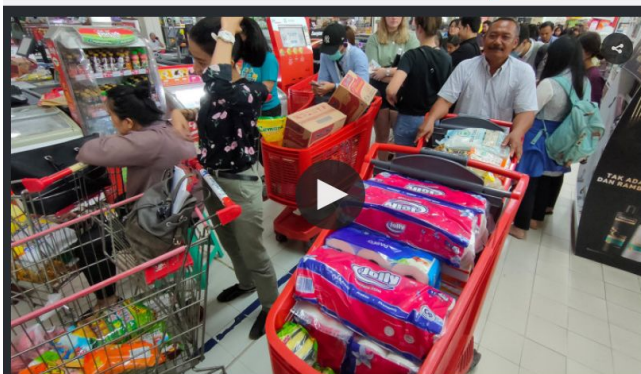
The Jakarta Post

Jakarta / Mon, March 2, 2020 / 11:52 am



TheJakartaPost

NEWS BUSINESS SEASIA OPINION LIFESTYLE TRAVEL MULTIMEDIA DEEP LOOK



MULTIMEDIA > VIDEO

Panic buying hits Jakarta after announcement of first COVID-19 cases

Tue, March 3, 2020 / 01:46 pm

HOME > BISNIS >

Permintaan Tinggi, Harga Jahe, Temulawak hingga Kunyit Terus Naik

Reporter: Antara

Editor: Ali Akhmad Noor Hidayat

Jumat, 6 Maret 2020 16:00 WIB

0 KOMENTAR



Main points:

On 2 Mar 2020, the first two confirmed COVID-19 cases in Indonesia were announced by the Central Government¹⁵. This triggered a wave of panic buying by consumers for main food items and medical supplies, particularly in the Jabodetabek (Jakarta, Bogor, Depok, Tangerang, Bekasi) metropolitan area. According to the Association of Retail Businesses (ASPRINDO), a 10-15% increase in retail store visitors occurred following the announcement^{16,17}. Main food items being bought were staples, instant noodles, canned goods and other long-lasting foods. News reports indicated that panic buying occurred in 6 cities including Jakarta, Surabaya, Semarang, and Denpasar, but were limited to certain supermarkets within the city and were short-lived¹⁸. After one week, the phenomenon seemed to have receded. No significant price increases were found for staples, in alignment with our findings in the following section, except for sugar, the price of which rose due to delays in import administration. The price for yellow onions had also been reported to rise due to similar reasons^{19,20,21}.

On the other hand, the prices of perennial herbs, such as ginger, curcuma, and turmeric have been reported to soar due to a sudden demand shock stemming from the perception among local communities that these herbs may boost the immune system and thus offer some protection towards the virus^{22,23}. Increased prices were reported to occur primarily in Jabodetabek and Java, but also reported in Bali, North Sumatera, West Kalimantan, and South Sulawesi^{24,25,26,27}. No significant price changes were reported in Aceh, West Sumatera, and North Maluku^{28,29,30}. No reports were found for other regions in Indonesia.

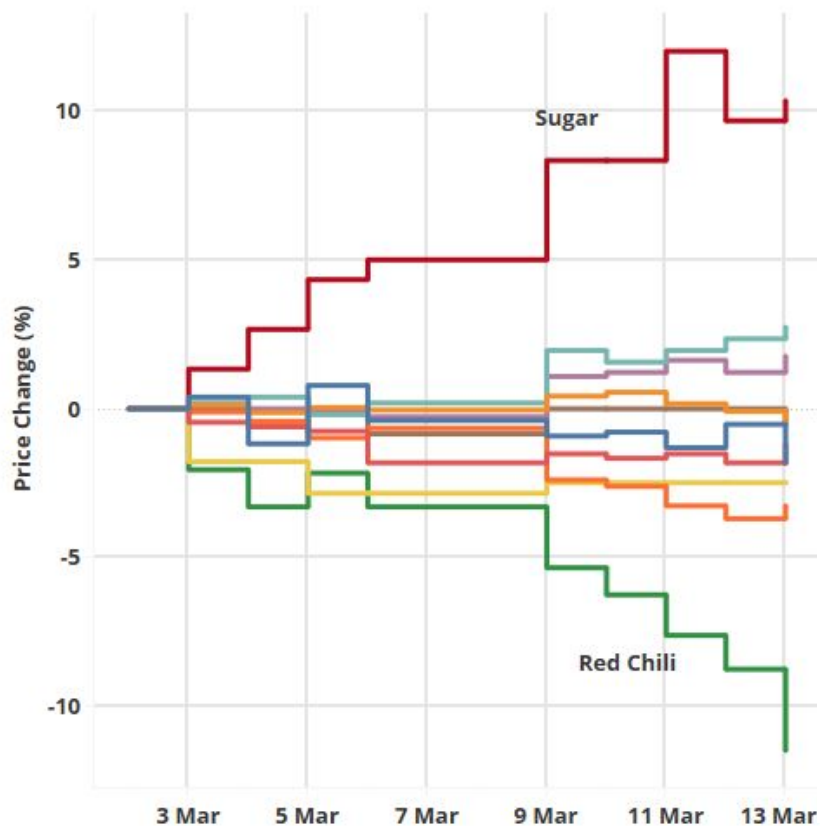
National trend: Daily national average

Following the first report of COVID-19 case in Indonesia on 2 Mar 2020, there was an obvious national average price movement of two commodities namely sugar and red chili. However, the direction was opposite: the sugar price was rising while the red chili price dropped gradually. In the second week of Mar 2020, both of them recorded changes of more than 10 percent from the baseline level. Sugar price reached a peak on 11 Mar 2020 at **+12%** while red chili reached the lowest level on 13 Mar 2020 at **-11.46%**. The remaining commodities fluctuated at relatively low percentages (change < 5%).

Week-on-Week comparison was carried out to see how far the price is changing in the week after the first reported case (Week I of Mar) in Indonesia compared to the previous week (Week IV of Feb). Only sugar experienced an increase of nearly **+4%**, continuing increases already observed in Jan-Feb 2020. Most commodities experienced a decrease in price instead of an increase. However, after a week, in Week II of Mar, several other commodities started showing an increase compared to the first week. For sugar itself, the price change reached nearly **+7%** compared to Week I of Mar. This indicates that the price increase was higher between Week I to Week II of Mar rather than between Week IV of Feb to Week I of Mar.

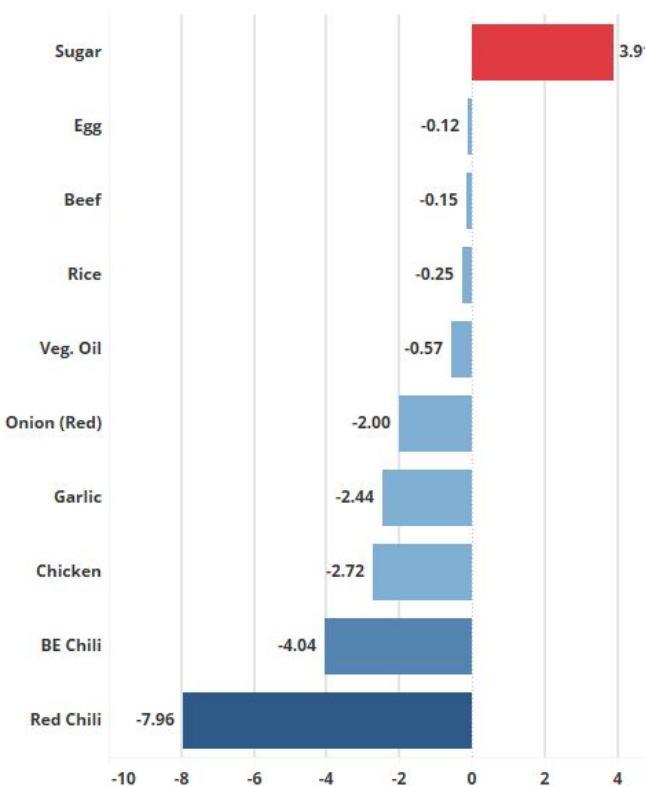
Daily Price Trend

Baseline: Price on 2 Mar 2020



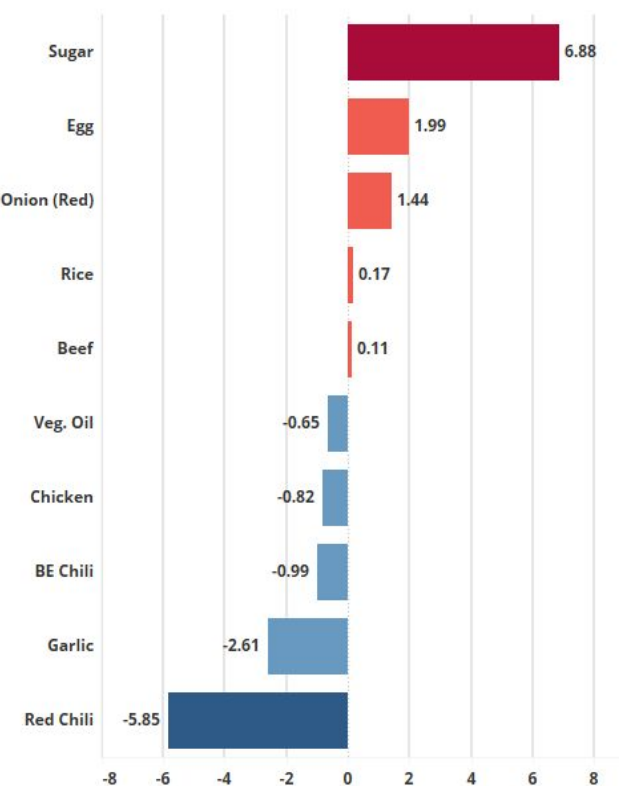
Week-on-Week Change (%)

Before vs After Reported Cases in Indonesia



Week-on-Week Change (%)

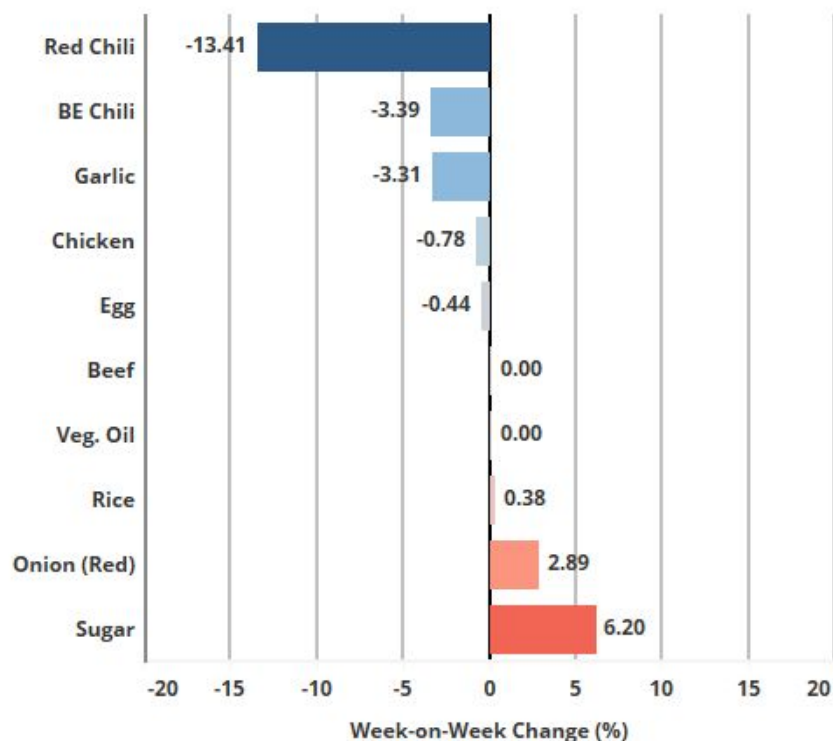
Week I vs Week II of Mar 2020



Sub-national trend: Two province-level samples

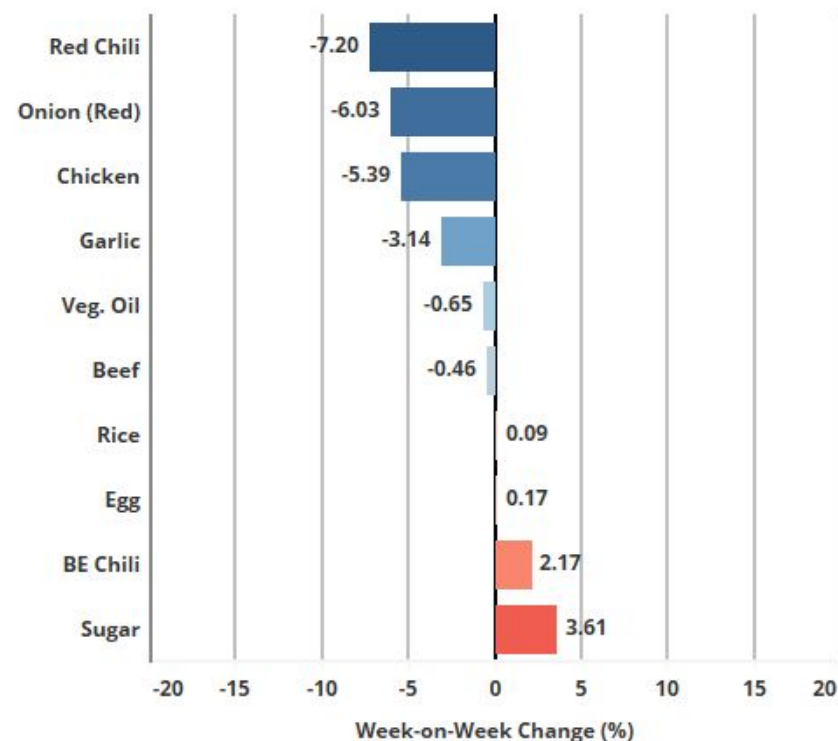
Week-on-Week Change (%): Feb 2020, Week IV - Mar 2020, Week I

DKI Jakarta



Compared to Week IV of Feb 2020, prices of 5 commodities in DKI Jakarta in Week I of Mar 2020 decreased: bird's eye chili, red chili, garlic, chicken and egg, while the price of 3 others namely rice, red onion and sugar increased. The price of beef and vegetable oil were recorded with no change, while the price change of sugar was recorded to be above the national average (+6.2%), making it the commodity with the highest increase. Red chili recorded the highest decrease (-13.4%), followed by red onion (+2.9%).

Bali

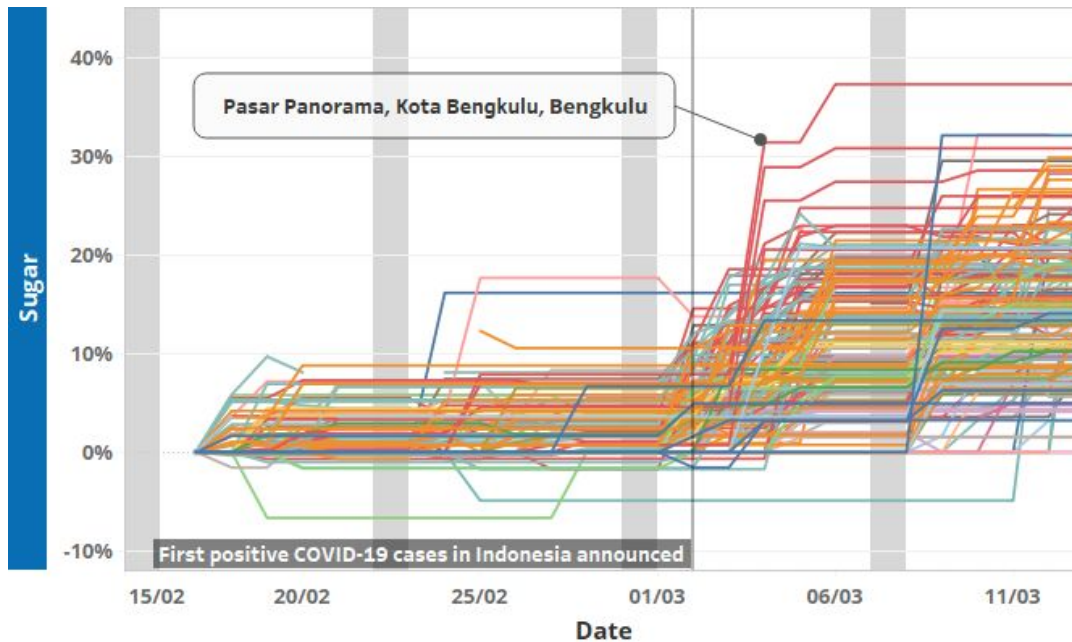


Slightly different from DKI Jakarta, Bali Province had 6 commodities (red chili, red onion, chicken, garlic, vegetable oil and beef) experiencing a decrease in price. The remaining commodities recorded a rise in price with sugar experiencing the highest increase (+3.6%), followed by bird's eye chili, egg and rice. Bird's eye chili price decreased in DKI Jakarta, while it increased in Bali. And red onion prices increased in DKI Jakarta but decreased in Bali.

According to the sample above, both DKI Jakarta and Bali experienced relatively low price changes for the 10 strategic food commodities. The above charts also demonstrate that around half of the commodities experienced a price decrease following the report of a confirmed COVID-19 case in Indonesia on 2 Mar 2020. No link between the two could be established.

Sub-national trend: Market-level trend for sugar

Price Increase of Sugar in Traditional Markets Following Confirmed COVID-19 Cases in Indonesia - 17 Feb 2020 to 13 Mar 2020



Note: Price change is calculated with respect to the price observed in each market two weeks preceding (17 Feb) the announcement of the first COVID-19 case in Indonesia (2 Mar) to observe the trend. Weekends are shaded in gray.

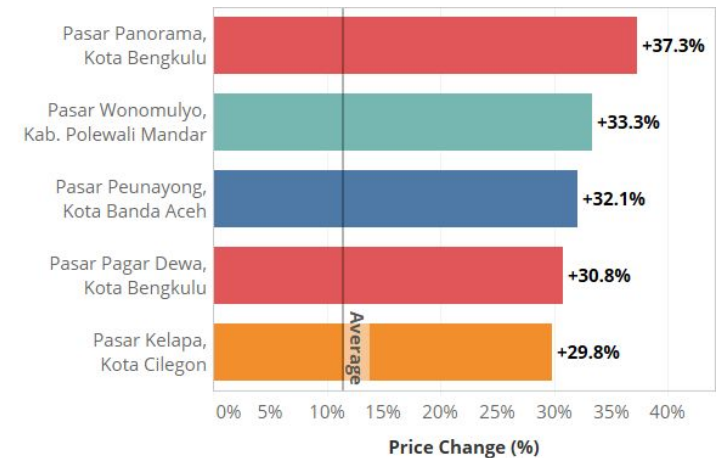
In the first week of Mar 2020, the price of sugar began to rise in several traditional markets across Indonesia, coinciding with the detection of two initial COVID-19 cases in the country. The most significant increases occurred in Pasar Panorama, Kota Bengkulu (**+37.3%**); Pasar Wonomulyo, Kab. Polewali Mandar (**+33.3%**); Pasar Peunayong, Kota Banda Aceh (**+32.1%**); Pasar Pagar Dewa, Kota Bengkulu (**+30.8%**); and Pasar Kelapa, Cilegon (**+29.8%**). However, not all regions seem to be affected by this price hike as the average increase across the country is lower at **+11.4%**.

Given limited available data, it is not possible to establish a link between the COVID-19 outbreak and price changes, however it is unlikely for them

Data Source: Center for Information of Strategic Food Price (PIHPS)

Top 5 Markets with Highest Price Change

17 Feb 2020 to 13 Mar 2020



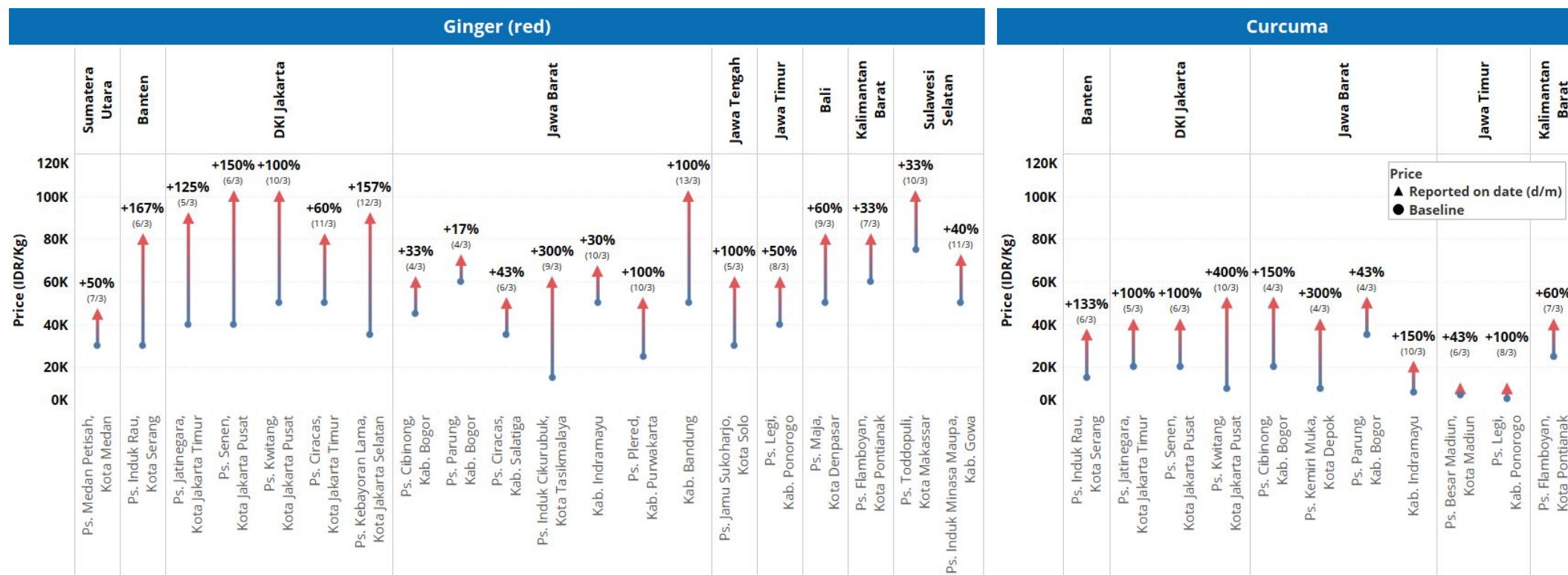
Note: Price change is calculated by comparing prices two weeks preceding the first COVID-19 case announcement in Indonesia (17 Feb) and two weeks after (13 Mar).

to be merely driven by panic buying as the five markets reporting the highest price increase are situated in areas not reporting high incidences of panic buying. Media reports indicate that the price hikes were likely a consequence of delays in issuing import recommendations which had led to diminishing stocks and rising market concerns regarding the uncertainty of future supplies. The Government of Indonesia had waited to issue import recommendations until WHO confirmed that plant-based agricultural goods were not vectors of the COVID-19 virus^{19,20,21}.

At the end of Feb 2020, MoA issued recommendations to import sugar³¹. According to MoT, the imported sugar should start entering domestic markets in Week III of Mar³². In 2019, Indonesia had sourced the bulk of its sugar imports (86.5%) from Thailand (BPS, 2019).

Sub-national trend: Soaring prices of perennial herbs

Price Increase of Red Ginger and Curcuma Following Confirmation of COVID-19 Cases in Indonesia: Mar 2020, Week I - Week II



Note: Price data for ginger and curcuma are not collected regularly by government agencies, thus information regarding price changes for these herbs are compiled from various news articles. Dates of each report are displayed in brackets (d/m). Sources are listed in the Annex.

Media reports indicated that the prices of various perennial herbs began to soar in several parts of Indonesia, particularly Java, due to increased demand following the announcement of confirmed COVID-19 cases in Indonesia. The price hikes were observed primarily for red ginger and curcuma, but the prices of other herbs such as other types of ginger, turmeric, cinnamon, lemongrass, galangal, and lesser galangal have also increased, albeit less dramatically (see Annex). Although herbs and spices are widely used as traditional medicine and for cooking, they only comprise **2.9%** of household food expenditure (SUSENAS 2018) and thus the impact of such increases on food security is likely to be limited.

Markets in DKI Jakarta reported price increases ranging from **+60%** to **+150%** for red ginger, with new price levels ranging from IDR 80,000/kg to IDR 100,000/kg. Prices for curcuma in DKI Jakarta also doubled from IDR 20,000/kg to IDR 40,000 in Ps. Jatinegara (E. Jakarta) and Ps. Senen (C. Jakarta), and quintupled from IDR 10,000 to IDR 50,000 in Ps. Kwitang (C. Jakarta). Similar trends have been observed in other parts of Java, Bali, West Kalimantan, and North Sumatera, albeit the reported range of price increases outside Java is lower: between **+33%** to **+60%**. Some areas reported no significant price increase, including Aceh, West Sumatera, and North Maluku^{28,29,30}.

Method

Analysis of price indices. The percentage changes of these quarterly price indices indicate the extent to which recent price changes can be considered normal or abnormal as compared to the relevant reference period (i.e. the previous quarter, the preceding year, or the baseline period) (World Food Programme, 2014):

- “Monthly change from previous month” or “Month-on-Month change” is calculated as a percentage change of the latest available monthly nominal price from the previous month. “Monthly change from last year” or “Year-on-Year change” is calculated as a percentage change of the latest available monthly nominal price of the quarter from the same month in the previous year.
- “Week-on-Week change” is calculated as a percentage change of the latest available weekly nominal price from the previous week.
- “Change from last quarter” is calculated as a percentage change of quarterly averaged nominal prices from the previous quarter.
- “Seasonally adjusted quarterly change” is calculated as a percentage change of quarterly averaged real prices from the previous quarter. Real prices are calculated by dividing each monthly nominal price by its corresponding baseline average price¹ (a.k.a. long-term seasonal averages). Prices normally vary throughout a year due to seasonal patterns of the production cycle. Accounting for seasonality helps differentiating between normal seasonal price variations and additional changes which can be considered abnormal, depending on the magnitude of those changes.
- “Quarterly change from last year” is calculated as a percentage change of the quarterly averaged nominal prices. “Quarterly price change from baseline” is calculated as the quarterly average of the three relevant months’ percentage changes from their corresponding baseline average prices¹. This estimate indicates whether there is a structural shift of the current price from its long-term seasonal pattern.

Food price volatility. This is a measure of how much the price of a particular food commodity fluctuates over a time period and is calculated by taking the standard deviation of daily price percentage change within a reference period. The daily price volatility can be converted to monthly, quarterly, and annual volatility as necessary. High price volatility increases uncertainty and thus may increase vulnerability to food insecurity.

The Alert for Price Spikes (ALPS) is based on a trend analysis of monthly price data. The idea behind the indicator is to compare the long-term seasonal trend of a commodity’s price series at each market with the last observed price on the same market. The assumption is that the estimated trend reflects the dynamics of the price series beyond the spikes and abnormal levels, something which - in other words - can be defined as the “normal” pattern of the price series.

(continued)

¹The baseline period corresponds to a moving period average covering the previous 3 years of the same month or quarter.

(continued)

The calculation of the indicator follows four steps:

- Estimation of the seasonal price trend
- Calculation of the difference between market price and estimated price
- Calculation of the ALPS indicator considering price volatility
- Calculation of the different thresholds of the indicator

The monthly average price of the respective food commodities at national level were obtained from Bank Indonesia. The data were analysed using the calculation formula based on WFP’s Technical Guidance Note on ALPS.

There were only 7 out of 9 commodities analysed for ALPS. A few commodities - egg, beef and chicken - were not taken into ALPS analysis due to non-stationary time-series data based on Augmented Dickey-Fuller Test for Data Stationary. When the p-value of the null hypothesis is statistically significant (p-value < 0.05), the time series is considered non-stationary. It is one of the procedures of ALPS analysis; the data should be stationary, otherwise the analysis could probably be biased.

The below table shows the threshold, range of value and interpretation of the respective colour:

Situation on a given market :	ALPS thresholds :	Interpretation in terms of price gap :
Normal	ALPS < 0.25	$(Price_{it} - \widehat{Price}_{it}) / \sigma_{\hat{\epsilon}} < 0.25$
Stress	$0.25 \leq ALPS < 1$	$0.25 \leq (Price_{it} - \widehat{Price}_{it}) / \sigma_{\hat{\epsilon}} < 1$
Alert	$1 \leq ALPS < 2$	$1 \leq (Price_{it} - \widehat{Price}_{it}) / \sigma_{\hat{\epsilon}} < 2$
Crisis	ALPS ≥ 2	$(Price_{it} - \widehat{Price}_{it}) / \sigma_{\hat{\epsilon}} \geq 2$

A market is considered to be in a crisis phase at a given time (t) if the gap between the observed price $Price_t$ and the trend value \widehat{Price}_t is greater than two standard deviations of the error terms.

Data Source

Food price

- National Strategic Food Price Information Centre - PIHPSN. Bank Indonesia.
<http://hargapangan.id>

Food production

- FAOSTAT
<http://www.fao.org/faostat/en/#home>
- Ministry of Agriculture
<https://www.pertanian.go.id/home/?show=page&act=view&id=61>

Consumption

- Ministry of Agriculture
<http://epublikasi.pertanian.go.id/arsip-outlook/537-outlook-tphorti-2017>
- Statistics Indonesia
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Trade

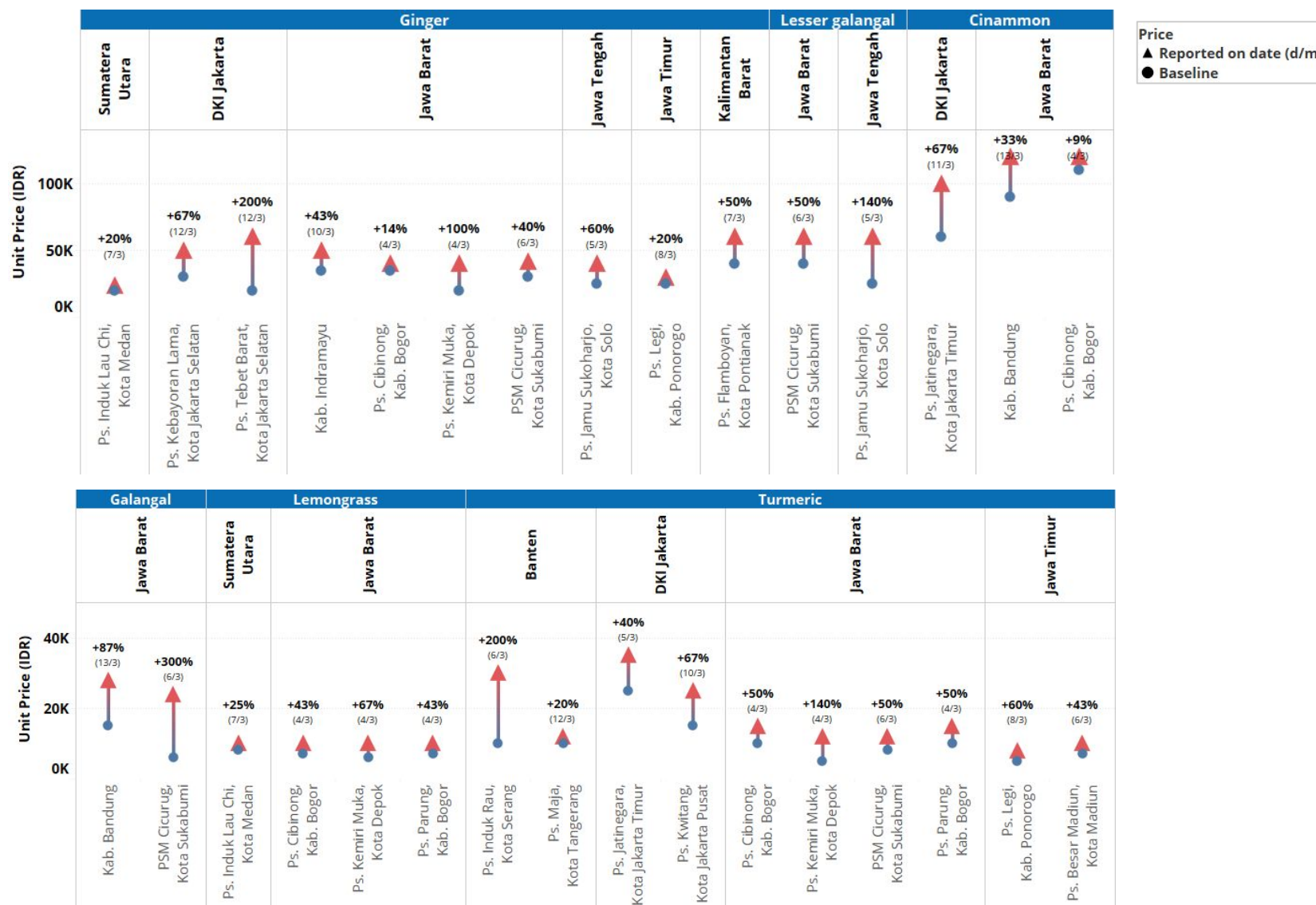
- World Integrated Trade Solution (WITS)
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- Statistics Indonesia (BPS)
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COVID-19 update

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- <https://republika.co.id/berita/q6z55c3018000/harga-jahe-di-purwakarta-melonjak-100-dampak-corona>
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Sub-National Trend: Soaring Prices of Herbs (Additional Charts)



Note: Price data for ginger and curcuma are not collected regularly by government agencies, thus information regarding price changes for these herbs are compiled from various news articles. Dates of each report are displayed in brackets (d/m).