Question: Recent developments in the market for rice

Extract 1: Rice prices surge to fresh 15-year high

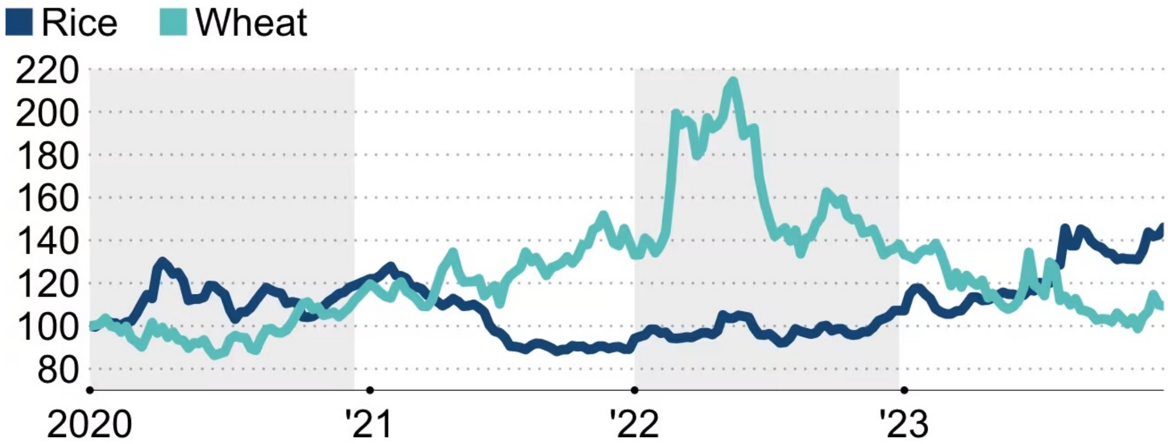
Rice prices have surged to a fresh 15-year high, fuelled by strong demand and lingering supply concerns.

Thai white rice climbed for a third straight week to reach US$659 a tonne on Dec 27, according to the Thai Rice Exporters Association. That is the highest since October 2008 and brings the increase in prices to about 38 per cent in 2023, after top shipper India restricted exports and dry weather threatened production.

Rice is vital to the diets of billions of people in Asia and Africa, and the latest run-up in prices could fan inflationary pressures and hike import bills for buyers. Some nations have been ramping up purchases to build sufficient stockpiles amid fears that the impact of El Nino will further tighten supplies in the coming months.

Source: straitstimes.com, 27 December 2023

Figure 1: Price indices of rice and wheat from 2020 to 2023



Source: asia.nikkei.com, 31 December 2023

Extract 2: Rice export bans and price caps are a food crisis risk for Asia

The demand and supply diagram is a diagram that Economics students learn by heart. It puts together supply, demand and prices in a single diagram. The graph is the stuff that makes markets tick, whether for iPhones or bowls of rice.

As an associate professor at the School of Economics at the University of the Philippines, prior to her move into government, Cielo Magno imprinted the supply-and-demand graph on her students' minds. Typically, supply slopes upward: When prices rise, suppliers are willing to produce more; demand generally slopes downward: At higher prices, consumers buy less.

Then Magno became her country's finance undersecretary, building a reputation for speaking her mind. On Sep 1, she posted a common version of the diagram on social media: "I miss teaching …," she added. Soon after, she was fired. Though Magno didn't explicitly say it then, through her post, she was questioning the government's decision to introduce a price cap for rice.

If the supply-demand diagram is Economics 101, then price caps are Government 101, distorting how markets are supposed to work. And rice is right now the target of many.

Sadly, Magno's travails in the Philippines aren't an exception. Across Asia, nations are trying to bend supply and demand curves, attempting to control the cereal grain's prices. Carelessly, they are sowing the seeds of a potential food crisis.

Source: channelnewsasia.com, 19 September 2023

Extract 3: As El Nino bites, Indonesians struggle with record-high rice prices

Rising rice prices and reduced availability can lead to food insecurity, particularly for low-income households. This can create feelings of hunger, anxiety, and frustration, increasing the risk of social unrest and protests.

Acknowledging the pressures from rising rice prices to consumers and the more than 15 million households that grow food, President Joko Widodo last year drafted in the military to help with planting, and subsidised fertiliser distribution.

Distributing drought-tolerant rice seed varieties to farmers in affected regions was also important. In the longer term, the government should continue to invest in improving irrigation infrastructure, including rehabilitating existing canals and building new ones, to enhance water management and reduce dependence on rainfall.

Early warning systems to monitor weather conditions and provide timely information to farmers about potential droughts, also allow them to take preventative measures. This should go hand-in-hand with providing training to farmers on drought-tolerant agricultural practices, water conservation techniques and post-harvest storage.

Source: channelnewsasia.com, 1 April 2024

Questions

(a)	With reference to Figure 1, compare the trend in the price of rice and wheat over the period January 2022 to December 2023.	[1]
	The price of wheat generally fell while the price of rice generally increased. [1] OR The price of wheat is more volatile than the price of rice: there has been large increases and decreases in the price of wheat as compared to rice. [1]	
	<u>Examiners' Comments</u> Students were generally able to identify the overall trend for both rice and wheat. However, common mistakes made include identifying the wrong time period; instead of start of 2022 to end of 2023, they identified start of 2022	

	to start of 2023. Some weaker students also described the graph in detail rather than providing the overall trend. Students should focus on the values represented by the axes. Many did not realise that the axis represented price indices and not absolute prices.		
(b)	With reference to Extract 1:		
	i	Using a diagram and the concept of price elasticity of supply, explain why there has been a surge in the price of rice.	[5]

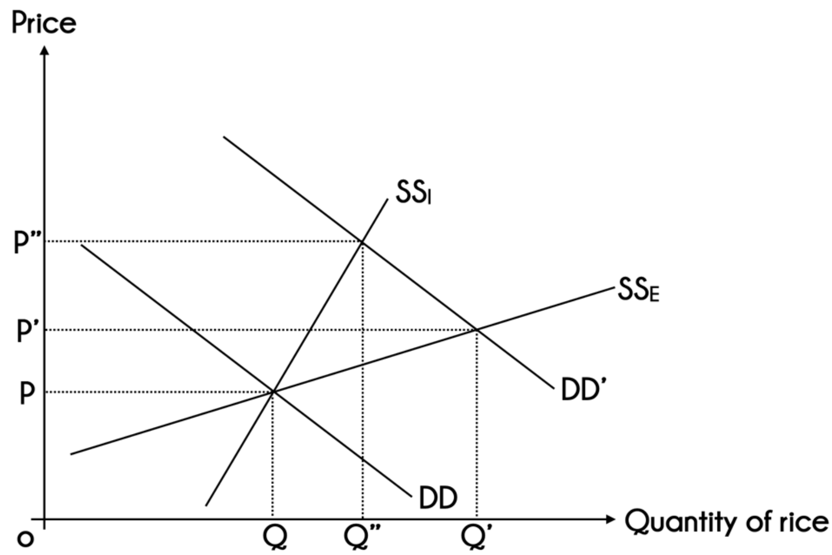
There has been an increase in the current demand for rice from DD to DD' due to consumers' expectations that the future price of rice will increase significantly (Extract 1: "Some nations have been ramping up purchases to build sufficient stockpiles"). [1]

At the same time, the supply of rice is price inelastic in the short run as rice requires time to grow. [1]

At the original equilibrium price P, there is a shortage since quantity demanded exceeds quantity supplied of rice. This puts an upward pressure on its price. [1]

As price rises, this will cause a fall in quantity demanded but a rise in quantity supplied. However, as the supply of rice is price inelastic, the increase in quantity supplied is less than proportionate, so price has to increase more from P to P'' instead of merely to P' (if supply was price elastic) to induce a large enough increase in quantity supplied to meet quantity demanded and clear the shortage. [1]

Diagram (with reference) [1]



Examiners' Comments

Many students misinterpreted the question and either explained a supply fall with price inelastic supply or a simultaneous fall in supply and demand. Many students were also unable to provide a relevant determinant of PES to explain the price inelastic supply. Some students were able to suggest that supply of rice was price

	inelastic due to the nature of its long harvest period which was not explicitly stated in the extracts. Students should focus on the use of the word “surge” which indicates that the price increase is to a greater extent, needing them to draw a comparison between price elastic and price inelastic supply.		
	ii	Explain what is meant by the price elasticity of demand.	[2]
		The price elasticity of demand refers to the responsiveness of <u>**quantity demanded**</u> of a good to changes in <u>**its**</u> price, <u>**ceteris paribus**</u>. [2] *Note: Words that are bolded and underlined must be present in answer to get full 2m.*	
	<u>Examiners’ Comments</u> Students were generally able to provide the definition of PED. However, many missed out the keyword “**its**”, there is a need to explicitly write out the word “its” to show that the responsiveness of the Qd is due to a change in the **price of the good itself** and not the price of other goods. Some also quoted the formula for calculating PED which is not the same as the definition. Common mistakes such as not including the phrase “ceteris paribus” also resurfaced.		
	iii	Using the concept of price elasticity of demand, explain the likely impact on consumer spending when the price of rice increases.	[4]
	The demand for rice is price inelastic due to the lack of substitutes (Extract 1: “Rice is vital to the diets of billions of people in Asia and Africa”). [1] Therefore, as the price of rice increases, the quantity demanded for rice falls less than proportionately. [1] Since consumer spending is calculated using price x quantity, there will be a net rise in consumer spending [1] since the increase in spending from the rise in price outweighs the fall in spending from the fall in quantity demanded. [1] *Note: A diagram is not necessary.*		
	<u>Examiners’ Report</u> Most of the students only managed to get half the credit for this question. Students were generally able to identify that the demand for rice is price inelastic along with the evidence in the extract. However students need to pay more attention to the way they phrase their answers. Students should mention that the demand for rice is price inelastic instead of saying that PED is inelastic. Many also could not draw the link that consumer spending = P x Q and confused it with the proportion of income spent. As such, most could not underpin the reason for the increase in consumer spending.		
(c)	Governments aim to stabilize prices by avoiding large swings in prices of necessities such as rice. Using information from Extracts 2 and 3 and with the aid of diagrams, i) explain how a price cap can be used to stabilize the price of rice and one unintended consequence that might result.		[5]
	A price cap, or price ceiling, is a maximum legal price allowed by the government [1] set *below* the market equilibrium price. This causes a fall in		

the price of rice from P to Pc, since it is not allowed for producers to sell rice above the price of Pc. Hence, this helps to stabilize the price of rice [1].

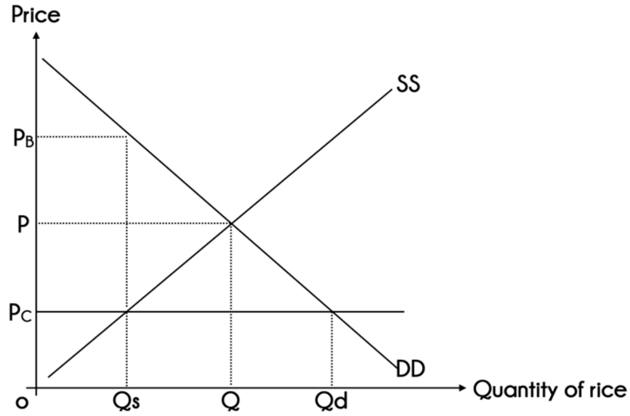


Diagram [1]

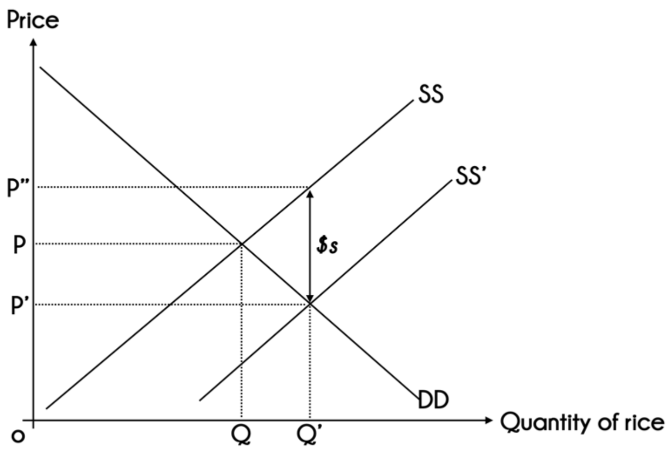
<u>Unintended consequence</u>
However, this "distorts how markets are supposed to work" by creating a shortage in the market and "sowing the seeds of a potential food crisis" (Extract 2). This is because the fall in price from P to Pc encourages utility-maximising consumers to increase quantity demanded to Qd. However, profit-maximising producers will reduce quantity supplied to Qs as units of output that can only be produced at higher marginal cost are no longer profitable. This results in a persistent shortage [1].

<u>Problem that results</u>
With price ceiling creating a situation of persistent shortage, alternative ways to allocate the limited supply of goods must be found, such as allocation on a "first-come-first-served" basis, which is inefficient. If shops sell their available supplies to the first customers who arrive, then people are likely to rush to those stores that are believed to have stocks of the good. Long queues or long waiting lists will develop, and the unfortunate latecomers will get nothing. The opportunity cost of the time spent queuing and waiting will of course be the loss of output that could have been produced otherwise leading to a fall in productivity [1].

OR

<u>Unintended consequence</u>
Furthermore, black markets may also develop: Referring to the above figure, at P_C, quantity demanded is Qd but consumers can only get Qs, for which they are prepared to pay a price Pb. This creates an opportunity for profits to be made by selling the good illegally at the higher price in the black market. [1]

<u>Problem that results</u>
This price Pb is higher than the official price Pc as well as the initial market price P, undermining the policy objective of the price ceiling [1].

	<u>Examiners' Report</u> Most were able to interpret the price cap as a price ceiling and could provide the relevant diagram **however** a number of students did not make explicit reference to the diagram drawn (even though the question stated "with the aid of diagram"). Most knew how a price ceiling would help to stabilise prices, though the quality of the explanation could be improved by explaining key points such as how the price ceiling had to be set below the current equilibrium price, and how the fall in price led to a fall in quantity supplied and a rise in quantity demanded resulting in a shortage. Definitions were not always provided. Most were able to identify an unintended consequence resulting from the price ceiling as a shortage. **However** the quality of the elaboration could be improved by explaining further what the consequence is and possibly an economic consequence such as effectiveness, equity or efficiency.	
	ii) explain how another policy measure can work to stabilise the price of rice and avoid the unintended consequence that you have highlighted above. Alternatively, the government can consider providing subsidies to farmers to reduce their marginal cost of production. For example, Extract 3 mentioned the distribution of subsidized fertilizer and drought-tolerant rice seed varieties. These can help lower farmers' marginal cost of producing rice, which also helps to stabilize the price of rice as it lowers the market equilibrium price [1]. An indirect subsidy of $*s* per unit of output lowers firms' marginal cost relative to marginal revenue. Firms, as rational profit maximisers, respond by increasing supply to capture the positive marginal profit. An increase in the market supply from SS to SS' creates a surplus at the original market price P, which results in the fall in equilibrium price from P to P' and, the rise of equilibrium quantity from Q to Q'.  Diagram [1]	[3]

	This avoids the unintended consequence identified earlier as the market moves to a new equilibrium (lower equilibrium price and higher equilibrium quantity), without shortages or black markets forming [1].	
	<u>Examiners' Report</u> Most students were able to suggest a relevant policy based on Extract 3. Stronger responses were able to link the proposed policy to how it would avoid the unintended consequence explained in part (ci). Weaker responses did not do so. Weaker responses also did not include key linkages in explaining how the policy affected demand or supply in the market. Similar to part (ci), diagrams when drawn, were not always referenced in the responses.	

[Total: 20 marks]