



RAFFLES INSTITUTION
2024 YEAR 6 PRELIMINARY EXAMINATION
Higher 1

ECONOMICS

8843/01

Paper 1

27 August 2024

3 hours

Additional Materials: Answer Paper

READ THESE INSTRUCTIONS FIRST

Write your name, index number and CT class on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for diagrams, graphs or rough working.
Do not use paper clips, highlighters, glue or correction fluid.

Answer **all** questions.

The number of marks is given in brackets [] at the end of each part question.

Start each question on a fresh sheet of paper.

Use the cover sheets and tie your answer to the questions **separately**.

This document consists of **9** printed pages and **2** blank pages.

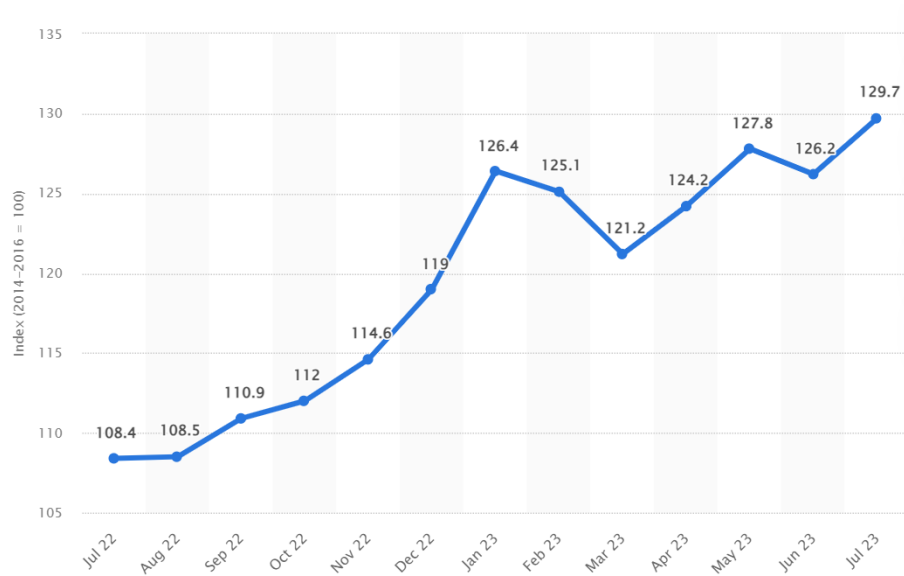


Raffles Institution

Answer **all** questions.

Question 1: Government intervention in Agricultural Markets

Figure 1: World Rice Price Index, Jul 2022 to Jul 2023



Source: <https://www.statista.com>

Extract 1: Why are rice prices surging?

Rice prices have surged to their highest levels in a decade. The situation is primarily caused by warmer, drier weather and erratic rainfall damaging rice production throughout Asia. In the past months, torrential rains and floods in northern India, for example, have damaged many rice fields, prompting the world's top exporter of rice to impose a ban on rice exports.

Additionally, rising fertilizer prices have contributed to increased production costs. The price of fertilizer, which is among farmers' greatest expenses, reached all-time highs after Russia, the world's top fertilizer exporter, halted hundreds of exports. This was in response to economic sanctions against Russia imposed by the international community, after Russia invaded Ukraine.

Adding to the concerns is Russia's withdrawal from the Black Sea grain deal. The ongoing war in Ukraine and the termination of the grain deal have also constrained the global supply of wheat and corn, raising the demand for rice as an alternative staple.

This has fueled concerns that disruptions in the global rice trade could worsen the already endangered food security situation in many countries. Rice is one of the world's primary staple food items, feeding about half of the world's population.

Source: <https://www.dw.com>, 6 Aug 2023
[stlouisfed.org](https://www.stlouisfed.org), 4 Oct 2022

Extract 2: Fertilizer and Climate Change

The notion of public goods is becoming increasingly important at the international and global levels. Many environmental problems transcend national boundaries, with climate change being the most prominent example, and maintaining a stable climate is essentially a global public good.

One of the primary sources of environmental degradation is greenhouse gas emissions from agricultural activities, such as applying fertilizers.

In the last century, fertilizers have greatly boosted crop production. This brought about food security and environmental benefits, letting farmers grow more food on less land. Globally farmers apply around 115 million tonnes of nitrogen to our crops every year. Only around 35% of this is used by them, meaning 75 million tonnes of nitrogen runs off into our rivers, lakes and natural environments.

During the 1960s and 1970s, many of today's middle-income countries kickstarted their 'Green Revolution' and achieved large increases in food production. Governments offered subsidies for farmers to use fertilizers and other inputs. This made fertilizers cheap and reduced the incentives for farmers to use it efficiently. This cheap fertilizer is one of the reasons that these countries massively overapply nitrogen today.

Source: Various

Extract 3: The Rice Price Cap in the Philippines

A price cap is not the normal practice for all goods but it has been focused on those goods that are considered essential, e.g., oil, heating services and food. Economists have opined that a price ceiling can be justified in only two cases. Firstly, to prevent unjustified price increases by sellers. Secondly, as a temporary measure against the rapid rise in prices for essential products in the event of a rapid supply shortage caused by forces that cannot be reasonably anticipated or controlled e.g. natural disaster or war.

In the wake of soaring rice prices, President Bongbong Marcos, implemented a price cap on this essential commodity. As the staple food of the nation, rice plays an integral role in the daily lives of millions, making its affordability and accessibility crucial. By imposing a price ceiling on rice, the government aimed to stabilize the commodity's price in the face of these challenges, ensuring that Filipinos could afford this staple food item.

In the context of the Philippines' recent rice crisis, President Bongbong Marcos introduced a price cap to counteract two primary concerns:

- Alleged illegal price manipulation attributed to hoarding by traders.
- External global pressures beyond the Philippines' control, such as the Russia-Ukraine conflict, India's ban on rice exportation, and fluctuations in global oil prices.

Source: <https://sedpi.com>

Extract 4: Managing Greenhouse Gas (GHG) Emissions Due to Agriculture

The agriculture sector is highly susceptible to the impacts of climate change as extreme weather events can affect agricultural productivity. Ironically, the sector is also a major contributor to these changes. Global agriculture greenhouse gas (GHG) emissions (excluding land use change) have risen by more than 20 percent since 1990 as populations and food demands have grown.

The sector accounts for roughly 12 percent of annual global GHG emissions and is the largest anthropogenic* source of methane and nitrous oxide emissions, two potent GHGs with global warming potential far greater than carbon dioxide.

Emissions from livestock activities and crop production have been growing over the years. The increase in livestock raised for meat, dairy, eggs, and seafood production has contributed to higher emissions from these sources. Livestock, particularly cattle, produce significant amounts of methane through digestive processes and manure.

Emissions from crop production include the release of nitrous oxide from the application of fertilizers and manure, as well as methane emissions. The most polluting crop in terms of greenhouse gas emissions is rice. In 2023, rice production accounted for 12% of global methane emissions and 1.5% of global greenhouse gas emissions. This is largely due to common practices such as flooding the fields to accelerate decomposition, which result in significant gas emissions.

The International Rice Research Institute (IRRI) has long advocated the use of innovative technology and research to promote sustainable farming. Growing techniques such as alternative wetting and drying are also being experimented with, to curb water use and emissions. Other promising solutions include coating seeds in a biodegradable film which lowers their water requirements and training farmers to adopt sustainable farming and cultivation methods, such as improved tillage practices, as well as tailored fertilizer application.

Denmark is poised to become the first country to tax farmers for the greenhouse gas emissions from their livestock in an effort to accelerate the green transition in farming. From 2030, methane emissions caused by flatulence from cattle and pigs will be taxed at a rate of 300 kroner (S\$58) per tonne of CO₂ equivalent. This amount will rise to 750 kroner in 2035 under the terms of an agreement reached between the government, part of the opposition and representatives of livestock farmers, industry and trade unions.

**Anthropogenic: originating from human activity.*

Source: Various

- (a) With reference to Figure 1, summarise the main changes that occurred in the price of rice between July 2022 to July 2023. [3]
- (b) With reference to Extract 1 and using a supply and demand diagram, explain how and comment on the extent to which the Russian-Ukraine war might have contributed to the surge in the price of rice. [6]
- (c) Explain the statement 'a stable climate is essentially a global public good'. [4]
- (d) Explain how reducing subsidies on fertilisers can improve the signaling and incentivizing functions of the price mechanism to a farmer. [4]
- (e) With reference to Extract 3 and your own knowledge, discuss whether the use of a price ceiling can ever be justified to address the Philippines rice crisis. [8]
- (f) With reference to the case material, explain the market failure that arises from agriculture production. [5]
- (g) Discuss the view that imposing a carbon tax is the best policy to address this market failure. [10]

[Total: 40]

Question 2: The Singapore and China Economy Post Covid-19 Pandemic

Table 1: Selected Economic Indicators of Singapore

Year	2020	2021	2022	2023
Real GDP Growth (%)	-3.9	9.7	3.8	1.1
Inflation rate (%)	-0.2	2.3	6.1	4.8

Source: Singstat.gov.sg

Extract 5: Singapore's Economy Rebounded on Decisive Policy Action, But Challenges Lie Ahead

Singapore's impressive recovery from the pandemic is outperforming similar economies, with total output exceeding pre-crisis levels last year, but the rebound has also been uneven.

Decisive policy responses, such as the Jobs Support Scheme, helped minimize economic scarring, while rapid vaccinations and long-standing robust economic fundamentals helped Singapore navigate global challenges. However, sectors like tourism, aviation, construction, and in-person services are still lagging.

Now, the war in Ukraine is confronting Singapore's policymakers with new challenges and uncertainty as Russia's invasion and resulting sanctions raise risks for slower growth and faster inflation.

While the recovery is expected to remain resilient, significant uncertainties cloud the outlook, including risks from more supply-chain disruptions, higher commodity prices, rising interest rates in the largest advanced economies, and weaker demand from major trading partners.

Central to the evolving risks to the outlook are developments in China, Singapore's largest trading partner, as well as global economic fragmentation arising from the war in Ukraine.

Given Singapore's strong economic recovery and rising inflation, fiscal policy should continue to gradually normalize in the next year or two while broadening the recovery through targeted support to sectors still hurt by the pandemic. Should further risks materialize beyond what is currently envisaged, Singapore can deploy its ample fiscal buffers to cushion the economic impact.

The tighter monetary policy using the exchange rate in 2022 reflected careful consideration of the abrupt and rapid shift in the global and domestic inflation outlooks. Further monetary tightening will be warranted if higher inflation proves to be unexpectedly persistent, to preserve price stability and keep inflation expectations well anchored.

As the pandemic eases - albeit with risks of new vaccine-resistant variants emerging - the focus of Singapore's policymakers has appropriately shifted to accelerating transformation towards a digital, more inclusive, and greener economy. In this context, the society is appropriately transitioning to a new social compact where more collective action is expected while preserving individual responsibility through incentives to not just keep people in the labor force, but to ensure the workers have relevant skills. For example, many courses run by Skills Future (a government agency set up to promote lifelong learning) are heavily subsidised and monetary rewards are given after successful completion of course.

Plans to accelerate digital adoption and innovation through investment in relevant infrastructure and technology will help maintain Singapore's pre-eminent status as a key regional innovation hub.

Source: IMF, August 24, 2022

Extract 6: China's 'economic long Covid' is at risk of lingering

In 2023, China's economic growth was the lowest since 1990 - barring the pandemic years - and it is headed even lower. As deflation takes hold, consumer and business confidence is plummeting. Youth unemployment is over 20 per cent, according to the latest available figures. Foreign direct investment into China fell 82 per cent in 2023 to its lowest level since 1993. The property market is in a slump. The currency is under downward pressure, and the external environment facing China is challenging.

According to the assessment of economist Adam Posen from the Peterson Institute for International Economics in Washington, China is faced with "economic long Covid".

Besides slower growth, China is also facing deflation. In January, consumer prices fell by 0.8 per cent year on year, the fourth successive month of decline. On Feb 20, China's central bank cut its five-year loan prime rate by 25 basis points.

But it would surely need to be more than that if the government is to achieve 5 per cent GDP growth. The biggest missing element in the government's policy response is the lack of a significant fiscal stimulus. Unlike many Western (and some Asian) economies, China did not unleash a big fiscal expansion, nor aggressive cuts in interest rates in response to the Covid-19 pandemic, which is the standard prescription for a sharp economic downturn.

There have been some valid reasons for caution. With total debt already running at close to 300 per cent of GDP, the government is reluctant to add to the pile. Aggressive interest rate cuts at the same time that the US Federal Reserve was hiking rates last year would have raised the risks of sharp currency depreciation and capital flight *.

Instead, the government has opted for piecemeal, targeted interventions and bet on expanding fiscal support for industries where China is a global leader, such as electric vehicles (EVs), EV batteries and green technologies - as well as cutting-edge areas such as chip production, artificial intelligence and the life sciences.

But even taken together, these cannot offset the impact of the property market downturn on the economy. Besides, there are signs of overproduction in some of these industries. For instance, there is a price war in China's electric vehicles market, EV battery prices fell by around 50 per cent in 2023 and solar cell prices also dropped sharply.

In the absence of aggressive fiscal policies focused on consumers, China will find it hard to break out of its deflationary spiral and achieve its growth target.

Several economists have advocated direct transfers to consumers comparable with the 4 trillion-yuan stimulus announced in 2008, which was then equivalent to about 10 per cent of GDP. Such a bold policy would come with some risks. But the risks of avoiding it would likely be much greater and would threaten to prolong China's economic long Covid.

**capital flight refers to the uncertain and rapid movement of large funds out of a country.*

Source: The Straits Times, 7 March 2024

Extract 7: Foreign Direct Investment in Singapore despite Covid

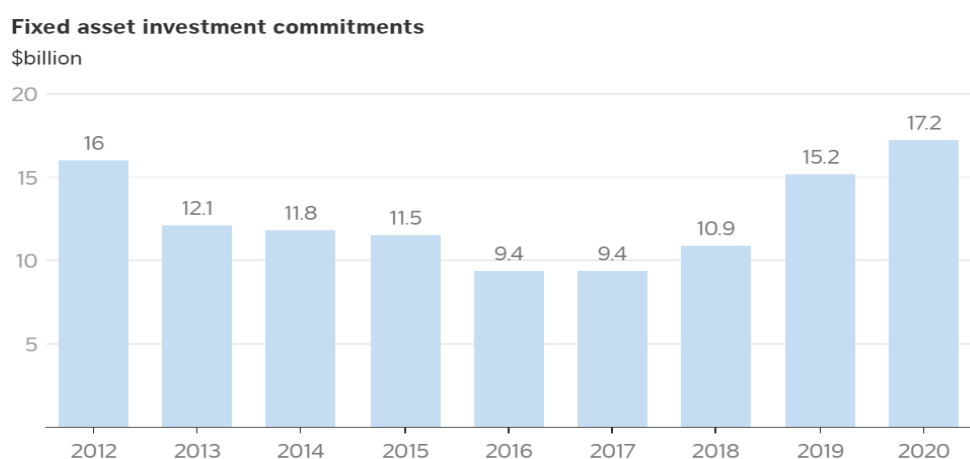
Singapore attracted \$11.8 billion in fixed asset investments in 2021, bolstered by large manufacturing projects from semiconductor and biotech firms despite challenges amid the Covid-19 pandemic. The projects secured in 2021 are expected to create 17,376 new jobs in the next five years, with about 70 per cent of these for PMETs (professionals, managers, executives and technicians).

New investments were seen across sectors such as agri-food, chemicals and materials, as well as electronics. EDB chairman Beh Swan Gin noted that Singapore drew strong investment commitment numbers in 2021, which are in line with its targets despite pandemic disruptions. "I think this really reaffirms Singapore's standing as the preferred location in Asia for companies to site their regional headquarters and global headquarter activities. It also speaks to our role as a critical node of global supply chains of major industries."

While the global economic climate remains uncertain in 2022, and global competition for investments will remain intense, Asia will continue to be the fastest growing source of final demand for the next 10 years. Singapore's connectivity, her reputation for reliability, stability and neutrality, together with her vibrant innovation and tech ecosystem, as well as growing talent base, will continue to secure economic growth for Singapore.

Source: The Straits Times, 26 January 2022

Figure 2: Fixed Asset Investment



Source: Economic Development Bank

- (a) Explain the relationship between real GDP growth rate and inflation rate and comment on the extent to which Table 1 supports the expected relationship. [6]
- (b) Using an aggregate demand and aggregate supply diagram, explain how China's weak economic growth may impact the Singapore economy. [4]
- (c) Explain how a "tighter monetary policy" helps to address inflation in Singapore. [2]
- (d) Explain 2 possible reasons why the Chinese authority was reluctant to cut interest rate aggressively to counter deflation. [4]
- (e) With reference to Extract 6, discuss whether a "fiscal policy focused on consumers" or a "fiscal support for industries" would be more effective to alleviate China's "economic long Covid"? [8]
- (f) With reference to Figure 2, describe the trend in fixed asset investment for Singapore between 2012 and 2020. [2]
- (g) Explain 2 possible reasons why Singapore is a preferred destination for foreign direct investments. [4]
- (h) "As the pandemic eases, the focus of Singapore's policymakers has appropriately shifted to accelerating transformation towards a digital, more inclusive, and greener economy."

Discuss whether supply-side policies to accelerate transformation to digitalisation and innovation are appropriate in helping Singapore achieve an inclusive economy. [10]

[Total: 40]

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Copyright acknowledgements:

Question 1	Figure 1	© https://www.statista.com
	Extract 1	© https://www.dw.com/en/rice-prices-surge-india/a-66444438 , 6 Aug 2023
		© <i>How the Russia-Ukraine War Fueled Record Fertilizer Prices</i> (stlouisfed.org), 4 Oct 2022
	Extract 2	© https://ourworldindata.org/reducing-fertilizer-use
		© https://resources.environment.yale.edu/kotchen/pubs/pgchap.pdf
		© https://climate.mit.edu/explainers/fertilizer-and-climate-change
Question 2	Extract 3	© https://sedpi.com/en/the-rice-price-cap-in-the-philippines-pros-cons-and-long-term-implications/#google_vignette
	Extract 4	© https://www.businesstimes.com.sg/international/denmark-introduce-worlds-first-livestock-carbon-tax , Jul 10, 2024
		© https://www.weforum.org/agenda/2023/06/rice-climate-crisis-food-security/ , Jun 6, 2023
		© https://ourworldindata.org/food-ghg-emissions
		© https://openknowledge.fao.org/server/api/core/bitstreams/cc09fbbc-eb1d-436b-a88a-bed42a1f12f3/content
Question 2	Table 1	© Singstat.gov.sg
	Extract 5	© IMF, August 24, 2022
	Extract 6	© https://www.straitstimes.com/opinion/china-s-economic-long-covid-at-risk-of-enduring?close=true
	Extract 7	© https://www.straitstimes.com/business/economy/singapore-draws-118b-in-fixed-asset-investments-in-2021-despite-covid-19-edb
	Figure 2	© Economic Development Bank