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DUNMAN HIGH SCHOOL
Preliminary Examination
Year 6

Economics (Higher 2)
Paper 1 Case Study Questions

9570/01
16 September 2024
2 hours 30 minutes

No Additional Materials are required.

READ THESE INSTRUCTIONS FIRST

An answer booklet will be provided with this question paper. You should follow the instructions on the front cover of the answer booklet. If you need additional paper ask the invigilator for a continuation booklet.

Answer **all** questions.

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

This document consists of 7 printed pages including this cover page.

[Turn over

Answer all questions.

Question 1: The impact of soaring prices

Table 1: Wheat production (million metric tons)

Country/Year	2018	2019	2020	2021	2022
Australia	17.6	14.5	31.9	36.2	40.5
China	131.4	133.6	134.3	136.9	137.7
Russia	71.7	73.6	85.4	75.2	92.0

Source: US Department of Agriculture, accessed 18 August 2024

Extract 1: Ukraine war to cause biggest price shock in 50 years

The war in Ukraine is set to cause the "largest commodity shock" since the 1970s, the World Bank has warned. It said disruption caused by the conflict would contribute to huge price rises for goods ranging from natural gas to wheat and cotton.

The increase in prices "is starting to have very large economic and humanitarian effects", a senior economist at the World Bank added. He said, "households across the world are feeling the cost of living crisis. We're particularly worried about the poorest households since they spend a larger share of income on food and energy, so they're particularly vulnerable to this price spike".

Wheat price is forecast to increase and reach new record highs in dollar terms.

"Wheat is one of the hardest agriculture exports to replace," according to a research note from the Bank of America. It points out that poor weather conditions in North America and China are likely to exacerbate the impact of Ukrainian supplies being reduced, something which will continue because the war has disrupted the spring planting season.

Demand was also shifting as importers rushed to find alternatives to Russian and Ukrainian grain. Thailand's rice shipments in the first two months of 2022 soared from the same time last year, according to Thai Rice Exporters Association data.

Source: adapted from Ukraine war to cause biggest price shock in 50 years - World Bank, BBC News, 27 April 2022 and Thai rice exports surge as Ukraine war roils global food supply, Nikkei Asia, 21 April 2022

Extract 2: Kellogg hikes sales forecast

Kellogg Co raised its 2022 sales forecast banking on more price increases to help counter the impact of supply shortages stemming from the war in Ukraine. Kellogg, which also makes Pringles and Eggo waffles, said it was increasing the pace of price hikes it pushes to consumers as costs soar.

Regarding shoppers swapping out Kellogg products for cheaper items, CEO Steve Cahillane said "we haven't seen evidence yet of that but as we look forward - just because inflation is so intense - our forecast is it will have pressure."

The company plans to emphasise the affordability of a bowl of cereal and milk as a meal in marketing and merchandising, Cahillane said. "It's convenient and it's very affordable when you think about the number of bowls," in a box, he said.

Russia's invasion of Ukraine is expected to hurt supplies in the second half of the year, Kellogg said, as that part of Europe is a major source of ingredients for packaged food companies. Kellogg has relied on palm oil from Indonesia due to the lack of sunflower oil from Ukraine, after the Russian invasion earlier this year, Cahillane said.

"There's been a lot of concern about Kellogg's ability to maintain profit, especially given the company's possible exposure to wheat from Eastern Europe," an economic analyst said.

Source: adapted from Kellogg hikes sales forecast as price increases offset impact of strike, Reuters, 5 May 2022

Extract 3: Policy moves curbing rising prices, but Singapore cannot fully escape impact of global inflation: MAS

Government actions here to combat inflation will dampen its pace over the next year but the Republic cannot completely insulate itself from global rising prices, said Mr Ravi Menon, managing director of the Monetary Authority of Singapore (MAS).

Inflation is surging in many countries around the globe owing to factors such as higher energy costs caused by the Russia-Ukraine war, and supply chain disruptions as many countries bounced back economically from the impact of COVID-19.

Over the past nine months, the MAS has tightened monetary policy through adjustments to the exchange rate for the Singapore dollar against a basket of the country's main trading partners. Mr Menon explained that MAS allows the trade-weighted exchange rate to appreciate faster when inflationary pressures build up to reduce imported inflation and restrain export demand. "Strengthening the exchange rate to try to fully offset the impact of global prices runs the risk of sharply curtailing growth and creating unemployment," he said.

Another key lever for controlling inflation is sound labour market adjustments to prevent entrenching inflation, said Mr Menon. "The relaxation of our border restrictions and resumption of foreign worker inflows should help to moderate labour cost pressures. To prevent a further build-up in labour cost pressures, it is important that the inflow of non-resident workers continues unimpeded," he said.

Source: Policy moves curbing rising prices, but S'pore cannot fully escape impact of global inflation: MAS, TODAY, 19 July 2022

Questions

- (a) With reference to Table 1, compare the trend of wheat production in China, Russia and Australia from 2018 to 2022. [2]
- (b) With reference to Extract 1:
- (i) using a demand and supply diagram, explain **two** reasons why the price of wheat is expected to "reach new record highs". [5]
 - (ii) explain how the expected price spike could worsen inequity. [2]
- (c) With reference to Extract 1, explain the likely cross price elasticity of demand between wheat and rice. [3]
- (d) With reference to Extract 2, discuss the extent to which Kellogg will face a fall in profits amidst the various developments. [8]
- (e) With reference to Extract 3, discuss the policy options for Singapore to combat inflation. [10]

[Total: 30]

Question 2: The market dynamics and demographic shifts in Southeast Asia (SEA)

Extract 4: Philippine peso: Catch me, I'm falling.

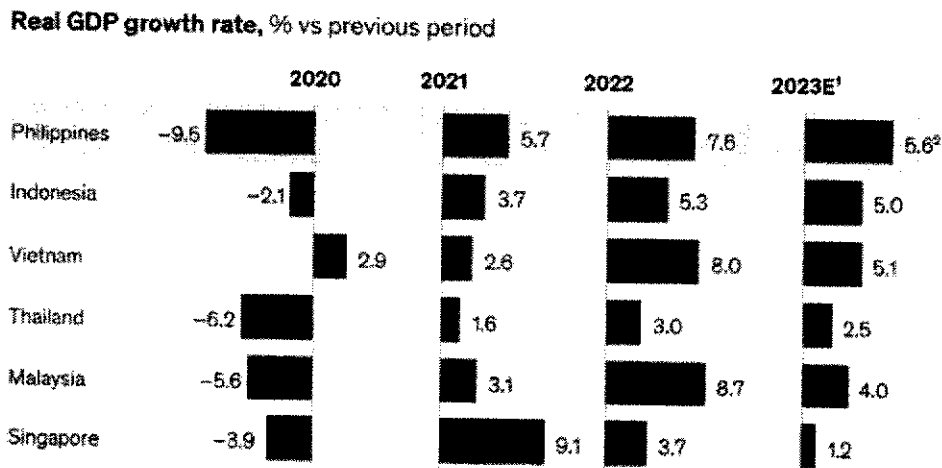
The Philippines peso has been hitting record lows, driving domestic inflation, and burdening Filipinos with rising prices of basic needs amidst floundering incomes and earnings. This trend has been exacerbated by the aggressive interest rate hikes by the United States (US) Federal Reserve since early 2022.

However, the peso's decline also highlights underlying weaknesses in the economy of The Philippines. The acceleration of the peso's decades-long depreciation coincides with liberalisation policies that have weakened domestic agricultural and manufacturing sectors. The depreciation makes imports more expensive, significantly raising the import bill as The Philippines relies heavily on imports due to underdeveloped domestic production. With no substantial domestic export response because the country produces few goods that attract global demand, there is limited potential for increasing export revenues to counterbalance the rising import costs.

This dual impact of external monetary policies and internal economic vulnerabilities underscores the complex challenges facing The Philippines economy.

Source: PH Peso: Catch Me I'm Falling, Philippine Statistics Authority, accessed 6 June 2024

Figure 1: Real GDP growth rate across Southeast Asian (SEA) countries



¹ Expected 2023 full year GDP using full year growth estimate for Indonesia, Malaysia, Singapore, Thailand and Vietnam
² Actual full year figure

Source: McKinsey & Company, accessed 6 June 2024

Table 2: Economic growth of The Philippines (at constant 2018 prices)

(in million Philippine pesos)	2020	2021	2022	2023
Gross Domestic Product	17,537,843	18,540,084	19,945,604	21,051,759
Gross National Income	18,858,016	19,179,405	21,075,715	23,278,228

Source: *Philippine Statistics Authority (PSA)*, accessed 2 August 2024

Extract 5: The Philippines's unemployment rate rose

The Philippine's unemployment rate jumped to 3.9 percent in March, from 3.5 percent in February, The Philippines Statistics Authority (PSA) reported. That means there were two million Filipinos who were either jobless or out of business in March, up from 1.8 million in the preceding month. The rise in the jobless rate coincided with the announcement of an increase in the daily minimum wage for workers in the private sector, which affected the labour force participation rate.

The labour force participation rate is defined as:

$$\frac{\text{labour force}}{\text{working-age population}} \times 100\%$$

Meanwhile, job quality improved after the underemployment rate eased to 11 percent in March, from 12.4 percent previously.

According to the National Economic and Development Authority, the government's massive infrastructure push is expected to create opportunities in several priority sectors, such as energy, logistics, and tourism. The government will also explore opportunities for quality job growth in the mining sector, leveraging available technologies to develop value-added activities such as mineral processing.

Sources: adapted from *The Philippines's unemployment rate rose, Inquirer Net, 8 May 2024* and *Philippines' unemployment rate up to 4.1 pct in May, Xinhua, 6 June 2024*

Extract 6: The growth in silver-economy related industries

As the world recovers from COVID-19, new opportunities and challenges have emerged, especially in the silver economy. The pandemic has accelerated the creation of innovative solutions for seniors, but the ongoing challenge is whether businesses can continue to meet the needs of an ageing population. Companies are leveraging artificial intelligence in healthcare, developing nutritious and easy-to-consume foods, and focusing on user-friendly technology for seniors. The silver economy spans various sectors, including healthcare, housing, food, leisure, tourism, and transport.

Countries like Singapore, facing a rapidly ageing population, are at the forefront of this economic shift. By 2030, one in four Singapore residents will be 65 or older. While this poses workforce challenges, it also presents significant opportunities. Singapore leads in silver economy potential, with a high capacity for elderly spending. The Asia Pacific silver economy is projected to be worth \$4.6 trillion by 2025, serving 600 million seniors over 60.



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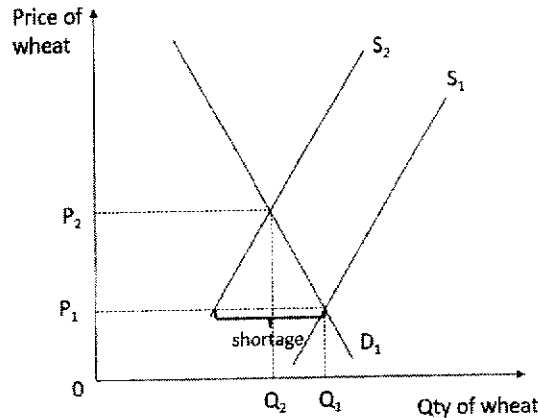
Preliminary Examination

Higher 2 Economics

Suggested Answers and Mark Schemes

Paper 1 Q1

(a)	<p>With reference to Table 1, compare the trend of wheat production in China, Russia and Australia from 2018 to 2022.</p>	[2]
	<p><i>Any 2 of the following</i></p> <p>Similarity</p> <ul style="list-style-type: none"> All three countries experienced an increase wheat production from 2018 to 2022 [1] <p>Difference</p> <ul style="list-style-type: none"> China consistently produced the most amount of wheat while Australia produced the least amount of wheat [1] Between 2018 and 2022, Australia's wheat production increased by the largest percentage / increased the most while China's wheat production increased by the smallest percentage / increased the least [1] 	
(b)	<p>With reference to Extract 1:</p>	
(i)	<p>using a demand and supply diagram, explain <u>two</u> reasons why the price of wheat is expected to "reach new record highs".</p>	[5]
	<p><i>Answer to explain why wheat prices rose significantly i.e. to include both the direction and magnitude of change in price</i></p> <p>Identify any of the following 2 reasons [2]</p> <p><i>[Supply factor]</i></p> <ul style="list-style-type: none"> Supply disruptions due to the war => wheat cannot be transported out of Russia and Ukraine => fall in supply Supply disruptions due to the war => disruptions in the spring planting season => fall in supply Poor weather conditions in North America and China => fall in supply <p><i>[Price elasticity of demand]</i></p> <ul style="list-style-type: none"> DD is price inelastic as there are few close substitutes to wheat which is a key ingredient to make staple foods such as bread, noodles and pasta <p>Diagram [1]</p>	

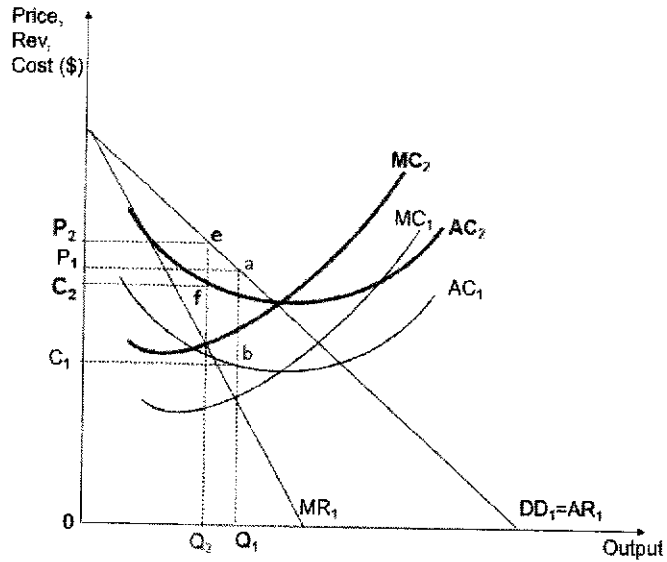


Explanation of why the price of wheat is expected to “reach new record highs” [2]

- *[direction of price change]* Explain the shortage at original price P_1 , resulting in an upward pressure in prices
 - *[magnitude of price change]* As there are several factors causing the supply of wheat to fall, there is a significant fall in supply hence a large shortage at original price, resulting in a need for a large increase in price to clear the shortage to arrive at the new equilibrium price P_2 (diagram should show a significant leftward shift in the supply curve)
- OR
- As demand for wheat is price inelastic, quantity demanded is less responsive to price changes. Hence, with fall in the supply, there is a need for a large increase in price to clear the shortage to arrive at the new equilibrium price P_2 (diagram should show a leftward shift in the supply curve and a price inelastic demand curve)

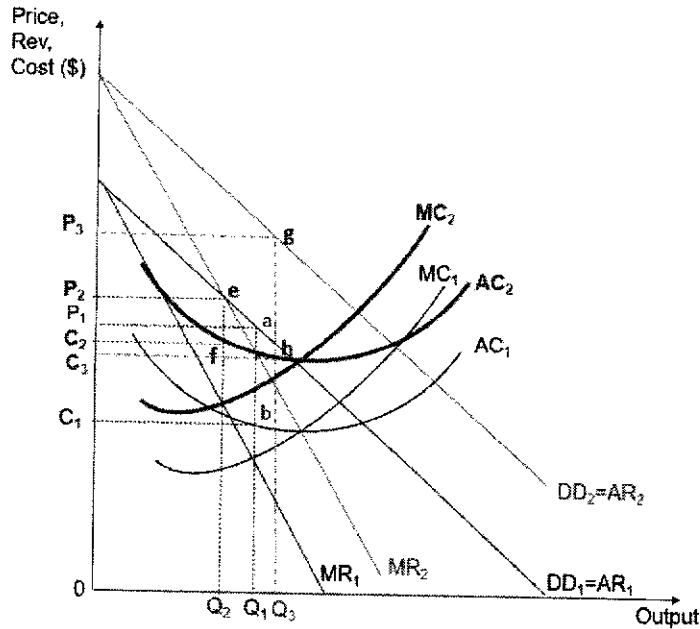
(ii)	explain how the expected price spike could worsen inequity.	[2]
	Low-income households spend most of their income on essential goods e.g. food [1] and with rising wheat prices, these households may not have any income left to spend on other goods and services resulting in lower utility. [1]	
(c)	With reference to Extract 1, explain the likely cross price elasticity of demand between wheat and rice.	[3]
	Positive XED value as wheat and rice are substitutes [1]. The size of the XED value depends on the closeness of substitutes e.g. if they are considered close substitutes the XED value will be large. [1] The rise in the price of wheat causes rational consumers to switch to the substitute good resulting in a rise in the demand for rice. [1]	
(d)	With reference to Extract 2, discuss the extent to which Kellogg will face a fall in profits amidst the various developments.	[8]
	R1: War in Ukraine likely to result in fall in profits Explain how supply disruptions of grain and sunflower oil resulted in a rise in grain and sunflower oil prices. As grain and sunflower oil are key ingredients in the production of Kellogg' products, there is a rise in AC (from AC_1 to AC_2)	

and MC (from MC_1 to MC_2) and hence a fall in profits from Area C_1P_1ab to Area C_2P_2ef .



R2: Successful marketing may help Kellogg raise its profits

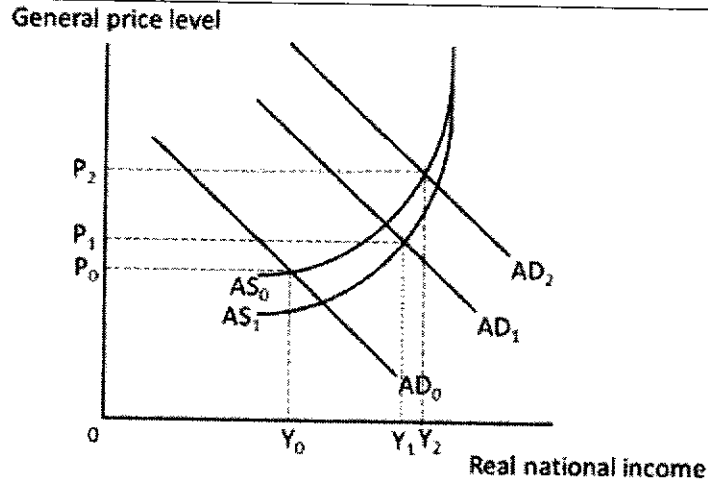
Successful marketing strategy of emphasising the affordability of Kellogg's cereals would increase demand for Kellogg's cereal and cushion the negative impact of rising costs. This could result in an increase in profits to Area C_3P_3gh .



Evaluative comments/conclusion

Overall, the impact of the developments mentioned in Extract 2 on Kellogg's profits depends on the extent of impact on its costs and revenue.

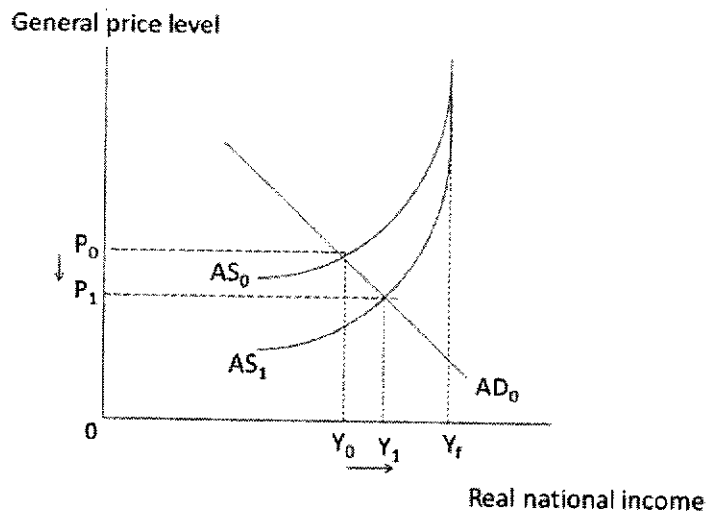
	<ul style="list-style-type: none"> • If Kellogg's was able to find close substitute inputs e.g. palm oil from Indonesia as a substitute for sunflower oil, its costs may not rise so significantly and hence profits may not be so severely affected. • Alternatively, the impact on its revenue depends on whether consumers continue to demand for Kellogg's products. Extract 2 suggests that Kellogg expects consumers to switch to cheaper alternatives as food prices rise significantly which will mean a fall in demand for Kellogg's cereal and hence revenue which would hurt its profits. <table border="1" data-bbox="335 504 1300 974"> <tr> <td data-bbox="335 504 438 705">L2</td> <td data-bbox="438 504 1220 705">Answers in this level will provide a balanced answer that considers both the rise in cost and the possible increase in revenue with reference to the case material. Includes analysis of the impact of the developments on Kellogg's profits with reference to a diagram.</td> <td data-bbox="1220 504 1300 705">4-6</td> </tr> <tr> <td data-bbox="335 705 438 873">L1</td> <td data-bbox="438 705 1220 873">Answers in this level will have some knowledge and understanding about how the developments affect Kellogg's profits. Analysis could be one-sided or two-sided but with gaps in explanation.</td> <td data-bbox="1220 705 1300 873">1-3</td> </tr> <tr> <td data-bbox="335 873 438 974">E</td> <td data-bbox="438 873 1220 974">For an answer that arrives at a conclusion after considering the relative effects on the firm's cost and revenue.</td> <td data-bbox="1220 873 1300 974">1-2</td> </tr> </table>	L2	Answers in this level will provide a balanced answer that considers both the rise in cost and the possible increase in revenue with reference to the case material. Includes analysis of the impact of the developments on Kellogg's profits with reference to a diagram.	4-6	L1	Answers in this level will have some knowledge and understanding about how the developments affect Kellogg's profits. Analysis could be one-sided or two-sided but with gaps in explanation.	1-3	E	For an answer that arrives at a conclusion after considering the relative effects on the firm's cost and revenue.	1-2	
L2	Answers in this level will provide a balanced answer that considers both the rise in cost and the possible increase in revenue with reference to the case material. Includes analysis of the impact of the developments on Kellogg's profits with reference to a diagram.	4-6									
L1	Answers in this level will have some knowledge and understanding about how the developments affect Kellogg's profits. Analysis could be one-sided or two-sided but with gaps in explanation.	1-3									
E	For an answer that arrives at a conclusion after considering the relative effects on the firm's cost and revenue.	1-2									
(e)	<p>With reference to Extract 3, discuss the policy options for Singapore to combat inflation.</p>	[10]									
	<p>Singapore facing cost-push inflation due to e.g. higher energy costs caused by the Russia-Ukraine war and demand-pull inflation as economies recover from COVID-19.</p> <p>R1: Managed appreciation of SGD Explain how allowing the 'trade-weighted exchange rate to appreciate faster'</p> <ul style="list-style-type: none"> • lowers the price of imported inputs which lowers unit COP and results in an increase AS from AS_0 to AS_1 • increases the price of Singapore's exports in foreign currency and lowers the price of imports in SGD. Assuming Marshall-Lerner condition holds, there will be a fall in (X-M). In addition, as imports are cheaper, domestic consumers will switch away from domestic goods and services resulting in a fall in Cd. Overall, there is a slowdown in the increase in AD from AD_0 to AD_1 instead of AD_2. • The combined effect of the managed appreciation lowers inflationary pressure as GPL would increase only modestly from P_0 to P_1. 										



EV: However, this policy could result in unintended negative consequences on growth and employment as real national income would only rise to Y_1 instead of Y_2 .

R2: Relaxation of foreign worker policy

Explain the resumption of foreign worker inflows should help to moderate labour cost pressures which lowers unit COP and results in an increase AS from AS_0 to AS_1 . Firms facing market competition pressure pass on part of the cost savings to consumers, lowering GPL from P_0 to P_1 which will help to relieve inflationary pressure.



Conclusion

Between the two policy options, managed appreciation directly addresses the root cause of the inflation. Most significantly, the strengthening of the SGD directly combats the rising food and energy prices. In addition, the stronger SGD helps to dampen the rise in AD which is the other source of inflation. On the other hand, the relaxation of foreign worker policy helps to reduce unit COP but does not directly address the root cause of the inflation.

[nature of the economy] As a small and open economy highly reliant on imported inputs, the impact of imported inflation is very significant especially

when the rise in price is that of essential goods – oil and food. Hence, these policies can at best manage the rise in prices but not likely to result in fall in prices.		
L2	Answers in this level will consider both at least two policies. Answers would explain how the policies address the inflation using a tool of analysis such as a diagram and include reference to the case material.	4-7
L1	Answers in this level will show limited understanding of how the policy works. Analysis could include only one policy or two policies but with gaps in explanation.	1-3
E	Evaluative comments that consider the effectiveness of the policies based on various factors. A conclusion must be provided.	1-3

Paper 1 Q2

(a)	<p>Using Extract 4, explain how 'external monetary policies' contributed to the depreciation of the peso. [2]</p> <p>Extract 4 'aggressive interest rate hikes by the United States' relative to PH, led to a net capital outflow of Peso {1m} This leads to a surplus of peso at current exchange rate. In a free float market, the value of peso depreciates against other currency. {1m}</p>
(b)	<p>With reference to Figure 1, identify the country with highest projected real GDP growth. [1]</p> <p>Vietnam</p> <p>Note: Data on Philippines shows actual growth rate, rather than <i>projected</i> growth rate</p>
(c)	<p>Using AD-AS analysis, explain two factors that might limit the real GDP growth of The Philippines. [4]</p> <p>One AD and one AS factor for scope</p> <ul style="list-style-type: none"> • [AS] Rising cost → higher uCoP → decrease AS, limiting the overall increase in real GDP • [AD] Weak X competitiveness (consider price / non-price, derived from extract) → impede rate of growth of X, limiting the overall increase in real GDP
(d)	<p>With reference to Extract 5:</p>
(i)	<p>Explain how the change in the minimum wage rate is likely to affect the labour force participation rate. [3]</p> <p>Minimum wage rate is raised [1], c.p. → incentivising increase in Qs of L, i.e. more people join the labour force [1] Since Labour Force Participation Rate = (Labour Force / Working-age Population) × 100 Hence, the rise in minimum wage rate will cause LFRP to increase. [1]</p>
(ii)	<p>Discuss the usefulness of the unemployment data for drawing conclusions about how living standards has changed in The Philippines. [8]</p> <p>Useful Higher in UN+ → falling income and purchasing power → fall in mSOL and non-material SOL in the case of higher stress associated with Un+</p> <p>Not useful To conclude that SOL has reduced in PH from the 'jump in u/e rate' may be misleading:</p> <ul style="list-style-type: none"> • Extract 5: This duration given is too short only one month to have any impact on SOL • Extract 5: Job quality has improved with the underemployment rate falling → more workers are taking on full-time employment rather than part-time employment → increase in hh income • Extract 5: the increase in u/e is partly due to the increase in minimum

	<p>wage → for the group of low-wage workers who remain in employment, they enjoy higher hh income This increased income enables individuals to afford more goods and services and a better quality of life, including better housing, healthcare, education, and leisure activities.</p> <p>Evaluation While the unemployment rate is one important economic indicator, the statement about unemployment rising to 3.9% in the Philippines provides an incomplete and limited view of changes in the standard of living. To fully assess changes in living standards, you would need to look at a broader set of factors, eg</p> <ul style="list-style-type: none"> ❖ HDI factors (includes Life Expectancy at Birth, Average and Expected Years of Schooling, Gross National Income per Capita). This makes it a more holistic measure of living standards, as it reflects the ability of people to live long, educated and purchasing power for needs and wants. ❖ Gini coefficient
(e)	<p>With reference to Table 2, explain the difference between gross domestic product (GDP) and gross national income (GNI). [2]</p> <p>While GDP includes the income generated within a country's borders, GNI includes the income of nationals earned abroad and excluding the income of foreigners within the country. [1] The excess of GNI over GDP (Table 2: in PH, GNI > GDP) means that there is a net income inflow into PH. [1]</p>
(f)	<p>Discuss whether an ageing population would lead to undesirable consequences for an economy. [10]</p> <p>Requirement 1 / Thesis: Adverse economic effects of ageing population</p> <ul style="list-style-type: none"> ❖ Extract 7 'straining healthcare systems and necessitating increased spending on healthcare and pensions, which limits investment in skills and infrastructure'. <ul style="list-style-type: none"> • Limited fiscal budget diverted to healthcare for elderly instead on improving quantity/quality of FOP → limits potential economic growth. ❖ Extract 7 Compared to those elderly in Japan who have higher purchasing power, countries like Thailand will face lower Cd and demand for goods and services □ deters investment ❖ Extract 7 'ageing population' □ <ul style="list-style-type: none"> • dwindling workforce → forces up wages → higher uCOP → AS falls → cost-push inflation and fall in RNY • lower inter-generational transfer of income → less wealth/savings to pass on to future generation → lower future SOL • dwindling workforce → declining tax revenue + higher healthcare spending □ worsening fiscal budget position <p>Requirement 2 / Antithesis: Ageing population may bring about some benefits Extract 6 The pandemic has accelerated the creation of innovative solutions for seniors</p>

	<p>Demand for such solutions which cater to the needs of an ageing population increases → expected total revenue increases → eRORi relative to COB increases → net returns → investment increases → AD increases → AD song → RNY increases, demand-deficient unemployment</p> <ul style="list-style-type: none">❖ AS increases<ul style="list-style-type: none">• Higher productivity increases as more Fop are available• At the same time, lower uCOP can be pass to csrs are lower prices❖ In the end, countries eg Singapore gets to enjoy non-inflationary AEG and higher PEG <p>Evaluation It depends on type and nature of governments</p>
	<p>[Total: 30]</p>

Paper 2 Q1

1	Engaging in regular exercise can improve one's physical health, elevate one's mood, and reduce the risks of developing chronic diseases. To encourage regular exercise, the Singapore government provides free exercise classes in neighbourhoods and near workplaces.
(a)	Explain why exercise classes, if left to market forces, might be allocated inefficiently. [10]
<p>R1: Presence of positive externalities</p> <p>Participating in exercise classes and therefore regular exercise brings about positive externalities. The marginal private cost (MPC) of engaging in exercise classes is cost of the class. The marginal private benefit (MPB) is the additional benefit derived from improved physical health, mood improvement and reduction in the risks of developing chronic diseases which translates to savings on healthcare costs or improved productivity resulting in a higher salary.</p> <p>Rational and incentive-driven individuals will consume the private equilibrium output of Q_P, where $MPB = MPC$. Participating in exercise classes generates marginal external benefit (MEB). Other parties who do not take part in the exercise classes enjoy third party benefits e.g. employers experience reduced costs and hence more profits as their employees who exercise regularly are more productive; taxpayers pay lower taxes as the government spends less on healthcare costs and hence does not need to collect as much tax revenue with a healthier population; other firms and individuals benefit from increased foreign investment with a healthier workforce.</p> <div data-bbox="558 1120 1149 1523" style="text-align: center;"> </div> <p>Figure 1</p> <p>The existence of the MEB raises the marginal social benefit (MSB) above MPB i.e. $MSB > MPB$. Assuming that there are no negative externalities, $MPC = MSC$. The socially optimum output should be Q_S, where $MSB = MSC$. Individuals acting in pursuit of their self-interest, disregard the MEB and consume only up to Q_P, hence there is under-consumption. The under-consumption of $Q_P Q_S$ means that the additional benefits to society could have gained is area $Q_P a c Q_S$ and the additional costs avoided is area $Q_P b c Q_S$. As the additional benefits society could have gained is greater than the additional costs avoided, there is a deadweight loss of area abc. <L> Hence, the presence of positive externalities results in allocative inefficiency in the market for exercise classes.</p>	

R2: Consumer imperfect information/ignorance

Consumers underestimate the benefits of taking exercise classes which ensures the engagement in regular exercise. Consumers **may not be aware of the full extent of benefits** of participating in exercise classes e.g. improved physical health, mood improvement and reduction in the risks of developing chronic diseases which translates to savings on healthcare costs or improved productivity resulting in a higher salary. Hence, they **underestimate the benefits** of participating in exercise classes and $MPB_{perceived} < MPB_{actual}$. The MPC of engaging in exercise classes is cost of the class.

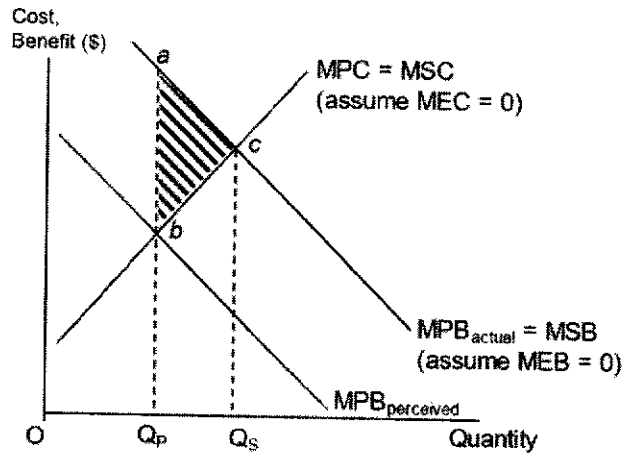


Figure 2

Shaped by **incomplete or inaccurate information**, consumers will thus consume exercise classes up to the **private equilibrium level Q_p where $MPB_{perceived} = MPC$** . Assuming no externalities, the MSB is the actual MPB while the MSC is the MPC. Hence the **socially optimum quantity is at Q_s , where $MSB = MSC$** .

The **under-consumption of $Q_p Q_s$ units** of exercise classes results in the loss of additional benefit to society measured by the area $Q_p a c Q_s$. At the same time, it also allows the society to avoid additional costs equal to the area $Q_p b c Q_s$. As the loss of additional benefits exceeds the additional costs avoided, which results in **deadweight loss of area abc**.

Level	Knowledge, Application, Understanding and Analysis	Marks
L3	Thorough explanation of why the presence of positive externalities and consumer imperfect information results in the inefficient allocation of exercise classes. Clear explanation with good use of economic theory and supported by a tool of analysis such as a diagram. Good application of the context in the answer.	8-10
L2	An undeveloped or incomplete answer which considers why both the presence of positive externalities and consumer imperfect information results in the inefficient allocation of exercise classes OR A well-developed answer which considers only one reason why exercise classes might be allocated inefficiently.	5-7

	An attempt at including diagrams but may not be accurately drawn or referenced with incomplete explanation.	
L1	A descriptive and unexplained answer. Major conceptual mistakes present in the explanation. Inaccurate or absence of diagrams.	1-4
(b)	Discuss whether free provision is the best policy to ensure the efficient allocation of exercise classes in Singapore.	[15]

R1: Free provision can ensure the efficient allocation of exercise classes in Singapore

One policy to ensure the efficient allocation of exercise classes is the government providing these classes free to all consumers who wish to participate. The Singapore government has done so e.g. through the Health Promotion Board (HPB)'s free exercise classes conducted around community spaces like housing estates or near the workplace. Individuals can book these free exercise classes through the Healthy 365 app for example.

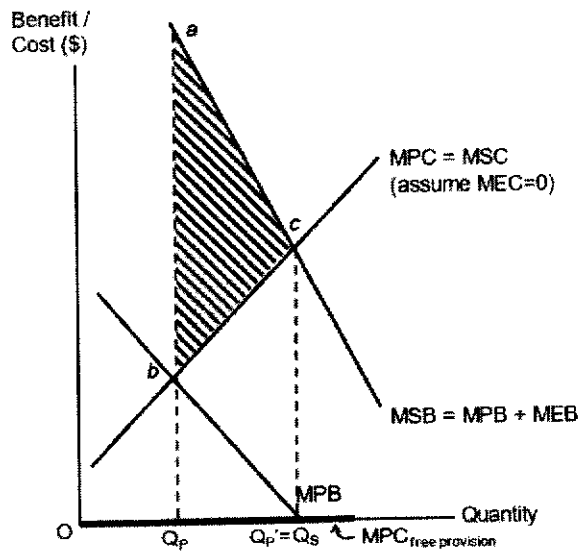


Figure 3

With free provision, MPC becomes zero. The new private optimum level of consumption occurs where $MPB = MPC = 0$. Consumption has increased from Q_p to Q_p' which coincides with Q_s , the socially-optimal output where $MSB=MSC$. Hence, an efficient allocation of exercise classes is achieved.

Limitation

It is difficult to determine the exact socially optimal level of output as the necessary information is simply too vast. Hence it is difficult for the government to determine with reasonable accuracy the amount exercise classes it should provide for free. Free provision may need to over-consumption and a greater deadweight loss than the original deadweight loss caused by the under-consumption of exercise classes resulting in a greater loss of economic welfare than if the government had not done anything i.e. there is government failure.

OR

While the exercise classes are provided for free, the voluntary nature of signing up for the classes leaves the decision to the individual. If consumers decide not to sign up for the classes, free provision would not increase consumption to the socially-optimal output level.

R2: Public education can ensure the efficient allocation of exercise classes in Singapore

The government can close the information gap by providing accurate, comprehensive and timely information through public education. The Singapore government has done so through its Healthier SG strategy which includes working closely with partners such as HPB and SportSG to share the benefits of taking exercise classes to ensure regular exercise which brings about significant benefits to one's physical and mental health. Such information through websites and social media, public education messages through traditional media (TV and newspapers), road shows, etc. With more complete and accurate information, the government seeks close the gap between the $MPB_{\text{perceived}}$ and MPB_{actual} . With reference to Figure 2 in part a, the $MPB_{\text{perceived}}$ increases, shifting it closer towards MPB_{actual} , and the private equilibrium output (Q_P) towards the socially-optimal output (Q_S).

Limitation

While government efforts to share comprehensive and timely information can be extensive through multiple platforms and with close collaboration with multiple agencies/partners, the information may not reach some consumers who neither use the internet, social media platforms nor engage in traditional media. It also difficult to assess the effectiveness of public education e.g. is the information provided sufficient or easily understood. Hence, the outcome of the policy can be quite uncertain.

Other possible policies:

Credits/subsidies for producers which lowers their MPC and hence price of exercise classes to encourage greater participation and move the private consumption level towards the socially-optimal output.

Conclusion/Evaluative comments

Stand: Whether free provision is the best policy to ensure the efficient allocation of exercise classes in Singapore depends on various factors such as whether it addresses the root cause of the inefficient allocation of exercise classes and the time taken for each policy to take effect.

Substantiation:

[root cause] There are two reasons why exercise classes, if left to market forces, might be allocated inefficiently, 1) positive externalities and 2) consumer imperfect information. Assuming government has perfect information and is able to determine the socially-optimal output, free provision can be considered the best policy as it can directly address the allocative inefficiency caused by the presence of positive externalities resulting in the consumption of exercise classes at the socially-optimal output level. However, if the main cause of allocative inefficiency is due to consumers having incomplete/inaccurate information, free provision can address the under-consumption due to consumer imperfect information but does not target the root of the problem which is the information gap present. Hence, would not be considered the best policy in this case.

[time period] Free provision of exercise classes as compared to public education would take a shorter time to increase the consumption of these classes and increase

the socially-optimal output level. In order for public education to successfully narrow the gap between $MPB_{\text{perceived}}$ and MPB_{actual} , a longer period of time is required to reach all segments of the community.

Other considerations:

- *Extent of allocative inefficiency*
- *Certainty of outcome*

Level	Knowledge, Application, Understanding and Analysis	Marks
L3	Thorough <u>discussion</u> of at least <u>two policies</u> to ensure the efficient allocation of exercise classes in Singapore. Clear explanation with good use of economic theory and supported by a tool of analysis such as a diagram. Good application of the context in the answer.	8-10
L2	An undeveloped or incomplete answer which considers two policies to ensure the efficient allocation of exercise classes in Singapore OR A well-developed answer which considers only one policy. An attempt at including diagrams but may not be accurately drawn or referenced with incomplete explanation.	5-7
L1	A descriptive and unexplained answer. Major conceptual mistakes present in the explanation. Inaccurate or absence of diagrams.	1-4
Evaluation		
E3	An answer that has two evaluative judgements / decisions that are supported by the arguments presented in the answer and linked to the context of the question. Includes a summative conclusion which supports whether free provision is the best policy (or otherwise).	5
E2	An answer that makes an attempt at evaluation to support whether free provision is the best policy but with limited scope / depth in evaluative judgements. Answer may not include a conclusion.	3-4
E1	An answer that gives unsupported evaluative statement(s) about whether free provision is the best policy OR one well-explained evaluative judgement.	1-2