



Catholic Junior College
JC2 Preliminary Examinations
Higher 1

ECONOMICS

Paper 1

8819/01

18 August 2017

3 hours

READ THESE INSTRUCTIONS FIRST

Write your name, class and question number 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 any diagrams, graphs or rough working.

Do not use highlighters, glue or correction fluid.

Begin each question on a new sheet of paper.

Section A

Answer **ALL** questions.

Section B

Answer **ONE** question from this section.

At the end of the examination, **hand in ALL questions separately.**

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

This document consists of **8** printed pages and **0** blank pages.

[Turn over]

Section A

Answer **ALL** questions

Question 1

The Zika Virus Epidemic

In early 2015, a widespread epidemic of Zika fever caused by the Zika virus in Brazil, spread to other parts of South and North America. It also affected several islands in the Pacific, and Southeast Asia. Zika virus is transmitted primarily by *Aedes* mosquitoes.

Extract 1: Spike in Sale of Mosquito Repellent Products amid Zika Concerns

U.S.A

Fear of the mosquito-borne Zika virus is spurring sales of well-known mosquito repellents, and companies pushing natural products are hoping to grab a share of the market as well, saying their methods will keep the bugs at bay without the ‘ickiness’ of traditional DEET¹ chemical-based repellents.

“There is no ‘natural’ substitute for DEET – it is the first-line repellent and should be used by those seeking to lower their risk of being bitten by mosquitoes,” said Amesh Adalja, senior associate at the University of Pittsburgh Center for Health Security. But some consumers are turned off by DEET chemical-based repellents. They don’t like the odd smell and say it irritates their skin, while others are leery of anything that smacks of chemicals, as reflected in the “buy organic” trend in supermarkets.

Pharmacy operators such as Walgreens, the nation’s largest drugstore chain, are helping to boost insecticide sales. At its 120 stores in Puerto Rico, Walgreens has cut the price on mosquito repellent products that the Communicable Disease Centre says can fight Zika.

Singapore

Sales of mosquito repellent products have doubled or even tripled in Singapore since news of the first locally transmitted Zika case emerged.

“We now restock all mosquito repellent products on a daily basis rather than fortnightly to meet the increased demand,” a spokesperson for NTUC said. The company is working with suppliers to ensure sufficient stocks at its stores and warehouse, she said. “Prices of these items have also remained the same, and kept affordable through store promotions,” the spokesperson added.

Meanwhile, some people are trying to make a quick buck from the demand for mosquito repellents and related products. On online marketplace Carousell, several buyers were buying a box of 10 Baygon mosquito coils - which normally costs 75 cents - for as much as \$10. A pack of Tiger Balm mosquito repellent patches - priced at \$8.50 on the NTUC website - was going for \$15.

Adapted from: *Washington Times*, 5 Jun 2016 and *The Straits Times*, 7 Sep 2016

Extract 2: Zika Virus: The Last Thing Brazil Needs Now

Brazil is in the midst of the longest economic downturn since the 1930s, and the fear-inducing Zika virus is not helping matters. The virus has become big news around the world

¹ Diethyltoluamide (DEET) is the most common active ingredient in insect repellents.

and is raising concerns about its impact on Brazilian tourism, which supports nearly one-tenth of Brazil's economy.

With Brazil's economy in the dumps and its currency trading near all-time lows versus the U.S. dollar, many Brazilians are opting to vacation at home, which could keep the tourism sector afloat. Furthermore, travel companies also say they are seeing great sales on international vacations to Brazil and say the strong U.S. dollar have a lot to do with it.

"The negative impacts from Zika could be counteracted by a general increase in tourism that we're expecting in 2016 because of the exchange rates," said a business analyst.

Adapted from: *money.cnn.com*, 28 Jan 2016 and *ABC Eyewitness News*, 11 Feb 2016

Extract 3: The Socioeconomic Impact of the Zika Virus in Latin America

If inadequately addressed, Zika will strain the capacities of already overburdened health systems. Caring for a child with microcephaly or developmental disorders often forces family members, especially women and adolescent girls, to leave the labour market or formal education, contributing to lost productivity, lost opportunity and increasing economic hardship on already marginalized populations. This increasingly common scenario can impede development goals on ending poverty, quality education, economic growth and reducing inequalities.

In the short term, the largest cost is loss of international tourism revenues, followed by the direct cost of diagnosing patients. In the long term, the lifetime indirect costs related to the care of children with microcephaly are substantial. Many parents (often the mothers) will withdraw from or not enter the labour force to care for a child with Zika-related congenital conditions. These figures likely underestimate the relevant costs because of the difficulties in evaluating the increase in the burden of non-market activities that will often accompany the birth of children with microcephaly, as well as its impact on affected infants.

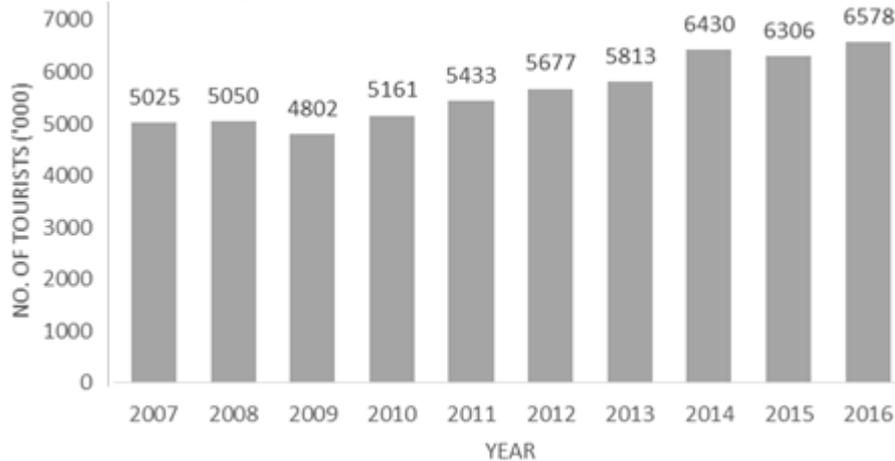
Additionally, there is a profound equity challenge at the core of the Zika epidemic. The impact is disproportionate on the poorest countries of the region, as well as on the poorest and most vulnerable groups, especially poor women in peri-urban communities (i.e. those living in the peripheries of cities). Besides unequal access to health services, clean water and sanitation, findings from recent studies of microcephaly in north-eastern Brazil found that most reported cases occurred in low-income families, with very few from middle-income, suggesting that the epidemic could contribute to widening socioeconomic inequities. Larger economies like Brazil are expected to bear the greatest share of the absolute cost, but the severest impacts will be felt in the poorest countries.

Source: *Paper on Socio-economic impact assessment of the Zika virus in Latin America and the Caribbean*, 3 April 2017

Extract 4: Zika Vaccines under Trial

The World Health Organisation is worried that Zika is spreading far and fast, with devastating consequences. There is currently no vaccine or medicine for Zika. Governments and experts are working fast on this. The National Institutes of Health (NIH) is funding many research projects to study and find cures for the Zika virus. It is working with its partners in the academia, and the pharmaceutical and biotechnology industries to better understand Zika virus, its causes, effects, and ways to combat it. A multi-site clinical trial testing an experimental Zika vaccine developed by NIH scientists has begun.

Source: [//www.fic.nih.gov](http://www.fic.nih.gov), online accessed 17 July 2017

Figure 1: Tourist Arrivals into Brazil

Source: <https://tradingeconomics.com>, accessed 20 Jul 2017

Table 1: Short-term and Long-term Costs of Zika in Selected Latin America Countries

Country	Total Short-term Cost (in 2015 USD)	Total Short-term Cost (% of GDP)	Total Long-term Cost (in 2015 USD)	Total Long-term Cost (% of GDP)
Argentina	495,976,647	0.03	9,337,928	0.001
Bolivia	86,839,996	0.09	4,063,506	0.004
Brazil	1,674,408,354	0.03	251,676,089	0.005
Peru	367,758,428	0.06	6,699,638	0.001

Source: *Paper on Socio-economic impact assessment of the Zika virus in Latin America and the Caribbean*, 3 Apr 2017

Questions

- (a) With reference to the data, explain the likely value of the price elasticity of demand of repellents with DEET. [2]
- (b) Different retailers, such as NTUC and Walgreens, have changed prices of repellents differently in view of Zika. Using demand and supply analysis, explain the price changes of the above retailers. [4]
- (c) In the event of a Zika outbreak, discuss whether a subsidy on mosquito repellent products should be implemented in Singapore. [6]
- (d) Explain the economic rationale for government intervention in developing vaccinations against Zika. [6]
- (e) From Extract 2, identify and explain a reason for the upward trend in tourist arrivals into Brazil shown in Figure 1. [2]
- (f) (i) Using Table 1, compare the short term and long term costs of Zika on Brazil with the other Latin American countries [2]
- (ii) Using data where appropriate, evaluate whether the Zika outbreak is the most worrisome problem that the Brazilian government has to consider in achieving sustained economic growth. [8]

[Total: 30]

Question 2**Peru's Economic Challenges****Extract 5: Peru Mining Steady despite Volatile Prices**

By any measure, Peru is a giant of the global mining industry. Since the liberalisation of the industry in the 1990s, significant local and foreign investment has been made to develop major modern mines. The pace of investment further gathered speed since 2010, when the commodities cycle pushed up prices of the country's key mineral exports. The mining industry has been the driver behind the growth of the Peruvian economy for 10 years, today accounting for about 17.6% of GDP and half of exports.

The industry's primary exports is copper, which is an essential component in virtually every electrical and electronic device and wiring. The last three years of falling copper prices is thus a cause for concern. The slowdown of the Chinese economy is one of the factors for the decline. That said, output is still growing in Peru's operating mines, setting Peru well on its way to becoming the world's second-largest copper producer in the next few years.

Source: www.oxfordbusinessgroup.com/peru-2016, accessed 18 July 2017

Extract 6: Commodity Slump Stalls Global Trade Growth

World trade growth has ground to a halt as the commodity price slump hits economic growth in emerging markets, many of whom rely heavily on commodity exports.

Emerging markets imported lots of capital equipment and other supplies to expand their commodity production during the commodity boom. Rising incomes at that time also stimulated a big increase in local consumption, some of which was in turn spent on imported goods and services. Now that the boom has turned into a slump, as capital investment has shriveled, causing a decline in demand for imported industrial equipment. Lower incomes also inevitably caused import demand for consumer goods to have fallen.

The International Monetary Fund speculates that a slowdown in trade liberalization, an upsurge in antidumping and the proliferation of more subtle non-tariff barriers could help explain the extra slowdown in trade growth. As a result, the Fund urges policymakers to resist protectionism, revive trade liberalization and dismantle remaining non-tariff barriers to support global trade.

Source: *Reuters*, 27 Oct 2016

Extract 7: Trouble Brews in Peru

Peru's currency closed last week at just over the psychological barrier of 3.20 per dollar, a six-year low, on falling commodity prices and strong economic data from the United States.

In Peru, economic activity has shown a poor performance mainly as a result of three factors. First, private consumption slowed down due to lower dynamism in the labor market which reduced job creation and increased the unemployment rate. Furthermore, food prices have risen. Second, growth was adversely hit by the contraction in public and private investment due in part to the worsening of business expectations. This suggests that investment will continue being sluggish in 2015.

However, the biggest threat to financial stability in Peru is a sharp slowdown in China. Copper remains one of Peru's key exports and China, which uses 40% of the world's copper, is seeing its lowest GDP growth since 1990. The result is large inventories of

copper and other commodities, prompting investors to sell the Nuevo (Peru's currency) and leading to the decline in Peru's exchange rate. The exchange rate pressures limit the scope for new reductions in the interest rate by the monetary authority.

Coupled with high inflation, Peru's central bank is unable to cut its interest or exchange rates to give its economy a boost. They must now look more to productivity improvements to boost GDP, and that is its Achilles heel.

Productivity has improved a bit, but still lags behind Asia's. Although Latin Americans have more education than in the past, international tests show that they still do not learn enough in school. Furthermore, there is a whole range of other issues ranging from a lack of innovation by Latin American firms of all sizes, to poor transport networks and to a lack of competition, especially in services.

Fixing the productivity problem is far more complicated than slashing the fiscal deficit. Assembling land, permits and finance for infrastructure projects can take many years in Latin America. Education reforms take a similar time to have an effect.

But governments can no longer afford to put off reforms indefinitely. The risk the region faces is the clash between low growth and the aroused expectations of growing middle classes that could be politically explosive.

Source: <http://perureports.com/2015/08/10>, accessed 21 July 2017

Extract 8: Peru's Road to Recovery

After a considerable slowdown in 2014, a recovery in economic growth is projected for 2015 and 2016. This recovery will be driven by fiscal stimulus, and the reversal of the adverse supply shocks such as climate factors that caused temporary disruptions in mining, fishing and agriculture, that affected the economy in 2014.

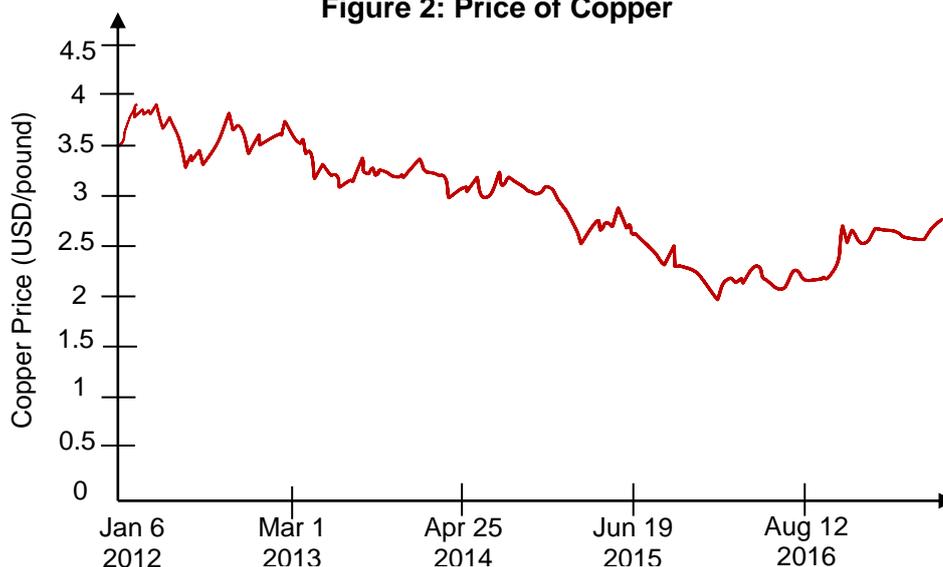
Fiscal policy is expected to be expansionary in 2015 and neutral in 2016. A drop in fiscal revenues is foreseen due to various tax measures announced at the end of last year. These measures include a reduction in corporate and personal income tax rates, and a decrease in the Selective Tax on Fuel. New important infrastructure spending will also take place, which will boost growth by the end of this year and next. The space for new cuts in the interest rate is limited because it could increase pressures in the exchange rates.

In the coming years, growth will gain momentum thanks to the increase in mining production, especially copper, as a result of the new mines beginning to operate. However in the long-run, lower levels of metal prices suggest that the mining sector may no longer be an engine of strong growth. Therefore, to boost productivity and growth of potential output, structural policies are required.

Two important external risks remain. First, there is the risk of a stronger than expected slowdown of growth in China that could reduce terms of trade even further. Second, faster than expected increase in U.S. interest rates could lead to a reversal of capital flows and stronger pressures to the exchange rate. On the domestic side, downside risks are related to a weaker than expected recovery in investment that could be affected by continuing uncertainties in mining regions, or a stronger than expected impact from El Niño weather phenomenon.

Source: <http://www.oecd.org/eco/outlook/peru-economic-forecast-summary.htm>, accessed 26 July 2017

Figure 2: Price of Copper



Source: www.infomine.com, accessed 25 July 2017

Table 2: Peru Economic Data

	2011	2012	2013	2014	2015
Economic Growth (GDP, annual variation in %)	6.5	6.0	5.8	2.4	3.3
Unemployment Rate	7.7	6.8	6.0	5.9	6.5
Inflation Rate (CPI, annual variation in %)	3.4	3.7	2.8	3.3	3.6
Exchange Rate (vs USD)	2.70	2.55	2.80	2.99	3.41
Current Account Balance (USD billion)	-3.0	-5.4	-9.4	-8.9	-9.4
Trade Balance (USD billion)	9.2	6.4	0.5	-1.5	-2.9

Source: www.focus-economics.com/countries/peru, accessed 27 July 2017

Questions

- (a) (i) Account for the changes in price of copper from 2012 – 2015. [3]
(ii) Explain the relevance of a price elasticity concept in determining the Peruvian copper producers' standard of living. [2]
- (b) With reference to Table 2, explain the relationship between trade balance and exchange rate in Peru from 2011 to 2015. [3]
- (c) (i) Identify the internal and external factors that contributed to Peru's economic slowdown. [2]
(ii) Comment on the relative importance of the identified internal and external factors that contributed to Peru's economic slowdown. [6]
- (d) Using circular flow of income, explain the effect of "a fiscal stimulus" on the Peruvian economy. [4]
- (e) (i) Explain why any two indicators from 2011 to 2015 might have been of concern to the Peruvian government. [2]
(ii) Discuss if protectionism is the best way to deal with the above problems. [8]

[Total: 30]

Section B

Answer **ONE** question from this section.

- 3** Price mechanism deals with the Central Problem of Economics.
- (a) Explain the concepts of scarcity and shortage. [10]
- (b) Discuss how government intervention can alleviate the problem of allocating scarce resources in an economy. [15]
- 4** Inflation rate in Singapore jumped in the final quarter of 2016. It has been attributed to rising transport and education costs, as well as the government's GST voucher – a special cash payment to eligible Singaporeans. The inflation rate is also set to climb amidst mounting external inflationary pressures from global commodity markets.
- (a) Explain how the above-mentioned factors led to an increase in inflation in Singapore. [10]
- (b) Discuss the extent to which exchange rate policy is appropriate in mitigating the above problem. [15]

2017

**Catholic Junior College
H1 Economics / 8819**

**Preliminary Examination
Full Examiners' Report**

**CSQ Question 1
CSQ Question 2
Essay Question 3
Essay Question 4**

Section A

Answer **ALL** questions

Question 1

The Zika Virus Epidemic

- (a) With reference to the data, explain the likely value of the price elasticity of demand of repellents with DEET. [2]

The |PED| value would be **less than 1**. (1m)

Due to the **lack of 'natural' substitutes for DEET** (Extract 1), an *increase in price of repellents with DEET would lead to a less than proportionate decrease in quantity demanded*, i.e. demand for repellents with DEET would be price inelastic. (1m)

- (b) Different retailers, such as NTUC and Walgreens, have changed prices of repellents differently in view of Zika. Using demand and supply analysis, explain the price changes of the above retailers. [4]

Explaining unchanged prices in NTUC

- Extract 1, "mosquito repellent products have been restocked on a daily basis to meet the increased demand" (1m) OR "working with suppliers to ensure sufficient stocks at stores & warehouses" (1m)
- The increase in demand has been matched by an equivalent increase in supply, leading to unchanged prices, since there is not shortage/surplus to exert pressure on prices to change. (1m)

Explaining the fall in price at Walgreen

- Extract 1, Walgreen has boosted insecticide sales via an increase in supply (1m)
- The increase in supply is greater than the increase in demand, leading to a downward pressure on prices to eliminate the surplus, resulting in a fall in prices. (1m)

- (c) In the event of a Zika outbreak, discuss whether a subsidy on mosquito repellent products should be implemented in Singapore. [6]

Introduction: establish purpose of policy + criteria for evaluation

A subsidy would be implemented in the event of an outbreak in order to address market failure due to the existence of positive externalities in the consumption of mosquito repellent, i.e., use of repellent reduces a consumers' chance of getting Zika (MPB), thus reduce the chances of the spread of Zika in Singapore to others, improving the economic outlook and tourism receipts (unlike Brazil, Extract 2) (MEB).

Whether a subsidy should be implemented would then be decided based on its effectiveness, feasibility in addressing the market failure and whether it suits the context of Singapore.

Thesis: Subsidy should be implemented because it is effective in addressing market failure due to positive externalities.

A subsidy would decrease MPC since it reduces the price of insect repellents for consumers. If the subsidy is set equal to MEB at Q_s , this causes consumers to internalize the externality. The new and lower MPC* would intersect MPB at Q_s , thus addressing market failure, i.e. eliminating the deadweight loss. Moreover, the reduction in prices would also lead to more equity as the low-income groups gain greater access to these repellents.

Anti-thesis: Subsidy should not be implemented because it is not feasible to estimate MEB precisely.

However, it is difficult to estimate the correct amount of subsidy (=MEB at Q_s). An underestimation/overestimation of the amount of MEB would lead to the same result of underconsumption/overconsumption and deadweight loss.

Anti-thesis: Subsidy should not be implemented as it'll drain government resources.

High government expenditure is required to provide for the subsidy. This is not only a drain on government resources but may require higher tax rates such as for income taxes to finance the subsidy. High income tax rates are known to discourage effort and investment in the country.

Synthesis:

Given that the subsidy would merely be temporarily given (during an outbreak), the concern of draining Singapore government's huge fiscal surpluses is a minor one. Moreover, the amount of subsidy can be flexibly altered to adjust for misestimating of MEB. Hence the subsidy should be implemented during an outbreak.

[There are many ways to address this qn: The following approach is also accepted and awarded fully if properly explained.]

*Students may also establish the purpose of the policy as **lowering prices**, and discuss whether a subsidy effectively lowers prices for consumers via the **incidence of subsidies**. In this case, **Thesis:** DD more inelastic than SS, higher incidence on consumers than producers; **Anti-thesis:** possible black markets on Carousell after consumers purchase the subsidized repellents, thus reducing the benefit to consumers in terms of prices and consumers surplus]*

Levels	Descriptors
L2: 4-6	<p>Balanced and well developed economic analysis based on the case material and evident evaluation and judgment.</p> <p>Students are expected to include clear links to MPB/MPC/MEB in their market failure analysis; or clear economic explanation of DDSSE.</p> <p>Evaluative comment required to access full 6m</p>
L1: 1-3	Answers tend to be one-sided or insufficient use of economic analysis. Little or no evaluation/judgment.

- (d) Explain the economic rationale for government intervention in developing vaccinations against Zika. [6]

Vaccinations can be considered a merit good, which are deemed by the government or society to be desirable and underconsumed.

In a free market economy driven by self-interest, individuals will produce/consume at the point, $MPB=MPC$, whereby MPB would refer to the reduction in incidence of Zika on the vaccinated individual and MPC is the cost of the vaccination. Hence consumers maximize their welfare at the free market equilibrium output level Q_f . (1m for contextualization of MPB/MPC and condition reflecting self-interest)

However, due to the positive externality on 3rd parties, e.g. unvaccinated individuals also experiencing a reduced chance of contracting Zika, there is a divergence between the marginal social benefit and the marginal private benefit. The marginal social benefit is higher than the marginal private benefit at any level of output. (1m for contextualization of MEB and divergence)

There is thus an underconsumption of vaccines by the amount Q_fQ_s . (1m for identifying underconsumption)

At output levels between Q_f and Q_s , $MSB > MSC$ which leads to a deadweight loss (welfare loss) and hence this indicates society's welfare is not maximized and therefore government intervention is required. (1m for concluding DWL)

If left wholly to the private sector, the government believes that vaccinations will be under-consumed because individuals undervalue their own private benefits. Consumers may mistakenly underestimate the effects of Zika, for instance, believing that it only affects infants. (1m for contextualizing imperfect information)

In other words, they perceive the marginal private benefit from consuming vaccination, which is the avoidance of contracting the Zika virus, to be lower than it actually is, and therefore consumption of vaccination will be lower than it should be. (1m for theoretical elaboration of underperceiving MPB), further aggravating the underconsumption due to the positive externalities.

- (e) From Extract 2, identify and explain a reason for the upward trend in tourist arrivals into Brazil shown in Figure 1. [2]

Evidence:

“Travel companies say they are seeing great sales on international vacations and say the strong U.S. dollar have a lot to do with it.” (1m)

Knowledge:

With a strong USD, the price of Brazil goods & services appear relatively cheaper in USD terms which leads to an increase in quantity demanded of Brazil goods & services, including travel vacations in Brazil. (1m)

- (f) (i) Using Table 1, compare the short term and long term costs of Zika on Brazil with the other Latin American countries [2]

Similarity:

Highest absolute cost for Brazil compared with other Latin American countries for both long term and short term costs, as well as long term costs as a % of GDP (1m)

Difference:

While Brazil has the highest long term costs as a % of GDP, it has the lowest in short term costs as % of GDP. (1m)

- (ii) Using data where appropriate, evaluate whether the Zika outbreak is the most worrisome problem that the Brazilian government has to consider in achieving sustained economic growth. [8]

Question Analysis

In order to evaluate Zika's impact on sustained growth is the most worrisome, this answer should:

- Consider its short run and long run impacts (actual and potential EG) and
- The significance of each of these impacts, and
- How Zika and its impacts compared to the other problems (based on other macro aims not met) faced by Brazil.

Intro

Thesis: Zika is worrisome because it can affect both actual and potential growth

Anti-thesis 1: Impacts of Zika are limited

Anti-thesis 2: Other problems are more worrisome

Synthesis: Stand and justification

Introduction [establish criteria]

Whether Zika or other problems will be the most worrisome for Brazil will depend on the likelihood of each problem and the severity/extent of its impacts on sustained economic growth.

Thesis: Zika is worrisome because it affects both actual and potential growth.

According to extract 2, there has been rising concerns about Zika's "impact on Brazilian tourism, which supports nearly one-tenth of Brazil's economy". A decrease in X in terms of tourism revenue would lead to a fall in AD and a more than proportionate fall in RNY due to the multiplier effect. This lowers actual growth. As evident in Table 1, Brazil would experience the largest absolute total short term cost in USD as compared to other Latin American Countries (LAC).

The Zika outbreak would also have an impact on potential growth. According to extract 3, “caring for a child with microcephaly or developmental disorders often forces family members, especially women and adolescent girls, to leave the labour market or formal education, contributing to lost productivity”. A lost in productivity and a shrinking labour force would lead to a fall in productive capacity and a decrease in LRAS. As evident in Table 1, Brazil would experience the largest absolute cost and largest cost as a % of GDP as compared to other LAC. This compromises sustained economic growth, because a falling LRAS and falling AD leads to a larger decrease in RNY, with a likely increase in GPL.

[Possible but not required for H1] Furthermore, Zika would worsen socioeconomic inequities, thus further contributes to worsening sustainable economic growth, as larger income inequity reduces the productive capacity of the economy with a larger proportion of its population not being able to access healthcare, education etc, thus resulting in LRAS to fall in future, thus leading to unsustainable economic growth.

Anti-thesis 1: the impacts of Zika are limited

The impact of Zika may be limited due to the tourism sector being only a tenth of Brazil’s economy, i.e. there may be other larger sectors that are still growing and hence contribute to overall economic growth. According to table 1, the short term costs as a % of GDP is also smallest for Brazil vis-à-vis other LAC.

Anti-thesis 2: Other problems are more worrisome

Brazil is in the midst of the longest economic downturn since 1930s and its economy in the dumps (Extract 2), suggesting that there are other macroeconomic problems, such as **low/negative economic growth**. The long drawn economic downturn could lead to low consumer and investor confidence, hence leading to lower C and I, which lowers AD and LRAS, further perpetuating the negative economic growth and deflationary effects on the economy. Furthermore, a long drawn economic downturn very often results from structural issues, such as low productivity and poor infrastructure, which would have severe negative implications on sustained economic growth.

Another problem is that Brazilian currency is “trading near all-time lows”, which suggests that there could be an **external instability** in the form of a **persistent BOP deficit**, which causes outflow to be larger than inflow, hence a depreciation of the currency overtime. A steadily declining exchange rate could lower investor confidence, cause an outflow of FDI, and hence leading to negative economic growth both through AD and LRAS.

However, the depreciating currency appears to have a positive impact on tourism (Extract 2) through an increase in Brazilians opting to vacation at home. The fall in X due to foreign tourists could be offset by an increase in domestic consumption (Brazilian tourists travelling within the country). A depreciating currency would also increase the price of imports, decreasing the quantity demanded of imports, potentially reducing M as well. These factors may potentially offset the fall in AD as a result of the low consumer and investor confidence, leading to a rise in AD and RNY. This could be the positive counter effect that the Brazilian economy needs, in order to get out of the deflationary spiral.

Synthesis:

Whether Zika turns out to be the most worrisome problem for Brazil depends on the extent of impact on tourism due to Zika versus the extent of impact of its depreciating currency. It also depends on whether other sectors of the economy may continue to grow despite its long drawn economic downturn.

Given that the short term costs (including tourism) is only 0.03% of GDP, it appears possible that the negative effects on tourism could be offset by the low currency. **It thus depends on whether the current long drawn economic problem is due to deep seated structural issues.** If not, the depreciating currency could be sufficient to kickstart the economy and pull it out of its low economic downturn – Zika would thus be the worst of its problems. If, however, there are deep seated structural issues, Zika will merely worsen these economy’s structural problems. Therefore, the government would do well to implement proactive policies to overcome these problems while taking preventive policies against Zika.

Levels	Descriptors
L2: 4-6	Balanced and well developed economic analysis with ample use of extract evidence. Students are expected to include clear links to actual and potential growth via AD/AS analysis
L1: 1-3	Answers tend to be one-sided or insufficient use of economic analysis.
E2: 2	Judgment substantiated with contextual/theoretical analysis
E1:1	Unsubstantiated judgment



Question 2

Peru's Economic Challenges

(a) (i) Account for the changes in price of copper from 2012 – 2015. [3]

- Demand factor: [1]
 - Evidence (Extract 5): “Slowdown of the Chinese economy”
 - Knowledge: With a slowdown of the Chinese economy, disposable incomes should generally have fallen. Assuming that copper is a normal good, the demand for copper will fall.
- Supply factor: [1]
 - Evidence (Extract 5): “output is still growing in Peru’s operating mines...world’s second-largest copper producer...” (OR “Peru is a giant of the global mining industry” also accepted in place of “world’s second largest copper producer”)
 - Knowledge: Since Peru is set to be the second largest copper producer, an increase in its output of copper is enough to increase the world supply of copper.
- Simultaneous shifts: [1]
 - A fall in demand together with an increase in supply of copper will lead to a definite fall in equilibrium price of copper, and this accounts for the “last three years of falling copper prices” as mentioned in extract 5.

(ii) Explain the relevance of a price elasticity concept in determining the Peruvian copper producers' standard of living. [2]

- Application: [1]

Given a fall in copper prices due to the increase in supply of copper, and that the demand for copper is price inelastic because “...copper, which is an essential component in virtually every electrical and electronic device and wiring”, hence it will lead to a less than proportionate increase in quantity demanded of copper, and thus the total revenue of copper will fall

- Linkage to SOL: [1]

Since total revenue falls, assuming total cost remains constant, it means that the Peruvian copper producers’ profits and therefor their incomes will fall. With less disposable income, purchasing power falls and thus the quantity of goods and services consumed will also fall. Thus material, and possibly non-material standard of living will fall.

Answer also accepted if answer talks about DD shift + PES. But student must be able to explain that regardless the PES is elastic or inelastic, TR still falls. PES is not relevant.

(b) With reference to Table 2, explain the relationship between trade balance and exchange rate in Peru from 2011 to 2015. [3]

- Evidence:

As seen in Table 2 from 2011 to 2015, as trade balance worsened from a surplus to a deficit, Peru’s exchange rate depreciated/weakened. [1]

- Knowledge:

With commodity prices falling and sharp slowdown in Peru’s trading partners, export revenue fell. This led to a worsening of Peru’s trade balance. [1]

This caused a fall in the demand for Peru’s currency relative to its supply, resulting in a depreciation of the currency [1]

or

- Evidence:

As seen in Table 2 from 2011 to 2015, as Peru’s exchange rate depreciated/weakened, its trade balance worsened from a surplus to a deficit. [1]

- Knowledge:

With the depreciation of the exchange rate, price of Peru’s exports became cheaper in terms of foreign currency. As Peru’s main exports are commodities, the fall in export price lead to a less than proportionate rise in quantity demanded hence a fall in export revenue as the demand for commodities exports is price inelastic (assuming Marshal Lerner condition does not hold). [1] Ceteris paribus, this led to a worsening of Peru’s trade balance. [1]

(c) (i) Identify the internal and external factors that contributed to Peru’s economic slowdown. [2]

- Internal factors [1]

- Slow productivity, large informal economy, lack of physical capital development, lack of human capital development, private consumption slow down. Contraction in public and private investment.

- External factors [1]

- Slack export appetite from major importer like China, falling investor confidence causing currency plunge.

[Any one factor for each category will do]

(ii) Comment on the relative importance of the identified internal and external factors that contributed to Peru’s economic slowdown. [6]

Command	Comment ... relative importance
Content	Economic slowdown Internal factors of growth External factors of growth
Context	Peru
Approach	T: Internal factors – Slow productivity, large informal economy, lack of physical capital development, lack of human capital development, private consumption slow down. Contraction in public and private investment.

	<p>AT: External factors – slack export appetite from major importer like China, falling investor confidence causing currency plunge.</p> <p>[1 Internal factor + 1 External factor + comparison will suffice]</p> <p>Comparison of relative importance + Synthesis: Overall, internal factors seem to be more major problem than external problem.</p>
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Introduction

An economic slowdown is a situation where real GDP rises insignificantly. This can be contributed by various internal and external factors. **The most significant factor will be assessed by judging the degree of immediate impact it has on Peru's economic growth rates.** *[other criteria are also acceptable, such as the extent of impact given the Peru's relative dependency on external vs internal drivers of growth]*

Thesis: External factors are critical in explaining the economic slowdown in Peru.

One external factor will be a fall in income of Peru's major trading partner, China.

Peru is a major copper exporter, but its NX has been falling due to China's slack appetite for copper. Since China is a major importer of Peru's copper (China consumes 40% of world's copper, Extract 7), **the large fall in export revenue to China is therefore unlikely to be offset by rise in export revenue to other countries.** It was also mentioned that China's slowdown has sparked a confidence crisis in Peru where investors were seen selling off Nuevo. The fall in demand of Peru currency will result in a sudden drop in currency strength. This external factor thus has an impact on the Peruvian government's choice of policies such that expansionary monetary policies can no longer be appropriate as a response to the economic slowdown [as further interest rate reductions will serve to further weaken the Nuevo, hence deepening the confidence crisis].

[alternative: (China slowdown could also possibly hurt her trading partners as she is a major importer, and in turn, these countries will in turn also consume fewer exports from Peru).]

Alternative Thesis: External factors are critical in explaining the economic slowdown in Peru.

Rising food prices is another possible external factor why Peru is facing a slowdown.

Peru may also be importing food from overseas as its primary export is copper. It is logical to conclude that Peru most likely may have a comparative advantage in copper production, and hence will seek to specialize and export. Certain types of food production (such as wheat/corn/soybean) may not be Peru's comparative advantage; hence Peru will import such food items. As a result of this, Peru will be highly susceptible to imported inflation. The rising prices of food will result in imported cost-push inflation.

The extent of imported inflation depends on the rate at which the Nuevo

weakens. Overall, firms' cost of production rises. SRAS likely shifts up, hence dampening rises in Real GDP.

Anti-thesis: However, internal factors are vital in explaining the slowdown as well.

Falling private consumption (Extract 7) is one reason why Peru is facing a slowdown.

Private consumption may include import consumption and domestic consumption. Due to poorer job expectations, consumers may have cut down on their private consumption. This could possibly imply that domestic consumption will fall. Since C_d is a component of AD, AD on balance may rise but at a slower rate. This could hence explain the economic slowdown.

[Alternatively, students can argue that there may be a cut in import expenditure. While this may seem to improve the trade balance, the larger drop in export revenue to China will offset the cut in import expenditure. Overall, NX may still fall]

Alternative Anti-thesis: However, internal factors are vital in explaining the slowdown as well.

Falling productivity is cited to be one internal factor why Peru is facing a slowdown.

Productivity in Peru has improved slightly (despite still lagging behind Asia). The improved productivity was attributed to a slightly more educated workforce; hence quality of labor force improves. Overall, a slight improvement in productivity would most likely imply a small increase in the productive capacity of a country, such that the maximum output that Peru can possibly produce has increased slightly. The lack of innovation, physical infrastructure development and competition could then on balance cause a fall in LRAS [or insignificant rise in LRAS], thus dampening rises in Real GDP.

*[Note: Other internal factors such as **lack of innovation, lack of physical infrastructure development and lack of competition** can be used as well.*

***Innovation** is important to a country as it may determine the flexibility of firms to change or adjust during difficult times.*

*Peruvian government faces a problem investing in **infrastructure development** projects as they will strain the government budget. This will have significant impacts on productivity.*

***Lack of competition** breeds complacency, firms lack incentive to be cost effective and innovative outcomes – unable to compete effectively in terms of price and quality.]*

Conclusion/synthesis

Overall, all internal and external factors played significant roles in explaining the economic slowdown in Peru.

It can be argued that that the more significant cause of the economic

slowdown is due to external factors. In particular, the most significant is the large decline in China's appetite will be the most significant as it directly reducing real GDP growth rates, and as a result caused internal factors to negatively affect growth, via shattered investor and consumer confidence in Peru, thus further prolonging the economic slowdown. This therefore severely hampers Peru's growth in a short time, hence proving that this external factor is the most significant.

[It is also possible to argue that weak fundamentals would be the underlying cause for the inability to adjust to the external environment. Hence, internal factors will be the most significant in explaining the slowdown]

Mark Scheme

Level	Descriptors
L1 (1 – 3m)	One sided answer explaining external or internal factors or A superficial two-sided answer with no reference to slowdown.
L2 (4 – 6m)	Two-sided answer explaining how both external or internal factors results in Peru's slowdown, with reference to case materials. Max 5marks - No conclusion on relative significance

(d) Using circular flow of income, explain the effect of “a fiscal stimulus” on the Peruvian economy. [4]

- Definition of circular flow of income: Shows the flow of income and goods and services in an economy. Equilibrium in the circular flow occurs when the sum of Injections = Sum of Withdrawals
- Assuming the economy is initially at equilibrium, a fiscal stimulus increases G on infrastructure and decreases income, corporate and fuel T, resulting in an increase in injections and fall in withdrawals. This will cause the economy to be in disequilibrium with $J > W$. [1]
- The increase in demand for goods and services will signal to firms to produce more goods and services. As they produce more goods and services, they will employ more factors of production raising factor incomes of households. [1]
- The fiscal stimulus will create many rounds of increase in spending within the circular flow and a multiplied increase in income. [1]

- As income increases in each round, withdrawals in the form of S, T and M will also increase. The process ends when the increase in income is 0 and $J=W$ at a higher level of national income, actual economic growth and employment. [1]

(e) (i) Explain why any two indicators from 2011 to 2015 might have been of concern to the Peruvian government. [2]

- Trade balance, because it has worsened from surplus to deficit**, thus having a negative impact on economic growth, ceteris paribus [1] OR **Current account deficit** has worsened, thus having a negative impact on economic growth, ceteris paribus. [1] → loss of confidence in the Peruvian economy → less FDI → worsen economic growth and BOP
- Unemployment rate**, because it is generally high and has been rising since 2013 [1] → low SOL for the unemployed
- Economic growth rate**, because it is increasing, but at a slower rate. [1] → affect the SOL of the people adversely
- Depreciation of **exchange rate** (against USD), thus leading to lower confidence of investors, potentially reducing actual and potential growth [1]
- Rising inflation rate**, thus leading to loss of confidence in the Peruvian economy → less FDI → worsen economic growth and BOP

Any 2 indicators with explanation – 2 marks.

(ii) Discuss if protectionism is the best way to deal with the above problems. [8]

Question analysis

Command	Discuss: Provide different perspectives into the issues raised 'best' - Some form of comparison according to a set criterion is needed
Content	Protectionism Macroeconomic Problems & Policies AD/AS analysis
Context	The above identified problems, say: 1. High unemployment rate 2. Worsening trade balance
Approach	1. The word "discuss" entails the use of the Thesis-Antithesis-Synthesis framework to give a two-sided argument about the relative appropriateness of protectionism vs other policies such as fiscal and monetary policies. 2. Under the thesis/antithesis, students will have to decide if protectionist measures or other macro policies are more appropriate in addressing the above macroeconomic issues. This will have to be done using AD/AS analysis with contextualization to the Peruvian context. Students will have to further substantiate the thesis/antithesis with evaluation of each policy. 3. Under the synthesis, students will have to make a stand about whether protectionism is the best measure of government intervention and to justify their stand with economic & contextual analysis.

Introduction

Protectionism refers to the act of erecting barriers - import tariffs or subsidies, with the aim of shielding domestic industries from external competition. Whether or not protectionism is the best approach depends on whether the root cause of the problems is addressed. [criterion]

Example of protectionism in Extract 6 include “antidumping” or “more subtle non-tariff barriers” such as an export subsidy which is meant to protect domestic industries through artificial lowering of export prices.

Thesis 1: Protectionism can be used to improve worsening trade balance and slowdown in economic growth

According to the extract, the trade balance for Peru has worsened, due to the falling export revenue and the rising import expenditure for the country.

By introducing protectionist measures such as the imposition of tariffs on these foreign imports, the Peruvian government is then able to ensure that domestic goods stay competitive in terms of relative price and encourage greater domestic consumption and lower import expenditure. This should help to improve Peru’s worsening trade balance.

The improving trade balance will also result in an increase in Peru’s net exports. This would increase AD, ceteris paribus, boosting actual economic growth in Peru.

Anti-Thesis 1: Protectionism may not improve worsening trade balance and slowdown in economic growth

However, when countries are experiencing falling export revenue, imposition of a tariff may cause more detrimental outcomes. Some of these outcomes can be allowing ineffective domestic firms to exist, resulting in the misallocation of world resources.

In addition protectionism may also create escalating trade wars. This is because protectionism usually results in trading partners becoming worse off. Trading partners might face increasing unemployment as **workers** will lose their jobs due to them being subjected to protectionism measures imposed by others. Hence, this invites retaliation. Retaliation might result in the benefits of protectionism being cancelled off in the longer term.

Mini Synthesis:

Overall, protectionism measures to resolve a worsening trade balance is not the best way to do so. It is important to find out the cause of the deficit first before deciding to impose protectionism especially in the light of escalating trade wars. This is especially so because protectionism will not be able to solve the root cause of the problem.

Thesis 2: Protectionism may help to lower structural unemployment

Protectionism can help prevent high levels of structural unemployment in sunset industries.

Sunset industries may not possess the comparative advantage necessary to stay competitive in the global market. As such, they should be shut down so that the economy is able to specialise in sectors that they do have comparative advantage in. If the workers in these industries are unable to switch into

another industry quickly, it could result in structural unemployment. Export subsidies for these sunset industries can thus help to lower the price of these exports, to continue to remain competitive in the global market, hence protecting the employment of the related workers till they are able to acquire the necessary skills to move to expanding industries.

Anti-Thesis 2: Protectionism may not help to lower unemployment

However, if protectionism measures are put in place for too long, it may result in overreliance and complacency where the workers in these sunset industries end up not being bothered to re-train themselves to be able to stay competitive or find work in other sectors. Also, the longer the duration, there will be a higher risk of creating trade wars. On the other hand, if it is applied and removed too fast, there may not be sufficient time for the affected workers to receive adequate training to be re-deployed.

Anti-Thesis 3: Protectionism may not be the best policy since it does not address the root cause of the problems

Furthermore, one of the root causes of the BOT problem is likely to be the external slowdown of China's demand for Peruvian's copper, leading to declining trade balance and worsening employment. Protecting Peruvian's export industries does not solve this problem at all.

Mini Synthesis:

Protecting sunset industries are important and can be justified, though it hardly addresses the root cause of the BOT deficit. However, the duration of the protectionist measure needs to be carefully considered to be used only as a short-term measure.

Anti-Thesis 4: Other measures should be employed to address the issue of worsening trade balance, slowdown in economic growth (and unemployment)

Instead of relying on protectionism measures, government should consider the use of other macro policies such as supply side policies to solve the issue of worsening trade balance and unemployment.

Supply side policies could lead to an improvement in the quality of goods and services or to enhance efficiency in production. For example, the government could finance Research & Development or provide grants for economic innovation to boost productivity as mentioned in Extract 7. This would help to make Peru's exports of higher quality and could either result in a larger volume of exports or allow the Peruvian firms to charge a higher price for their export. Either way, this leads to a rise in export revenue. Furthermore, through R&D and innovation, Peruvian firms could become less reliant on imports whether in the form of factor inputs or as final goods and services, which leads to a fall in import expenditure. The combined effect of rising export revenue and falling import expenditure would no doubt help to improve the worsening trade balance, boosting actual economic growth in Peru (and reducing unemployment). The higher quality of exports can also divert Peruvian exports away from China, as more countries would want to buy from Peru, thus reducing the vulnerability of Peruvian economy to China's slowdown.

Also, supply side policies could work in improving the productive capacity of an economy, thus tackling another root cause of the rising unemployment (structural issues). For example, the government could fund training for its

workers to increase their productivity and thus lowering unit wage costs. As productivity increases and more can be produced using the same amount of resources, which could potentially translate to lower cost of production and cheaper exports. More importantly, the training provided could be targeted at ensuring that workers from sunset industries are properly trained and equipped with the skills and know-how necessary to survive beyond the dwindling sunset industry jobs and be deployed the sectors which the country currently has a comparative advantage in.

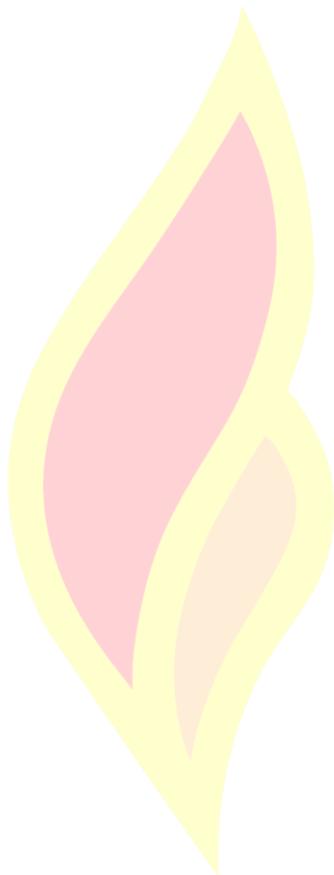
However, it may take time for the benefits of the policy to be felt on the economy. Moreover, it may also require extensive funding that may put a strain on government resources given the slowdown in economic growth.

Conclusion

Protectionism benefits domestic firms more than consumers in the short run. However, in the long run, protectionism tends to create escalating wars if it is used extensively, resulting in the entire world being worse off. Therefore, protectionism is not the best approach, should only be used in the short run and never in the long run, since it does not address the root cause of falling export revenue due to China's slowdown and possible structural issues. For long run benefits to address the root causes, supply side policies should be employed instead.

Mark Scheme

Knowledge, Application, Understanding and Analysis		
L2	<p>Content is well developed, with sound economic theory being explained and well explained diagrams and AD/AS analysis being used to compare whether protectionism is the best policy</p> <p>Consistent and effective use of examples, continually linked to question.</p> <p>Coherent two-sided argument made.</p>	4 – 6
L1	<p>Answer fails to deal with question requirement by merely giving superficial descriptions of advantages/disadvantages of protectionism, without any form of comparison.</p> <p>Content shows major errors in conceptual understanding.</p> <p>Limited e.g. provided.</p> <p>Argument is incoherent, or missing.</p>	1 – 3
Allow up to 2 additional marks for Evaluation		
E	Judgment is based on economic analysis and adequately substantiated and well contextualized to Peruvian context	1 – 2



CJJC

Section B - Essays

Question 3

Price mechanism deals with the Central Problem of Economics.

(a) Explain the concepts of scarcity and shortage [10]

(b) Discuss how government intervention can alleviate the problem of allocating scarce resources in an economy. [15]

(a) Explain the concepts of scarcity and shortages [10]

Learning Points:

1. Understanding how the price mechanism addresses the central economic problems
2. Know and understand the concepts of scarcity and shortages

Question analysis

Command	Explain: how scarcity and shortages arise.
Content	Central Economic Problem of economics, demand and supply Scarcity = unlimited wants but limited resources – give rise to economic problems of what to produce, how to produce and for whom to produce. Shortage = demand more than supply
Context	No particular context but students can give own hypothetical examples to illustrate the 2 concepts
Approach	The question required students to be able to explain what are the central problem of economics and the role of the price mechanism in addressing the problems. Students are also expected to be able to explain the concepts of scarcity and shortages using PPC and demand and supply analysis. Diagrams to illustrate the concepts are also required.

Introduction

Scarcity = unlimited wants but limited resources – give rise to economic problems of what to produce, how to produce and for whom to produce.

Shortage = Qty demand more than Qty supply

The price mechanism is a system that helps address the scarcity, the central problem of economics. It is where demand and supply interacts with each other to determine the equilibrium price and quantity of goods and services sold in markets. In a free market, economic agents such as producers and consumers are assumed to act rationally and governed by their self-interest. Producers would aim to maximise profits while consumers would aim to maximise satisfaction. The price mechanism uses price to act as a signal to producers and consumers on how to allocate their scarce resources in order to maximise their own satisfaction.

Overview This essay will explain how the price mechanism deals with the central problems of what to produce, how to produce and for whom to produce before going on to explain the concepts of scarcity and shortage.

Paragraph 1

In the price mechanism, consumers decide **what is to be produced** (consumer sovereignty) by exercising their 'dollar votes'. Producers then respond to the desire of the consumers by producing those goods and services that the consumers demand to

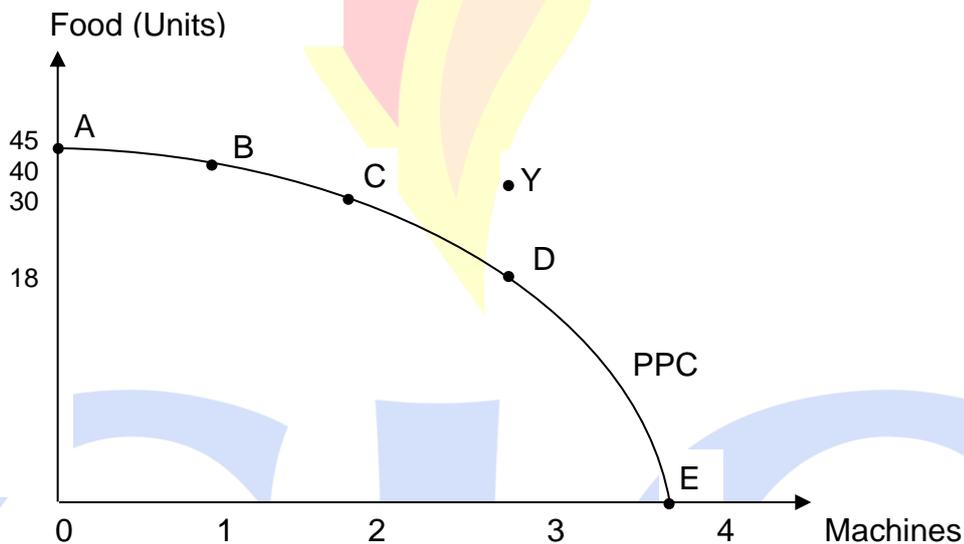
maximise their profits. As such, producers then address how much to produce by looking at the prices consumers are willing and able to pay. To decide **how to produce** in order to maximise profits, firms will use the least cost method of production to produce the goods for the consumers. In deciding **for whom to produce** the price mechanism plays a rationing role in the sense that only consumers who are willing and able to pay for the good/service get to consume it eventually. As such, only consumers with the highest dollar vote get to enjoy these goods/services.

Paragraph 2

Explain the concept of scarcity

Scarcity arises because **limited resources** are insufficient to satisfy **unlimited human wants**. Scarcity is a problem faced by all societies. Scarcity can be illustrated by using the PPC. The PPC curve shows all maximum possible combinations of two outputs that an economy can produce within a specified period of time with all its resources fully and efficiently employed, assuming a particular state of technology.

Illustration: Assuming Country X produces only Consumer goods (e.g., Food) and Capital goods (e.g., Machines). To produce more of machines some food will have to be given up. The economy cannot produce more of both.



The economy would like to produce at a point outside the curve (e.g. point Y) where it is able to enjoy a larger combination of goods. But point Y lies outside the PPC and production cannot take place outside the PPC given the current amount of resources and state of technology. Therefore, points that lie outside the PPC illustrate **the problem of scarcity** as they represent points that the country would want to produce at but is unable to do so due to limited resources. Therefore choices have to be made on the allocation of resources. The price mechanism is one way in which resources are allocated.

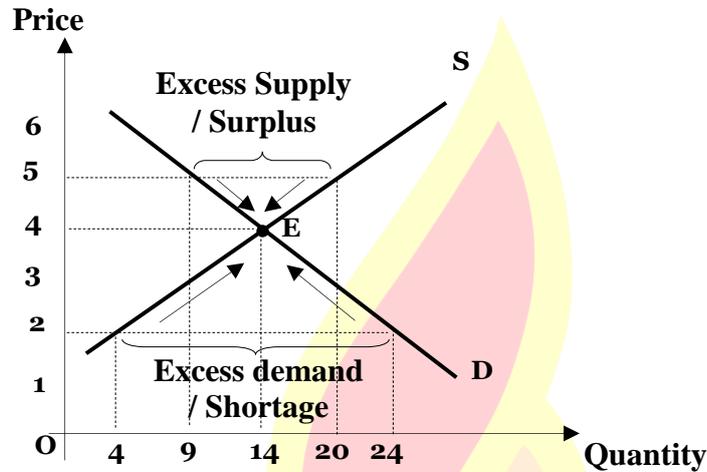
Paragraph 3

Explain the concept of shortages

Shortages occur when quantity demanded is more than quantity supplied at any price below the equilibrium price level.

Shortages can be illustrated using demand and supply analysis. The demand shows the willingness and ability of consumers to purchase a particular good/service at various prices. The supply shows the willingness and ability of producers to produce a particular good/service at various prices. Where quantity demanded equals quantity supplied, the market is in a state of equilibrium. Equilibrium is a state of rest where there is no tendency for any change. This is commonly known as market equilibrium.

However, shortages occur when quantity demanded is more than quantity supplied at any price below the equilibrium price level.



If the initial price is below the equilibrium price, there is an **excess demand or shortage** since the quantity demanded exceeds the quantity supplied. Consumers who could not get all they want would be willing to pay more. This exerts an **upward pressure** on the price. As price rises, producers will increase their quantity supplied and consumers will reduce their quantity demanded until shortage is eliminated and equilibrium price and quantity are established.

Conclusion

Thus, the price mechanism uses price as a signalling and rationing role in the market economy that will automatically adjust to reach equilibrium. At this point, shortage is eliminated and resources are allocated to efficiently to satisfy the consumer wants (i.e., allocative efficiency is achieved), thus addressing the scarcity.

Mark Scheme

L3	Good understanding of the price mechanism and well developed and balanced explanation of scarcity and shortages with the use of economic models and examples.	7-10m
L2	There is some understanding of the price mechanism. Unbalanced but some development in explanation of scarcity and shortages with the use of economic models and examples; OR One-sided explanation of either scarcity or shortages.	5-6m
L1	There is a lack of coherence in the explanation. There is some understanding of the price mechanism but explanations of scarcity and shortages are rather superficial or merely description without using economic models.	1-4m

b) Discuss how government intervention can alleviate the problem of allocating scarce resources in an economy. [15]

Question analysis

Command	Discuss: multiple perspectives that leads to a stand
Content	<p>Market failure and government intervention: any situation in which the markets may fail (e.g., in the case of merit good and public good) and hence it is allocative inefficient; and how government can intervene to alleviate these inefficiencies.</p> <p><i>[There are many ways to answer this question. Students may choose any two sources of market failure, and may choose to discuss any type of policies that a government may adopt to intervene (e.g., subsidies, taxes, direct provision, moral suasion, regulation etc).</i></p>
Context	No particular context but students can give own examples pertaining to Singapore.
Approach	TAS approach. Students are to analyse that government intervention in addressing the 2 market failures will alleviate the problem of allocating scarce resources and counter argue how government intervention may not result in allocative efficiency. A conclusion and judgement on the view in the question is required.

Introduction

Market failure occurs when the price mechanism is unable to allocate resources efficiently on its own; as such government intervention is necessary to improve the allocation of resources. In situation such as public good, merit and demerit goods or when the production or consumption of goods and services causes positive or negative externalities, the price mechanism will allocate resources inefficiently on its own, resulting in market failure.

Overview In this essay we will look at two situations in which the markets may fail and they are the market for merit goods and market for public goods. We will be discussing whether government intervention will result in more allocative efficiency.

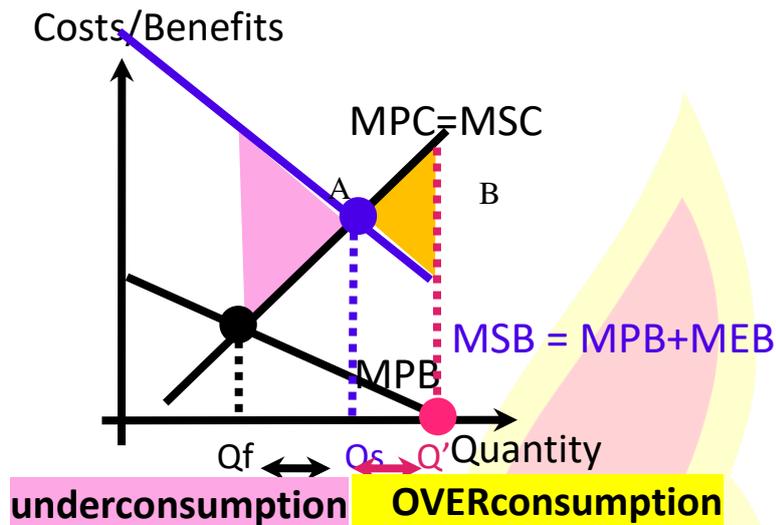
Thesis 1: Government intervention in market failure will result in more efficient outcomes in the provision of merit goods

One market failure would be **education** where it is deemed as a **merit good** by our society, which are goods that are deemed by the government to be desirable but underconsumed. These goods are underconsumed due to its **positive externality** and **imperfect information** held by consumers of their private benefits.

The positive externalities would be the external benefits in terms of a more educated and productive workforce driving our economic growth as well as a more civilised and refined society. When consumption of education has positive externality, this will cause its marginal social benefits (MSB) to be higher than the marginal private benefit (MPB). Since there are no negative externalities, marginal private (MPC) = marginal social cost (MSC). Individuals will consume education up to $MPC/MSC = MPB$. However, the society will prefer consumption to be at $MSB = MSC/MPC$ where it is allocative efficient. Since MSB is higher than MPB, from the society's point of view, there is under consumption of education which results in deadweight loss.

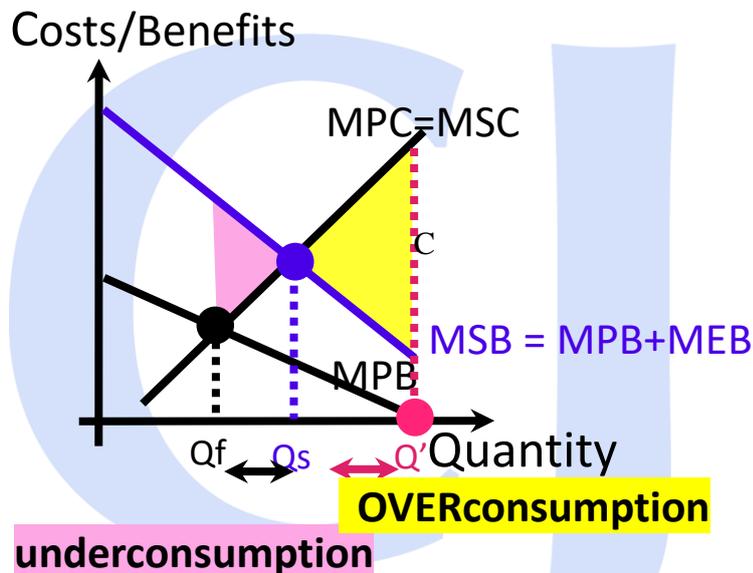
There is also imperfect information of the consumer's marginal private benefit, in an individual may only value the MPB to be the future earnings, but is unaware of the benefit education yields to his civic and cultural awareness as a holistic being. Thus, consumers tend to underestimate the MPB, such that the perceived MPB is lower than the actual MPB, thus underconsuming education, leading to deadweight loss. This further aggravates the underallocation of resources (& DWL) that arises due to positive externality.

Government intervention in the form of **free provision** can help to achieve **allocative efficiency**. For example in Singapore, a large part of our education is provided by the government directly. Primary school education is free while the rest are heavily subsidized. Consumers receiving the free provision will maximise net private benefits, and consume up to $MPB=0$. This leads to **greater consumption of education, such that $Q' > Q_f$** . Consuming more **primary education**, which has an **extensive MEB**, towards the socially optimal consumption will allow us to **reduce the dead weight loss of triangle A**, and results in a **lesser DWL of triangle B**



Anti-thesis 1: Government intervention in market failure may not result in more efficient outcomes.

However, it should be noted that the free provision will only reduce DWL and improve allocation if the MEB of education is indeed very high. **If the MEB of education is not high enough, free provision actually results in overconsumption**, such that Q' is significantly larger than Q_s , thus causing the DWL after free provision to be larger than DWL before government intervention (triangle C), as in Figure 2. This might be true for types of education like a postgraduate degree, where the education incurs less MEB, than primary education, which has extensive MEB. Government intervention thus only improves the problem of allocating scarce resources if the MEB is extensive.



Furthermore, it **free provision does not directly tackle imperfect information**, the other source of market failure. Hence, $Q_{\text{free provision}}$ could be still some distance away from Q_s . The Singapore government thus complements free provision with regulation, where the Compulsory Education Act mandates that all children go through primary school education.

Another limitation is that the provision of free and subsidized education would **require large funds** which may **imply higher income tax** on our workforce. Such taxes may **discourage working and investment**, leading to lower aggregate demand that reduces national output level, causing economic slowdown and higher unemployment. Hence even if government intervention alleviates the problem of resource misallocation, **it can cause another set of problem of higher unemployment.**

*[Alternative points: This may also **drain resources** away from other areas of development in the country. Hence it may not lead to more efficient outcomes as a whole for the country. **Over subsidise leads to wastage** of money. Another limitation is that because education is largely provided by the government, the variety and diversity of our education is limited and so while it encourages consumption, consumer choice may be limited.*

*Further, the direct provision by the government can also **create 'crowding out' effects**. This is because the government is now competing with private firms for funds in the provision of goods and services. As such, capital is diverted away from the private sector, reducing the capacity for the private sector to engage in research and development to innovate towards efficiency. Hence, this worsens the misallocation of capital among the public and private sectors in the economy.]*

Mini Synthesis

Given the importance of an educated labour force to Singapore's economy, the extensive government intervention in terms of large amount of money spent on education and regulation are justified because of the huge external benefits to our economy. However, the long terms outcomes of education are always uncertain and this is a risk that our government have to take in the provision of education for all our young. Such extensive intervention should also be reduced with the years of education, since the extent of MEB would fall as one progresses from primary to secondary to tertiary (benefits tend to be more private benefits than external benefits for higher levels of education).

Thesis 2: Government intervention in market failure will result in more efficient outcomes in the provision of public goods

In the case of public goods where they are non-rival and non-excludable such as the case of national defence in Singapore, government intervention is needed. National defence is non-rival because the consumption of it does not lower the quality and quantity of defence to other people in Singapore. A newborn or a foreign tourist entering the country does not make an existing citizen feel less protected by our national defence. Hence, the MPC of providing for an additional person is zero, thus for allocative efficiency, $P=0$, which no private firm is willing to do. It is also non-excludable because non-payers are being protected as well – there is no feasible way to charge non-taxpayers like foreigners from being protected by the national defence when visiting the country. This creates the problem of free ridership and hence producers are not able to get price signal from consumers to pay for the service. As a result, no private producer is willing to provide national defence.

The Singapore government provides national defence to the entire country due to the nature of it being a public good as well as for national security reason. Singapore's National Defence is provided through two ways. First, we have regulars who work in Ministry of National Defence (MINDEF) as their occupations. Secondly, we have conscription of males Singaporeans and Permanent Residents who are required by law to serve National Service for two years. As such, our National Defence is provided by the government through both regulars and our citizens and PRs. This allows our small nation with a small population to provides a large army that is adequate to provide national defence. Without government intervention in this case, free market will fail completely. Government intervention is thus

necessary to allocate scarce resources in the case of a public good.

Anti-thesis 2: Government intervention in market failure may not result in more efficient outcomes.

While Singapore is able to provide adequate national defence, it does incur high opportunity cost. One of the limitations of our government policy with regards to National Defence is that young males adults who have to serve National Service will only be able to contribute economically two years later, hence the potential economic output of our NSmen is lost. Secondly, the government would have to spend huge amount of the budget to provide for the large army that we have. In the real world, the government do not really have the information on what is the optimal amount of national defence it should provide. Over provision of national defence would result in inefficient use of resources.

Mini Synthesis

The Singapore government has sufficient funds to provide for National Defence and while MINDEF is given the largest proportion of budget each year, the government does cater funds to other areas of development in Singapore. National defence do have positive effects on our country as well given that it helps to provide a stable environment for our economy to thrive. Hence, in this case I feel that the government intervention results in more efficient outcome.

Overall Synthesis

I feel that the market oriented government policies seems to be better way to allocate resources rather than blunt regulatory government policies as price acts as a good signal to the producers and consumers.

For example, in cases of overproduction of cigarettes, to eliminate the overproduction(e.g.), price can be increased to reduce the greater quantity demanded by the consumers to achieve allocative efficiency. This can be done by the imposition of tax. In cases of underproduction of merit goods such as healthcare and education which should be made affordable to consumers, with subsidies, or even direct provision (complete subsidy) by the government may be considered a better choice to induce the desired behavior of the consumers.

Overall, whether government intervention leads to more efficient outcomes than the market really depends on the type of polices chosen by the government based on its financial ability. In the case of Singapore, due to the adequate amount of financial resources that the government is able to carry out policies effectively to deal with the various market failures without compromising other areas of development in the country. For governments with limited resources, they may not be able to come out with effective policies to deal with market failure due to the high opportunity costs incurred

Mark Scheme

Knowledge, Comprehension, Application and Analysis		
L3	A balanced and well explained answer on how government intervention may or may not lead to allocative efficiency. Well analysed answer in terms of analyzing the limitations of government intervention. Well explained examples of market failure which are real life examples.	9-11
L2	Explanation is not in depth on how government intervention may or may not lead to efficient allocation of resources. Limitations of government intervention are briefly stated. Some examples of market failure but attempts to use real life examples are rather superficial.	6-8
L1	Mere listing or description of various government interventions without	1-5

	linking to how the problem of allocating scarce resources is alleviated. Explanation of market failures is generic without using any specific examples of market failures or government intervention.	
E2	A well-reasoned conclusion that is supported by economic analysis and is formed to address the question. <i>Weigh the thesis and anti-thesis to carve out the criteria which tips the argument to either one.</i>	3-4
E1	An unjustified conclusion that is not supported by economic analysis.	1-2



Question 4

Inflation rate in Singapore jumped in the final quarter of 2016. It has been attributed to rising transport and education costs, as well as the government's GST voucher – a special cash payment to eligible Singaporeans. The inflation rate is also set to climb amidst mounting external inflationary pressures from global commodity markets.

- (a) Explain how the above-mentioned factors led to an increase in inflation in Singapore. [10]
- (b) Discuss the extent to which exchange rate policy is appropriate in mitigating the above problem. [15]
- (a) Explain how the above-mentioned factors led to an increase in inflation in Singapore. [10]

Question analysis

Command	Explain
Content:	Macro Problems (Inflation) : Causes
Context:	Singapore Economy
Approach	This question is straightforward. Students should utilise the prompts from the preamble to explain possible causes of inflation in the Singapore context.

Outline of answer:

Introduction	Define inflation
Paragraph 1	Explain cost-push inflation in Singapore
Paragraph 2	Explain demand-pull inflation in Singapore
Paragraph 3	Explain imported inflation in Singapore
Conclusion	Summarise

Introduction

Inflation is the sustained increase in the general price level in the economy and can be caused by demand-pull factors, especially when the economy is nearing full employment and/or cost-push factors from higher unit costs.

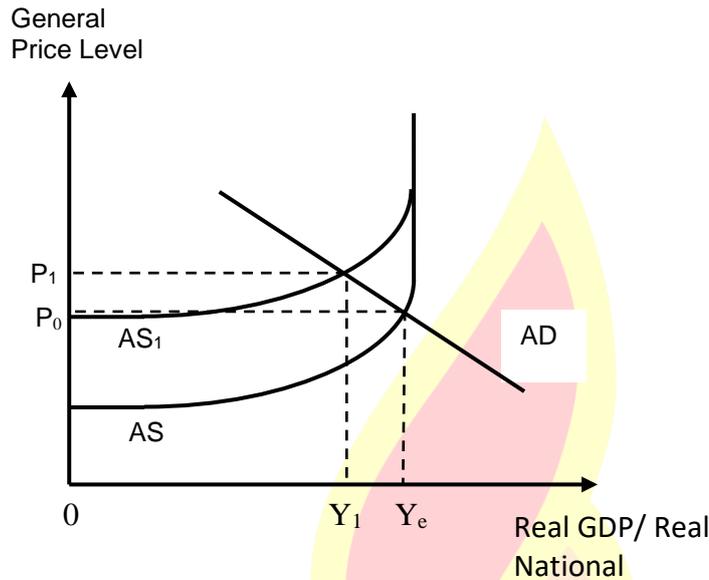
Given Singapore's small and open economy, the above-mentioned factors have led to both an increase in cost-push and demand-pull inflation.

Body: Paragraph 1

An increase in rising transport and education costs in Singapore will lead to an increase in unit cost of business and training labour respectively and therefore, cost push inflation.

Cost push inflation is caused by continuous increase in cost of production and hence a persistent fall in aggregate supply (SRAS shifts upwards). As labour and transport are necessary inputs for firms and companies, this will drive up costs of production. Firms will respond partly by raising prices or by passing the costs to the consumers, and partly by cutting back on production. This results in an upwards shift of the AS from AS₀ to AS₁ and an increase in GPL from P₀ to P₁ (with reference to diagram), i.e. Cost-Push Inflation.

***NB to students: While the question is about inflation, and the para only referenced to GPL P₀ to P₁, do complete the diagram and dot out the RNY as well.**

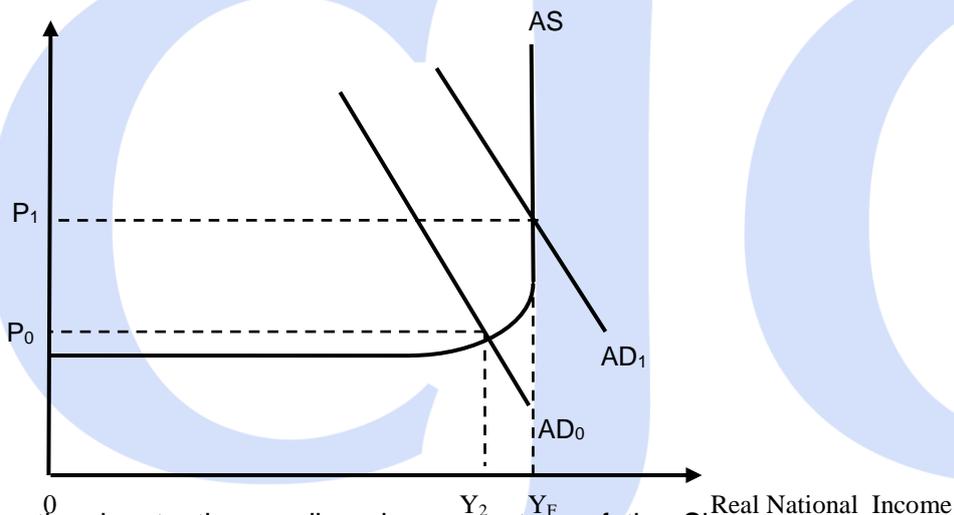


Other than cost push inflation, there are also 2 other types of inflation that could have resulted in the rise of the general price level in Singapore.

Body: Paragraph 2

The government GST vouchers is an example of a transfer payment to households. As households spend these vouchers, which directly increases their level of consumption, leading to demand-pull inflation.

Demand pull inflation is caused by persistent rise in aggregate demand. Since Aggregate Demand consists of Consumption, Investment, Government Expenditure and Net Export revenue, a rise in any of these components will cause a rise in the AD which eventually leads to a rise in the GPL. In this case, it is predominantly due to a rise in Consumption. This results in a rightward shift of the AD from AD₀ to AD₁ and an increase in GPL from P₀ to P₁ (with reference to a diagram), i.e. Demand-Pull Inflation.



Lastly, due to the small and open nature of the Singapore economy, there is one last predominant type of inflation likely experienced by the nation.

Body: Paragraph 3

In light of the mounting inflationary pressures from global commodity markets, Singapore is likely experiencing a significant level of imported inflation.

Inflationary pressures from commodity markets, such as copper, rice, wheat, oil etc, leads to rising price of raw materials, food and energy around the world. Commodities are essential factors of production in the production of many goods and services, e.g., copper is an essential factor input for electrical wiring. As Singapore is a price-taker in the global economy, this leads to rising business costs and rise in price of imports.

Singapore being a small and open economy, imports a large proportion of its final goods and services, such as food for domestic consumption, as well as raw materials for production. Therefore, a rise in global commodity prices will likely lead to significant levels of imported cost-push inflation. Similarly, this results in an upwards shift of the AS from AS₀ to AS₁ and an increase in GPL from P₀ to P₁

Conclusion

Therefore, there are three main types of inflation that is likely experienced by Singapore according to the events mentioned in the preamble.

Mark Scheme

L3	Good understanding of the question is seen. For a well-explained answer of the main causes of inflation in Singapore context. Clear and direct references to the events mentioned in the preamble. <i>[For an answer that address 2 sources from the preamble only – max 7m]</i>	7 - 10
L2	For an answer that shows understanding of the causes of inflation with some application to the events mentioned in the preamble.	5 - 6
L1	For a brief answer that shows some knowledge of the causes of inflation with no application to the events mentioned in the preamble.	1-4

(b) Discuss the extent to which exchange rate policy is appropriate in mitigating the above problem. [15]

Question Analysis

Command	Discuss the extent. To consider the relative appropriateness of exchange rate policy in tackling the various types of inflation. 'appropriate' : the stand has to be concerning whether fiscal policy is appropriate according to a set criteria .
Content:	Macroeconomic problems – inflation caused by the sources in the preamble Macroeconomic policies – exchange rate policy and at least one other policy AD/AS
Context:	Singapore economy experiencing various types inflation
Approach	Set criteria of what constitute “appropriate” An in-depth discussion on the strengths and weakness of exchange rate policy in managing inflation in Singapore Consideration of whether other policies can be more appropriate to tackle the issue of

	inflation in Singapore Finally, a justified synthesis of the points discussed should be done.
Intro	Provide clarity of context, explain briefly impact and the Singapore situation
T1	<u>Claim based on effectiveness</u> Exchange rate policy is appropriate because it is effective in solving imported cost-push inflation <i>Provide e.g to show Singapore use of ERP</i>
AT1	<u>Claim based on effectiveness/characteristic of SG economy</u> Exchange rate policy is not appropriate if cost push factors are domestic in nature. <i>Provide data or e.g. to show Singapore's context.</i>
AT1	<u>Claim based on effectiveness/characteristic of SG economy</u> Exchange rate policy is not appropriate in dealing with demand pull inflation since it is domestic in nature. <i>Provide data or e.g. to show Singapore's context.</i>
AT2	Other policies may be more appropriate instead of exchange rate policy: <u>Claim based on effectiveness/characteristic of SG economy</u> <i>Provide alternative policies to provide a depth of analysis. Specifically consider either FP or SSP + Use of e.g. to strengthen points</i>
Conclusion	Provide a reasoned stand on the appropriateness , using the extent of effectiveness and other criteria as contextualized to the SG economy stated above.

Introduction:

Singapore is a small open economy that depends heavily on external trade as her engine of growth and a resource-limited economy that needs to import the vast majority of her goods for final consumption as well as for inputs of production. High inflation, especially from imported inflation, will raise the cost of living as well as cost of production for Singapore, shifting AS upwards, resulting in higher inflation rates. There will be a negative impact across all four macroeconomic aims of growth, employment, inflation and balance of payments.

It is thus of utmost importance that interventionist policies be employed to tackle the threat of inflation. One such interventionist measure would be to employ the use of an exchange rate policy. While exchange rate policy could bring about success in mitigating certain types of inflation, it may fall short and there may be a need to utilise other macro policies.

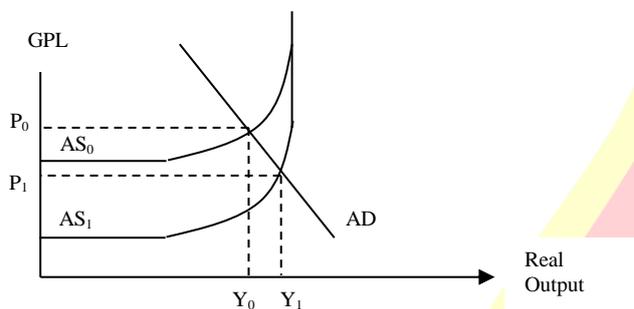
The most appropriate policy would be one that is effective in solving the **root cause of the inflation in Singapore** and also be a sustainable interventionist measure for the Singapore government.

Body: Thesis 1 – appropriateness of ERP in addressing inflation.

Exchange rate policies can be used to tackle the problem of imported inflation.

A mild appreciation of the Singapore dollar will help to mitigate against higher imported inflation. This is important as Singapore has a high marginal propensity to import and a mild appreciation would thus place emphasis on the addressing of imported inflation first. To deal with the inflationary pressures from global commodity markets, a stronger Sing dollar will reduce the cost of imported raw materials that is expressed in terms of local currency, thus possibly offsetting the rise in price

of these raw materials in foreign currency due the inflationary pressures they are experiencing. This lowers the cost of production significantly and shifts AS down, causing GPL to fall back down, thus tackling the problem of imported cost-push inflation.



Currently, the Monetary Authority of Singapore (MAS) employs a Band, Basket, Crawl (BBC) approach which involves the gradual appreciation of the Singapore dollar against other foreign currencies which has worked well for the nation in combating imported inflation.

Furthermore, the required appreciation of the Singapore dollar will mean that export competitiveness is compromised. This is because our exports, being expressed in Sing dollars, will now require more foreign currency to be exchanged for them given our stronger dollar. Hence, price of exports in foreign currency rises, price of imports in local currency falls, leading to a fall in export volume and rise in import volume. If the Marshall-Lerner condition holds, this will decrease our net export revenue and aggregate demand, ceteris paribus. While this further helps to manage inflation through a lowering of the AD and hence GPL, it also in turn, leads to lower national output.

Thus, this MAS' exchange rate stance of an appreciation will not be an appropriate policy in dealing with inflation as it could potentially lead to a lower economic growth.

Body: Antithesis 1- ERP is inappropriate in addressing other types of inflation

Furthermore, the use of exchange rate policy may have limited impact on domestic cost push inflation as well as demand pull inflation.

In the preamble, it is mentioned that Singapore is experiencing rising wage and transport costs. While exchange rate policy could be effective in tackling increase in costs due to rising global input prices, it is unable to affect rising costs due to domestic factors.

For example, if the rise in transport costs is due to domestic factors such as rising tax rates in the transport sector or if the rise in labour costs is due to the successful negotiation of higher wages by labour unions, then the gradual appreciation of Singapore's exchange rate will have no effect in mitigating the inflation caused by the above factors.

Similarly, the preamble mentions the distribution of GST vouchers by the government. These vouchers serve to increase consumption by its recipients and leads to demand pull inflation due to a rise in consumption. The gradual appreciation of the Singapore dollar tackles AD only through its contractionary effect on net exports (thus mitigating demand pull inflation through a lowered AD), and does little to affect the level of consumption within the domestic economy.

Body: Antithesis 2 – Due to shortcomings of ERP, need for other appropriate policies to complement

Thus, to more directly resolve demand pull inflation caused by domestic factors of GST vouchers,

contractionary fiscal policy could be more appropriate.

This can be done by increasing government taxation such as income tax which would lower the level of aggregate demand. Higher income tax lowers disposable income of consumers, hence reducing their consumption. *Ceteris paribus*, this leads to a leftward shift of the AD and lower the increased general price level caused by the initial rightward shift of the AD due to the increased consumption from GST vouchers.

However, a prolonged decrease in the AD due to the contractionary fiscal policy has the effect of slowing economic growth. While the issue of inflation is rectified, national income decreases as a result of the fiscal policy and the economy is negatively impacted as well. The slowdown could also cause an increase in cyclical unemployment as firms scale back on production amidst the slowdown in economic growth.

Therefore, supply side policies may also be implemented to counter such effects and yet manage inflation, and particularly offset the cost-push inflation caused by domestic factors such as rises in transport and education costs.

Supply side policies work by improving the productive capacity of Singapore.

This can be done by providing training to workers to increase their productivity and thus lowering unit wage costs. As productivity increases and more can be produced using the same amount of resources, AS shifts to the right, signifying an increase in the economy's potential to produce (LRAS shifts to the right). This would counter any cost-push inflationary pressures with a fall in GPL, and at the same time generate growth should the economy be operating in the intermediate or classical range. Recent examples of such policies in Singapore include Skills Future as well as other initiatives like the Skills Programme for Upgrading and Resilience (SPUR), which aims at retraining our labour to increase productivity in our emerging industries, thus raising productivity of the workforce and lowering labour wage costs, offsetting the unit cost increases from transport and education.

However, given Singapore's small and open nature, the bulk of its cost-push inflation is due to external factors and the effect of domestic supply side policies might have little impact on global input prices. Moreover, supply side policies will take a long time to take effect.

Overall Synthesis

While exchange rate policy is effective in dealing with imported inflation, its extent of appropriateness depends on the extent of influence of domestic causes on inflation (relative to external causes).

Given the small and open nature of the Singapore economy, it is safe to conclude that imported inflation is a significant cause of inflation and thus, an exchange rate policy is well positioned to tackle this macroeconomic problem. In terms of the domestic factors, the GST voucher is likely a one-off special cash payment by the government and is unlikely to have a prolonged effect on the consumption levels in the long run. As such, demand pull inflation due to the GST vouchers may not be a persistent effect and does not warrant an interventionist policy. However, the rising labour and transport costs could be a cause of concern and a suitable supply side policy targeted at these sectors will be effective, albeit in the long run.

Ultimately, the Singapore government should complement its exchange rate policy with a supply side policy to address the issue of inflation in both the short and the long run.

Mark Scheme

Level	Descriptor	Marks
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L1	Failure to address question requirements of discussing the extent to which ERP is appropriate in the given context – i.e., with comparison to other policies Content is poorly expressed, with serious errors and major mistakes made Context is ignored, essay is largely theoretical in nature Limited or no discussion concerning the issue of ‘relative appropriateness’	1-5m
L2	Some attempt address question requirements of discussing the extent to which ERP is appropriate in the given context – i.e., some attempt to compare with other policies. Provision of basic arguments Content is explained satisfactorily, with few errors made Context is referred to occasionally, but e.g use is seriously lacking. Argument is somewhat present but can be incoherent at times.	6-8m
L3	Fully address question requirements of discussing the extent to which ERP is appropriate in the given context – i.e., good attempt to compare with other policies. Provision of well thought out arguments Content is explained well, with limited errors. Development of content shows mastery of how ERP and other policies are used in Singapore to fight the problems faced. Context is well explained with excellent e.g. use. Coherent argument that provides a clear discussion of the issue through the use of TAS, alternate policies and all well linked.	9-11m

E1	Unjustified evaluation or stand	1-2m
E2	Well justified evaluation through the use of economic analysis	3-4m