JC2 2017 Prelim Examination

H2 Economics (9757)

Suggested Answers

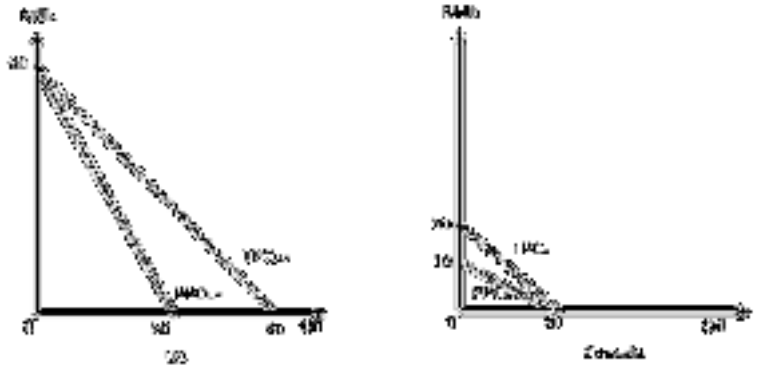
(Case Studies)

Case Study 1

(a)	**(i) Using the data in Figure 1, describe the trend of dairy prices from 2013 to 2015.**	**[1]**
	• Dairy prices are generally falling over the period by 28%.	
	(ii) Explain how the factors mentioned in Extract 1 account for the trend of dairy prices in part (i).	**[3]**

	• **[Explain demand factor]** Demand Factors
	  ○ Only a small ↑demand due to slowing growth in China → As incomes increase → assuming milk is a normal good → ↑demand (also accept ↓demand)
	• **[Explain supply factor]** Supply Factors
	  ○ ↑Supply due to removal of production quotas in EU → farmers able to increase their output OR
	  ○ ↑Supply due to growth of milk industry in China (Ext 1, para 1) → ↑supply
	• **[Explain why P↓]** With a ↑demand and ↓supply → price indeterminate → as the change in SS > change in dd→ surplus → downward pressure on prices → fall in price of milk	

(b)	**"It is the maxim of every prudent master of a family never to attempt to make at home what it will cost him more to make than to buy." Countries prosper by focusing on what they do best. (Extract 2)** **Using the concept of opportunity cost, explain why Canada is likely to import milk while countries like the United States and New Zealand export it.**	**[6]**
	The theory of comparative advantages states that trade can benefit countries involved if they specialize in producing and trading those goods in which they have comparative advantage in and the terms of trade lies between the domestic opportunity cost ratios of the 2 countries. Comparative advantage refers producing a good a relatively lower opportunity costs. Opportunity cost is defined as the next best alternative foregone. Canada is likely to import milk as it does not have comparative advantage in milk production while other countries like US and New Zealand do. Given a country such as Canada which has the ability to produce either 20 barrels of oil or 10 units of milk given its factor endowment which are mainly natural resources such as oil deposits. It faces constant opportunity costs of 2 oil for 1 milk. US on the other hand can produce either 30 oil or 60 units of milk with its resources whereby it has relatively more resources suited for milk production. This is seen in extract 2 where the US farms have a relative abundance in milk related resources e.g.10,000 cows while Canadian farms on average have only 77. Its opportunity cost of 1 milk is 1/2 oil. This is illustrated by their PPC as follows:	



The slope of the PPC represents the opp cost of producing oil (the good on the X-axis). Since US has the CA (lower opp cost) in milk it will specialise in milk while Canada will specialise in oil. They will select an acceptable TOT which lies between their opp cost ratios, ½ Oil<1 Milk<2 Oil. Assume the TOT is 1 Oil =1 Milk, both countries will now face a TPC with a slope of 1, which is the new opp cost for oil due to trade.

Both countries have benefitted from trade because (a) they can consumer greater quantities of goods and services on their TPC which is greater than their PPC and (b) they face a lower opp cost for consuming the goods. This raises their material SOL thus explaining why Canada imports milk and US exports milk.

(c) **The price set by the Canadian government has led to "glut of milk" in the domestic dairy industry (Extract 3).**

Assess the impact on Canadian households and firms due to the use of price controls for milk. **[8]**

Intro

- Canada has essentially implemented a minimum price/price floor in the market for milk resulting in the "glut of milk" (surplus of milk).
- This has led to positive and negative impacts on households and firms.

Analysis of Price Set by Govt

- Diagram of price set above market equilibrium
- The price set by the government is likely to be above the market equilibrium price.
- This results in a permanent surplus which explains why there is a "glut of milk"

[Identify and explain 2-3 impacts on households and firms in Canada]

Households

- **(-) Higher prices:** (reference diagram) the minimum price will lead to higher prices for consumers as well as lower output consumed for milk compared to market determined price (without minimum price) → Consumer surplus is reduced and/or worsens inequity as milk may be considered a necessity for many especially "low income Canadians" (Ext 3) as a form of nutrition for infants and children. EV: As the surplus created is described as a "glut", it is likely that the extent of the surplus is large and this could have been due to a price floor that has been set significantly high above the equilibrium → prices are a lot higher than should be.

- **(-) (Ext 2) The minimum price may breed inefficiencies** → because producers have their incomes protected due to the minimum price → no incentive to innovate to keep prices low → firms' unit COP↑ → ↓SS → ↓output consumed by consumers OR as the minimum price is set by determining the average COP (Ext 2), this would lead to an even higher minimum price.
- **(+) Higher employment:** The rise in quantity supplied suggests greater demand for labour employed in these farms (derived demand) → increase in employment and income for households → improve material and non-material SOL of households.

Impact on Producers

- **(+) Total revenue may increase** → with a higher price → assuming demand is price inelastic as milk is a necessity (staple food, key raw material for other products such as butter) → rise in price due to minimum price results in a less than proportionate fall in qty dd → total revenue increases overall → profits increase, c.p.
- **Eval:** Cost of dumping the surplus created may lower profits
- **(+) Stable prices** → avoid the volatility of prices (Ext 4) → avoid large changes in revenue → avoid closure of firms in years with falling prices
- **Eval:** However, firms that use milk as an FOP may face higher unit COP → ↓profits → closure of other related firms.

Conclusion

- Overall, the impact on producers is likely to be largely positive, except for producers are goods that require milk as a FOP. For households, the impact is likely to be largely negative.

Level	Knowledge, Application, Understanding & Analysis	Marks
L2	Responses in this level will give an analysis of various impacts of a price floor on Canadian households and firms.	4-6
L1	Responses in this level will give a superficial analysis or one lacking in scope.	1-3
Evaluation	Marks awarded for evaluative comments/judgement	1-2

(d) Explain how the development of "ultra-high temperature treatment" technology (Extract 4) might change the price elasticity of supply for milk. [2]

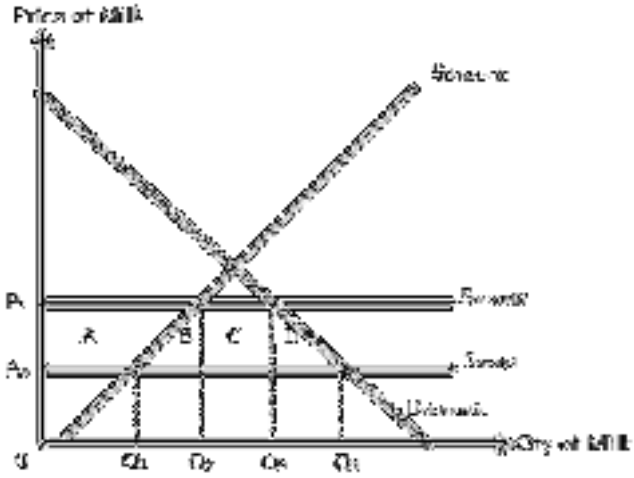
- Evidence: "UHT milk can be kept for up to a year and shipped without refrigeration"
- This increases the shelf life of the milk allowing for producers to keep stocks of the milk → any ↑price → M.T.P. ↑qty ss as producers are easily able to respond to the price increase by increasing qty ss through the use of their stocks of UHT milk**.**
- Supply is likely to be more price elastic than before.

(e) Discuss whether the decision to protect the dairy industry in Canada using "sky-high tariffs" (Extract 2) is justified. [10]

Introduction

- Protectionism is a deliberate government policy to <u>erect trade barriers</u> in order to shield domestic industries from foreign competition.
- The aim of protectionism is to <u>switch expenditure</u> both domestic and foreign <u>to the output of goods and services of the domestic economy</u>.

Thesis: There are reasons why protectionism may be justified
Analysis of Tariffs



- With the import tariffs imposed by Canada on milk → ↑unit COP of foreign firms' milk by the per unit tariff of PtPw → Sworld to Sw+tariff → price ↑ to Pt → domestic consumers switch to the relatively cheaper domestically produced milk → ↑domestic production from Q1 to Q2 and ↓qty of imports from Q1Q4 to Q2Q3.

1. **Protects against unemployment:** Assuming Canada does not have C.A. in production of milk as Canadian firms would be unable to compete with more efficient milk producing countries like US (Ext 2), opening up to free trade would result in a fall in domestic production to Q1 as households switch to relatively cheaper imports → ↓demand for labour in the milk industry → ↓employment or ↑structural unemployment (Can also explain how protectionism is used to slow down the decline of the milk industry)
    a. **Eval:** With the global price of dairy falling (Figure 1), the impact on unemployment when opened to free trade will be even greater (illustrated by an increase in Sw), leading to a larger extent of unemployment if there wasn't protection.
    b. **Eval**: As PES>1 as explained in part (d), the increase in domestic production is likely to be large as the increase in price due to the tariff will result in a more than proportionate increase in quantity supplied by domestic producers → larger ↑demand for labour → larger impact on employment.
2. **Allows time to develop the industry (Ext 2):** The protectionism can give time for the Canadian milk industry to develop the comparative advantage so as to one day grow to become an exporter of milk. This will benefit the economy through higher economic growth just as how New Zealand has gained from the growth of their milk industry. Farmers would also benefit from ↑profits.
    a. **Eval:** However, with world prices expected to continue falling, the industry may not be one with growth prospects. In addition,

other economies such as China are gaining C.A. in milk production and thus Canada may find it difficult to compete with them.

3. **Ensures continued tax revenue for govt (Ext 4)**: With Canadian milk farmers remaining in business, their profits can be taxed as a source of revenue for the government. In addition, the tariff revenue also provides a source of revenue for the government.

Anti-thesis: There are reasons why protectionism may not be justified

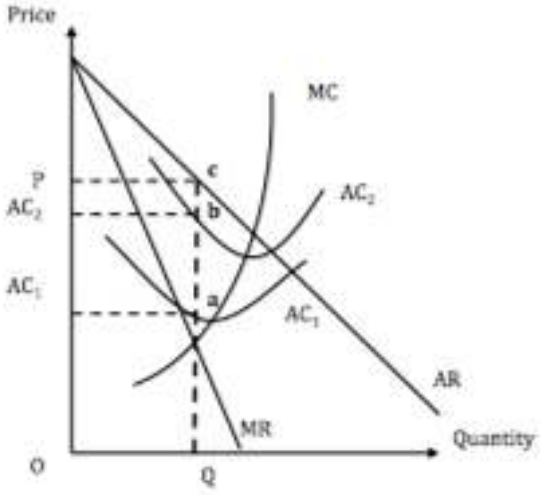
1. **Breeds inefficiency in Canadian firms:** Similar to part (c), protection of the industry may instead breed inefficiency as the firms enjoy the benefits of the government's protection. This may result in these firm not innovating and thus not ever developing C.A.
2. **Higher prices and lower consumer surplus (Ext 2)**
   - **Eval:** Extent of ↑price may be significant due to tariffs being "sky-high" (Extract 2)
   - **Eval:** However, if there wasn't tariffs in place, the cost savings from cheaper imports may be absorbed by other some other part of the production chain (Ext 4) → prices may not be lower without tariffs.
3. **Welfare loss, Retaliation, World multiplier effect**

Conclusion

- **[Extent of benefits]** The benefits in providing time for the industry to develop may be limited as global competition in the milk markets is very intense with many existing large producers as well as growth of new producers in China. Canada may never be able to gain C.A. and export milk. In addition, the protectionism only serves to breed inefficiencies which further suggests why C.A. may never be gained by Canada.
- **[Extent of costs]** With "sky-high" tariffs, this suggests that the extent of the tariffs is very large. As a result, together with the fact that milk is a necessity and an important form of nutrition for many, the welfare loss and impact on consumer surplus may thus be very significant. In addition, the tariffs have negatively impacted the potential export revenue of many milk exporting countries such as US which has been pushing for access to the Canadian milk market (Ext 2). This may increase the chances of retaliation from trading partners. Overall, the costs may be significant.
- **Overall,** protectionism in the dairy industry is not justified as the costs would outweigh the benefits. However, there can be some consideration for protectionism in the short run for the industry to decline slowly, giving workers enough time to be retrained to find jobs in other industries that may be expanding in Canada.

Level	Knowledge, Application, Understanding & Analysis	Marks
L2	Responses in this level will give an analysis of arguments for and against protectionism.	5-7
L1	Responses in this level will give a superficial analysis or one lacking in scope.	1-4
Evaluation	Marks awarded for evaluative comments/judgement	1-3

Case Study 2

JC2 H2 Prelims CSQ2 Suggested Answers			
(a)	**i)**	**Using Figure 2, describe the change in wage and labour productivity from 2011 to 2014.**	**[2]**
	Wages have increased while labour productivity has fallen.		
	ii)	**Explain the impact of the *above changes* on a country's competitiveness.**	**[2]**
	Unit labour cost = wage x 1/labour productivity The fall in labor productivity and increase in wage → increases in unit labour cost→ unit COP increase → SRAS falls → Price of goods and services(including exports) in the country increases → less competitive to foreign goods		
(b)	**Using a diagram, explain why some firms may be hesitant to adopt productivity changes as suggested in Extract 6 in the short run.**		**[2]**
	 To adopt productivity changes → firms need to innovate to seek for more efficient methods of production → however, in the short run → costs of innovation/R&D will immediately add on to the firm's fixed costs → increase in average costs from AC1 to AC2 → reduce supernormal profits from PCAAC1 to PCBAC2 → therefore causing firms to be hesitant to adopt productivity changes. Furthermore, innovation/ R&D efforts may not always lead to successful outcomes. **Note: Students can also interpret adopting of productivity changes through buying more efficient machinery, etc and analyse accordingly.**		
(c)	**Explain the trade-offs incurred when the Singapore government reduces its reliance on foreign labour to spur productivity.**		**[4]**
	Reducing reliance of foreign labour → through Increase "levies on worker permits"(ext 2) → a form of tightening measure → increase unit cost of production as labour costs increase Trade-off with economic growth however without the immediate improvements in productivity → these tightening measures will cause "a jump in labour costs, and an erosion of competitiveness"(ext 2) → firms that are unwilling to suffer losses in profits and competitiveness may relocate business out of Singapore & with higher costs of production, foreign firms maybe less willing to invest in SG → outflow of domestic and foreign investments → AD falls → fall in real output produced → reduce actual growth /negative economic growth		

	trade-off with unemployment the fall in real output produced → fall in aggregate demand for labour as firms lay off excess workers → increase in demand-deficient unemployment, assuming wages are sticky downwards trade-off with BOP if export sectors are unable to seek immediate productivity gains → with losses in export competitiveness → price of exports will increase → assume PEDx>1 → export revenue will fall → worsen current account → together with the outflow of investments → worsen capital and financial account → assume BOP is initially in eqm → the above changes can lead to a BOP deficit	
(d)	**Explain how technological change can aid China in its "climate change fight"(Extract 8) to achieve sustainable growth.**	**[2]**
	Sustainable growth refers to achieving a positive and stable rate of economic growth over an extended period of time that does not result in excessive environmental problems or resource depletion. Investment into alternative energy sources such as " expanding solar, wind, nuclear and other non-fossil energy" (ext 8)→ 1) reduce CO2 emissions → reduce environmental degradation → achieve sustainable growth 2) enable greater use of renewable energy → hence, reducing the need to use non-renewable energy such as fossil fuels for production → reduces resource depletion → enabling sustainable growth	
(e)	**Discuss how current and future living standards are affected by the composition of national income in terms of the expenditure components as shown in Table 1.**	**[8]**

Understanding of the concept of SOL

Standard of living has 2 aspects - material well-being & non-material well-being. Material well-being is indicated by amount of goods and services an average person can have access to and this is commonly measured by GDP per head. Non-material well-being measures the quality of life and is indicated by quality of life indicators or social and environmental factors such as hours worked, pollution, birth/death rates etc.

Linking to current SOL:

Based on the expenditure components given in Table 1, the US has the highest proportion of GDP spent on consumption (68%) compared to both China and Singapore. The large proportion of GDP that is consumed means that in the current period, the population of US is likely to have access to a larger amount of goods and services for consumption and hence a higher current material SOL than the other 2 countries. On the other hand, the proportion of GDP that is spent on consumption in China and Singapore is lower (38% and 37% respectively). This means that there is actually a smaller amount of goods and services produced and therefore made available for consumption, translating into a lower material well-being for the Chinese and Singaporeans in the current period.

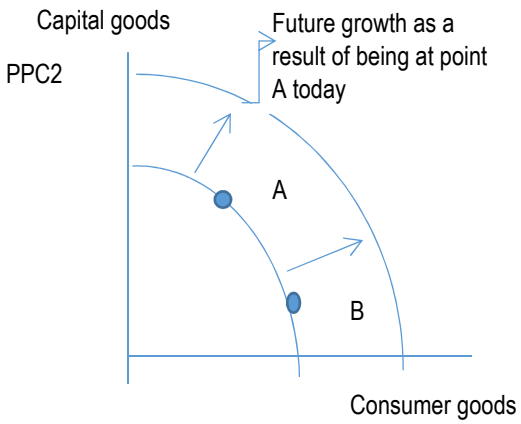


Diagram 1(China)

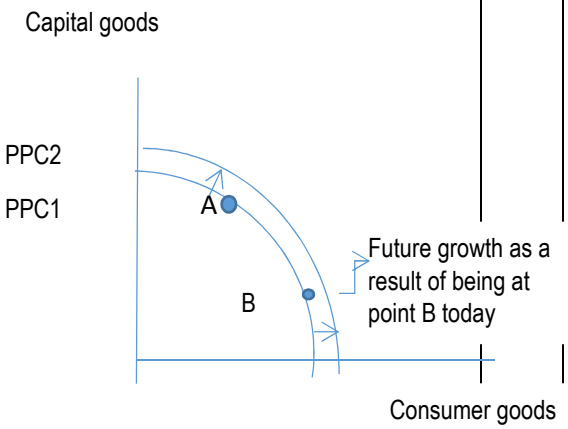


Diagram 2 (USA)

Linking to future SOL:

With a fixed amount of resources, as USA chooses to produce more consumer goods in the current time period(Point B on diag 2), it faces an opportunity cost in terms of giving up the resources which could have been used to produce more capital goods. This explains why the prop of GDP spent on gross fixed investment is much lower at 20%.

This will result in slower accumulation of capital goods and thus a smaller increase in productive capacity as shown where the production possibility curve shifts rightwards by a smaller extent from PPC1 to PPC2. With lesser goods and services produced in the future, this means that the Americans will be able to consume less in the future, experiencing a lower future SOL.

This is in contrast to China, who has a largest proportion of GDP spent on investment, resulting in faster accumulation of capital goods and faster rate of growth in the future. Diagram 1 (China) shows production possibility curve shifts

rightwards more significantly from PPC1 to PPC2, so that living standards in the future increased significantly.

Evaluation (applying an understanding of the concept of SOL) :
However, living standards do not only depend on consumption levels, which at best can only reflect the material well-being. Living standards also depends on qualitative aspects of life such as health and education standards, living and working conditions, the number of hours worked as well as the quality of goods consumed. Hence, what happens to future living standards depends to some extent on what happens to these qualitative aspects of life in the three countries, which are not revealed by the data in Table 1.

Level	Knowledge, Application, Understanding & Analysis	Marks
Level 2	Answers in this level will give a sound analysis on how current and future living standards are affected by the expenditure components across the different countries.	4-6
Level 1	Answers in this level will give a superficial analysis on how current and future living standards are affected by the expenditure components.	1-3
Evaluation	Marks awarded for evaluating the data provided in assessing current and future living standards across the 3 countries. A conclusion will be provided.	1-2

(e) **Discuss whether the benefits gained from technological innovation to increase international competitiveness will outweigh the unintended consequences created.** **[10]**

Introduction
Define international competitiveness:

1) increases in export-competitiveness as measured by a fall in price of exports and/or improvement in non-price competitiveness i.e. improvement in quality of the good

Thesis: there are benefits from tech. innovations to increase international competitiveness

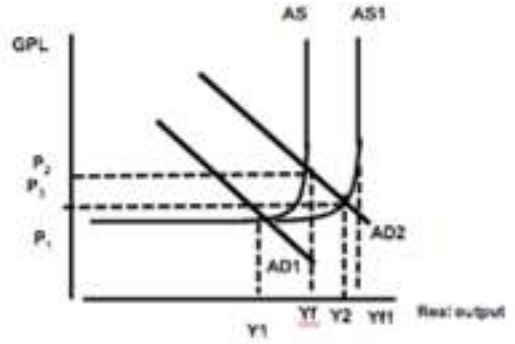
1) Improve country's economic performance (4 macro. Goals)

Technological innovations can refer to "breakthroughs in technologies such as artificial intelligence, biotechnology, robotics …under the 4th industrial revolution"(ext 7) → with the investments into developing these technologies→ more cost-efficient methods of production

- lower unit COP → increase SRAS → reduce GPL → price of domestic goods and services falls → increase in price competitiveness → increase X rev assuming PEDx>1
- if the tech advancements also leads to the improvement of the quality of products → increase non-price competitiveness →further increase DD for X of the country → X rev will increase further

- these will help to attract in more FDIs as MNCs who want to tap on the technology → increase investments

the above increases in X revenue will bring about improvements to the current account, leading to a current account surplus, together with the FDI inflow which will also contribute to the K&F account surplus → leading to a BOP surplus



the increases in X and I → increase in AD → increase in real output from Y1 to Y2

at the same time, accumulation of new capital → increases in productive capacity → increases in AS from AS to AS1

Therefore, this will bring about increases in non-inflationary sustained growth as real output increases further to Y2, resulting in increases in actual growth together with increases in potential growth from Yf to Yf1.

The increases in real output can bring about higher employment as more workers can be hired → increases in ADL → fall in demand-deficient unemployment

EV: the extent of impact will be greater for small and open economies that are more reliant on exports and foreign investments → greater increases in AD → greater increase in actual growth and employment

2) Innovation to seek less polluting methods of production → sustainable growth

As briefly explained in part c, countries will not only achieve sustained growth but sustainable growth if the tech advancement covers the creation of less polluting fuel sources

Anti-thesis: there are unintended consequences created due to the drive towards tech innovations

1) Increases in structural unE and widening of income inequality

As mentioned in ext 8 →drive towards new technologies under the 4th industrial revolution → lead to creation of more "displaced workers and the challenge of achieving fairness" → low-skilled workers' whose skillsets are displaced by new technology e.g. advanced robots will be made structurally unemployed as they will be unable to find similar jobs elsewhere and are also unable to move into the new industries with the mismatch of skills

On the other hand, workers who are able to work with the new technology will be able to earn higher income levels → widen income gap between these two groups of workers → creating more inequity in the country as the rich can consume more while the poor will consume less with lesser dollar votes

The above 2 problems will thus make it more difficult for the govt to achieve inclusive growth

Evaluate: whether the costs of unintended consequences will outweigh the benefits of having greater tech. innovations is dependent on the <u>govt's ability to carry out policies to address these problems</u>

For instance, if the government is able to carry out edu & retraining to equip displaced workers with new skills → reduce structural unE as these workers will be able to find jobs in the expanding higher-skilled industries → and at the same time, reduce income inequality as these workers will also be able to earn higher wages

2) **Increase govt spending to boost R&D efforts in green tech → budget deficits**

As mentioned in extract 5, the Singapore government is spending $4.5billion on helping firms to adopt new productivity changes. This means that lesser resources will be available for other developmental areas such as healthcare. If the loss in benefits due to the reduced spending in healthcare outweighs the benefits of subsidizing firms to raise productivity, then there is a misallocation of resources.

If the increased spending leads to increased government borrowing for other govts → this will lead to increased government debt issues → result in increased future taxation by the govt to raise future tax revenue to pay for these debts → lowered future material sol for its citizens

Evaluate: whether the costs of unintended consequences will outweigh the benefits of having greater tech. innovations is dependent on the <u>level of govt budget</u>

For countries that are able to tap on past budget surpluses like Singapore will be less likely to incur debt problems and hence, benefits of pursuing greater tech. innovations will outweigh the unintended consequences.

However, given that investments into technological initiatives may not necessarily lead to successful outcomes → it could cause the unintended consequences to be greater as it will mean greater wastage of resources

3) Give up current high SOL

As explained in part d, to focus on gaining technological improvement, the country will face opportunity costs in terms of reduced current consumption as more resources are allocated to the production of capital goods instead.

4) Outflow of investments

As explained in part c → Case of sg: increase FWL to increase pdty → increase unit COP in the SR → reduce competitiveness in the SR instead → outflow of FDI → explained from part bii → may worsen economic growth in the SR and LR if productivity gains are not materialized

Evaluate: whether the costs of unintended consequences will outweigh the benefits of having greater tech. innovations is dependent on firms' receptivity to invest and innovate

Firms in export-related sectors in Singapore will be more motivated to innovate as they face strong competition from foreign competitors → more likely to constantly undertake innovation to maintain price competitiveness

furthermore, in the SR → outflow of foreign investments is less likely given that there are "other factors that continue to make Singapore attractive to foreign investors"(ext 5) → this suggests that other than pricing factors, there are non-price factors such as Sg's favourable geographic location which enables foreign firms to export goods easily to neighbouring Asian countries.

5) If increase in AD > increase in AS → incur dd-pull inflation in the SR

If the increases in X and I results in a larger increase in AD faster than the increases in AS in the short run → if economy is near full employment → increases in AD → larger increase in GPL → dd-pull inflation

Conclusion:

Whether the benefits gained from technological innovation to increase international competitiveness will outweigh the unintended consequences created is largely dependent on the government's ability to carry out appropriate policies to maximize the gains from tech. innovations and at the same time, policies to minimize the costs of the unintended consequences. These will enable the benefits gained from tech. innovations to persist in the long run while the costs are largely incurred in the short run.

Level	Knowledge, Application, Understanding & Analysis	Marks
Level 2	Answers in this level will give a sound analysis of benefits of technological innovation and unintended consequences created onto the macroeconomy.	5-7
Level 1	Answers in this level will give a superficial analysis on benefits of technological innovation and unintended consequences created.	1-4
Evaluation	Marks awarded for evaluating analysis presented on the extent of benefits of technological innovation and unintended consequences created. A conclusion will be provided.	1-3