2018 RVHS Year 6 Prelims H1 Case Study Suggested Answers

Question 1

(a) With reference to Table 2, state what is meant by the value of PED for chilled beef imported from the United States being -1.13. [1]

A 1% increase in price of beef will lead to a 1.13% fall in quantity demanded for chilled beef imported from the US.

(b) Suppose the price of imported chilled beef rises. Explain why the total spending by Japanese consumers on imported chilled beef from Australia and the Rest of the World might differ. [3]

Given the PED values, the demand for imported chilled beef from Australia is price inelastic while the demand for imported chilled beef from the rest of the world is price elastic.

As such, an increase in the price of imported chilled beef from Australia will lead to a less than proportionate fall in quantity demanded of chilled beef from Australia while an increase in the price of imported chilled beef from the Rest of the World will lead to a more than proportionate fall in quantity demanded of chilled beef from the Rest of the World.

Since total spending by consumers is given by the product of price and quantity, consumer spending for chilled beef from Australia increases while that from the Rest of the World decreases.

(c) Using Extract 1, explain one demand factor and one supply factor that have affected the market for beef in Japan and comment on, with the aid of a diagram, the change in the price and quantity of beef. [8]

Change in DD

Change in income

Given that there is rising income in Japan as mentioned in Extract 1. This will increase the purchasing power of consumers and lead to an increase in demand for normal goods such as beef which results in a rightward shift in demand curve from D_0 to D_1.

OR

Change in taste and preferences:

There has been a change in taste and preferences for meat products in Japan due to the shift in the diet of its citizens towards more meat products. This has been branded “diet westernisation” mentioned in Extract 1.

This will lead to an increase in the demand for beef which results in a rightward shift in demand curve from D_0 to D_1.

Change in SS

No. of sellers

According to Extract 1, there is an increase in number of beef sellers due to the increase in the number of super markets and convenience stores in Japan which leads to an increase in supply of beef. This results in a rightward shift in supply curve from S_0 to S_1.

Comment on the change in the price and quantity of beef.

An increase in demand combined with the increase in supply causes an increase in equilibrium quantity from Q_0 to Q_1 while the change in equilibrium price of beef remains indeterminate as it depends on the relative extent of the shifts in demand and supply.

Given that Japan has experienced the most dramatic shift in the diet of its citizen suggest that a significant proportion of the Japanese population has changed their diet in favour of meat hence significantly increasing the demand for meat over time. Hence the extent of increase in supply is less than the increase in demand for beef, leading to an increase in beef prices from P_0 to P_1.
OR
Given that Japan's population growth has been negative every year since 2009, this would decrease the number of consumers of beef and cause the demand for beef to decrease. This factor would mitigate the increase in demand for beef due to the change in taste and preference/ change in income (depending on what student wrote). Hence the increase in demand is likely to be less than the increase in supply, leading a decrease in the price of beef from P_0 to P_1.

Other answers also acceptable
Signing of the Japan-Australia Economic Partnership Agreement (JAEPA)

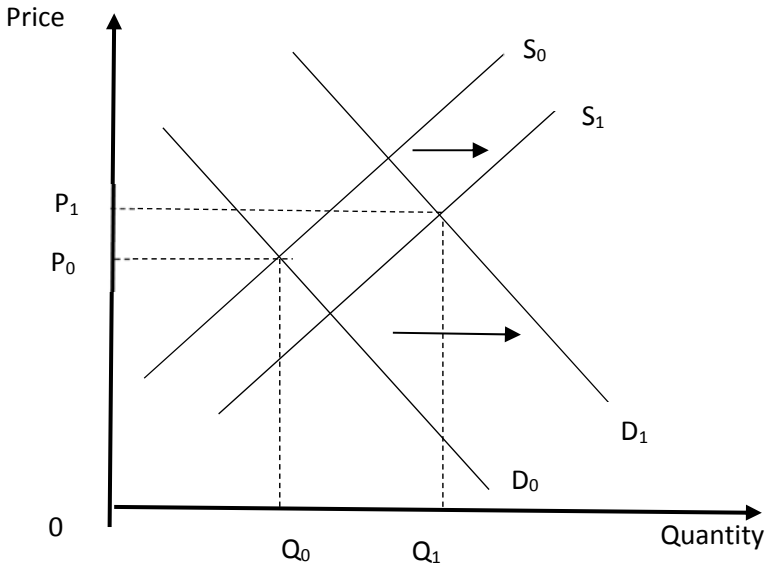


Figure 1: Market for beef

(d) Explain the impact of the Japan-Australia Economic Partnership Agreement (JAEPA) on the market for chilled beef from United States. [3]

Signing the JAEPA allows Australia to export more beef to Japan, this increase in supply of Australian beef in Japan will lead to a fall in price of Australian beef in Japan and an increase in quantity demanded for Australian beef.

Since Australian beef and chilled beef from United States are substitutes in consumption, this will lead to a fall in demand for chilled beef from United States. With a fall in demand, there will be a fall in equilibrium price and quantity in the market for chilled beef from United States.

(e) Extract 1 states that countries like Australia are 'shouldering the environmental burden of supplying directly and indirectly to meet Japan's growing appetite for meat'. Explain why this could be an example of negative externality. [4]

Direct – Intensive livestock rearing is a major source of greenhouse gases because of the methane produced by the cattle, which causes global warming.

Indirect – As mentioned in Extract 1, Japan imports the bulk of the cattle feed used for its domestic beef production. As such, forests in Australia have to be cleared to meet the demand for cattle feed. With fewer forests, there will now be a larger amount of greenhouse gases entering the atmosphere, thereby increasing the pace and severity of global warming.

As such, third parties who are people living in countries like Australia, especially those staying nearer to farms, who are not involved in the production or consumption of meat particularly beef which are due for exports to Japan, are the ones bearing the external costs illustrated above i.e. global warming and they are not being compensated for the external costs incurred.

(f) Explain, using a diagram, why consumers are likely to bear a greater burden if a tax is to be placed on meat in Japan. [4]

If a tax were to be placed on meat in Japan, it is an indirect tax. As such, whether consumers or producers bear a gr S_1 burden of the tax depends on relative elasticities of demand and supply.

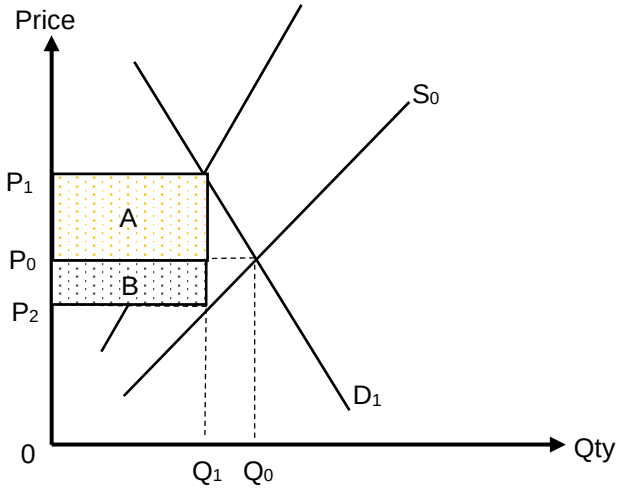


Figure 2 Relative price elasticities and tax incidence

Given the shift in diets of Japanese towards meat during the past decades, it is likely that the demand for meat in Japan is price inelastic because of the lack of substitutes. Whereas the supply of meat in Japan is relatively more price elastic as Japan is able to import from various countries.

When an ad valorem tax, the supply shifts from S_0 to S_0+*t*. Due to the tax, equilibrium quantity falls to Q_1. Consumers bear P_0P_1 of the tax per unit while producers bear P_0P_2 of the tax per unit. In this case, where demand is likely to be relatively more price inelastic than supply consumers are less responsive to prices and as such, they bear a greater tax burden.

(g) Discuss whether the data is sufficient to assess if the standard of living of Japan has increased over time. [8]

Thesis: The data is sufficient to assess the standard of living of Japan over time

Real GDP and population growth rate data
Real GDP takes inflation into account by valuing the prices of goods and services produced in the country using base year prices. An increase in real GDP reflects an increase in goods and services produced and this leads to higher real income. With an increase in real income and higher purchasing power, the ability to consume material goods and services increases. In Japan's case, she experienced real GDP growth from 2012 to 2016, which represents an increase in material well-being.

Moreover, in order to have a better measure of the material aspect of standard of living (SOL) of a typical individual in a country over time, the population size has to be considered. According to Extract 2, population growth rate in Japan has been negative every year since 2009. Since there is an increase in real GDP while size of population has decreased, the real GDP per capita would have increased. Hence the material SOL of an average citizen in Japan would have increased over time.

Life expectancy
Life expectancy at birth refers to the average number of years that a new-born may expect to live for. It can be used as a proxy for the quality and accessibility of healthcare in a country. The life expectancy in Japan has increased over time from 83.1 to 84 years from 2012 to 2016. This suggests that individuals in these countries have access to more timely and high quality healthcare indicating an increase in the non-material SOL in Japan.

Working hours
The increase in real GDP may have been a result of people having to work for longer hours and this would worsen non-material SOL of the country. In Extract 3, it mentioned that a fifth of Japanese companies surveyed acknowledged that some staff work more than 80 hours of overtime. This might result in detrimental effects on the health of the citizens. In addition, with longer working hours, there would be lesser time for leisure. Hence, the long working hours lowers the non-material SOL of the Japanese.

Anti-Thesis: The data is not sufficient to assess the standard of living of Japan over time

Externalities
The data does not take into account the negative externalities of production that reduce non-material SOL. For example, an increase in production of the economy in heavy industries might bring about polluted air and rivers. These are exacerbated with economic growth. The rise in negative externalities e.g. air pollution can adversely affect the human respiratory and inflammatory systems, hence significantly impacting the non-material well-being of Japanese. Thus, a higher real GDP per capita accompanied by more negative externalities generated may not necessarily mean that individuals are better off in the non-material aspect of standard of living. As such, other indictors like the air quality index would be required.

Income inequity
The data does not take into account the income distribution in Japan. If the effects of the increase in real GDP is experienced by only a small proportion of the population, the rest of the population may not experience higher material SOL. Hence despite achieving a higher real GDP per capita, the material standard of living of an average Japanese would be overstated if there is rising income inequality in Japan.

Hence, other indicators like the Gini Coefficient would be required to better assess the material standard of living in Japan over time.

Evaluation/ synthesis:

The data provided is sufficient to assess both the material (e.g. real GDP and population growth rate data) and non-material (e.g. life expectancy and working hours data) aspect of standard of living in Japan despite absence of other indicators.

There could be measurement issues, such as the reduction in the size of the non-monetised sector and the reduction in the size of the underground economy, which makes GDP figures inaccurate..

Level	Description	Marks
L2	A **developed** and **balanced** discussion that considers 2 data given in the case study as well as 1 other data not given in the case study in assessing the SOL of Japan over time.	4-6
L1	A **developed one-sided** response that only considers how the data is sufficient / not sufficient to assess the SOL of Japan over time. OR An **undeveloped** discussion that considers at least 1 data given in the case study and at least 1 data not given in the case study in assessing the SOL of Japan over time.	1-3

In addition, up to a further 2 marks for valid evaluative comment(s) on how adequate the data is to assess the SOL of Japan over time or other factors that need to be considered when interpreting the data.

(hi) With reference to Extract 1, identify and explain one negative externality arising from the 'diet westernisation' in Japan. [2]

"Diet westernisation" contributes to obesity As one who is obese is likely to seek treatment, this affects the productivity of his co-workers who in this case are the third parties as the co-workers are not being compensated for covering the work of the absentee.

(hii) Explain the policies that could tackle the market failure caused by diet westernisation and discuss whether these policies are consistent with the aim of Japan raising its self-sufficiency. [12]

<u>Why market failure results [3m]</u>

As mentioned in part hi, the consumption of meat gives rise to negative externalities like obesity. Due to the existence of negative externalities, marginal social cost (MSC) is higher than marginal private costs (MPC).

Assuming there are no positive externalities, i.e. MSB=MPB, the market for meat in Japan could be represented in the diagram below.

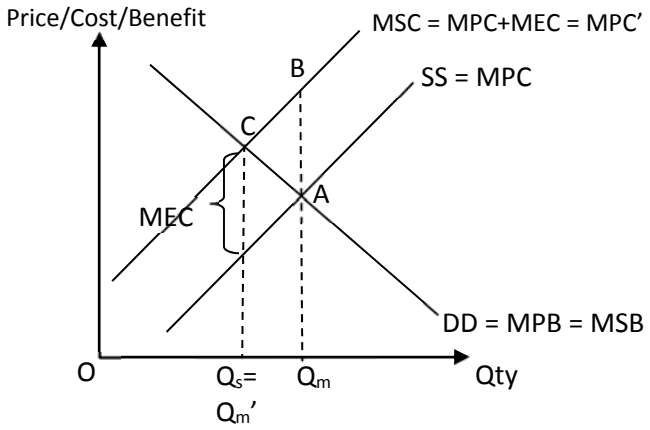


Figure 3: Over-consumption of meat due to negative externalities

With reference to Figure 3,

- Left to the free market, the consumption of meat occurs at Qm, where DD intersects SS (or MPB=MPC). When individuals decide how much to produce or consume, they only take into account their private benefits and costs.
- However, the socially optimal level of output is Qs, given by the intersection of MSB and MSC, since society's welfare is maximised when MSB=MSC.
- Since Qm > Qs, there is over-production/over-consumption of meat. In other words, too much resources are allocated to the market for meat.
- Due to the over-production/over-consumption of meat, the welfare loss to society (i.e. deadweight loss) is given by area ABC.

<u>Policies that help to solve market inefficiencies [3m]</u>

Imposing a tax on meat as mentioned in Extract 4 will increase the MPC of producing meat. If the amount of tax is equal to the amount of MEC at the socially optimum level of output, then this will shift MPC upwards to MPC' so that it coincides with MSC. The new market equilibrium, Qm', where MPB = MPC + tax, now coincides with the

socially equilibrium quantity, Qs, where MSB=MSC. Thus, the imposition of tax can help to reduce the deadweight loss.

Extract 4 also mentioned about subsidies can be given for the production of healthy foods like fruits and vegetables. In the case of Japan, fish can also be included as Japan has an advantage in rearing or catching fish for consumption because of its geographical location. Provision of subsidies lower the cost of production and thus, reduces the price of healthy foods in Japan and since healthy foods and meat are substitutes in consumption, this helps to decrease the demand for meat. As MPB falls, Qm moves towards the socially optimum level of output, Qs.

Thesis: How the policies above help to raise Japan's self-sufficiency in food [3m]

Japan may raise its self-sufficiency in food through reducing consumption or increasing its domestic production of food.

Providing subsidies for the production of healthy foods like fruits and vegetables will probably help in the reduction of demand for meat so that Japan can be more self-sufficient in terms of meat. By providing subsidies to producers of healthy foods, this helps to reduce the cost of production of healthy food directly. This lowering of cost of production would incentivise current domestic farmers to expand their scale of production or attract new players into the market, thereby increasing the supply of healthy food and help Japan to be more self-sufficient in terms of healthy foods. The above is based on the assumption that Japan is able to produce healthy foods efficiently and that healthy food and meat are good substitutes in consumption.

Anti-thesis: How the policies above do not help to raise Japan's self-sufficiency in food

By imposing a tax on the production of meat will lead to a decrease in the production of meat as cost of production increases and this will cause the supply of meat to fall, which will reduce Japan's self-sufficiency in terms of meat production. Because of this, Japan might have to import more meat from other countries like Australia or USA.

Synthesis: Evaluate whether the policies help to raise self-sufficiency and what other factors might affect Japan's desire to be self-sufficient [Any two points well-explained – 3m]

The extent to which the policies help to raise self-sufficiency depends on the extent of fall in demand and extent of decrease in supply of meat. If the fall in demand for meat exceeds the fall in supply of meat, then Japan will be self-sufficient, especially together with the increase in supply of healthy foods like vegetables, fruits and fish.

The extent to which self-sufficiency is raised also depends on how well healthy food is a substitute to meat. If they are not good substitutes in consumption, the fall in demand for meat will be small and Japan will have to continue importing large amount of meat from other countries, thus reducing the extent to which the policies help to raise self-sufficiency.

Besides the above points that might affect the relative price of meat and healthy food, there exists other factors that might affect Japan's ability to achieve the self-sufficiency. Specifically, Japan's evolving demographics can be used to predict its future consumption pattern. As seen in Extract 2, Japan has an ageing population. With "population ageing and meat consumption increasing as its population ages",

demand for meat in Japan will increase as taste and preferences changes, limiting Japan's ability to be self-sufficient.

Level	Description	Marks
L3	An answer that explains how taxes and subsidies work to solve market failure caused by diet westernisation and whether these policies help to raise Japan's self-sufficiency.	6-9
L2	An answer that explains the likely adverse effect on the allocation of resources when negative externalities exist OR that describes taxation and subsidies without linking them to the market failure OR that describes taxation and subsidies without linking them to self-sufficiency.	3-5
L1	An answer that merely identifies why the market fails.	1-2

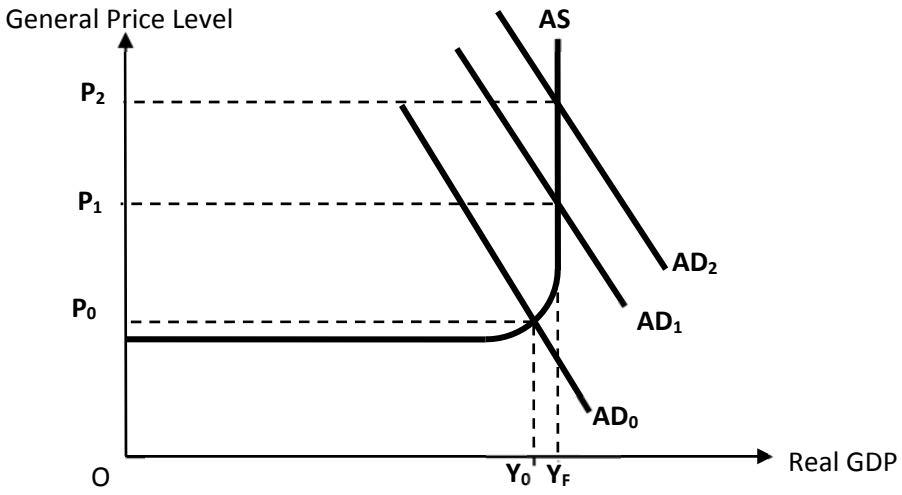
In addition, **up to a further 3 marks** for valid evaluative comment. This should focus on the extent to which these policies help Japan to raise its self-sufficiency or other factors that might affect Japan in raising its self-sufficiency.

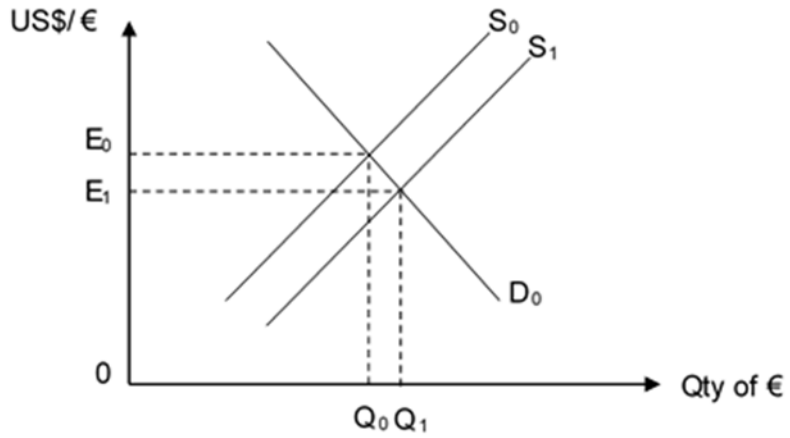
Question 2

Suggested answers:

(a)	State one factor, other than the number of unemployed workers that could cause the unemployment rate to change over time. [1]
	Labour force
(b)(i)	Explain the relationship between real GDP growth and unemployment rate as observed in Table 4. [3]
	When real GDP growth increased, national output increased. As demand for labour is derived from the demand for goods and services they produce, the demand for labour increases, which leads to a lower unemployment rate.
(b)(ii)	With reference to Table 3, explain how your above explanation could still be valid for the United States in 2016. [2]
	It is valid because output did increase in 2016 given that economic growth is still positive. As such, as pointed out in the above explanation, the demand for labour would increase, leading to a lower unemployment rate.

(c)	With the help of Extract 1, explain why economic growth could be positively related to unemployment rate. [3]
	Economic growth could be driven by technology and automation. However, as highlighted in Extract 3, technology and automation are expected to disrupt labour market. Specifically, causing the current skill set to be obsolete. And if these workers do not have the necessary skills to take on the existing job, they will be structurally unemployed, thereby causing the unemployment rate to increase.
(d)	According to Extract 4, MAS would maintain the neutral stance for the Singapore dollar.
(i)	State what is meant by 'maintaining the neutral stance for the Singapore dollar'? [1]
	Keeping the rate of appreciation of the S$NEER is at zero per cent.
(ii)	With reference to Figure 1, how does the value of the Singapore dollar in December 2016 compare to its value in August 2016? [1]
	Depreciated
(iii)	Explain how your answers in (ii) is consistent with MAS's neutral policy stance. [2]
	The depreciation in (ii) is against the US dollar, which is just one currency in the basket of currencies, which is NEER is measured against.
(e)	Explain how an increase in the federal debt might affect the future standard of living in the United States. [5]
	An increase in federal debt would need the government to raise tax revenue in the future to service its debt and/or reduce its spending on certain areas so as to service the larger debt. This increase in personal income taxes would lower disposable income and purchasing power of the residents, causing the material SOL in the future to fall. With an increase in federal debt and more being set aside to service the loan, the government now has less expenditure to spend. As such, the government will not be able to spend as much on education, healthcare, environment and the poor. As such, both material and non-material SOL might could fall. In order to get 5m, at least one of the two points must link to non-material aspect of SOL 2 points on material SOL – max 4 marks 1 point on non-material SOL- 1 mark.

(f)(i)	Using an AD/AS diagram, explain why higher deficit-financed public spending could prompt the US Federal Reserve to start tightening monetary policy. [4]
	Higher deficit-financed public spending increase in AD from AD0 to AD1 and then to AD2 would lead to higher price level from P0 to P1 and then to P2 as the economy approaches full employment, leading to demand-pull inflation.  <u>Marking scheme</u> Up to 2 mark for the diagram. Up to 2 marks for the explanation.
(f)(ii)	Explain how tightening monetary policy is a response of the US Federal Reserve given the higher deficit-financed public spending and comment on its effectiveness. [9]
	As shown in f(i), a higher deficit-financed public spending will lead to demand-pull inflation. To prevent demand-pull inflation, tightening monetary policy, which involved raising interest rate, would have an effect of reducing C, I and NX. An increase in interest rate would increase cost of borrowing and in turn decreases consumption expenditure such as cars. Firms will also find it more costly to borrow to invest. As a result, investment in the economy will decrease because less investment projects will now regarded as profitable compared to when the interest rate was lower. A raise in interest rate relative to that of other countries would cause financial capital/ 'hot' money inflows into the country. This causes the demand for USD to increase and hence the USD to appreciate. As such, exports to be more expensive in foreign currency while imports become cheaper in domestic currency (USD). Assuming Marshall-Lerner condition is satisfied (i.e. PEDX + PEDM >1), this will reduce net exports (X-M).

	This reduction in C, I and NX will cause AD to decrease and general price level to decrease, dampening the demand-pull inflation caused by the higher deficit-financed public spending. <u>Possible Comments</u> Tightening monetary policy might not be effective because of the following reasons • Positive economic outlook. • interest rate is still historically low • Trump might exert pressure on the Fed reserve
(g)	Extract 2 stated Trump election to date has led to the depreciation of the euro, yen, pound and emerging market currencies. Using a diagram, explain how Trump election has led to the depreciation of any of these currencies. [4]
	As highlighted in Extract 2, Trump election to date is the flood of capital into the US in anticipation of higher returns from fiscal stimulus and monetary tightening. With reference to the Euro market as shown in the diagram below, the initial value of euro in terms of US$ is E0 as determined by D0 and S0. With the increased preference to invest in the US and to hold USD, investors and speculators sell Euro, causing the supply of the Euro to shift to the right from S0 to to S1, leading to a fall in the value of the euro from E0 to E1. 
(h)	Extract 1 suggests combining big surge of spending on infrastructure with tax cuts and deregulation is dangerous. Explain the alternative view point and assess whether doing so is indeed dangerous. [12]

	Combining big surge of spending on infrastructure with tax cuts and deregulation is dangerous. Specifically, based on the extracts, it can cause inflation, large fiscal debt and widening income disparity. Despite the possible dangers on the economy that these economists have warned against, there has been another viewpoint that these policy initiatives might not cause any dangers after all due to other effects that these initiatives might also bring about. The tax cuts and deregulation might result in increase in quantity and quality of capital. This may happen as the tax cuts would have prompted more investments as domestic and foreign investors are incentivized by the attractive after tax profits. Infrastructure spending on transportation, energy, water and hospitals as mentioned in Extract 7 could also help to create more business opportunities and make investments in US more conducive. These would increase the productive capacity of the economy and hence lead to a rightward shift of the LRAS resulting in potential growth. This can help to moderate the increase in general price levels and achieve price stability. These actions might also result in sustained economic growth as the increase in actual growth is accommodated by increases in productive capacity of the economy, allowing consistent increases in GDP. In addition, the increase in sustained growth will allow the government to reduce its fiscal debt as firms which are incentivized by the initial tax cuts will make more profits from their increased investments and they will have to pay more in corporate taxes eventually since their profits increase. The increase in GDP due to the policy initiatives will also mean the government will be able to collect more tax revenue as income of Americans increase. This will enable the government to have more financial ability to implement measures to redistribute income, like issuing grants and subsidies to the low income group to reduce the income gap. The increase in GDP and hence economic growth can also raise expectations about the US economy and this increase in optimism can spur the US economy even more in terms of increase in consumption and investment expenditure. This can further propel the economy. **Assess whether it is dangerous** Therefore, whether the policy initiatives that Trump advocates is going to be dangerous depends on the effectiveness of the policies. If the deregulation and the tax cuts can increase the productive capacity of the US, then the potential risk of demand-pull inflation will be significantly reduced It is also important to consider the time frame of the policy implementation. In the short run, the policy initiatives and aggressive government spending might bring about inflation but if the measures are successful in the long run, the increase in productive capacity would accommodate the potential increases in AD and reduce the risk of increase in general price levels. Also, it is important to consider the effects of achieving economic growth. If the government is going to actively redistribute the increase in tax revenue from the

policy implementation, then the income gap in the country will not be widened and it will not be dangerous for the economy.

In conclusion, while Trumponomics might seem dangerous at first, if the policy measures are implemented on areas which can increase the productive capacity significantly, then the dangers to the economy might not be that great and might be even beneficial to the economy.

Level	**Description**	**Marks**
L3	A developed explanation of how these policies increases the productive capacity AND how supply-side policies bring about positive outcomes on inflation, fiscal debt and income gap.	6-9
L2	A developed explanation of how these policies increases the productive capacity OR how supply-side policies bring about positive outcomes on inflation, fiscal debt and income gap. An undeveloped explanation of how these policies increases the productive capacity, thereby bringing about positive outcomes on inflation, fiscal debt and income gap.	3-5
L1	A smattering of valid points	1-2

In addition, up to a further 3 marks for valid evaluative answer.