

Raffles Institution

ECONOMICS **Higher 1** **(Syllabus 8819)**

*Suggested Answer Outlines and
Examiner's Comments for the
Year 6 Prelims 2015*



Case Study Suggested Answers:

Case Study 1

a	(i)	Using Table 1, describe what has happened to prices of healthy food (e.g. fruits, vegetables) as compared to unhealthy food (e.g. soda, butter) from 1980 to 2009.	[2]
<p>Prices of healthy food have increased faster than that of unhealthy food. Both prices of unhealthy food as well as healthy food have increased as percentage changes have been positive.</p> <p>[1 mark for recognizing that healthy food prices have increased at a faster rate as compared to unhealthy food. No marks awarded if student identifies that healthy food prices are more expensive than unhealthy food as the data is in percentage change. If students have identified that the price difference between healthy food and unhealthy food has widen, it will be awarded marks similar to the faster rate change.]</p>			
	(ii)	From the data, explain what may have caused this difference.	[4]
<p>Widening price differences could be explained by why prices for healthy food have increased faster or why prices for unhealthy food have increased at a slower pace (note, if students argue that prices of unhealthy food have fallen, full credit will be given).</p> <p>Healthy food: Demand for healthy food has risen quickly over the years. As mentioned in the extract, this could be due to changes in taste and preferences towards healthy food. Cost (and therefore supply) may also have increased as stated by the higher quality of healthy food that is now in the market.</p> <p>Unhealthy food: Supply has increased, thereby slowing the price increase for unhealthy food. It was mentioned that 'advances in manufacturing, packaging and flavouring are reducing the prices of processed food'. This has kept price increases for processed and thus unhealthy food relatively low.</p> <p>2 marks for each factor brought in. If both are demand factors, then max of 3 marks.</p>			
b		With reference to the data where appropriate, to what extent is 'obesity a disease of prosperity'?	[6]
<p>Directional word is 'To what extent', which means that students must explain both sides of how obesity is a disease of the prosperous nation (or income groups) and why it is not.</p> <p>Thesis: Obesity is a disease of prosperity Case material:</p> <ul style="list-style-type: none"> Table 2: The country with the largest number of obese people is US, which is also the largest economy in the world. Extract 2: "...while North America and Europe stood out as the world's heavyweights in 1980 ..." <p>This shows that developed countries which have higher levels of per capita income; they are experiencing higher levels of obesity. Analysis behind that: With high income levels, people will consume more food and food which are likely to be richer. Thus explaining why obesity is a disease of prosperity. Students can also argue that with higher income levels, people will work harder and have less time to exercise; thus increasing the level of obesity.</p> <p>Anti-Thesis: Obesity is no longer confined to just the prosperous</p>			

Case material:

- Table 2: The next 6 countries after US are China, India, Russia, Brazil, Mexico and Egypt. These are all developing countries with relatively low per capita income
- Extract 2: "...increases in the prevalence of adult obesity here (America and Europe) have slowed since 2006, and now you see the share in the rest of the world going up very dramatically.

Countries with lower levels of per capita income are increasingly showing a high level of obesity among their adult population. This seems to have indicated that it is more than just income level (high) that influences the level of obesity.

Conclusion: A judgment as to whether is obesity still a disease of the prosperous.

Students can also argue that the increase in number of obese adults and children in these developing countries could still represent that it is a problem of the prosperous as the rapid rise in obesity people is likely to be due to their income levels rising.

c	Explain why 'people being blind to their weight problem' compounds the need for government to combat the rising tide of obesity.	[6]
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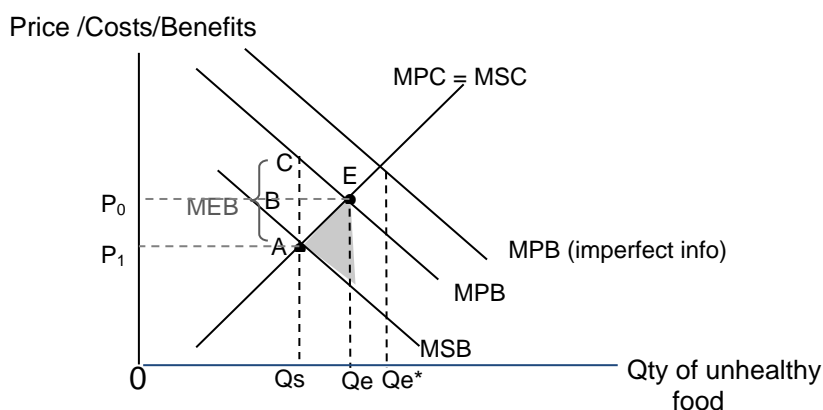
Directional word is 'Explain' but 6 marks for this means that the demands are more than just explaining one source of market failure. Key word is 'compounds'.

Recognize that obesity has negative externalities and the government needs to correct the market failure problem. Also identify that 'people being blind to their weight problem' indicates an imperfect information issue and creates further misallocation of resources.

Problem of negative externalities due to rising levels of obesity.

Case material: Extract 3 states spiraling cost for the National Health Service is almost £45billion a year.

This is an external cost to third parties, who are likely to be taxpayers who contribute to the state coffers and used to treat obesity related illnesses. Also, 3rd party cost could also be due to the loss in productivity to firms in UK who have to battle the rise in obesity and obesity related illness among their employees.



Assuming obesity is due to the consumption of unhealthy food, left to the free market, consumers will choose to consume at the level of where $MPB = MPC$. However, these individuals have not recognized the third party costs to others and therefore over consume by $Q_e - Q_s$.

Case study: 6% of Britons consider themselves to be obese – despite the figure being

around 25%.

The imperfect problem meant that by not recognizing they are obese, they could be over consuming unhealthy food (or under consuming healthy food, exercise). This meant that the problem of overconsumption is even greater. $Q_e^* - Q_s$.

Mark scheme: Explanation of why imperfect information results in market failure in the context of obesity will be awarded a maximum of 4 marks if issue of 'compounding' the problem is not brought across. A diagram is useful, but it need not show as the above to achieve the full range of the marks as long as the issue of compounding the problem gets across in the explanation.

d		Define price elasticity of demand (PED) and explain whether the data suggest if PED of healthy food is elastic or inelastic.	[4]
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PED measures the responsiveness of quantity demanded of a good to a change in the price of the good, ceteris paribus. [1 mark for accurate definition]

Case material: 50% reduction in prices of fruit and salad saw a 4 times increase in sales (assuming qty).

There are 2 other examples used that shows that the rise in qty demanded increased more than the 50% reduction in prices of healthy food. Thus, this seems to suggest that PED of healthy food is elastic. [2 marks]

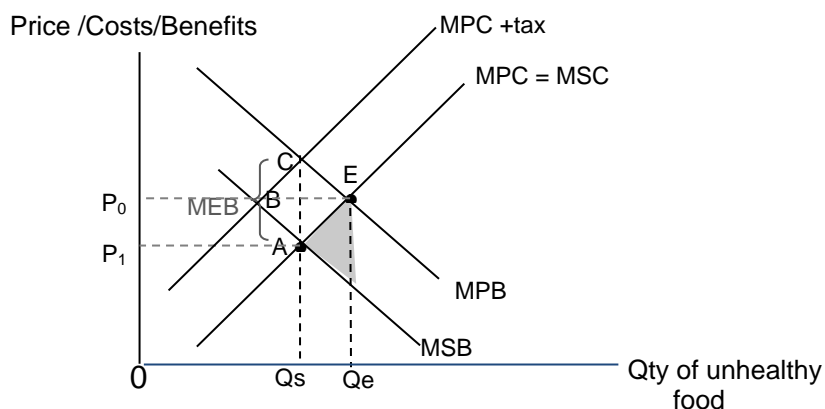
Link to how the %change in qty demanded is greater than the %change in price implies $PED > 1$.

e		Assess if tax on unhealthy food is an effective way to tackle the rise in obesity.	[8]
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Rise in obesity could be due to the consumption of unhealthy food, or could be due to other reasons such as lack of physical activity (stated in extract 2).

Thesis: Tax is an effective way to tackle rise in obesity

A tax on unhealthy food will raise the cost of producers (or suppliers) of unhealthy food. Assuming the government is able to assess the MEC or (negative MEB) of obesity, the tax amount will raise the MPC such that the new socially optimum level of $MPC + \text{tax} = MPB$ is at the socially optimum level.



Merits of the tax:

- People respond most quickly to prices (as incentives, or disincentives in this case), thus a tax will be a powerful tool to influence consumers' behavior towards unhealthy food.
- Case material: ... money raised will go towards health programmes. Tax revenue is

useful in improving current problems to create incentives for healthy living, while reducing unhealthy food consumption.

- If PED of unhealthy food is similar to that of healthy food, then a tax would be able to reduce consumption of unhealthy food significantly.

Problems with using tax:

- Difficulty in assessing which food item to tax and how much to tax. Many food items contribute to obesity, some governments will face lobbyists that argue against the implementation of such taxes. And even if tax is placed on many items (as in Hungary with the most extensive anti-obesity tax), the amount tax tended to be small, thus making it ineffective.
- Tax on food can be a 'burden on the poor'. It works as a regressive tax and makes the poor in the country worse off, widening the income disparity.
- In the case of Denmark, tax would be ineffective if the people have the option to purchase the items from neighboring countries. After 6 months, the tax failed to achieve its results and was withdrawn.
- Obesity is not due to consumption of unhealthy food only, but a whole myriad to other factors. Tax on unhealthy food alone may not be effective.

Possible alternatives:

Correcting the imperfect problem of obesity. Usage of education campaign to encourage people to exercise as well as be aware of their own health. This can be an effective and cost effective way to tackle obesity in the long run.

Conclusion:

A reasoned conclusion. This could be using the examples of the countries who have implemented such a tax. It could be about tackling the root cause of the problem of obesity. It could be questioning the assumption that such a tax amount would be accepted by the people.

Knowledge, Application, Understanding, Analysis		
L1	For an under-developed answer: Explained only the workings of the tax without the limitations: Max 3 Several conceptual errors/descriptive/lack framework throughout answer	1 – 3
L2	For an answer that correctly argues the workings of the tax as well as the limitations of taxation on unhealthy food in combating obesity. Balanced analysis with sufficient rigour with good use of case evidence	4 - 6
E2	Judgment (comparison whether it is an effective policy) is well-substantiated with good use of case evidence	2
E1	Conclusion without clear justification	1

Suggested answers for Prelims 2015 Case Study 2

(a) Describe the changes in GDP for Spain and Germany between 2010 and 2013. [2]
GDP for Germany increased [1m] while GDP for Spain fell [1m] over the period.

Mark scheme

- Award 1 mark for each country for the correct change in GDP.
- If the whole answer is expressed in terms of 'GDP growth', award 1m.

(b) With reference to Table 4, define the multiplier and explain how you might expect the size of multiplier to differ between Germany and Spain. [4]

Definition: The multiplier is based on the principle of one person's spending is another person's income. The multiplier effect highlights that an increase in AD will lead to a more than proportionate increase in real National Income.

Germany's multiplier is likely to be smaller than Spain's [1]

Reason: Germany's imports as a percentage of GDP are higher than that of Spain's. So...

Higher leakage hence mpw may be higher (note that the data shows apm) in Germany resulting in a lower multiplier value, since $k = 1/mpw$ where $mpw = mps + mpm + mrt$ (you ought to give formula). [1]

OR

Higher leakage from circular flow of income → less increase in induced C for a given injection → smaller multiplied rise in NY → implying smaller k [1]

Note: Usage of consumption figures is not recommended as import expenditure is included and thus does not reflect $MPC_{Domestic}$ which is what you need to calculate the K multiplier.

Mark scheme

- 1 mark for definition
- 1 mark for stating that Germany's size of k is smaller.
- 2 marks for appropriate reason- explain briefly via imports being a leakage from circular flow and/or via multiplier formula $k = 1/mps + mrt + mpm$

(c) To what extent can the theory of comparative advantage account for the composition of the main items of trade shown in Table 5? [4]

Thesis: Theory of CA can account for the items to some extent.

The theory of CA states that as long as opportunity cost differs between countries in producing g/s, countries can potentially gain from specialization and trade.

A country should specialize in producing the good in which she has relative efficiency or lower opportunity cost, while importing the good in which she has comparative disadvantage in.

From Table 5

Spain's main exports include fruits and vegetables, wine

- Spain might have lower opportunity cost (CA) over Germany due to her factor endowment: Arable land and climate to produce such goods → Specialize and export fruits, vegetables and wine to Germany

Germany: main exports comprise of capital gds (eg Electrical machinery, General Industry machinery, Machinery for specialized uses), pharmaceutical products → mostly require capital intensive, knowledge intensive production

- Factor endowment: A greater proportion of skilled and educated labor than Spain → can produce such goods more efficiently than Spain → specialize & export such gds to Spain

With comparative disadvantage in agricultural products, Germany would import fruits, vegetables and wine from Spain.

Likewise, Spain imports capital goods from Germany since she lacks CA over Germany in them.

NOTE: Reasons for CA/Sources of CA must be given (see underlined parts)

Antithesis: However, theory of CA may not be able to account for the items.

Observe that both Spain & Germany export and import similar items e.g. cars, machinery and pharmaceutical products.

For example, Spain may specialize in and export cars and pharmaceutical products but she also import cars and pharmaceutical products from Germany.

Reason: the existence of demand for differentiated products, for reasons associated with reputable brand or quality

Hence the main items of trade may be explained by other reasons not associated with cost advantages.

Mark Scheme

Explanation of why the trade patterns reflect comparative advantage for Spain and Germany – 2 marks. Failure to link to factor endowments but correctly identification of exports and imports which have comparative advantage and disadvantaged respectively will get 1 out of the 2 marks.

Explanation of why theory of CA cannot explain the exports of goods in the same categories to both countries. – 2 marks

(d) Explain why the Spanish government should be concerned about high unemployment.[4]

Explain any two possible reasons:

- From Extract 7, high unE → Increase G on unE benefits. High unE → Insufficient tax receipts [1]. This results in an increase in Spain's already high public debt [1]
- Other possible reasons (theory):
 - High unE implies lost output/lower GDP [1] → producing inside PPC/inefficiency [1]
 - Possible hysteresis from high and prolonged unE – loss of skills [1] → slowdown of potential economic growth [1]
 - High unE results in social problems [1] resulting in loss of business confidence [1]

Mark scheme

For each point

- First mark on identifying what problem arises from high unE
- Second mark on explaining why this problem is a concern for the govt

Max 3 marks if no use of case material

(e) Discuss whether the unemployment situation in Spain is more likely to be improved by adopting supply-side or demand-management measures. [8]

- Spain's high unemployment may be achieved by demand and supply-side measures.
- Demand-side measures are more likely to improve the unemployment situation. However, given the current constraints faced by the Spanish government, they are more likely going to adopt supply-side which can also play a role in improving the unemployment situation.

Demand management policies can help to create jobs and hence lower unemployment. Explain and Evaluate policy with regards to lowering unE in Spain.

- Adopting a DD-side policy like expansionary fiscal policy would **more directly deal with the main cause of Spain's unemployment, i.e. the lack of AD**. From extract 7 para 2, "Projected growth of 0.7% next year falls short of the government's own estimates for job creation" → implies that the key to lowering unemployment in Spain is to generate higher real output that is high enough for jobs to be created.
- **Note that Spain is part of the European Union (EU). As such, she has no control over monetary policies. Adopting an independent monetary policy via adjusting own interest rate and exchange rate is not possible. The European Central Bank (ECB) controls interest rate and exchange rate for members in the EU. Thus, the only DD-side policy you ought to analyze here is expansionary fiscal policy.**
- Explain how expansionary fiscal policy works to lower unE using AD-AS framework.
 - Government may increase G and/or cut direct taxes → ↑ components of AD (G, C, & I) will lead to higher real o/p more than proportionately via multiplier effect → derived DD for labor rises → lower cyclical unemployment in Spain.
 - As mentioned, the root cause of the high unemployment in Spain is demand deficiency. From Table 3, Spain's GDP fell throughout the period. Hence, this implies that a weakening aggregate demand had contributed to falling derived demand for labor, resulting in higher cyclical unemployment.
- Limitations of using expansionary fiscal policy in Spain

- Extract 7 Para 2 - 'Planned budget deficit 5.8% of GDP' while Spain already had mounting government debt of 100% of GDP. This implies difficulty in increasing G further and/or cutting taxes for fear of debt pileup.
- Extract 7 Para 6 also mentioned that taxes could also be cut, but only if public spending is cut. This highlights the increasingly limited feasibility of an expansionary fiscal policy to boost actual growth, in view of the need to deal with the high government debt.
- Extract 7 Para 3 – "Spanish companies and households are busy trying to pay off their own debts". Furthermore, recession with high unemployment may add to poor consumer and investment confidence. Hence, even if corporate and personal income taxes are cut, the extent to which C+I increase may be not high.

Evaluation/Judgement: Hence while it is undeniable that driving economic growth through stimulating AD is more likely to improve the situation (since the root cause seems to be weakened AD stemming from years of negative growth), in reality it is unlikely that the government has the finances to do so. Moreover, these measures may not yield the expected result of driving up economic growth due to weak sentiments, so cutting direct taxes may not stimulate C+I much to boost AD and employment.

On the other hand, SS-side policies can also help lower unemployment in Spain. You should explain and evaluate the measure.

- Wage cuts → explain how this helps save jobs: Lower labour cost → ↑ aggregate supply (AS curve shift downwards- you should illustrate effects) → real o/p rises resulting in higher derived demand for labour → helps ↓ unE. Intuitively, with lower wage costs now, companies may be more willing to retain existing employees, preventing higher cyclical unE.
- Rules to limit TU power, scrap min wage → lower wage cost → COP falls, AS rises.
- You may explain that these wage-cutting measures would lower COP and translates into greater export competitiveness (↓ price of exports) hence increasing X, assuming $PED_x > 1$. This increases AD and helps lower cyclical unE
- Also, cutting unemployment benefits, pensions & tax rates (assuming lower personal income tax rate) → increase incentive to work hard → increase AS → lower GPL → improve competitiveness
- Moreover, observe that these measures are more market oriented in nature and aim to improve labour market flexibility - e.g. Lowering or scrapping the minimum wage → improve labour market flexibility to reach market-clearing wage rate → wages are more flexible downwards (so Aggregate SS can rise) to remove excess supply of labour.
- **The abovementioned measures are less costly to implement than expansionary fiscal policy (which involves increasing government expenditure) and hence more likely to be implemented by the Spanish government.**

- Another example of SS-side measure: Vocational training schemes, via government expenditure on subsidies for firms and/or employees to promote re-skilling or up-skilling → improve skills and quality of workforce → ↑ labour productivity (o/p per worker per hour rises) → AS rises → real o/p rises → may lower unE. You may also explain that this helps prevent structural unemployment as workers might be more employable to move in higher value-added industries which require more updated skills.
- Furthermore, Spain's government might have attempted to foster good relationship with employers and unions to ensure that wage rises are 'moderated' such that the rise doesn't exceed the rise in productivity. This helps reduce lower unit costs to prevent higher unE. (Ext 7 Para 6 – 'Labour market reforms have helped boost productivity, allowing employers and unions to opt for wage moderation rather than sackings'.)
- **Limitations of using supply-side measures in Spain**
 - Wage cuts → may compromise on material SOL
 - Ext 7 Para 6 – 'Reform fatigue' – Spaniards have already accepted a slew of changes, including wage cuts to boost competitiveness. Since 'more reforms are needed', there may be greater resistance towards further changes, especially if proposed measures are politically unpopular, such as scrapping minimum wage and reducing pensions.
 - Some SS-side measures such as vocational training may incur high government expenditure. Given Spain's debt problems, the government may be unable to spend much.
 - Effectiveness of vocational training may depend on receptiveness of people towards learning new skills. Time is also needed for workers to undergo retraining. Hence, the extent of increase in AS may be uncertain.

Synthesis:

- While expansionary fiscal policy to boost AD is necessary to lower the very high unE which is likely to be mainly cyclical in nature (more direct in addressing lack of AD), it is more difficult to implement due to the budget constraints owing to high public debt burden.
- Since Spain's X seems to be picking up, Spain may capitalize on this and focus on SS-side measures to lower the relative prices of Spanish exports. (Extract 6: Exports, spurred by Spain's new competitiveness, should grow more than 5% both this year and next, doubling their pre-recession weight in the economy). Moreover some SS-side measures don't strain her public finances (with the exception of vocational training). Thus, SS-side measure may more likely to lower unE in Spain.

Knowledge, Application, Understanding, Analysis		
L1	<i>For an under-developed answer: Explained ONE policy (DD-side or SS-side) only and covered limitations of the policy: Max 3</i>	1 – 3

	<i>Several conceptual errors/descriptive/lack framework throughout answer</i>	
L2	<i>For an answer that explained both DD and SS side policies, with limitations of both policies</i> <i>For an answer that explained both DD and SS side policies but without limitations for both policies: MAX 4</i> <i>Balanced analysis with sufficient rigour with good use of case evidence</i>	4 - 6
<i>E2</i>	<i>Judgment (comparison of which policy is better) is well-substantiated with good use of case evidence</i>	<i>2</i>
<i>E1</i>	<i>Judgment (comparison of which policy is better) with weak substantiation</i>	<i>1</i>

f) Discuss the different extent to which Germany and Spain would gain from the Trans-Atlantic Trade and Investment Partnership with the US. [8]

Intro

- Trans-Atlantic Trade and Investment Partnership with US (TTIP)
 - ease of tariff and non-tariff barriers to trade and investment between EU countries and US
- The theory of CA predicts that if there are differences in opp cost in producing g/s between US and EU states, then both sides would potentially gain if they engage in specialization and exchange. Hence, US and EU states stand to gain from forging this agreement (ext 7 last para).
- The focus would be on EU states of Germany and Spain → what determines their extent of gains from entering this TTIP with US?

Development

Thesis: Germany will gain more from TTIP than Spain

- Higher % of X to GDP
 From Table 4: Germany has higher %X of GDP than Spain (45.6% vs 31.6%)
 (X-M) is also higher for Germany as compared to Spain (5.8% vs 2.5%)
 Due to the lowering of tariffs of imports into US, Germany and Spain's products will face lower prices and thus see an increase in demand. For a given rise in X (or X-M), Germany should enjoy higher ↑real NY and employment than Spain as the extent of rise in AD will be larger.
- Benefits of larger markets to SMEs
 It was mentioned in Extract 8 that the greater beneficiary from the TTIP is to the SMEs as the removal of bureaucratic barriers would benefit them more than large businesses. It was also stated that the backbone of the Germany economy is the SMEs (extract 6 para 5). This would allow Germany to tap onto their area of comparative advantage in quality

engineered products such as heavy machinery, vehicles etc. and see larger increase in their exports.

Anti-Thesis: Spain will gain more from TTIP than Germany

- **Similarity or difference of area of comparative advantage between US and them**
For Spain -may enjoy lower opp cost over US for producing fruits, vegetables, wine → specialize and export fruits, vegetables and wine to US.

Hence, Spain's area of CA seems more 'distinct' from US

Also, Spain may enjoy lower opp cost over US in lower value-added manufactured gds or production of goods requiring more labor (eg production of parts for vehicles, machinery), since Spain's relative unit labor cost (Table 5) fell. Ext 6 para 4 & 6 also implied that Spain achieved greater export (price) competitiveness.

Ext 7 para 4 also stated that 'car plants are taking work from less competitive factories in Europe' → possible that such trend may occur too, upon entering the TTIP with US. US car manufacturers may offshore production to Spain.

Possible gains for Spain

- Enlarged mkt for her gds → Specialization, IEOS, ↑X
- Off-shoring → ↑I
- Relate to EG, BOP

On the other hand, for Germany:

- Her areas of CA seem more similar with US (as compared with Spain)- See Table 5 & 6
- Both US and Germany seem to have similar areas of specialization in high VA, capital intensive, knowledge intensive production (eg cars, machinery, pharmaceuticals)
- Whether Germany would gain may depend on whether she is more efficient than US
- If Germany loses in terms of cost-advantage, then German industries face threat of erosion of CA to US, if countries buy more machinery, pharmaceuticals, cars from US rather than from Germany
- Possible negative effect on Germany: lower X → lower EG
 - *Possible evaluative points:* Consider that US consumers may still have high DD for Germany's goods which are known for reputable brand and quality (eg BMW & Mercedes cars, specialized machinery)

- **Lower Relative Unit Labour Cost**

From Table 6, Spain has seen their labour cost fall since 2010 and this may make Spain a more attractive destination for foreign direct investments. US companies looking to

offshore may consider Spain as a more viable option based on her lower labour cost. Thus, the increase in FDI i/f can benefit Spain in jobs creation as well as faster economic growth.

Conclude

While there are some disadvantages from signing of TTIP, Germany and Spain will see different impact on their economy from the removal of barriers. Germany's position as a global leader in quality products may put them in good stead entering a trade agreement with a developed economy like US. While certain industries in Germany may be adversely affected, their ability to continue to innovate will be critical in determining the extent of gains.

For Spain, in the short run, the signing of the TTIP may be extremely beneficial to bring about much needed demand for their products as well as investments. Together with their good fit in terms of different areas of comparative advantage, Spain would appear to benefit much from this trade agreement.

<i>Knowledge, Application, Understanding, Analysis</i>		
<i>L1</i>	<i>Irrelevant answer</i> <ul style="list-style-type: none"> <i>Eg: an answer that explain how both countries will benefit from trade agreement without explaining who would benefit more or less.</i> 	<i>1 – 3</i>
<i>L2</i>	<i>Balanced argument that explains clearly why either Germany or Spain has benefited more from the trade agreement. There should be sufficient scope (3 key points, split between thesis and anti-thesis).</i>	<i>4 - 6</i>
<i>E2</i>	<i>Judgment is well-substantiated with good use of case evidence</i>	<i>2</i>
<i>E1</i>	<i>Judgment with weak substantiation</i>	<i>1</i>

Essays

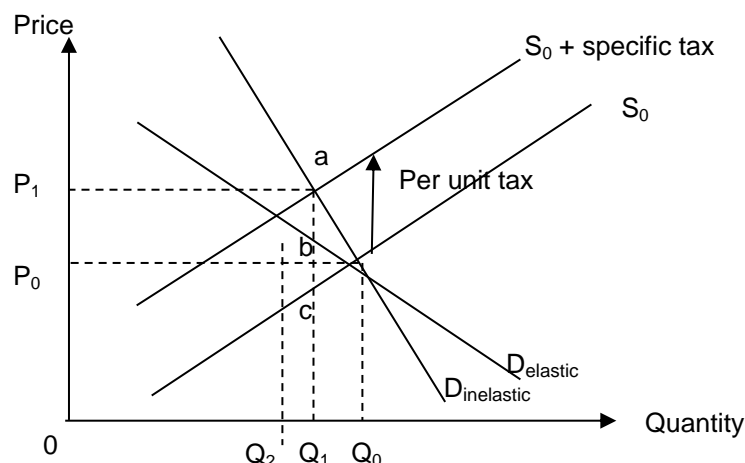
- 3 The government provides many economic functions that affect the way in which exchange is carried out. It decides on which goods should be taxed, which to be subsidised and which ones it should produce.
- a) Explain how the understanding of the concept of price elasticity of demand may be useful to the government when it imposes indirect taxes on different goods and services. [10]
- b) Price mechanism will allocate scarce resources in the most efficient manner for all goods and services in a market economy and there is no need for government intervention. Discuss. [15]

The govt imposes an indirect tax mainly to discourage consumption of the good or to collect tax revenue. The PED value of a good is useful for the govt to predict the extent to which an indirect tax can reduce the quantity demanded of the good and the amount of tax revenue that it can receive from that tax imposition. So knowledge of PED will help the govt predict the effectiveness of the tax to achieve the relevant goals.

An example of a good that is price inelastic in demand is cigarettes. Smokers are addicted to tobacco and there are no close substitutes to cigarettes. So any increase in price due to an indirect tax imposed will lead to a less than proportionate fall in the number of cigarettes purchased. So the tax imposition may not be effective in discouraging consumption of cigarettes but the tax revenue collected is likely to be higher than a good that is price elastic in demand.

An example of a good that is price elastic in demand is luxury watches. Such goods take up a relatively large portion of the consumers' income and an increase in price due to a tax imposed will lead to a less than proportionate fall in quantity demanded. So a tax imposition may be effective in reducing the quantity bought but tax revenue collection will be lower than that of a good that is price inelastic in demand.

This can be shown in the following diagram. For a specific tax per unit (represented by the vertical distance ac) imposed on both goods, it has the effect of increasing cost of production and will cause the supply curve to shift up. The quantity demanded for a good with price elastic demand (eg luxury watches) falls from Q_0 to Q_2 while that for a good with price inelastic demand (eg cigarettes) falls by a smaller proportion, from Q_0 to Q_1 . Tax revenue collected from cigarettes is $(0Q_1 \text{ multiply unit tax } ac)$ which is larger than that collected from luxury good $(0Q_2 \text{ multiply unit tax } ac)$.



Knowledge, Application, Understanding, Analysis		
L1	<ul style="list-style-type: none"> No use of the demand and supply framework to analyse how indirect tax affects govt tax revenue and quantity of good transacted. Glaring errors in analysis 	1 – 4
L2	<ul style="list-style-type: none"> Some use of the demand and supply framework to analyse how indirect tax affects tax revenue and quantity transacted. Explanation may contain some gaps or errors. 	5 - 7
L3	<ul style="list-style-type: none"> Good use of the demand and supply framework to analyse how indirect tax affects tax revenue and quantity transacted. Explanation is in-depth and uses the demand and supply diagram effectively. <p><i>[Max 8 marks if only one impact of indirect tax is analysed.]</i></p>	8- 10

b) Thesis: Resource allocation by the free market achieves allocative efficiency therefore, governments need not intervene

1. Explain how the free market allocate resources efficiently

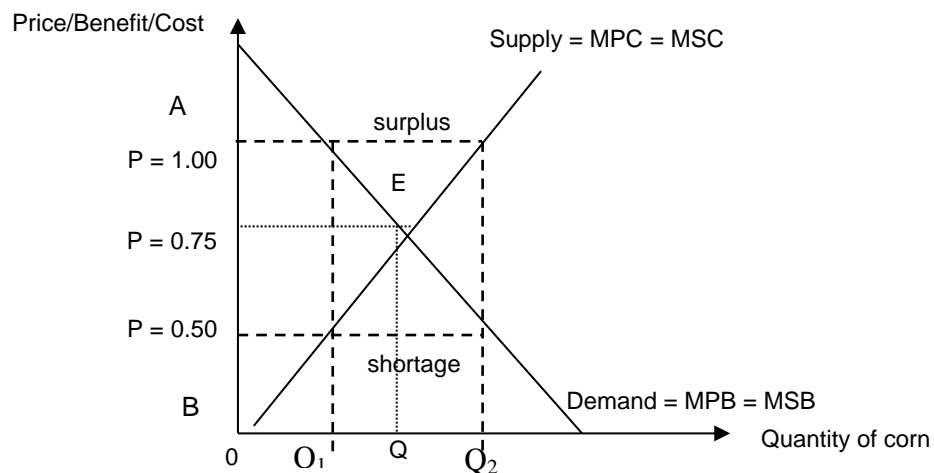


Figure 1: Market for Corn

- The demand curve for a good, for example, corn (DD) reflects the value of the good to consumers, as measured by the prices consumers are willing and able to pay. At any quantity, the demand curve shows the value to consumers of the last unit of corn bought. The demand curve thus reflects the consumers' marginal benefit (MB) derived from purchasing the last unit of

corn.

- The supply curve (SS) reflects the marginal costs (MC) of producing the additional unit of corn. At any quantity, the supply curve shows the opportunity cost in terms of resources used in producing the last unit of corn.
- Hence, allocative efficiency is achieved when price equals marginal cost as the value that society places on the last unit of the good (P) is equal to the opportunity cost in terms of resources used in producing that last unit (MC).
- In the absence of government intervention, the price adjusts to balance the supply and demand for corn. At prices above the equilibrium price (eg. \$1), the quantity supplied exceeds the quantity demanded. There is a surplus in the market and a downward pressure on the price is expected. This is because producers will find that they are unable to sell all their output at that price. They will begin to compete against each other to sell their excess supplies, thus asking for lower prices. As prices fall, quantity demanded will increase. The market price will fall until equilibrium price is reached (\$0.75) where quantity demanded equals to quantity supplied.
- At prices below equilibrium (eg. \$0.50), quantity demanded exceeds quantity supplied; the resulting shortage exerts an upward pressure on the price. Competition among consumers will drive up the market price. Consumers who do not succeed in purchasing all they want of the good at the current price would offer higher prices. At the same time, producers would be willing to increase the quantity supplied at the higher prices. The market price will rise until equilibrium price (\$0.75) is reached.
- At the market-clearing equilibrium, the marginal benefit of consuming the last unit of corn as reflected by the price ($MB=P$) that consumers are willing and able to pay equals the marginal cost incurred in producing that last unit of corn (MC). Hence, allocative efficiency is achieved. The sum of consumer surplus (area PEA) and producer surplus (area PEB) is maximised at P, Q.
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Antithesis: However, when there is market failure, government intervention may be necessary

- The following are 2 examples of how the market may not allocate resources efficiently and there is a need for government intervention. (You can use other examples of sources of market failure in your explanation but only 2 are needed in your answer)

1. Presence of Externalities

- An example of a good that generates negative externalities in production is in the production of chemicals. Assume that chemical factories pollute rivers and that the quantity of pollution rises with output. Downstream companies (eg those producing canned food) use river water as an input in production and fishermen rely on the river for fish. However, the chemical factories in the pursuit of self-interest only consider their own private costs and ignore the external costs imposed on the fishermen and other companies. As such, these **external costs create a divergence between the marginal private**

costs (MPC) and marginal social costs (MSC) of producing the chemicals.

- At low levels of chemical output, the pollution is negligible. The river dilutes the small amounts of pollutants discharged by the chemical factories. As the chemical output rises, so will the chemical discharge and the costs of pollution will rise sharply. Food processors must worry about water purity, and build expensive purification plants. Fishermen suffer from a loss of income as they catch fewer fish.
- Refer to the diag below, the marginal private benefit curve (MPB) shows the additional satisfaction from each additional unit of chemicals consumed. Assume that it is also the social benefit curve for society, i.e. $MPB = MSB$ (marginal social benefit).
- Assume perfect competition, the free market equilibrium output of the industry is $0Q_e$ units where $MPC = MPB$. However, at this output $0Q_e$, MSC (AQ_e) exceeds the MSB of chemicals, given by (EQ_e). Thus, Output Q_e is **allocatively inefficient**.
- The **socially ideal output level** is at $0Q_s$ units, where $MSC = MSB$. The free market equilibrium results in an overproduction of the good by Q_eQ_s units. The deadweight loss is represented by area AEE_1 . This is because the amount of resources used to produce additional Q_eQ_s units exceed the gain in benefit from consuming Q_eQ_s from society's point of view.
- The free market equilibrium is thus not allocatively efficient when externalities are present. Govt intervention is needed.

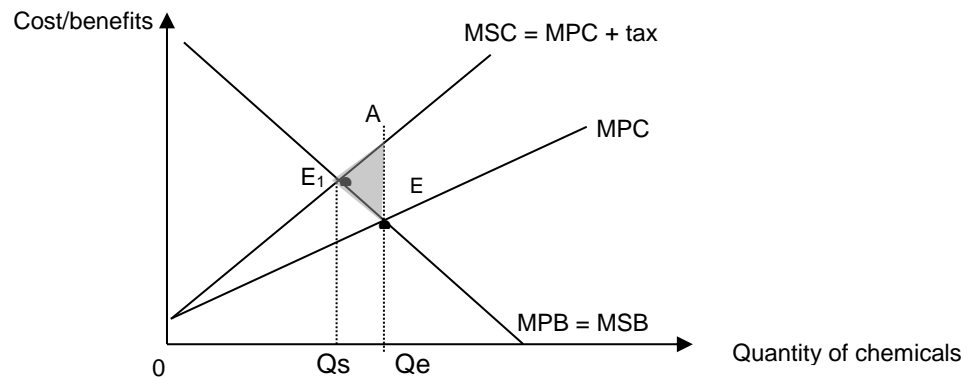


Figure 2

- One of the policy options that the government may pursue to correct problems like negative externalities is that of taxation. In the case of negative production externalities, the government can levy a specific tax (specific amount of indirect tax on the producer) equivalent to the monetary value of the marginal external cost. This is monetary valuation of the harm imposed on society due to the negative externality, brought about by production per unit of output produced by the firms. Through this tax, the government attempts to compel the polluting firm to *internalize the external costs*. In Figure 2, a specific tax of AE which is equal to marginal external cost (MEC) will raise the

firm's marginal private cost, shifting it from MPC to MPC + Tax, i.e. MSC. This leads to an after-tax equilibrium quantity of Q_s units, given by the intersection of MPC + tax and the Marginal Private Benefit (MPB) curve. The tax has resulted in a lower equilibrium quantity, which is also the optimal quantity. At this equilibrium, Marginal Social Benefit (**MSB**) equals Marginal Social Cost (**MSC**). Allocative efficiency is achieved.

2. Presence of Public Goods

- Public goods possess two distinguishing features – **non-rivalry** and **non-excludability**. As such, public goods will typically not be supplied through the free market.
- A good is **non-excludable** when it is impossible or very costly to exclude non-payers from consuming the good once it is provided. Since those who do not pay cannot be excluded, no one has much incentive to help pay for such goods and suppliers will find it difficult or impossible to collect fees for the benefits they provide. This is called the 'free rider' problem. When a large number of people become free riders, there is zero provision of the good by the free market. For example, in the case of streetlights, it is extremely difficult to exclude those in the same vicinity from receiving the lights once it is available to someone in the vicinity.
- A good is **non-rivalrous** when the consumption by one person does not reduce the amount available to others. For example, street lightings can be shared by everyone within a given range. If an additional person walks along the street, this does not reduce the amount of lights available for others. Thus, the marginal cost of allowing an additional user is zero. Since the supply of a public good is not depleted by an additional user, the marginal cost of serving an additional user is zero. That is, once the public good is provided, for optimal consumption, the marginal cost of consumption of the good is zero. Since the marginal cost of serving an additional user is \$0, efficient provision of public goods requires that consumers pay the marginal cost of their consumption which is zero. However, private markets with profit-maximising firms will never provide goods at a price of zero. This would be allocatively inefficient since one more person's consumption of the good costs society nothing.
- Without government intervention, public goods simply would not be provided. A *missing market* in this case may indicate a significant loss to society's welfare. The govt intervene by providing for these goods directly.

Conclusion

- While the price mechanism is able to allocate resources efficiently in most cases, various sources of market failure can lead to allocative inefficiency. Therefore, the allocation of resources cannot be left entirely to the free market and government intervention is both justified and necessary.
- However, government too can fail and the quality of the intervention determines whether intervention leads to a more efficient or inefficient

allocation of resources. For goods like public goods, it is likely that government intervention will lead to greater allocative efficiency since there is complete market failure, as compared to externalities, where there is partial market failure.

Knowledge, Application, Understanding, Analysis		
L1	<p><i>Answer is vague, has serious conceptual errors or incorrect focus.</i></p> <p><i>Did not use price mechanism (demand and supply) framework</i></p> <p><i>Did not use allocative efficiency as benchmark</i></p> <p><i>Did not analyse market failure</i></p>	1 – 5
L2	<p><i>Answer is relevant and analysis uses appropriate economics framework and concepts.</i></p> <ul style="list-style-type: none"> - <i>Used price mechanism framework</i> - <i>used allocative efficiency as benchmark</i> <p><i>Balanced answer - Some explanation of how the free market may allocate resources efficiently and some explanation of how market may fail.</i></p> <p><i>But answer lacks depth and with some gaps or error.</i></p>	6 – 8
L3	<p><i>Answer is relevant and analysis uses appropriate economics framework and concepts.</i></p> <ul style="list-style-type: none"> - <i>Used price mechanism framework</i> - <i>used allocative efficiency as benchmark</i> <p><i>Balanced answer with good scope</i></p> <ul style="list-style-type: none"> - <i>Good explanation of how the free market may allocate resources efficiently without need for govt intervention</i> - <i>Good analysis of how the market may fail and thus require govt intervention.</i> <p><i>(2 sources of market failure should be discussed and a max 9m if only one source of market is well discussed)</i></p> <p><i>Analysed government intervention in some detail</i></p>	9 - 11
Evaluation		
E1	<i>An unexplained judgement or comment.</i>	1 – 2
E2	<p><i>Evaluative remarks/Insightful comments.</i></p> <p><i>Must include a reasoned comment on how govt may fail and lead to greater inefficiency.</i></p>	3 - 4

- 4 Singapore's inflation is to stay low for now. Consumer price index (CPI) inflation for August is expected to remain benign at 1.1% on-year.

DBS Group Research / September 23, 2014

- a) Explain the benefits of a low inflation rate in the Singapore economy. [10]
- b) Discuss whether the Singapore government currently adopts the most appropriate economic policies to maintain a low rate of inflation. [15]
- a) Any 3 benefits of inflation to the economy well explained.

Prevents the erosion of value of money and maintains SOL.

Low inflation helps to prevent money from losing its function as a store of value and therefore is able to preserve the purchasing power of households. The amount of goods and services consumers can buy is maintained and this helps maintain the average person's SOL. This is important especially for the lower income group as erosion of value of money is likely to hit them hardest. A large portion of the income of the poor is likely to be spent and they are not likely to have substantial savings. When inflation increases, they are unable to draw on savings to buy the same amount of goods and services. This may lead to social instability in an economy as the gap between the rich and poor widens.

Increase International competitiveness and therefore economic growth

If domestic inflation is low relative to inflation in other countries, this improves the price competitiveness of Spore's exports. When exports become relatively cheaper, foreign countries will buy the relatively cheaper exports. → AD rises leading to multiple increases in NY and Nmt. Use the AD/AS diagram to help in your explanation.

Promotes investment and potential economic growth

When inflation is low and anticipated, firms can calculate with greater certainty the profitability of their investments and this incentivizes firms to invest. The increase in investment, ie the purchase of capital goods and services, increases fixed capital formation and this leads to an increase in productive capacity and therefore potential growth in the long run. Draw AD/AS diag to show rightward shift of LRAS.

<i>Knowledge, Application, Understanding, Analysis</i>		
<i>L1</i>	<ul style="list-style-type: none"> ▪ <i>Lack of theoretical framework to explain benefits of inflation.</i> ▪ <i>Glaring errors in analysis</i> 	<i>1 – 4</i>

L2	<ul style="list-style-type: none"> ▪ <i>Use of AD/AS framework to explain benefits of inflation in the economy.</i> ▪ <i>Some explanation of how inflation is beneficial to the economy, in terms of its impact on households, firms and the other macro goals. (at least 2 benefits)</i> ▪ <i>Some gaps/errors in analysis.</i> 	5 - 7
L3	<ul style="list-style-type: none"> ▪ <i>Good use of AD/AS framework to explain benefits of inflation to the economy.</i> ▪ <i>In-depth explanation of how inflation is beneficial to the economy, in terms of its impact on households, firms and the other macro goals. (3 benefits)</i> 	8 - 10

b)

Exchange Rate Policy

Singapore is a small and open economy and it has to import most of the raw materials for further production. Because of that, its main source of inflation is imported cost push inflation. In Singapore, exchange rate policy is often used to dampen imported cost push inflation. MAS, the Central Bank may increase the value of its currency by buying the local currency in the forex market.

Impact on Inflation via Changes in Import Prices

A stronger exchange rate will result in

- Imports being relatively cheaper since S\$1 can buy more foreign currencies. Imported raw materials are now cheaper and that reduces the ave COP of firms. Firms are now willing to increase production and this leads to an increase in the SRAS (draw AD/AS diag to show shift down of AS curve and lower prices). This reduces the price of locally produced goods and services that make use of imported factors of production. Any imported cost push inflation is reduced.
- S\$1 can buy more foreign currencies and this lowers the price that domestic consumers have to pay for imported final goods and services

Both the above effects result in a fall in the overall level of prices of goods and services within the economy.

Impact of lower Inflation via Changes in Aggregate Demand

A stronger exchange rate would result in domestic goods and services being less competitively priced in foreign markets. External demand takes up a large proportion of the Aggregate Demand in Spore and this would reduce the demand for Singapore goods by the rest of the world. If the economy is operating at close to full employment level and there is presence of *demand-pull inflation*, then the above will also help to reduce demand pull inflation. (draw AD/AS diag to show shift down of AD curve along the vertical portion of the AS).

Limitation of using exchange rate mechanism to dampen inflation:

Maintenance of a Large Foreign Reserve

To increase the value of the Spore dollar, MAS has to buy Spore dollar and sell foreign currencies in the foreign exchange market. Large foreign reserves have to be

maintained by the country to support this exchange rate policy. The opportunity cost of maintaining these large foreign reserves is high as they could have been used by the govt for projects to promote economic growth instead.

Transmission Lags

It takes time for changes in the exchange rate to work its way through the economy depending on the speed and extent with which importers and retailers pass through the price changes to consumers and the structural features of the economy.

Exchange rate policy primarily targets imported cost push inflation but it may not be effective in curtailing domestic sources of inflation like wage push inflation and therefore the need to introduce alternative policies.

Supply side policy

Any supply side policy to counter cost push inflation and also reduce impact of excessive aggregate demand on prices in the long term is acceptable.

- Facilitate Flexible Wage Structure in which a variable component of salary of workers is tagged to productivity. Wage increases are recommended only if productivity of workers increases and this serves to dampen wage inflation. In Spore, the National Wage Council has been set up to advise on the recommended increases. The success of the implementation of the wage structure really depends on the good industrial relationship between the govt, the employers and the workers, who are represented by the NTUC. In Singapore, the cultivation and maintenance of such harmonious relationship takes a long time.
- The Singapore govt subsidises the training of workers through funds like the Skill Development Fund. The training courses upgrade workers' skills so that the labour productivity increases and this helps to reduce cost of production in the long run. This in turn leads to reduced inflationary pressure in the economy. (Use the AD/AS diagram to show a shift of the AS curve to the right and a lowering of the general price level.) A limitation of this policy is that the effects of training takes a long time to bear fruit and older workers may be resistant to training.

Fiscal Policy :

Theoretically, FP may be used to reduce demand pull inflation in an economy. However, Singapore does not use FP in any large way to reduce inflation. This is because govt expenditure takes up a relatively small portion of GDP and Singapore govt does not normally use its expenditure to influence AD. However, during times of high inflation, it is still possible for the govt to postpone some of its projects till a later time so as not to exacerbate any demand pull inflationary pressure.

Conclusion

Singapore has been using the exchange rate mainly to reduce imported inflation in Spore because of the characteristic of Singapore, which has very few resources and it has to import most of the raw materials. However, there is a need to constantly monitor the sources of inflation and its impact on economic growth. The exchange

rate policy, has been successful in curbing imported inflation in the short run. However, in recent years, domestic sources of cost push inflation had been a great contributor to price increases in Spore, especially the prices of properties (commercial ones) and COE prices which increases the cost of doing biz sharply. These have spiked the cost of production. Wage push inflation also may pose a major problem in Spore, especially if the govt restricts inflow of foreign labour due to pressure from the community. Therefore, though the Singapore govt is currently using appropriate policies to curb inflation, it may need to make adjustments on the right mix because of the many different sources of inflation.

Knowledge, Application, Understanding, Analysis		
L1	<ul style="list-style-type: none"> ▪ Lack of theoretical framework. ▪ Narrow scope and one sided. <ul style="list-style-type: none"> ○ Only one policy was explained and no limitation was included. ▪ Glaring conceptual errors. ▪ No reference to Singapore context. 	1 – 5
L2	<ul style="list-style-type: none"> ▪ Use of AD/AS framework. ▪ Balanced answer. <ul style="list-style-type: none"> ○ One policy explained and limitations of policy in curbing inflation were discussed. 	6 – 8
L3	<ul style="list-style-type: none"> ▪ Use of AD/AS framework. ▪ Balanced answer and good scope. <ul style="list-style-type: none"> ○ Exchange rate policy and at least one other macro policy explained. ○ Detailed explanation of how policies work and their limitations. ▪ Application to Singapore context and Singapore-specific policies are analysed. 	9 - 11
Evaluation		
E1	An unexplained judgement.	1 – 2
E2	Evaluative remarks/Insightful comments. Well-reasoned and substantiated judgment that uses Singapore's context.	3 - 4