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ECONOMICS

Higher 2

Syllabus 9732

Examiner's Report

Year 6 Preliminary Examination 2015

TEL: 65 6419 9888 ● FAX: 65 6419 9898
http://www.ri.edu.sg ● One Raffles Institution Lane, SINGAPORE 575954

ECONOMICS

Y6 H2 Preliminary Examination 2015

Paper 9732/02
Paper 1

Question 1

(a) Explain the key feature of the pharmaceutical industry that results in dominance by a few large firms. [2]

*Question Requirement: Any **one idea from case** explained and linked to huge barriers to entry.*

Suggested Answer:

The following features result in huge entry barriers and dominance by a few large firms:

From Extract 1:
- Huge R&D cost results in substantial internal economies of scale. New firms cannot compete on such low AC
- R&D results in innovation and thus monopoly power over the new drugs. The firm's increased market share can be ploughed back into R&D as further entry barriers.

  - *Can accept: if answer is about*
  - huge marketing cost - same issue of very low AC
  - R&D and marketing cost are so prohibitively high that this in itself is a deterrent to entry of new firms

From Extract 2:
- Patents serve as an artificial entry barrier - giving firms exclusive right to produce the patented medicine.

(b) Using evidence from the case, what conclusion can you draw about the price elasticity of demand for medicine in developing countries? [2]

Suggested Answer:

Explain that demand is price-elastic as it is a huge percentage of income in developing countries.

- Any one evidence**:**
  - *Extract 1:* 'one-third of the developing world's people are unable to receive or purchase essential medicines on a regular basis'.
  - *Extract 2:* 'differential pricing reduced the cost of many anti-retroviral HIV/AIDS therapies by up to 90% in low-income countries, although they continue to be sold at market price in developed countries.'
    - The implication here is a lower price in LDCs to tap the price-elastic demand.

(c) Account for the trend in global spending on medicines in Figure 1. [4]

Suggested Answer:

- State that Spending = Price X Quantity
- From Figure 1, predicted increased spending
- Demand factor: if demand continues to rise (due perhaps to increasing affluence and need; or successful advertising and promotion; or continued rising demand from DCs which account for 'a full 85% of the global pharmaceuticals market well into the 21st century.')
- *Effect:* With a rise in demand rises, the resultant increase in equilibrium price and quantity causes spending to rise
- Cost factor: - if marketing and R&D cost continue to rise
  - *Evidence: Extract 1* - 'Companies currently spend 1/3 of all sales revenue on marketing their products'; 'The private sector dominates R&D, spending millions of dollars each year developing new drugs for the mass market.'
  - *Effect:* Supply falls and equilibrium price rises but quantity falls

- Other possible ideas: government co-funding increases supply

- Final effect: **(can conclude any 1 way)**
  - If DD rise > SS fall ➔ P and Q rise - spending rises
  - If DD rise < SS fall ➔ P rises and Q falls ➔ when P rise > Q fall, the spending will increase

(d) With reference to Table 1, explain the possible relationships between profit levels and costs incurred in research & development and marketing. [4]

Suggested Answer:

Analysis:

- The following analysis can be couched in terms of different time frames:

- The higher the TFC, the **lower** the profit levels.
  - A higher TFC leads to a higher ATC, and shifts the ATC curve upwards. Thus at the same profit-maximising equilibrium, profit levels are reduced.

- But as R&D leads to new drugs and marketing seeks to inform and persuade, the demand may rise, leading to rise in TR, possibly **higher** profits. The demand may become price-inelastic, leading to a rise in TR even as price rises.
  - The AR curve shifts to the right and becomes steeper, leading to a higher profit-maximising price and output and therefore higher profit levels.

Evidence:

With reference to Table 1:

- For Johnson and Johnson, the higher cost could have been successful in raising demand, leading to higher revenue. This explains the higher profits. In this case, rise in AR> rise in ATC.
- For Hoffman, less has been spent on R&D and marketing. The lower cost contributes directly to a higher profit level.

- For Novartis, the significantly high cost did not translate into higher revenue. So the results of R&D and marketing may be uncertain. In this case, rise in AR < rise in ATC.

(e) To what extent do you agree with the view that the profit motive has led to 'a conflict of interest between the business goals of manufacturers and the social, medical and economic needs of the public'? [8]

Suggested Answer:

Introduction:

'Social, medical and economic needs of the public' refers to society's welfare while the 'business goals of manufacturers' is most usually about profit-maximisation based on self-interest.

Society's welfare is maximised when the condition: MSB=MSC or P=MC has been fulfilled.

Body:

Thesis: Conflict [any 1 or 2 issues]

1. Issue 1: P much > MC

Evidence: (summarise any of these)
- Extract 3: '….drugs costing upwards of $100,000 for a full course, and with the cost of manufacturing just a tiny fraction of this….' ; 'If you are making $3bn a year on [cancer drug] Gleevec, could you get by with $2bn? When do you cross the line from essential profits to profiteering?'
- Extract 1: huge profit margins of 30%

Analysis:
- The market is oligopolistic as the 10 largest drugs companies control over 1/3 of the market (Extract 1). They are also likely to possess monopoly power over the drugs developed - being duly protected by patents.
- At the firm's profit-maximising equilibrium, it can restrict output to set a high price. Its output is lower and price is higher than the allocatively efficient level where P=MC. Thus the under-production leads to a deadweight welfare loss where for every unit under-produced, MB> MC.
- Use a monopoly vs PC diagram to show the deadweight welfare loss. The effect on consumer surplus can be shown to illustrate the inequity in distribution.
- Equally acceptable to compare the dominant firm's price against its own MC.

2. Issue 2: Inequity in distribution - Production and R&D efforts based on dollar votes i.e. effective demand

Evidence: (summarise any of these)
- Extract 1: 'The profit imperative ensures that the drugs chosen for development are those most likely to provide a high return on the company's investment.'; 'As a result, drugs for use in the industrialised world are prioritised over ones for use in the South, where many patients would be unable to pay for them.'
- Extract 2: '….one-third of the developing world's people are unable to receive or purchase essential medicines on a regular basis.'
- Extract 4 about developing economies such as West Africa being unable to afford expensive vaccines for Ebola crisis

Analysis:
The market demand curve does not reflect the demand by those who cannot afford. Thus, the demand in a case where there is no income inequality would be higher than the scenario where there is income inequality – be it in a country or globally. The under-production leads to a deadweight welfare loss where for every unit under-produced, MB>MC.

3. Issue 3: over-consumption of certain drugs due to asymmetric information

Evidence:
It is stated in Extract 1 that the public may not be selecting and using drugs in the most rational way as 'drugs companies are the main source of information as to which products are most effective'.

Analysis:
The above reflects asymmetric information where the drug companies possess more knowledge of the efficacy of the drugs and they will tend to promote those that reap the highest returns or encourage over-consumption.

In this case, the demand with imperfect information will be higher than that for perfect information. The over-consumption and thus over-production results in a deadweight welfare loss with MC being greater than MB.

4. Issue 4: Possible dynamic inefficiency

Evidence:
Extract 4 discussed the lack of new medicines in the past 10-20 years due to little breakthrough in innovation.

Analysis:
The monopoly power of the firms over their drugs as they are protected by patents could have led to such complacency despite the supernormal profits being made.

Anti-thesis: No Conflict – Business Interest and Public Interest are aligned [any 1 issue]

1. Firms exist to earn the consumer dollar and maximise profits and will therefore allocate resources to meet the demand. In this regard, the business goals of firms and needs of the consumers may be aligned. (Synthesis: But it is the needs of those who can afford that will be met)

   - Since the business goal of manufacturers is to maximise profits, this serves as the impetus for allocation of resources into producing medicine and R&D efforts into developing new drugs to meet the needs of the public.
   - With projected rising demand into the 21st century, more medicine produced to meet the needs of consumers will mean higher TR for the firms. In addition, if new and effective drugs are developed, the demand can rise further, providing higher returns to the firms.
   - ***Evidence:*** Extract 4 stated that the pharmaceuticals industry is an extraordinarily profitable business which had developed good new medicines. And that the lack of genuinely new potential blockbuster drugs is also a source of concern for the pharmaceutical companies, as it may mean declining profits.

2. The above argument is especially relevant in a competitive oligopoly. Mutual dependence arises in an oligopoly. In order to survive well in the industry, the firms have to differentiate their products and are likely to have the incentive to invest in R&D to develop innovative

products/medicine. This again aligns with the needs of the public for new life-saving treatments and medicines.

3. The fear of competition from generics as well as fear of government regulation such as price controls may further entice firms to price nearer MC (since generics sell at a fraction of the price) and be dynamic efficient (as patents will expire). The resultant lower price and innovation may thus align business interest with public interest.

4. The ability to practise price discrimination increases access by poor to medicine. By selling at higher prices in developed countries and lower prices in developing countries, firms are tapping on the respective price-inelastic and elastic demand. This allows them to maximise profits. It also increases the affordability and consumption level of the medicine for the poor. Such a pricing strategy results in no conflict between the goals of businesses and the needs of the public.

Synthesis: any convincing judgement

Ample evidence from case material that points more towards conflict of interest:

- The fact remains that while there is an incentive to develop new medicines, they will be developed in areas where there is effective demand
- In Extract 1, it is mentioned that the amount spent on marketing products is twice what is spent on R&D. Firms are more concerned about persuading consumers to buy their drugs rather than genuinely wanting to develop new medicines to help the public.
- The huge profits being made as detailed in Extract 1 and 3 may be testament to conflict.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	▪ *Insufficient scope and depth* ▪ *Conceptual inconsistencies* ▪ *Answer tends to be skewed* ***max 3:*** *only case evidence without economic analysis*	***1 – 3***
L2	▪ *Balanced approach with sound use of theoretical framework and good use of case* ▪ *Any 2 or 3 issues well discussed* ***max 4:*** ▪ *for a good one-sided answer* ▪ *if one of the issues discussed did not arise from the case eg. positive externalities arising from healthcare consumption* ▪ *no reference to case material*	***4 - 6***
Evaluation		
E1	*An unexplained judgement ➔ An unexplained evaluative conclusion/comment*	***1***
E2	*Evaluative assessment supported by economic analysis ➔ Substantiation of an evaluative comment and/or conclusion*	***2***

(f) Discuss possible measures that can be implemented to address the sources of market failure in the pharmaceutical industry. [10]

Suggested Answer:

Introduction:
The sources of market failure are:
- Market dominance leading to P>MC
- Inequity in distribution
- Asymmetric information leading to over-consumption
- Dynamic Inefficiency

Body: Explain any 2 measures well discussed that addresses 2 sources of market failure
(Note that some measures can solve 2 sources of market failure esp. allocative inefficiency and inequity in distribution. But candidates should discuss them in their response.)

Measure 1: MC pricing (reference to 'equity pricing' in Extract 2)

Thesis: Effectiveness:
- Use a normal monopoly diagram or natural monopoly diagram to illustrate how MC pricing can lead to an allocatively efficient outcome - lower price and higher output
- This not only solves the problem of allocative efficiency but also ensures the medicine can be made affordable for the poor (addresses inequity in distribution), thereby increasing consumer surplus

Anti-thesis: Limitations
- difficult to accurately gauge what the allocatively efficient price and output would be
- the fall in supernormal profits of the firms will deter investment in R&D
- There is no discrimination between those who can afford and those who cannot.

Synthesis: A more targeted approach to help the needy and charging the higher-income a higher price can pre-empt the problem of profit erosion.

Candidates can include AC pricing as part of the discussion

Measure 2: Reduction in tariffs and taxes

Thesis: Effectiveness:
- Reduction in tariffs reduces the price of the imported medicine and increase the quantity demanded, thus leading to greater consumer surplus
- Reduction in taxes indirectly reduces the production cost of the pharmaceutical industry and increases the supply leading to a lower price, thus higher consumer surplus.

Anti-thesis: Limitations
- Does not address the root cause of the high prices ie. monopolistic exploitation of the pharmaceutical companies, so prices can still be hefty
- In some ways, it does reduce the tax revenue and tariff revenue which the governments could have used to subsidise the needy in purchase of medicine
- Since demand by the poor for medicine may be price-elastic as it takes a large percentage of their income, with a reduction in tax, consumers enjoy a smaller part of the fall compared to producers as the price is likely to fall less than proportionate.

Measure 3: Increasing competition by reducing length of patent periods (not from case) and allowing generics to enter the market (from case)

Thesis: Effectiveness:

- Reducing the length of the patent period or allowing cheaper generics into the market leads to greater competition. This may be couched in terms of:
    - fall in demand and more price-elastic demand for the patented firm's medicine. This leads to a price that is nearer the firm's own MC -less allocatively inefficient; and making it more affordable for the needy, with consumer surplus increasing
    - Extract 4 states that sales fall by 90% as generic medicines cost a fraction of the price; or
    - an increase in industry supply, therefore lower price and higher consumer surplus

- Increasing competition may also induce firms to innovate further and develop new drugs in order to regain market share. That may improve dynamic efficiency. (The argument cuts both ways – see antithesis)

Anti-thesis: Limitations

- Reducing length of patent period may lead to an even higher price in the interim as firms seek to recoup their cost incurred before the entry of the generics
- *Extract 4 mentions that the pharmaceutical companies have only 8 to 10 years to make money (but of course, this is probably their 'lame' justification')*
- disincentive to invest in R&D

Measure 4: Government to co-fund R&D efforts

Thesis: Effectiveness:

- Directing R&D at areas where they are most needed such as in Extract 1 – in areas like AIDs, malaria, TB can meet the medical needs of the public.
- This can also reduce the problem of firms channeling R&D only in areas that generate the highest returns. This may, in some ways target the problem of lack of effective demand of the lower-income or the poor eg. development of vaccine for the Ebola crisis.
- If new medicines or vaccines are developed, the increase in supply can also lower the price.
- In addition, with government co-funding, it reduces the TFC and ATC of the firms, and they may be more willing to sell at subsidised prices.
- R&D can also be couched in terms of positive externalities

Anti-thesis: Limitations

- Issues of government funding and ability to finance

Measure 5: Ways to reduce asymmetric information - regulation of advertising and getting experts to verify the efficacy of medicine

Conclusion:

- Given that there are various sources of market failure, need a range of policies to target each particular area.
- Compare between policies

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	▪ *Largely irrelevant/Smattering of few valid points*	***1 – 3***
L2	▪ *insufficient scope and depth* ▪ *conceptual inconsistencies* ▪ *answer tends to be skewed* ▪ *reference to case material can be better*	***4 - 6***

L3	*Balanced approach with sound use of theoretical framework and good use of case*	***7 - 8***
Evaluation		
E1	*Mainly unexplained judgement*	***1***
E2	*Judgement based on analysis; good effort at substantiation*	***2***

Question 2

(a) Describe the changes in GDP for Spain and Germany between 2010 and 2013. [2]

Suggested Answer:

GDP for Germany increased [1m] while GDP for Spain fell [1m] over the period.

Mark scheme:
- *1 mark for each country for the correct change in GDP.*
- *If the whole answer is expressed in terms of 'GDP growth', ,max 1m.*

(b) With reference to Table 3, explain how you might expect the size of the multiplier to differ between Germany and Spain. [2]

Suggest Answer:

- Germany's multiplier is likely to be smaller than Spain's.
- Reason: Germany's imports as a percentage of GDP is higher than that of Spain's.
    - 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).

    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

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

Suggest Answer:

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 4:
(Note: to explain the theory of CA well, students should select examples of inter-industry trade)

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 as well as relatively lower costs of labour (Table 6) to produce such goods → Specialize and export fruits, vegetables and wine to Germany

Germany: main exports includes capital and knowledge-based goods (e.g. Organic Chemicals & Machinery for specialized uses) → mostly require capital intensive and knowledge intensive production

- Factor endowment: A greater proportion of skilled and educated labour than Spain and advanced technological know-how → can produce such goods more efficiently than Spain → specialize & export such goods 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.

From Table 4: it can be observed that both Spain & Germany export and import similar items e.g cars, machinery and pharmaceutical products. ➔ intra-industry trade
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 and to cater to differing tastes and preferences.

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

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

Suggest Answer:

1. Worsen government debt (most important factor given the context of Spain and case material)
   - From Table 2 and Extract 6, high unemployment rate ➔ Increase G on unemployment benefits, and lower tax revenue due to falling incomes. This will result in a larger budget deficit which is a problem because of Spain's already high public debt – "worrying debt pile"
   - May indirectly affect investor confidence and dampens EG.
2. Worsen standard of living
   - High unemployment implies lost output ➔ production inside the PPC ➔ enjoying less goods and services ➔ fall in material welfare
   - High unemployment ➔ lack of income / fall in wages ➔ fall in purchasing power ➔ fall in consumption ➔ fall in material welfare
   - High unemployment ➔ higher stress levels, possible increase in crime rates, social instability ➔ fall in non-material welfare
3. Dampens potential economic growth
   - Possible hysteresis from high and prolonged unemployment ➔ loss of skills ➔ slowdown of potential economic growth ➔ dampen Spain's EG

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

Suggest Answer:

Introduction:
- Spain's high unemployment may be tackled 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 unemployment 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 6 paragraph 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 analyse here is expansionary fiscal policy.

- Explain how expansionary fiscal policy works to lower unemployment 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 labour rises → lower cyclical unemployment in Spain.
  - As mentioned, the root cause of the high unemployment is Spain is demand deficiency. From Table 2, Spain's GDP fell throughout the period. Hence, this implies that a weakening aggregate demand had contributed to falling derived demand for labour, resulting in higher cyclical unemployment.

- Limitations of using expansionary fiscal policy in Spain
  - Extract 6 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 6 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 6 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.

SS-side policies can also help lower unemployment in Spain.

Explain and evaluate at least 2 measures.

- 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 which increases AD and helps lower cyclical unemployment. (Note: that this is reflected by a movement along the AD and not a shift of the AD curve – foreign substitution effect)
- 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 subsides 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 6 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 6 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.

- Conclusion:

- 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.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	▪ *For an under-developed answer: Explained ONE policy (DD-side or SS-side) only and covered limitations of the policy: Max 3* ▪ *Several conceptual errors/descriptive/lack framework throughout answer*	***1 – 3***
L2	▪ *For an answer that explained both DD and SS side policies, with limitations of both policies* ▪ *For an answer that explained both DD and SS side policies but without limitations for both policies: MAX 4* ▪ *Balanced analysis with sufficient rigour with good use of case evidence*	***4 - 6***
Evaluation		
E1	*Judgment (comparison of which policy is better) with weak substantiation*	***1***
E2	*Judgment (comparison of which policy is better) is well-substantiated with good use of case evidence*	***2***

(f) Discuss the factors that would determine the extent of gains for Germany and Spain from the Trans-Atlantic Trade and Investment Partnership with the US. [10]

Suggest Answer:

Introduction:

- 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 opportunity cost in producing goods and services 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 (extract 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?

Body:

Factor 1: Extent of gains for Germany and Spain may depend on the degree of similarity or difference of area of comparative advantage between US and them.

Example: From tables 4 and 5
For Spain

- may enjoy lower opp cost over US for producing fruits, vegetables, wine → specialize and export fruits, vegetables and wine to US.
- Here, Spain has a different area of CA from the US

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

- Possible gains for Spain
    - With the TTIP ➔ lowering of trade barriers ➔ Enlarged mkt for her gds → Specialization, IEOS, ↑X ➔ EG, improve BOP

On the other hand, for Germany:
- Her areas of CA seem more similar with US (as compared with Spain)- See Table 4 & 5
- Both US and Germany seem to have similar areas of specialization in high value added industries- capital intensive, knowledge intensive production (e.g. cars, machinery, pharmaceuticals). ➔ may not have differing opportunity cost and may not gain from the TTIP based on the theory of CA. But gain from different variety of goods.
- 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

Factor 2: Extent of gains for Germany and Spain may depend on their degree of export dependence (X as % of GDP)

- From Table 2: Germany has higher X as a % of GDP than Spain.
- The TTIP ➔ expansion of markets should benefit Germany more than Spain, since it takes up a larger % of their GDP ➔ Germany should enjoy higher ↑real NY and employment than Spain.
- But should US experience a slowdown or recession, the fall in X from US would hurt Germany more than Spain. But then again, this may depend on how diversified her trade links are with other countries.

Factor 3: Extent of gains for Germany & Spain may depend on their export competitiveness

- With the TTIP, and the removal of barriers, Germany and Spain will gain greater access to the US markets. Because the countries specialise in similar goods e.g. pharmaceutical products, and electrical machinery and appliances, the extent of gains will depend on how competitive the goods are in terms of price and quality.

- The competitiveness of their goods could depend on government policies to help their economies maintain CA or build competencies in other areas over time.
    - Both Germany and Spain's govts are in debt which may reduce the governments' ability to improve productivity and increase competitiveness.
    - Germany's 'obsession' with balanced budget → her govt had spent less on education, R&D, investment in infrastructure, industry (Ext 5 para 3) → may affect quality of her labour and capital over time ('missed investment might only be felt once it's too late' Ext 5 para 3)
    - It is also implied that Germany's current education isn't keeping up with IT (ext 5, para 4)

- This may affect Germany's export competitiveness of cars and machinery/capital gds in future.
- Possibly may not do very well to maintain CA especially if US has an edge over Germany in innovation
- Spain's govt is in very high debt → unable to spend (Ext 6, para 2: facing an 'already worrying debt pile'... 'stimulus spending is impossible') and her govt may not be able to spend enough on vocational training and on universities and research organizations to boost innovation and competitiveness (ext 6 last para)
- Students may also touch on Spain's ability & willingness to adopt more reforms to further boost competitiveness – relate to 'reform fatigue' and that the suggested reforms are politically unpopular (scrap min wage, cut unemployment benefits and pensions)

- Germany may be less worse off than Spain: Spain's govt is more unable to spend than Germany; Germany is less willing to spend

Factor 4: Extent of gains for Germany and Spain may depend on the attractiveness of the place for investments

- With the TTIP, there is easing of investment rules, and barriers are reduced for firms to move their businesses between the countries. The increase in FDI inflows will lead to increase in AD → increase in EG and lower UE. The countries can also gain from offshoring of production process to reduce COP.
  - Ext 2 para 4 also stated that 'car plants are taking work from less competitive factories in Europe' → it is possible that such a trend may occur too, upon entering the TTIP with US. US car manufacturers may offshore production to Spain.

- The extent of gains may depend on:
  - state of the economy: Germany may gain more FDI inflows than Spain because the economy is faring better with positive EG. This may attract more investments.
  - government tax policies
  - cost competitiveness of the country: labour cost in Spain is lower than Germany, but Germany has highly skilled workforce.
  - Availability of credit for firms to invest (Note: may not affect FDI inflow but affects FDI outflows and domestic I)
    - 'credit crunch' in Spain (ext 6 para 5) → lack of loanable funds ('Bank credit scarce')
    - Unwillingness of banks to extend credit to businesses (ext 6 para 3: 'Spain's banks find it safer to lend to govt than to businesses')

    → may limit the ability of SMEs to obtain loans to expand production
    - As for Germany, ext 5 para 4 last line ('govt…needs to do more to support start-up companies') suggests currently there may not be enough incentives to encourage new investment.

Other general factors which lacked direct links to the TTIP, trade and investment that were accepted includes:

- Size of the multiplier
- State of the economy

<u>Conclusion</u>:

- Any explained judgement on which factors may be more important in determining the gains from the TTIP.
- Any explained judgement on who is likely to gain more from the TTIP – Germany or Spain.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	▪ *Irrelevant answer eg: an answer that explained the gains from FTA rather than the factors that determines the extent of gains*	***1 – 3***
L2	▪ *Analyzed how 2 factors would affect extent of potential gains for both Germany and Spain but with some lapses* ▪ *1 factor well-analyzed with reference to case material: Max 4* ▪ *2 factors well-analyzed but NO reference to case material: Max 6* ▪ *For an answer that gave two 'generic' factors (eg size of k, degree of factor utilization) and provided sound analysis: Max 6*	***4 - 6***
L3	▪ *2 factors well-analyzed with good reference to case material* ▪ *Good effort to analyze in depth how the 2 factors would affect extent of potential gains for both Germany and Spain* ▪ *Answer displays good application of theory throughout*	***7 - 8***
Evaluation		
E1	*An unexplained judgement ➔ An unexplained evaluative conclusion/comment*	***1***
E2	*Evaluative assessment supported by economic analysis ➔ Substantiation of an evaluative comment and/or conclusion*	***2***

ECONOMICS

Y6 H2 Preliminary Examination 2015

Paper 9732/02
Paper 2

1 Drivers in Singapore will have to pay more for petrol as the Government announced an increase in petrol duty rates.

Source: *The Straits Times*, 23 February 2015

Discuss the relative importance of factors in determining the price of petrol in Singapore and the impact of a rise in petrol taxes on related markets. [25]

Introduction:
- Price of petrol in Singapore is determined by the interaction of demand and supply forces.
- Define key terms:
  - Demand: willingness and ability to consume the good over a range of prices
  - Supply: willingness and ability to produce the good at a range of prices
- Demand factors include: income levels, population, price of complements (cars) ➔ Quantity of cars on the road/car usage
- Supply factors: government policies (taxes) and cost of production (including crude oil prices)
- Related markets: public transport, private transport, substitutes goods market and market that uses petrol as FOP (logistics companies etc) ➔ price, quantity, total revenue/total expenditure

Body:

A. Discuss the relative importance of factors that determines the price of petrol in Singapore.

- **Identify and explain demand side factors (at least 2 factors)**
- Income levels
  - Increase in income levels due to economic growth ➔ increase in car usage ➔ increase in demand for petrol
  - Can apply YED concept

- Increase in population
  - Singapore experienced population growth ➔ increase in economic activity and use of transportation services and car ownership ➔ increase demand for petrol

- Price of complements (cars)
  - Fall/increase in price of cars (due to increase in SS – increase COE quota or increase in DD – population growth) ➔ increase in quantity traded of cars ➔ increase in demand for petrol
  - Can apply CED concept

- **Identify and explain supply side factors**
- Cost of production
  - Increase/decrease in price of crude oil (due to changes in demand and supply of crude oil, action of OPEC, discovery of shale oil. Improvements in technology in extracting oil etc) ➔ fall/increase in supply of petrol

- Cost of land/rent in Singapore

- Government Policies
  - Increase tax on petrol ➔ fall in supply of petrol

  ⇨ fall in SS ➔ increase in P of petrol
  ⇨ extent of increase in price depends on PED of petrol (price-inelastic)

- **Explain the demand and supply changes using economic framework (diagram) ➔ price determination**
- increase in demand for petrol ➔ rightward shift of demand curve
- fall in supply of petrol ➔ leftward shift of supply curve
- shortage at the original price ➔ upward pressure on price ➔ price of petrol increases

- **Evaluate the importance of the factors**
- supply (cost) factors may be more important in determining the price of petrol in Singapore
  - demand for petrol relatively constant due to COE system that manages car ownership and car usage unlikely to differ once you own a car.
  - PED for petrol – price inelastic ➔ any change in SS will lead to significant price changes. E.g producers will shift the increase in cop or taxes to consumers in the form of higher prices
- Government policies may be the most important factor in determining in the price of petrol
  - Number of COEs determines the number of cars in Singapore. Petrol is a derived demand and is dependent on the number of cars on the road.
  - Taxes on petrol is a large component on the final price (petrol prices between countries vary primarily due to tax/subsidies on petrol)

B. <u>Discuss the impact of rise in petrol taxes on related markets</u>

- **Explain the effects of rise in petrol taxes on the market for petrol (should have been explain in A.)**
- Rise in petrol taxes ➔ fall in supply ➔ rise in price of petrol

- **Discuss the impact on private transport market**

- Technically, rise in price of petrol (cet. par.) will lead to a fall in quantity demanded for petrol ➔ fall in demand for cars (CED < 0, complements) ➔ fall in price and quantity traded of cars, and fall in TR for car retailers and fall in TE for consumers.
- But, students should note that complementarity between petrol and cars is very weak unless the price of petrol rises significantly (the complementarity is much stronger between cars and petrol) This is because price of cars in Singapore is very high relatively to the price of petrol and once you own a car, the rise in price of petrol is unlikely to deter car usage/car ownership. Or it may impact car usage rather than car ownership.
- Also, the overall impact on the car market also depends on other factors:
  - Income levels
  - Number of COEs
- Thus, the rise in petrol taxes may not significantly impact the car market in Singapore (especially due to the timing of the hike - crude oil prices have fallen ➔ overall price of petrol did not differ significantly from before)
- Submarkets: the demand for certain types of cars – hybrid/diesel run cars – may increase as the cost of maintaining a petrol-run car increases ➔ this will lead to expansion of these sub-markets.

- **Discuss the impact on public transport market**

- Rise in price of petrol may lead to fall in car usage ➔ people switch to taking public transport (CED > 0 for private and public transport) ➔ increase in demand for public transport.
- Increase in price of petrol will lead to increase in COP of public transport (bus companies) ➔ fall in supply ➔ increase in price and fall in quantity traded (Note that most buses uses diesel instead of petrol).
- Extent of increase in price depends on
    - Extent of increase in COP
    - PED ➔ likely to be price-inelastic (TR/TE will increase)
- Combined effects:
    - Increase in DD > fall in SS ➔ increase in Price, quantity trade increases, TR/TE increase
    - increase in DD < fall in SS ➔ increase in price, quantity traded falls, TR/TE indeterminate, but likely to increase
- evaluate which is more likely to happen
    - likely that increase in DD > fall in SS. SS may not fall because buses/trains do not use petrol but diesel, and the rise in cost (if any) is spread over a large output.

Note: the analysis will be similar for markets that use petrol as a factor of production

- **Discuss the impact on markets that are substitutes for petrol (alternative sources of fuel)**

- e.g. diesel, biofuels, electricity
- CED value between petrol and alternative sources of fuel is likely to be greater zero
- increase in price of petrol will lead to fall in quantity demand of petrol ➔ increase in DD for substitute goods as people ➔ increase in P and increase in Q ➔ increase in total revenue and expansion of these industries.
- Students may bring in PES but not important because an increase in DD will increase TR regardless of PES.
- the extent of these substitute goods markets depends on:
    - degree of substitutability: likely to be low in the SR. increase in DD is likely to be more significant in the LR if the price of petrol continues to rise and exceed the price of these alternative fuels, and when accessibility to these fuels increase
    - extent of increase in price of petrol: if not significant, people are unlikely to make the switch
    - relative price of these alternative sources of fuel: if still relatively higher, demand may not increase.

Conclusion:

- Price of petrol in Singapore is determined by a range of demand and cost factors, and influenced primarily by government policies.
- The increase in petrol taxes will have an adverse impact on consumers and producers of related markets in terms of higher prices, rise in cost of production, rise in total expenditure. The extent to which it affects the markets depends on:
    - Extent to which petrol prices impact the overall COP
    - Other factors: state of the economy (income levels), prices of substitutes/complements, PED of the goods.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	*Glaring conceptual errors made.* *Limited use of economics framework.*	***1 – 9***

	Limited scope of discussion. Only tackled the first part of the question.	
L2	*Use of economics framework* *Lack of scope of discussion* *Lack of depth of elaboration* *Lack application to the Singapore context*	***10 - 16***
L3	*Sound analysis with good use of economics framework* - *DD/SS ➔ price mechanism* - *Concepts of YES/CED/PED to aid explanation* *Good scope of discussion* - *At least 3 demand/supply factors identified and explained* - *At least 2 related markets discussed* *Good depth of analysis* - *Linkages made between each point*	***17 – 21***
Evaluation		
E1	*Made a judgment but not substantiated with analysis*	***1 - 2***
E2	*Judgment based on sound analyses*	***3 - 4***

2 (a) Compare the key features of oligopolistic and monopolistically competitive markets. [10]

(b) Discuss whether the behaviour of oligopolistic firms is consistent with the objective of profit maximisation. [15]

Part (a)

Suggested answer:

Basic distinguishing characteristics

D1. Number of firms

- Oligopoly is a market structure with a few large firms.
- Monopolistic competition (mpc) is a market structure with many small firms.

D2. Barriers to entry

- These are the features in an industry that make it costly for firms to enter or exit.
- High BTE for an oligopoly e.g. capital outlay for telecommunications such as satellite communication antennas, R&D costs for pharmaceutical companies, high sunk costs for oil companies such as mining infrastructure.
- Low BTE for mpc for e.g. ingredients and stall rental for hawker stalls.

Higher order analysis (*Any 2 points with comparison made*)

A1. Price setting ability

- This is could result from differentiated products, imperfect information or market shares.

- Products can be homogeneous e.g. oil or differentiated for oligopoly. Product differences are real (e.g. different car features) and the result of R&D.
- For mpc products are differentiated but differences are superficial due to limited ability to finance R&D.
- Both market structures are characterised by imperfect information i.e. consumers and producers are not fully aware of the production processes that are used by competitors.
- However the degree of information imperfection is greater for oligopoly compared to mpc due to the real differences among the products as well as the amount of R&D involved in developing the production process.
- *Firms in both market structures therefore have price setting ability. However, oligopoly firms have high pricing setting ability (relatively price inelastic demand) due to high market share (lack of substitutes), higher degree of imperfect information or real product differences. In contrast, mpc firms have low price setting ability (relatively price elastic demand) due to superficially differentiated but substitutable products.*

A2. Degree of mutual interdependence

- Oligopoly firms are mutually dependent due to the large market shares of firms. They are significantly affected by the actions of their rivals. E.g. petrol companies are constantly watching the prices set by rival companies and will match any price cuts.
- MPC firms are independent due to the low market shares of firms. The impact of a price cut by 1 firm is spread across many other firms, hence having a small effect on other competitors. For e.g., the decision of 1 hairdressing saloon reduce its price is not likely to have a significant impact on the total revenue of other hairdressing saloons.

A3. Level of profits in the long-run

- Due to the high BTE, it is possible for an oligopolist to earn supernormal profits in the long run.

- In comparison, the low BTE for mpc means new firms will be attracted to the industry whenever there is supernormal profit causing the demand for incumbent firms' products to fall and price charged to fall. The long-run equilibrium is where all remaining firms earn normal profit.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	▪ *Largely irrelevant answer* ▪ *Several concept flaws*	***1 – 5***
L2	▪ *No attempt to compare.* ▪ *Undeveloped explanation.* ▪ *Response lacks scope, depth or application (examples).*	***5 - 7***
L3	▪ *Comparison of key features using real life examples. Analysis is clear and there is good scope in terms of key distinguishing features.*	***8 – 10***

Part (b)

Suggested answer:

Introduction

Clarify what is meant by behaviour in the context of profit maximisation.

- Pricing and output decisions.
- Price and non-price competition.

Clarify what is profit maximization.

- Application of the marginalist principle in determining the output level ➔ Q_{max} is determined where MC = MR.
- The price charged is based on consumer's willingness to pay (demand) for Q_{max}.

Body:

Thesis: The behaviour of oligopoly firms is consistent with profit maximisation

In general, profit represents the return to the entrepreneur/shareholders who have an incentive to strive for the highest level of their return. Maximisation of profit also entails cost minimisation which makes the best use of scarce resources.

1. Sticky prices and preference for non-price competition to reduce uncertainty.

- Under mutual dependence, oligopolists operate under uncertain conditions, i.e. they are affected by the actions of their rivals. The price charged will be dependent on the reactions of other firms. Based on the kinked demand curve model, rivals will match price decreases but not price increases. If the firm believes this, the profit maximising price will be rigid at the profit maximising output level where MC=MR. Small changes in cost will not affect the price charged. The observed rigid prices despite minor fluctuations in cost among petrol companies and telco companies for their subscription plans suggest that they are indeed profit maximising according to the theory.
- The sticky price suggests a preference for non-price competition e.g. improving after sales service support rather than deviating from the profit maximising output and price through a price war which will result in losses.

2. Price discrimination

- The conditions for price discrimination are present in oligopoly markets. The dominance of a few firms gives them control over the market supply and strong price setting ability. This makes price discrimination an attractive option since by charging different prices for the same product, the firm gets to increase its profits. Under 3rd degree PD, the profit maximising output where MC=MR is determined in the combined market. In each of the submarkets, the profit maximising price is charged with a higher price being charged in the market where demand is relatively inelastic.

3. Firms undertake product differentiation through R&D ➔ increase in profits

- So when firms engage in R&D e.g. the innovations for mobile phone manufacturers such as high definition screens and better cameras. The new features on their products raises the cost of entry for potential entrants in a contestable market and helps the incumbent maintain its market share and increase price-setting ability.This will allow them to increase their profitability.

Anti-thesis: The behaviour of oligopolistic firms might not be consistent with profit maximisation.

1. Behaviour under collusion

- Due to mutual dependence, oligopolies can collude to reduce the uncertainty and potential losses from competition. In such instances, the output and price charged might not be profit-maximising for individual firms.

- Under tacit collusion, the smaller firms tend to follow the price set by the market leader because they fear the likelihood of a price war if they do not keep in sync with the leader's price. The largest firm would be able to undercut its rivals due to its cost advantage from iEOS. Hence only the dominant firm or market leader is profit maximising.
- Under formal collusion in the context of a cartel, the firms act as a monopoly and jointly maximize profits where MC=MR. The output quotas for individual members or common price is not individually profit maximising.

2 Price Competition (Predatory) or Growth Maximisation

- In a bid to become the market leader, a firm might want to drop its price below its profit maximising level to increase its market share. Petrol companies occasionally engage in price wars to drive their rivals out the market.
- A new firm might choose to launch its product at a discounted price e.g. online music streaming, to customers hooked on to its product before increasing it to a profit maximising level in the long-run.

3. Maximising Managerial Utility

- Due to the large size of oligopoly firms, there could be a separation between ownership of the firm by the entrepreneur or shareholders and control of the firm by managers. This might lead to the principal-agent problem, where the managers act in morally hazardous manner by spending on items that maximize their utility e.g. luxurious offices, fitness club memberships etc. The costs incurred are higher and the profit earned by the firm will be lower than what it could be.

4. Profit Satisficing

- In the real world, CEO's might aim for a target level of profit and not the maximum level of profit. Aiming for maximum profits entails taking on higher risk which might not sit well with risk averse CEO who aims to satisfy the shareholders/directors by meeting the target set. If profit satisficing is the objective, the price charged and output produced will not be at the profit maximising level.

Conclusion

The behaviour of oligopoly firms is not always consistent with profit maximisation in the short-run because

- They are always contesting for a larger market share.
- These firms are large and there might be multiple objectives depending on who is control.

These short-run deviations e.g. price wars are likely to lead to higher profits in the long-run because ultimately there will have to be some accountability to the shareholders/owners of the firms.

Note: Besides the above other thesis and anti-thesis arguments, and alternative summative judgements are accepted as long as the economic reasoning is sound and linked to oligopoly behaviour.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	▪ *Irrelevant answer.* ▪ *Lack of theoretical framework.* ▪ *Glaring conceptual errors.*	***1 – 5***
L2	▪ *A well-balanced analytical response that makes limited references to oligopoly behaviour.* ▪ *Responses that are imbalanced e.g. insufficient scope either in the thesis or anti-thesis.* ▪ *Responses that do not demonstrate sufficient analysis of behaviour and profit maximisation. (Superficial understanding of profit maximisation i.e. no/limited reference to MC=MR.)*	***6 – 8***
L3	▪ *A well-balanced, well-explained and analytical response that makes explicit references to the behaviour oligopoly firms in real life.* ▪ *Sufficient references are made to the profit maximisation condition where MC=MR in discussing the observed behaviour of oligopolists.*	***9 - 11***
Evaluation		
E1	*An unexplained evaluative conclusion/comment*	***1 – 2***
E2	*Well-reasoned and substantiated judgment.*	***3 - 4***

3 Discuss the view that the allocation of resources should be left to the free market as government intervention results in greater inefficiency. [25]

Introduction

- Define allocative efficiency: allocative efficiency is the situation in which the society produces and consumes a combination of goods and services that maximises its welfare. It is achieved when the goods and services that are wanted by the economy are produced in the right quantities.
- The success of the free market in achieving allocative efficiency seems to suggest that there should not be government intervention in markets, as the price mechanism works very well on its own. (Thesis)
- However, efficiency can only arise under a number of strict conditions that are difficult to be met in the real world. For instance, competitive markets, absence of externalities and public goods, and perfect information. In the real world, markets may fail with respect to achieving both allocative efficiency and hence, the need for government intervention. (Antithesis)
- That being said, intervention may or may not lead to a more optimal outcome as there is a possibility of government failure. (Thesis)

Body

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

1. Explain how the free market allocation of resources leads to allocative efficiency

- The demand curve for corn (DD) reflects the value of corn 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.

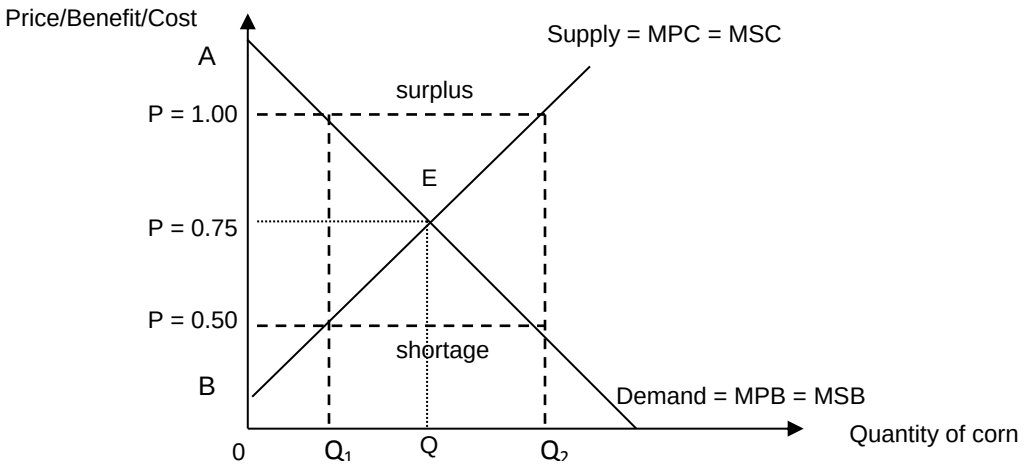


Figure 1: Market for Corn

- 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. Consumers will also recognize the excess supply and begin to offer lower prices. 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.
- For a stable equilibrium position, any movement of prices away from equilibrium price will put into play market forces that will cause the price to move towards the equilibrium price.
- 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.

Antithesis: However, when there is market failure government intervention may be necessary

- Under the assumptions of no externalities, no public goods, perfect information, perfect competition etc. the price mechanism allocates resources such that allocative efficiency is achieved.
- However, market failure arises when these conditions do not hold, giving rise to the need for government intervention.
- The following are examples of sources of market failure that give rise to government intervention:

1. 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 use river water as an input in production. 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 the companies manufacturing baked beans. 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.
- 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 0Qe units where **MPC=MPB**. However, at this output Q, MSC (AQ_e) exceeds the MSB of chemicals, given by the height of the demand curve (EQ_e). Thus, Output Q_e is **allocatively inefficient**.
- The **socially ideal output level** is at 0Qs units, where **MSC = MSB**. The free market equilibrium results in an overproduction of the good by QeQs units. The deadweight loss, equals the sum of the excess of MSC over MSB for the amount of good overproduced, represented by area AEE_1 as the amount of resources used to produce an 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. By reducing the output of chemicals, society saves more in social cost than it loses in social benefit.

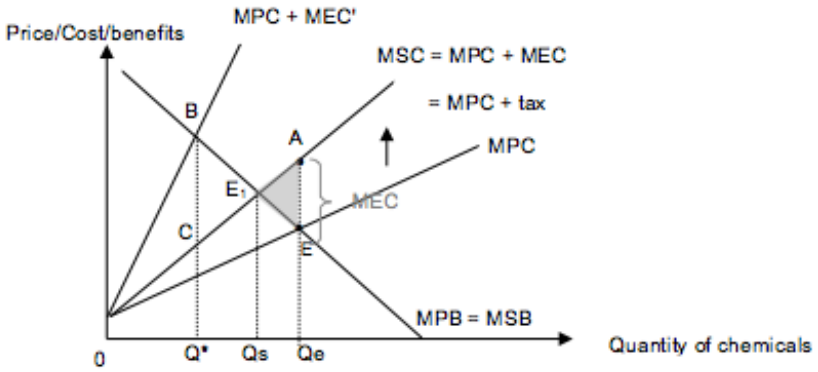


Figure 2: Negative Extenality in Production

- 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 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 Qs 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**). The over-allocation of resources is corrected as there will not be over-production. This eliminates the deadweight loss (AE_1E) arising from over-production prior to the imposition of the tax. Allocative efficiency is achieved.

2. 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 which leads to the problem of missing markets. These missing markets will lead to market failure as society will not benefit from the production of such goods. An example of public goods is defence. Once defence is provided, you cannot exclude non-payers from enjoying the benefits of defence. So if left to the free market, the good will not be provided.

- A good is **non-rivalrous** when the consumption by one person does not reduce the amount available to others. For example, street lighting. Once street lighting is provided for, an additional pedestrian will not reduce the amount of the lighting that is available for other pedestrians. Thus, the marginal cost of allowing an additional pedestrian to share in the usage of the good 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. And any non-zero price would discourage some users from enjoying the public good. This would be allocatively inefficient since one more person's consumption of the good costs society nothing.

- In correcting the market failure due to non-provision of public goods (for example, national defence and street lighting), the government's only feasible option is to provide these goods and services directly. 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.

Thesis: Government intervention can lead to greater inefficiency

- When a government intervenes to address a market failure, it may not improve allocative efficiency. In some cases, society's welfare may actually worsen. Government failure can lead to greater inefficiency due to the following reasons:

1. Imperfect information

- Imperfect information can result in government implementing policies which does not result in an efficient outcome. The valuation of the external cost generated at the social optimal output level is, in practice, a difficult task. An overestimation will lead to over taxation and under-consumption of the good. In Figure 2, a tax = MEC' will lead to a market equilibrium output level of Q*. There is an underproduction of the good, leading to a deadweight loss of BE_1C. Since $BE_1C > AEE_1$, government intervention leads to even greater inefficiency.

- Similarly for public goods it is hard to measure the value (benefits) of public goods as they are not traded in the market. Problems also arise when it comes to trying to measure social costs and benefits, when by definition there are no obvious 'prices' that can be used to value them. Most public goods are investments and the benefits accrue over a long period of time. It is difficult to calculate the value that future generations place on a public good.

2. Lack of incentives

- In the case of nationalisation, there could be lack of incentive by the nationalised firm to produce efficiently. In the private sector, there is a strong incentive to produce efficiently because lower costs mean higher profits. Also, the public sector does not have the mechanism of bankruptcy to eliminate productively inefficient firms. Since productive efficiency is a prerequisite for allocative efficiency, government intervention by nationalisation could lead to allocative inefficiency due to the lack of incentives.

Antithesis: Government intervention does not necessarily result in greater inefficiency

1. In reality, government intervention is more likely to increase greater allocative efficiency than without any intervention. This is especially true in the case of public goods where there is non-provision of the good.

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.
- This may also depend on the nature of the good. 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.
- Also, achieving efficiency is not the only microeconomic goal of a government and often, governments intervene for equity reasons.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	- *Answer fails to address the question.* - *Answer is mainly irrelevant.* - *Answer shows conceptual error* - *For a one-sided answer (no thesis/ antithesis).*	***1 – 9***
L2	- *Attempts to show a balanced answer ie. Both the free market and government intervention are required to achieve AE but analysis lacks depth or scope.*	***10 - 16***

	- *For an answer that lacks scope and discusses only 1 source of market failure and/ or government failure.*	
L3	- *Well-developed balanced argument that fully addresses the question. ie. Greater inefficiency requires a comparison between government intervention with the possibility of government failure versus free market allocation.* - *Good use of economic framework and supported with relevant examples and clearly illustrated diagrams.* - *Good scope i.e. discuss 2 sources of market failure & government failure* - *Good linkages – for an answer that discusses government failure specific to the market failure explained.*	***17 - 21***
Evaluation		
E1	*An unexplained judgement ➔An unexplained evaluative conclusion/comment*	***1 – 2***
E2	*Evaluative assessment supported by economic analysis*	***3 - 4***

4 "Bigger countries if you do not perform so well, you have a hinterland, you have resources in the ground to survive. We do not have anything but ourselves", PM Lee Hsien Loong said, stressing that improving productivity and maintaining growth is the only way Singaporeans can continue finding good jobs and having opportunities.

Source: *Channel News Asia*, June 2015

(a) Explain the importance of achieving macroeconomic objectives. [12]

(b) Assess whether a rise in productivity allows Singapore to achieve its macroeconomic objectives. [13]

Part (a)
<u>Introduction</u>:

Governments aim to achieve 4 key macroeconomic aims:
- Sustained economic growth
- Low unemployment/full employment
- Low and stable prices/ price stability
- External stability/ Healthy BOP

<u>Body</u>:

1. Sustained economic growth
- Economic growth is defined as an increase in Gross Domestic Product. In order to achieve sustained economic growth, includes both actual and potential growth.
- **Higher Material Living Standards:** Economic growth achieves a real increase in the output of goods and services. Ceteris paribus, this ensures that on average, a resident can enjoy a higher material standard of living as a greater quantity of goods and services are consumed. Moreover, consumers are likely to be able to afford better quality healthcare and education hence improving non-material living standards as well.
- **Greater income equality:** Rise in income brings about greater tax revenues, as firms earn greater profit and individuals earn high incomes. This enables the government to spend more

on programs such as subsidies and transfer payments to the low-income earners. This results in greater income equality as there is redistribution of wealth from the high to low income earners.

2. Low unemployment

- Unemployment of labour refers to the situation where people who are available for work & are actively seeking work but cannot find jobs.
- The economy should aim to achieve full employment to **ensure that scarce resources are fully utilized.** The economy operates closer to the maximum output it could achieve which can be illustrated by the production possibility curve. Society is thus enjoys higher output and standard of living.
- **Reduces strain on government budget**: Greater employment means greater tax revenue as well as decreased spending on unemployment benefits/welfare payments. This improves the government budget especially in welfare states and allows for funds to be channeled for other more productive uses e.g. improving infra

3. Low inflation

- Inflation is a situation where there is a sustained increase in the general price level.
- **Greater certainty for economic agents:** Businessmen are more willing to take the risks associated with any investment project and make long term planning easier as the price a given output will sell for in the future is known. Furthermore, firms will be able to anticipate their future revenues and costs, hence increasing certainty and business confidence. Thus, investment rises and this positively effects long term economic growth and employment.
- **BOP improvement:** Ceteris paribus, low and stable prices decreases the prices of a country's exports, thus making its exports more price competitive in the world market. Assuming that the demand for exports is price elastic, export revenue will rise. Imports, on the other hand, will now be relatively more expensive than domestically-produced substitutes. Demand for imports will fall, which leads to a fall in expenditure on imports. (X-M) improves (BOT improvement).

4. Healthy BOP

- BOP is **a record of a country's international transactions** between its residents and those of the rest of world over a period of time. It consists of the current account and capital & financial account. Achieving BOP equilibrium is not very feasible in reality; hence most countries pursue a health BOP. Healthy BOP refers to the absence of persistent and large deficit/surplus.
- **Prevents Depletion of reserves (for fixed/manage ER):** A persistent balance of payment deficit implies large and rising external debt which can lead to an increasing share of domestic incomes being paid out to foreigners to service the debt. As a result, there will be fewer funds available for domestic consumption and investment and can lead to dampening of EG in future.
- **Prevents unstable/depreciation exchange rate:** In a free floating exchange rate system, a BOP deficit is likely to lead to a depreciation of the exchange rate which can lead to problems of imported inflation and dampening of investor confidence.

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	▪ *Lacks use of economics framework/concepts in analysis* ⇨ *Descriptive rather than analytical answer* ▪ *Lacks scope of coverage* ▪ *Largely irrelevant* ▪ *Glaring conceptual errors*	***1 – 5***
L2	▪ *Use of appropriate framework/concepts in analysis* ⇨ *Some attempt made to link to economic effects*	***6 - 8***

	▪ *Lacks scope of coverage* ⇨ *Did not cover all the macroeconomic goals* ⇨ *Only focused on standard of living* ▪ *Lacks depth of analysis* ⇨ *Underdeveloped explanation of benefits of achieving macroeconomic goals* ⇨ *Listed rather than explained effects* ▪ *Some errors in analysis*	
L3	▪ *Good use of appropriate framework/concepts in analysis* ⇨ *Analysis anchored on economic framework (should focus on economic benefits of achieving the macro goals)* ▪ *Sufficient scope of coverage* ⇨ *Considered all 4 macroeconomic goals* ▪ *Good depth of analysis* ⇨ *Benefits well-explained* ▪ *No / minor errors in analysis*	***9 – 12***

Part (b)

Introduction

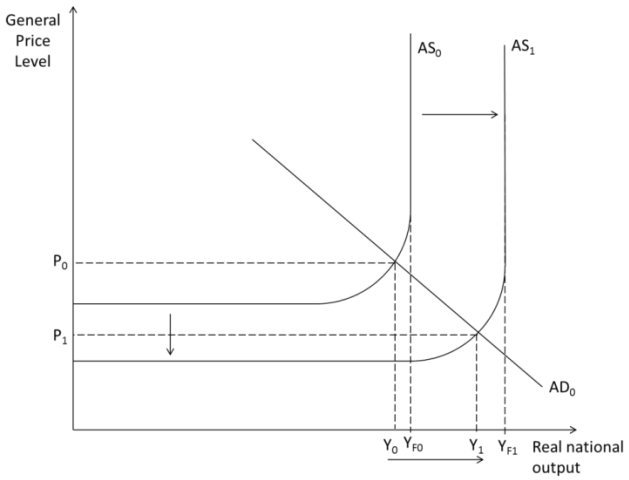
- Productivity is a measure of the efficiency with which a country combines capital and labour to produce more with the same level of factor inputs.
- We commonly focus on labour productivity measured by output per person employed or output per person hour
- Unlike many countries, Singapore lacks natural resources. Hence, labour productivity plays an important role in promoting sustained economic growth, low unemployment, low inflation and healthy balance of payment.

Body:

Thesis: Rise in productivity can help to achieve SG government's macroeconomic goals

DIRECT EFFECT: Economic growth, lowered inflation & fall in cyclical unE

- Productivity growth can in turn be driven by improvements in the quality of inputs (e.g., labour quality can be raised through education and training), increasing capital intensity through capital investments, as well as technological improvements or process innovations.
- Assuming that the rate of productivity growth exceeds the rate of wage growth, unit labour cost is lowered (COP falls). This causes a downward shift of AS curve/ SRAS rises.
    - This is especially helpful to Singapore given her tight domestic labour market.
- Moreover, productive capacity rises as the economy is able to produce a greater quantity of goods and services. This causes an outward shift of AS / LRAS rises (potential growth).
- Hence, AS curve shifts from AS_0 to AS_1.
- Ceteris paribus, GPL falls from P_0 to P_1 → alleviate inflationary pressures.
- National income rises from Y_0 to Y_1 (actual growth) & cyclical unemployment falls (derived demand for labour rises).



INDIRECT EFFECT: Effects on BOP

- **Increased demand for exports:** If average productivity of Singapore firms increases faster than its trading partners, Singapore's exports will be relatively more price competitive compared to its trading partners' products. Since Singapore's exports is price elastic due to the availability of close substitutes produced by other countries, with a fall in price of exports, it will result in a more than proportionate increase in quantity demand for exports, ceteris paribus. There will be an increase in total revenue of exports. Ceteris paribus, BOT improves. This is important for SG as X is a major component of GDP/AD.
- **Increased FDI:** Low unit labour costs and highly productive labour acts as a magnet for foreign investment in the country → Increase inflow of FDI (improve financial & capital account) + AD rises in SR → long run capital accumulation → increase in productive cap → potential growth
- **Dampen demand-pull inflation:** In the long run, improving labour productivity will help to dampen demand-pull inflation caused by the potential surge in investment levels due to positive economic outlook that firms may have, given more productive workforce. Hence, the rightward shift of LRAS will help to dampen the DD-pull inflation in the long run.

NOTE: If candidate takes 'policy centric' approach (minor point):

- **Reduce structural unemployment:** If appropriate measures are taken to retrain workers, as in those done by the Singapore government such as the Productivity and Innovation Credit (PIC) grants and the Workfare Training Scheme (WTS), structural unemployment will also be reduced.

Anti-thesis: Limitations of raising productivity

- **SR DD-pull inflation:** If the increase in labour productivity to increase AS is slower than the increase in AD, it will lead to inflationary pressures which will not be desirable for the economy. The slower increase in AS may be due to factors such as the difficulty to change the mind-set of the individuals to improve their skills and knowledge, the time taken to train the workers and the high costs involved in training the workers. With these limitations, economic growth may not be sustainable as inflationary pressures set in.
- **Capital-labour substitution:** Increased automation may come at the expense of higher unemployment OR firms reduce employment as less labour is required for a given quantity of output.
- **Wage increase:** In the long run there is a positive relationship between improvements in labour productivity and the real wages paid to labour as a factor of production. If wage growth

outpaces productivity growth, cost of production rises instead and this will have an adverse effect on AS hence the achievement of various macroeconomic goals.

- However, wage policies have been put in place by the Ministry of Manpower to ensure that wage growth is not excessive. Hence, this effect is unlikely.

- **Other factors that influence macroeconomic goals:**
  - **Current economic climate**: Falling world national income due to the Eurozone debt crisis would cause a decline in trade and demand for Singapore's exports. As export revenue falls, there would be a drop in net exports. Since (X-M) constitutes 32% of Singapore's GDP, there would be a significant fall in AD and hence national income in Singapore. This would stifle economic growth and employment in the short run. In this case, boosting labour productivity alone would not be enough to boost exports and attract FDI with weak business expectations.
  - **Imported inflation**: As Singapore lacks natural resources; we are highly reliant on imports for both finished and semi-finished goods. Any global supply shocks and import price hikes may have a larger impact on cost of production compared to labour.
  - **SR PED for exports:** in SR, changes in quantity demanded for exports may be insignificant as consumers may take time to change their consumption pattern. On top of that, producers may also have to fulfill the terms of prevailing contracts with respect to the volume and price. Hence, PED for exports is likely to be price inelastic and the boost in productivity (which causes prices to fall) may result in export revenue falling instead. Hence, negative effect on Singapore's BOT.

Conclusion

- Raising labour productivity plays an important role in improving economic performance in Singapore in the long run given the characteristics of the Singapore economy where labour resource is scarce and exports take up a large proportion of our national income.
- However, it is only useful to the extent that the Singapore government also complements it with short-term policies such as exchange rate and fiscal policies to manage short-term macroeconomic economic fluctuations.
- Possible evaluative comments:
  - **Depends on sector:** More difficult to raise labour productivity in some sectors such as the retail and construction sectors where it is harder to replace labour with machinery.
  - **Other policies** should be used in tandem to achieve macroeconomic goals (should briefly explain feasible policies)
  - **Effectiveness of policies to raise productivity**

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	▪ *Answer lacks use of economics framework / concepts in analysis* ⇨ *Extremely descriptive* ⇨ *Did not use AD/AS framework* ▪ *Poor understanding of productivity* ▪ *Largely one sided answer* ▪ *Glaring conceptual errors*	***1 – 3***
L2	▪ ***Balanced answer*** *with use of appropriate framework / concepts (T-A structure): Considered BOTH costs &benefits* ▪ *Limited scope of analysis* ⇨ *Considered some macroeconomic goals* ▪ *Limited depth of analysis*	***4 – 6***

	⇨ *Answer lacks elaboration* ⇨ *Some gaps in elaboration* ⇨ *Poorly elaborated/did not mention k process* ▪ *Some conceptual errors*	
L3	▪ ***T-A-S approach** with use of appropriate framework/concepts* ▪ *Good scope and depth of analysis* ⇨ *Considered both positive and negative effects on various macroeconomic objectives* ⇨ *Explained effect on all 4 macroeconomic goals* ▪ *Strong application to Singapore context*	***7 - 9***
Evaluation		
E1	*An unexplained evaluative conclusion/comment*	***1 – 2***
E2	*Evaluative assessment supported by economic analysis*	***3 - 4***

5 Economic conditions in the United States have largely returned to normal and a Federal Reserve Bank decision to raise interest rates should come soon.

(a) Explain the factors that would limit the effectiveness of a rise in US interest rate. [10]

(b) To what extent will the rise in US interest rate have an adverse impact on the Singapore economy? [15]

Part (a)

<u>Introduction</u>:
- Define interest rate as the cost of borrowing for firms and the returns on savings for households.
- Returning to normal economic conditions means
  - US returning to mainly an economic condition of low unemployment and economic growth.
  - This is in contrast the situation of high unemployment and negative growth between 2008- 2014.
  - US dollar was also relatively weak and interest rates during this period were very low.
  - The danger of returning to normal economic conditions would be inflationary pressures due to increased domestic spending, and possible enlargement of the BOP deficit due to rising incomes and import spending.

<u>Body</u>:
- <u>Goal</u> of raising interest rates by the US government
- Main goal of raising interest rates is to curb excessive consumption and investment which can lead to demand-pull inflation.
- Many factors could reduce the effectiveness of a rise in interest rate (to be interpreted as <u>factors that prevent the US government from attaining its goal, i.e. stable prices</u>)

<u>Explain factors limiting the effectiveness</u>

1. Interest inelastic consumption & investment

- With the situation in the US of close to full employment and rising incomes and wages, households are not discouraged by the rise in interest rates to borrow for big ticket item purchases.
- Similarly, investors remain optimistic about the investment climate and expected returns on investment, they are not discouraged from borrowing even with rising interest rates.
- Investment (and consumption) is interest inelastic, a rise in i/r leads to a less than proportionate fall in quantity of planned investment.

From Figure 1:
A rise in interest rate from R_0 to R_1 for an investment function (MEI) that is interest inelastic would lead to a smaller than proportionate fall in the level of planned investment, from I_0 - I_{INE}. This is in contrast to the MEI function that is interest elastic, for a which the same rise in interest rate would lead to a more than proportionate fall in level of planned investment I_0 - I_E .

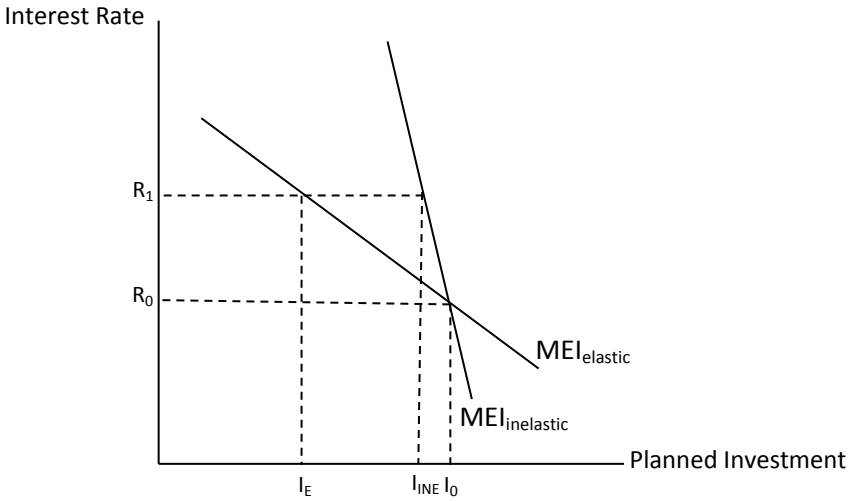


Figure 1: Interest Elasticity of MEI

- Hence, if investment and consumption continue to remain high, the effectiveness of a rise in interest rate will limit the dampening of inflationary pressures.

Note: Another acceptable way of explaining this is to explain the rightward shift of the MEI, owing to a more optimistic prediction of returns by investors. Hence, with a given rise in interest rates, the expected fall in planned investment (based on the original MEI) cannot be attained because of increased level of planned investment at every level of interest rate (new MEI).

2. Time lag

- Such a contractionary monetary policy is subjected also to time lags, albeit shorter than that of a fiscal policy implementation.
- Various lags such as recognition lag, implementation and response lag can happen in any policy implementation. Such lags will limit the effectiveness of the policy.
  E.g. the implementation lag for a rise in interest rate could involve a delay in the decision to raise i/r by the FED when the economy has already started suffering from inflationary pressures. This delay could even last until the economy has suffered a decline in spending and is no longer suffering from inflationary pressures.
- A response lag occurs when there is little response from firms to decrease planned investment when i/r rises, possibly due to existence of contracts that have to be fulfilled.

3. Cost-push causations of inflation not targeted

- The primary causation of inflation targeted by the rise in i/r is that which is demand-pull in nature.
- Other causations of inflation could stem from cost-push factors (e.g. wage-push or import price push) and these remain uncontrolled by the rise in i/r.

4. Other exogenous factors

- **Misalignment of fiscal policy (continual pursuit of expansionary FP)**
  The continual pursuit of an increasing budget deficit would possibly mute the impact of a rise in interest rate to control domestic spending.
- **The weak USD** encouraging export demand, leading to demand-pull inflationary pressures.
- **Rising incomes in other economies leading to high levels of export demand and foreign direct investment**

5. Any other logical factors

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	▪ *Largely irrelevant answer* ▪ *Several concept flaws* ▪ *Displays poor understanding of the goals of raising i/r, and hence the factors that affect effectiveness of this policy.*	***1 – 5***
L2	*Must recognise the goal of the rise in i/r and explain 1-2 factors that affect the effectiveness of the rise in i/r, with some explanation.* ▪ *Lacks scope and depth of analysis, especially with regards to how the factors lead to reduced effectiveness of the contractionary MP.*	***5 - 7***
L3	▪ *Answer must address the goals of the rise in i/r and answer has at least 3 well-explained factors that affect the effectiveness of the rise in i/r, especially with regards to how the factors lead to reduced effectiveness of the contractionary MP* ▪ ***Max 8:*** *if no explicit address of goals for the rise in i/r*	***8 – 10***

Part (b)

Introduction:
The rise in US interest rate will have significant impact on Singapore as US is one of Singapore's major trading partners.
Singapore being a small and open economy is an interest-rate taker.

- Her policies are set to manage exchange rate, and she has no control over any changes in interest rates.
- She can only tweak her domestic and external policy to mitigate any adverse impact of such a rise in i/r.

Body:

Thesis: The rise in U.S. interest rate will have adverse impacts for Singapore

Adverse Impacts

1. The rise in interest rates => fall in real incomes in the US and her other trading partners => fall in real incomes in Singapore

- The rise in interest rates increases the cost of borrowing loans for both households and firms. This leads to a fall in consumption spending on big ticket items, as well as fall in domestic investment levels. This leads to a multiplied fall in real incomes in the US.
  (note that a brief multiplier process description is required)
- With lower incomes, US households and firms will purchase less imports from abroad. Firms may cut back on outward investments.
- The combined fall in injection into Singapore leads to a multiplied fall in real incomes as well as a rise cyclical unemployment.
- A similar fall in real incomes in other economies that trade with the US would compound the adverse effect on real incomes in Singapore if Singapore has close trading ties with them.

2. Deterioration of BOP for Singapore

- Due to the rise in interest rates and subsequent fall in consumption and investment levels in the US, there will be a fall in X earnings for Singapore, worsening the balance of trade account. There will also be a fall in inward investment level worsening Singapore's capital and financial account => worsening of BOP.
- A lower aggregate spending in the US would lead to lower average prices for her domestic goods and services => this means the export competitiveness of US goods would be enhanced.
- With import prices becoming cheaper for US imports coming into Singapore, M could rise assuming PED>1 as quantity demanded for these imports rises.
- US demand for Singapore's exports would fall as consumers and firms switch expenditure towards their domestic goods and services. $X could fall => BOT deteriorates =>further worsening the BOP.

Short-term capital outflow

- There is expected short-term capital outflow from Singapore in search of higher returns in the US economy due to higher i/r => worsening of financial account =>
  Expected weakening of the SGD => expected rise in cost of imports from the US in the short run. But knowing that i/r will eventually rise as Singapore is a price taker => no fear of huge capital outflow or prolonged weakening of the SGD.

3. An eventual rise in i/r in Singapore => rise in cost of borrowing in S'pore => further fall in real income
- Cost of consumption and investment borrowing becomes higher => multiplied fall in real income for Singapore and rise in cyclical unemployment => negative impact on actual & potential growth.

4. Any other logical negative consequences on Singapore

Anti-thesis: Adverse impact may not result for Singapore

1. Fall in real incomes in the US => fall in net export earnings for Singapore.
   - In a situation of overheating, fall in aggregate spending in Singapore would lead to lower inflation rates => positive impact.
2. A stronger US economy (since US near to normal conditions) with price stability => improvement in BOP and Economic Growth (and higher N) for Singapore
- A more stable USD
- Investor confidence can rise within the US and outward as well.
- Singapore can stand to gain from a stronger US economy that is able to purchase their exports and invest into their economy => BOP improvement for S'pore

- Multiplied rise in real incomes due to rise in $(X-M) and FDI => actual growth and employment for S'pore

3. A stronger USD => depreciation of SGD against USD => improvement of $(X-M) for S'pore.
- Assuming M-L condition, net export earnings for S'pore can rise => improvement in BOP

4. Singapore now less reliant on US (successfully decoupled due to extensive global free trade agreements), could be less affected by the US.

- Evaluate: much more affected by the weakening of exchange rates across emerging economies => pressure to allow for depreciation of SGD => can be a complicated issue because imports from emerging economies become cheaper, but imports from US become more expensive.

5. Any other logical positive consequences on Singapore e.g. exogenous factors such as:
- Increased trade with other countries due to signing of FTAs.
- The ability of government policies to mitigate adverse impacts of the rise in i/r.

Conclusion:

Possible evaluative points:
- Being a small open economy, cannot avoid the impacts of the rise in i/r in the US, especially when many other economies are also affected by this move, and Singapore having strong trade ties with all these economies.
- The issue of whether the SGD should be allowed to depreciate is also another tricky issue because it has impacts on internal price stability due to our import reliance. Allowing relative depreciation against the USD may be advantageous for S'pore's net export earnings in the short run, but this also means that cost-push inflation for Singapore.

Singapore will be affected by the rise in i/r in the US to a large extent in the long-run. The extent of this adverse impact will have to be managed by domestic policies as well as her exchange rate policy.

Eventually when we allow i/r to rise in alignment with the US, and the SGD appreciates against other emerging economies' currencies such as China, it might also adversely affect our next export earnings from them these economies

Mark Scheme:

Knowledge, Application, Understanding, Analysis		
L1	▪ *Irrelevant answer.* ▪ *Lack of theoretical framework.* ▪ *Glaring conceptual errors.*	***1 – 5***
L2	▪ *Sound, balanced but underdeveloped discussion* ▪ *Limited scope* ▪ *Limited understanding of the US context* ▪ *Insufficient explanation and evaluation of impacts on the Singapore economy* ▪ *Balanced discussion*	***6 – 8***
L3	▪ *Balanced discussion* ▪ *At least a good range of impacts (at least 3) on macroeconomic*	***9 - 11***

	goals. ▪ *Impacts are also well-explained and evaluated.*	
Evaluation		
E1	*Any insightful comments. An unexplained judgement ➔ An unexplained evaluative conclusion/comment*	***1 – 2***
E2	*Well-reasoned and substantiated judgment.*	***3 - 4***

6 To what extent can policies undertaken by the Singapore government mitigate the negative impact of globalisation and reap its benefits to the fullest? [25]

Suggested Answer

Introduction

- Define globalisation
  - Facilitated by improvement in technology and breaking down of artificial barriers, there is an
    - increase in international trade of goods and services
    - increase in international flow of foreign direct investment/technology
    - increase in international movement of labour

- Policies implemented by Singapore include:
  - Fiscal policy
  - Exchange rate policy
  - Supply-side policies

Body

- Globalisation can bring about the following benefits:
  - Increase in X arising from Singapore's increased access to international markets
    - Increase in AD, resulting in more than proportionate increase in real NY due to multiplier effect
    - Increase in derived demand for labour, resulting in lower cyclical unemployment rate
    - Improvement in BOT, BOP, ceteris paribus, resulting in modest appreciation of currency &/or accumulation of foreign reserves
  - Increase in FDI
    - Increase in AD in SR as factories are built and capital goods are purchased
    - Increase in AS in the long term as stock of capital goods in Singapore is increased, and better production technology might be introduced with the inflow of FDI
    - Increases in AD and AS result in sustained and low-inflationary economic growth in the LR
    - FDI creates jobs, helps to lower unemployment rate. In addition, wages also increase due to high value adding nature of jobs created. For example, financial industry.
    - FDI creates new production capabilities for Singapore economy. This helps to improve X. For example, pharmaceutical, aerospace industries.
  - Increase in foreign talent pool
    - Increase in AS as quantity and quality of labour force is augmented
    - Foreign talent helps to develop high value adding and strategic industries in Singapore. For example, R&D scientists and finance/banking professionals.

- Globalisation can cause the following problems:
    - Increase in volatility of economic performance
        - Increase reliance on X and FDI results in increased volatility of economic performance of Singapore economy. For example, Singapore's economic performance is highly correlated to global economic performance, particularly US and China.
    - Structural unemployment
        - Loss of CA due to the emergence of competing economies in areas of capital-intensive manufacturing industries results in structural unemployment.
        - Due to lower cost of production in countries such as China and regional countries like Thailand, Malaysia, firms may choose to offshore and outsource certain business activities such as capital-intensive manufacturing which used to be conducted in Singapore. Retrenched workers from these industries may not have appropriate skills to be employed in emerging industries in Singapore. This mis-match in skills results in structural unemployment. For example, the off-shoring of hard disk and wafer fabrication industries.
    - Increased income inequality
        - CA export-oriented industries will experience increase in DD for their goods and services. This translates to an increase in DD for labour in these industries causing wages to increase.
        - Non-CA sunset industries will lag behind or experience a fall in DD for their goods and services. This results in lower wage or slower wage growth in these industries.
        - Hence, income inequality worsens. This creates inequitable outcomes which create social tension. For example, wages in financial, pharmaceutical sectors have been rising at faster rates relative to non-CA industries.
    - Strain on infrastructure
        - The inflow of foreign workers adds to the labour force and resident population in Singapore. They require space to live, and the use of public infrastructure such as public transport to commute and public spaces to relax. This poses a strain on our public infrastructure and limited land space.

- To reap the full benefits of globalisation, Singapore government should try to achieve the following:
    - Improve the competitiveness of Singapore's X industry through
        - Improving its price competitiveness
        - Improving the quality of its X
    - Improve the attractiveness of Singapore as a FDI destination for overseas MNCs.
    - Attract top talent to augment the quantity and quality of its labour force.

- To mitigate the negative effects of globalisation, Singapore government should try to achieve the following:
    - Reduce the volatility of Singapore economic performance
    - Address structural unemployment that might arise
    - Manage income inequality in Singapore
    - Enhance and expand its public infrastructure to cope with increasing labour force and resident population

- **[Many policies are presented below for your learning purpose. Candidates are not expected to cover all the policies. Instead, you are expected to clearly analyse how policies (4 is sufficient) can help to mitigate specific negative impact or reap specific benefit of globalisation, with a discussion of the effectiveness of these policies. Emphasis is on 1) linking specific policy to specific benefit/negative effect, 2) detailed analysis of how policy works to maximise benefits or reduce the negative effect of globalisation, 3) discussion of the limitations of each policy.]**

- Policies that can improve competiveness of Singapore's X industry include:
    - Exchange rate policy to ensure low stable inflation in the LR
        - In times of economic boom, policy of modest, gradual appreciation of SGD moderates imported inflation and DD-pull inflation in Singapore. This helps Singapore manage its inflation rate at low, stable levels. It also helps to avoid vicious cycle of wage-price spiral. Over the long term, effective management of Singapore's inflation rate through the use of modest, gradual appreciation of SGD policy helps to improve price-competitiveness of Singapore's exports, vis-à-vis economies that experience relatively higher inflation rates.
        - However, a modest, gradual appreciation of SGD policy compromises actual growth in the SR as (X-M) decreases (assuming MLC holds).
    - Wage policies that allow wages to grow in line with productivity gains
        - Through National Wage Council guidelines, Singapore government has been able to influence the rate of wage growth in Singapore. It has consistently recommended that wage growth should be in line with productivity gains. This helps to prevent an increase in the per unit cost of production in Singapore, maintaining price competitiveness of Singapore's exports.
        - However, NWC guidelines are guidelines which are not mandatory for employers to follow. There is unevenness in the adoption of NWC guidelines among employers. Moreover, NWC guidelines only cover labour cost of production. There are other types of cost of production, such as rental cost, raw material cost and equipment cost incurred by businesses.
    - Supply side policies which help to improve productivity or improve quality of goods/services such as:
        - Subsidies for upgrading technology level to improve productivity. The Productivity and Innovation Credit Scheme (PIC) scheme was introduced by the government to encourage productivity and innovation activities in Singapore. It provides support to businesses that make investments to improve their productivity. Under the PIC Scheme, businesses can enjoy 400% tax deductions/allowances and/or 60% cash subsidies for investments.
        - However, the PIC is an expensive scheme for the government to fund. The incremental gain in productivity of businesses is uneven. Some businesses have been able to tap on the scheme to purchase equipment which significantly improved business processes such as automating production processes. However, there were businesses which used the PIC to purchase photocopying machines and other equipment which did not improve productivity.

- Policies that can improve attractiveness of Singapore as a FDI destination for overseas MNCs:
    - Competitive corporate tax rates. Singapore has lowered corporate tax rates over the decade from 20% to 17%. Lower corporate tax rates increases after-tax profits of firms. This stimulates both investments by local firms and FDI. Corporate tax rate is an important factor in attracting FDI as it directly affects profits.
    - However, lowering corporate tax rates reduces tax revenue of the government. It may require the government to increase other types of taxation, such as GST. Otherwise, the government's ability to spend will be curtailed. Corporate tax cuts can also trigger similar tax cuts from other countries competing to attract FDI. Competitive tax cuts result in a lose-lose situation among the competing countries.

    - Enhancement of infrastructure to increase productivity of businesses in Singapore. For example, air, road infrastructure and industry infrastructure such as Jurong Island. Jurong Island boasts a set of seamlessly integrated infrastructure solutions which includes service corridors, logistics and warehousing, as well as a comprehensive host of shared third-party utilities and services. With its dedicated "plug and play" infrastructure, companies are able to enjoy cost savings.

- However, the development of large industry infrastructure requires a long planning and construction period. The industry-specific nature of Jurong Island also requires the government to correctly identify potential CA industries.

- Policies that can attract top talent:
  - Competitive income tax rates. Singapore's personal income tax rate is progressive in nature. It is competitive with a highest marginal tax rate of 20%. A relatively low personal income tax regime helps to attract top talent as they retain a greater proportion of their earnings.
  - [The limitations of a low personal income tax are similar to those of corporate tax. See previous discussion about corporate tax.]

- Policies that can reduce volatility of Singapore's economic performance:
  - Sign FTAs with diverse trading partners. This will help cushion the negative effect of economic slowdown of any one of Singapore's trading partners.
  - However, given the inter-connected nature of the global economies, Singapore will inevitably be significantly affected by economic slowdown of the biggest economies in the world, such as the US and Chinese economies.

  - Flexible wages that allow wages to fall during times of economic recessions. This will help save jobs. The NWC has recommended businesses to adopt a flexible wage model which comprises salary components which vary with the profitability of firms. This allows businesses to reduce wage costs and cope better during economic recessions. Consequently, there will less retrenchment arising from business closures.
  - However, workers must be willing to accept such flexible wage structures. Trust between employers and workers have to be built and there has to be platforms for employers and workers to meet to negotiate the details of such flexible wage arrangements.
  - Use of foreign exchange and fiscal policy to stabilise the economy in times of global economic recessions. In times of economic recession in Singapore caused by fall in X, the Singapore government can adopt a once-off depreciation of SGD and/or expansionary fiscal policy. Depreciation of SGD increases (X-M) component of AD (assuming MLC holds). Expansionary fiscal policy of reducing taxes and/or increasing G results in increases in C/I and G respectively. Both policies result in more than proportionate increase in real NY, reduces cyclical unemployment and improves BOT.
  - However, depreciation of SGD results in imported inflation. Hence, the extent of depreciation is limited. Expansionary fiscal policy is limited in effectiveness due to the relative size of C and I, relative to X. Hence, it is at best able to reduce the negative effects of a fall in X but not offset it.

- Policies that can reduce structural unemployment
  - Subsidies for retraining of displaced workers. SkillsFuture credit is a cash subsidy given to mid-career individuals to support their learning needs, including learning skills to re-enter the workforce.
  - Government is also involved in sourcing relevant skills based modular courses that help to equip Singapore workers with relevant skills to support CA industries.
  - Through these subsidy and sourcing initiatives, it facilitates the process of individuals learning relevant skills to be employed in the Singapore economy.
  - However, these initiatives are only receptive if workers are receptive to the idea of life-long skills retraining and upgrading. Hence, the government's efforts in using educational campaigns to bring across this idea. In addition, these initiatives are expensive and need to be funded using tax revenue. In order to be effective, the skills taught at these courses must be relevant and the quality of these courses must be good.

- Policies that can reduce income inequality

- More aggressive redistribution policies including more progressive taxation and generous transfer payments.
- Workfare Income Supplementation programme is a subsidy which seeks to supplement wages of low wage workers. More generous transfer payments in the form of subsidies of essential merit goods such as healthcare and housing also helps to reduce the effects of increasing income inequality.
- However, increasing corporate taxes reduces the incentive for businesses to invest. It also reduces Singapore's attractiveness as a FDI destination. It goes against the earlier mentioned policy of reducing corporate taxes to attract FDI. Increasing personal income taxes can reduce an individual's motivation to work and goes against the earlier mentioned policy of maintaining a competitive personal income tax regime to attract foreign talent.

***Mark Scheme*:**

Knowledge, Application, Understanding, Analysis		
L1	- *No/inappropriate framework.* - *Did not use the 4 macro objectives and other relevant economic objectives in analysing the benefits and negative impact of globalisation and policies.* - *Glaring conceptual errors.* - *Did not address the question* - *Did not analyse any policies.* - *Superficial analysis* - *Listing of policies with no analysis using appropriate economics framework*	***1 – 9***
L2	- *Appropriate theoretical framework* - *Used the 4 macro objectives and relevant economic objectives in analysing the benefits and negative impact of globalisation and policies.* - *Explanations and analysis are incomplete/underdeveloped.* - *Some explanation of the benefits and negative impact of globalisation and/or the policies.*	***10 - 16***
L3	- *Explanations and analysis are well developed* - *Good explanation of the benefits and negative impact of globalisation and policies.* - *Balanced answer with limitation of policies discussed.* - *Answer is appropriate to the Singapore context with relevant examples cited.* - *Clarity of thought and coherent arguments.* - *Policies are linked to addressing specific negative impact or reaping specific benefits.* - *Answer has sufficient breadth and depth.* - *At least 3 impact are discussed.*	***17 - 21***
Evaluation		
E1	*An unexplained judgement ➔ An unexplained evaluative conclusion/comment*	***1 – 2***
E2	*Evaluative comments are insightful and substantiated*	***3 - 4***