

Hwa Chong Institution 2017 Prelim Paper 2 Suggested Answers

Q1 Rationality in decision making is linked to making choices which involves opportunity cost.

- (a) Explain the relevance of opportunity cost to consumers and firms in making rational decisions. [10]
- (b) Discuss whether opportunity cost is the most important factor governments should consider when deciding to intervene in the markets for goods and services and on the corresponding choice of policy measures. [15]

Suggested mark scheme

Introduction:

OC is cost measured in terms of the next best alternative forgone.
It is linked to scarcity, choice and efficiency in resource allocation.
Efficiency in resource allocation implies making rational decisions or optimal choices which should result in the maximization of benefits to various economic agents such as consumers and firms. The concept of OC is relevant to explain how consumers and firms make rational decisions.

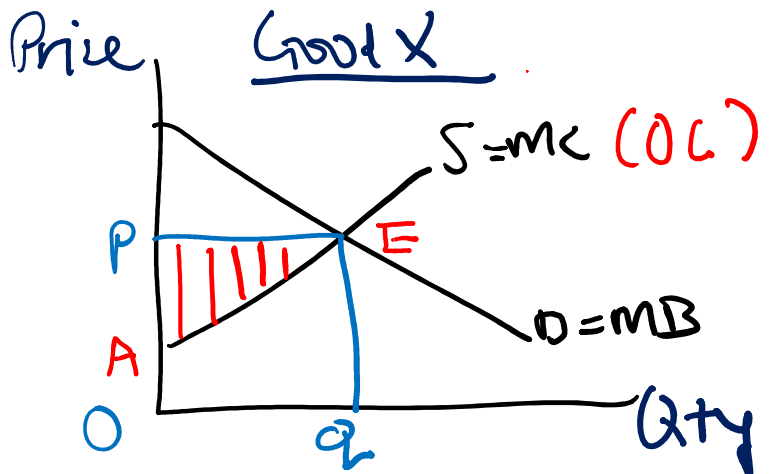
Body

a Consumer making rational decisions

Analysis:

The aim of a rational consumer is to maximize satisfaction/utility from the consumption of goods and services.

Diagram:



With reference to diagram:

The demand curve represents the satisfaction/benefits that consumers derived from the consumption of the marginal/last unit of output at each possible price. In other words, it is the MB curve

Opportunity cost

The supply curve represents MC (marginal cost) of producing extra units of Good X.

It slopes upwards due to the law of increasing cost ie OC increases

However, it is important to note/point out that MC represents OPPORTUNITY COSTS of using society's scarce resources to produce Good X. OC is cost measured in terms of the next best alternative good - for example, say Good Y forgone. Hence, a rational consumer has to consider OC (ie potential benefits of Good Y, the best alternative forgone) to ascertain if the decision/choice is optimal

Rationality

Given market price O_p , the best output or optimal output to consume is O_q .

The reason being the MB (satisfaction derived of consuming the last unit or q th unit of Good X is equals to the potential benefit of Good Y forgone.

At price O_p , if the consumers buy less than O_q units the $MB > MC \Rightarrow$ under-consumption or under-allocation. The level of consumption of Good X is sub-optimal because benefit derived from the last or marginal unit of Good X is greater than MC, which is the OC or potential benefits Good Y forgone. In such a situation, consumer rationality \Rightarrow consumers are better off if more X and less Y goods are produced.

Similarly if consumers buy more than O_q units the $MB < MC$, the level of consumption is again sub-optimal. In this case the benefits derived from the last or marginal unit of X consumed is below the OC ie less than potential benefits of Good Y forgone. In such a situation, consumer rationality \Rightarrow consumers are better off if more Y and less X goods are produced.

Hence, a rational consumer will buy units of a good until the benefits derived from the last or marginal unit is equals to the OC. At this point, the allocation of resources for the consumption of Good X is said to be efficient and the consumer is said to be in equilibrium because there is no further benefit from either increasing/decreasing the consumption of Good Y.

Consumer's welfare is maximized as illustrated by the shaded area APE (consumer surplus) in the diagram

b Firms making rational decisions

The aim of a rational firm is to maximize profits from using society's scarce resources to produce goods and services.

Opportunity Cost

In calculating profits, the firm should consider OC.

The firm costs should include both explicit (cost of buying or hiring inputs) as well as implicit cost (OC of using resources that belongs to owners of the firm e.g. own labour, premises; funds etc)

Profit represent the return to capital invested in the business. It is calculated or measured as the difference between TR and TC (including implicit cost or OC of using owners resources)

In symbols: Profit = TR-TC

Rationality

1. Profit- maximizing output decision:

Firm maximizes profits when MR from the sale of the last unit of output = MC (OC inclusive of explicit and implicit costs)

2. Shut-down decision:

- Furthermore, a rational firm should remain in the industry if $TR = TC$ ie firm is making normal profits.
- Normal profit \Rightarrow TR is just enough to cover all costs including implicit cost or the OC of using resources that belongs to the owners of the firm.
- The decision to remain is rational because the firm is making profit equivalent to the next best alternative use of its capital and resources.
- On the other hand, it would be irrational for a firm making sub-normal profits (ie $TR < TC$) to remain in the industry in the long run. This is because the firm is forgoing a better return elsewhere. OC consideration would suggests the same resources could be put to better use ie earn a better/higher return in the next best alternative use. For example, if the next best alternative use for resources used for selling chicken rice is to sell duck rice the chicken rice seller would be better off selling duck rice if the profit is sub-normal.

Conclusion:

To sum up, rational decisions by consumers and firms involved OC considerations or consideration of the next best alternative use of scarce resources. In so doing, consumers will be able to decide the best or optimal level of consumption which should maximize their welfare; while producers/firms should be able to maximize profits and use its resources to earn at least a normal profit.

Knowledge, Application/Understanding and Analysis		
L3	For an answer that uses analysis to explain opportunity cost and rationality. The link between them is clearly and coherently explained.	8-10 (9)
L2	Analysis which is lop-sided or superficial. A descriptive explanation of the link between opportunity cost, rationality.	5-7 (6)
L1	Knowledge of what is meant by opportunity cost and rationality. Link is not clearly explained.	1-4 (3)

Part (b)

Introduction:

Rationality in decision making is linked to the use of the concept of OC as explained in part (a). In theory, rationality in decision making by consumers and firms should enable markets for goods and services to make the best use of society's scarce resources without government intervention. In reality government do intervene in the market for goods and services. Both the rationale or decision to intervene and choice of policies are linked to a variety of factors.

Body

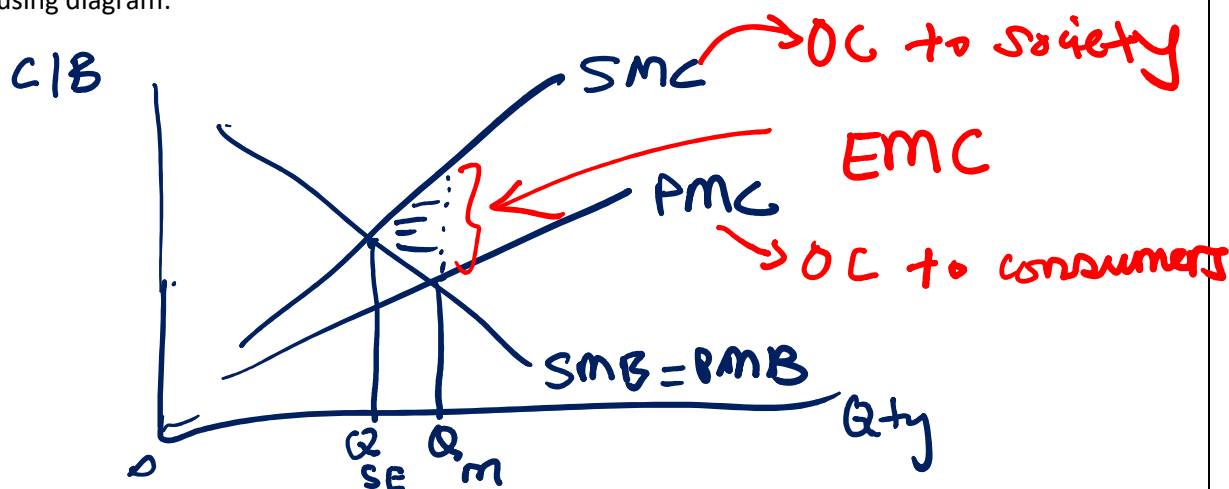
Thesis : Yes OC is a key consideration

1. Rationale

Divergence between private and social costs

In this instance, consumer rationality fails to take into account the OC to society of consumption e.g. smoking, car ownership/usage

Explain using diagram:



Third party costs = EMC represents OC to society arising from over-consumption of tobacco or car ownership

Car owners and smokers take into account only private OC e.g. to buy a car they have to sacrifice an expensive holiday for the family or downsize to a smaller apartment etc

However, the OC to society includes lost output/ lost productivity/lost GDP/slower economic growth => lower SOL

Thus, government intervention is to correct distortion in measuring OC to society in instances where there is a divergence between private and social costs.

2. Choice of policies – conflicting goals (trade offs)

Government have a choice of a range of measures/policies to correct Market failure e.g. subsidies, taxes, quotas, regulations, education etc

Choice of policies also linked to OC considerations.

Examples:

Government budget – represents limited financial resources belonging to the state which have alternative uses. Rationality => making the best use or choice in using limited state resources

For instance, subsidising education/health (positive externalities) => incurring OC in terms of forgoing other expenditures e.g. defence, infrastructure. Government need to consider OC.

Funding provision of public goods (e.g. national defence, street lighting) => incur OC in terms of diverting resources away from social spending to alleviate poverty or narrow income inequality.

Hence, as shown by the above examples, choice of measures or policy does involve OC considerations e.g. prioritising goals such as efficiency v sustained economic growth or efficiency v equity (inclusive growth). Government has to prioritise goals.

3. Funding of health care services

If increasing health care is fully funded by the state ie provided free of charge to users or individuals, then from the perspective of individuals there is no OC (no sacrifice or trade-off). In reality, there is the danger that such state funded health care system is unsustainable because it encourages individuals to FREE ride or abuse the system to the point of depletion. Thus adversely affecting the quality of health care.

In SG a significant % of health care expenditure is financed by individuals via medi-save and medical insurance. Thus there is an OC incurred for using health care services from the individual's perspective. This would reduce the risk of moral hazard and also encourage individuals to adopt preventive health-care. Individuals are motivated to exercise and keep fit to reduce OC of incurring medical expenses.

In contrast, UK system is based on fully subsidized system funded by tax payers. Outcome is inefficient. Lead to wasteful over-consumption of health care.

EC: However, in reality trade-offs mitigated by expanding or growing resources.

As economy grows, the GDP becomes larger and hence bigger pie => everyone can have a bigger slice.

Anti-Thesis : Other considerations besides OC

a. Rationale

Efficiency – linked to various sources of market failure

- Public goods – linked to free ridership (non-excludability) consideration
Explain why government intervene to provide public goods
Linked to failure of the signaling and incentive mechanism of the price mechanism.
- Information failure linked to incorrect, incomplete or Asymmetric information.
- Market dominance – linked to market power/substantial market share or control over supply firms producing output below the socially efficient or allocatively efficient level.

Equity considerations

Inclusive growth and narrowing income disparities.

Fair access to basic essential goods and services e.g. health care; education and water, food and sanitation; basic housing for everyone. Access is not restricted by lack of purchasing power e.g. low incomes.

Government key instrument or policy = Tax and transfers (subsidises) e.g. wage subsidies

b Choice of policy measures

Government has to consider factors affecting appropriateness and effectiveness of choice of policies.
Examples:

- Information problem
Example use of corrective taxes or subsidies linked to externalities.
To measure extent of EMC or EMB accurately government needs to have full information.
Imperfect information => over-tax/subsidies or under-tax/subsidies => worsening the problem
Costly to gather information.
- Compliance cost /Unintended consequences
 - Regulations require monitoring, enforcement.
 - Unintended consequences e.g. high COE leads to greater usage of cars
 - Blunt instrument e.g. ban consumption of chewing gum in SG
- Lack of political support
Unpopular measures

Conclusion

Stand:

OC is certainly an important consideration for GI in the market for goods and services and choice of policy measures. However, it is too sweeping to conclude that it is the MOST important factor.

Substantiation

OC underlies every decision/choice that impinges on the best/optimal use of scarce resources and hence/therefore it is an unavoidable factor for the government to consider in terms of efficiency in resource allocation.

However, government intervention in the market for goods and services involves consideration of a whole host of factors beyond OC considerations such as the sources/type of market failure (e.g. free ridership and information failure) as well as other consideration of government failure (e.g. compliance cost; unintended consequences).

Knowledge, Application/Understanding and Analysis

L3	For an answer that uses appropriate analysis to explain the factors that influence government decision to intervene and choice of policies	8-10 (9)
L2	For an answer that gives a descriptive explanation of the factors that influence government decision to intervene and the choice of policy measures	5-7 (6)
L1	For an answer that shows knowledge of the factors that influence government decision to intervene and the choice of policy measures.	1-4 (3)

E3	For an answer that arrives at an analytically well-reasoned judgement about whether OC is the most important factor to consider when deciding to intervene in the market for goods and services and on the choice of policy measures	4-5
E2	For an answer that makes some attempt at a judgement about whether OC is the most important factor to consider when deciding to intervene in the market for goods and services and on the choice of policy measures	2-3

E1	For an answer that gives an unsupported statement about whether OC is the most important factor to consider when deciding to intervene in the market for goods and services and on the choice of policy measures.	1
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- 2 The use of drones for aerial photography and racing are growing in popularity among the wider public. According to an industry report, in the next five years, global consumer drone sales volume is expected to increase more than tenfold, while average selling price for drones will continue to decline sharply.

Source: *Dronelife*, accessed 8 August 2017

Discuss the different demand and supply factors and their likely importance in determining the anticipated changes in sales volume and price of consumer drones. [25]

Suggested Mark Scheme

Introduction

In recent years growth in the market for consumer drones has caught the attention of the media. Projected future growth is expected to be DRAMATIC ie jumped by 1000% or tenfold in the next 5 years. Whilst growth is projected to be “dramatic”, prices are projected to decline/fall sharply. The projected price and sales changes are seemingly conflicting/counter-intuitive. However, these changes can be explained in theory by using demand and supply analysis.

FYI:

Previously unpopular with consumers because use was confined mainly to military purposes. Recent popularity is fuelled by new found use for civilian purposes such as aerial photography and racing (a variation of flying model planes). Use also for food delivery; checking inventory in warehouses.

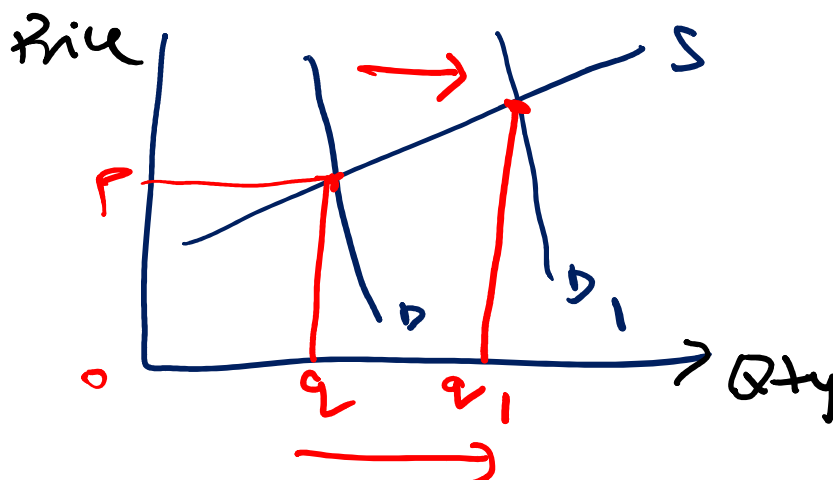
Body

a_ Demand Factors

Reference to Pi-TIDE, ceteris paribus

A (Thesis) : Demand factors are likely to be important to explain increase in sales volume

Diagram (1) – DD curve shifts to the right



The Mkt. for Consumer drones

Change in DD over time.

Demand is projected to increase over the next 5 years

Possible Reasons:

- T-factors
Taste and preferences – is expected to increase demand for consumer drones as more and more useful applications are found for civilian use.
Previously drones were unpopular because their use was confined mainly to military application e.g. UAV for surveillance.

Technological factor

Recent years due to new break-through in drone technology pioneered by tech start ups sparked a new craze in the use of drones for consumer purposes e.g. aerial photography, food and mail delivery etc. Indeed its popularity is projected to become as ubiquitous as the smartphone, with more killer application coming on stream in the future.

Example:

Health care applications drones use for bed-ridden elderly to fetch household items to their bed.

- Inter-related good
Cheaper substitutes compared to old fashion aerial photography using helicopters and aeroplanes.
Complements – relatively affordable cameras and software for aerial drones
Extent of shift in DD depends on CED (+) and (-) high and low.
- I-factor
Income increases. Drones are normal good. YED (+) => that going forward or next 5 years recessions should be ruled out.
- EC:
Projection into the future, the 2 most important factors that drives demand are likely to be tastes and preferences and new innovations in drone technology for consumer use.
Consumer drones is expected to be in “hot” demand or ubiquitous like the smartphone. Everybody wants to own one.

The dramatic or tenfold rise in sales volume therefore suggest that demand is expected to surge in the next 5 years ie DD curve shift significantly to the right.

B. Supply factors

However, demand factors could explain why Q increases but it cannot explain the expected/anticipated simultaneous fall in P.

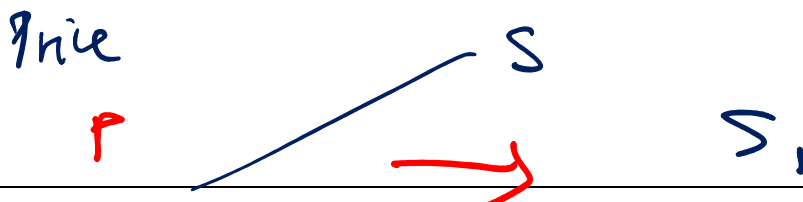
In fact, a significant rise in demand c.p should exert strong upward pressure on P. Hence, given that P is anticipated to decline sharply, other factors such as SS must also be considered.

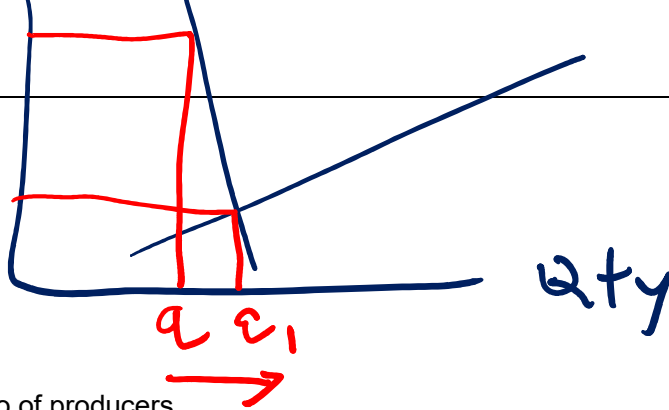
SS factors are likely to be important to explain expected change in sales volume

An expected surge in SS can explain an increase in sales output as well as simultaneous fall in P.

2 key SS determinants are falling costs and rising industry supply capacity (ie more producers and bigger plants/production capacity)

Diagram (2): SS curve (RWS)





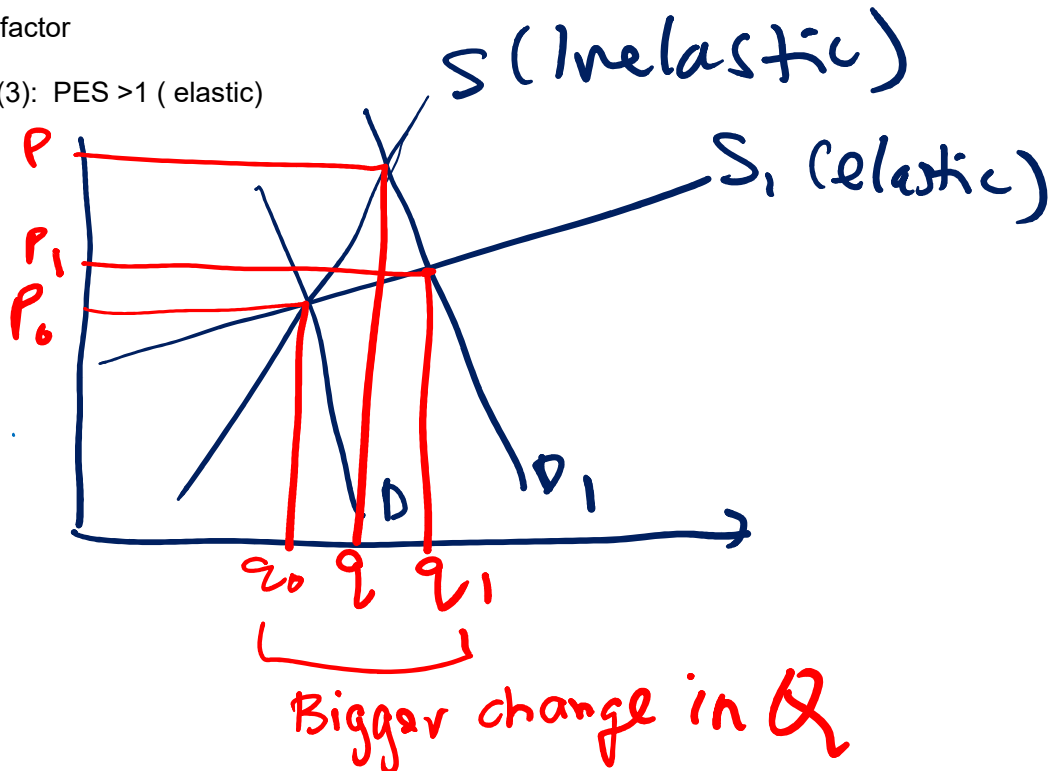
- C- factor and No of producers
Cost – dramatic fall in cost of producing consumer or civilian drones

Possible reasons – technological factor; economies of scale; cheaper computer parts and inputs; chips; plastics or material for producing drones.

Expansion in the size of the industry producing drones – low barriers to entry => influx of new firms “jumping onto the bandwagon” to grab a share of the lucrative market.

- Elasticity factor

Diagram (3): PES > 1 (elastic)



If demand increases and SS curve is more elastic (gentle) => Q increases faster.

Producers of drones are expected to respond easily/ quickly to any increase in demand. Why? Drone is a product which is easy to get all the necessary raw materials to step up production if demand rises e.g. chips, plastic, metals parts. The production process is not expected to be complicated. Automation is possible. Entry into this industry is expected to be relatively easy (no high barriers), can be easily mass produced. Not constrained by fixed production periods (e.g. agriculture). The lag time between orders and production is very short. Not costly to keep inventories (not bulky; not perishable).

In short, producers can step up production and respond rapidly to meet any increase in market price.

Prices should not be falling that sharply. Conversely, if demand falls, suppliers can readily remove supply from the market, thus preventing a glut from depressing prices.

C. Elasticity Factor

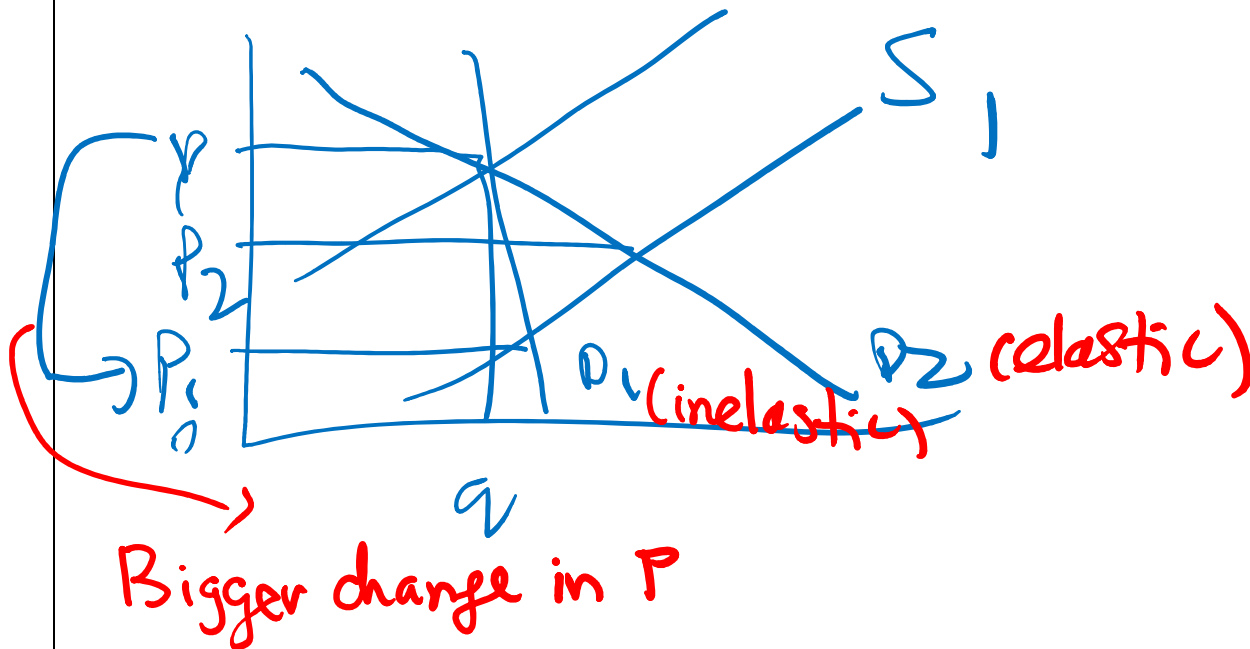
Increase in SS per se, can only explain a fall in P.
It cannot explain a SHARP fall in P.

Elasticity factor:

Best explained with reference to PED.

If demand is inelastic (steep slope) compared to demand which is price elastic (gentle slope).

Diagram (4) : PED



P falls sharply? (The role of PED)

- SS increase > DD => price falling.... However to explain why prices should be falling sharply must consider PED as well.
- $PED < 1$ (relatively inelastic – steep demand curve)

Why?

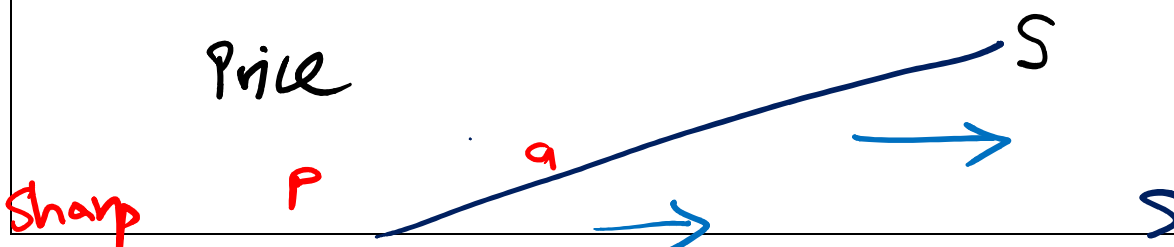
Consumers are not price-sensitive to drones. Not responsive to change in price. As prices falls, consumers are not rushing in to buy drones because drones are cheap products. Price is not the key factor that determines demand for consumers. It is other non-price factors such as tastes and preferences. In fact, prices are expected to fall sharply because inelastic demand. In other words, Consumers are buying drones not because they are cheap but because they are useful products of the future.

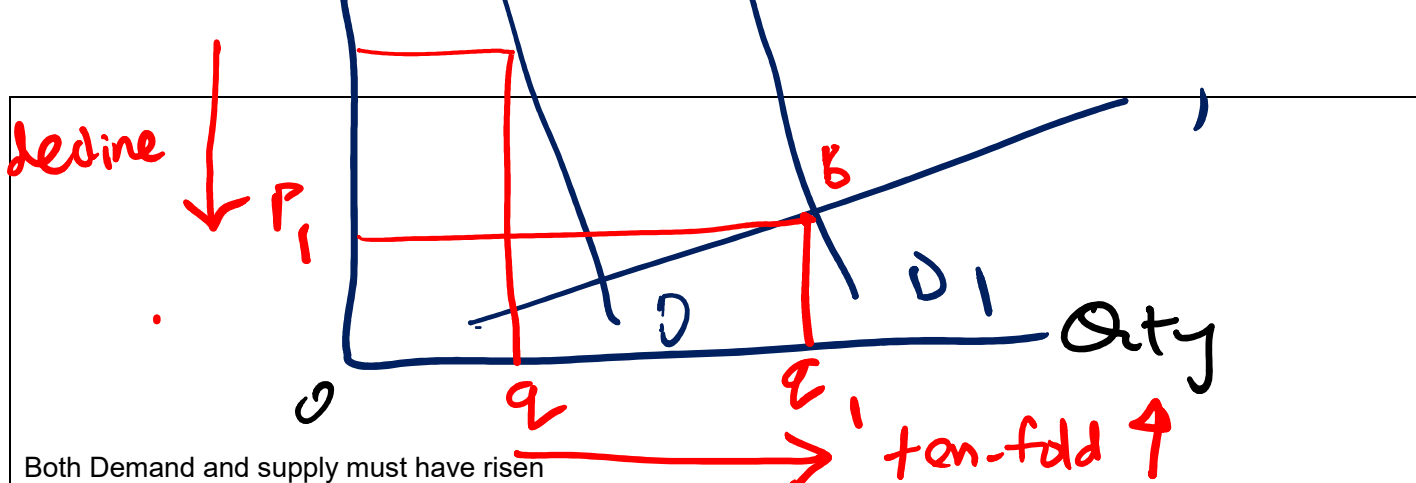
Link to SNIT factor

D Combination of demand and supply and Elasticity

Combining both demand and supply analysis:

With reference to diagram (5): Combined shifts of DD and SS





Both Demand and supply must have risen

1. If demand rise and SS falls => Price will rise but Q is indeterminate.
Since Q is expected to jump 10 tenfold (1000% or exponentially)
=> DD and SS must both be expected/projected/anticipated to rise significantly.
2. In addition, both PED and PES are important to explain the EXTENT of the change in price and sales volume ie SHARP decline in prices and DRAMATIC rise in SS respectively.
If PED is elastic, price would decline as much as if PED is inelastic.
If PES is inelastic, Q or sales volume would not have risen as much as if PES is elastic.

Conclusion:

Stand

Although both demand and supply factors are important in explaining the change in Q and P not all factors are of EQUAL importance.

Substantiation

Importance of Demand and Supply factors

The tenfold increase in sales volume and sharp decline in prices are best explained by the extensive rightward shift of BOTH demand and supply simultaneously.

Projected rapid/ubiquitous adoption of consumer drones by consumers as a valuable “must have” new consumer product of the future is the most probable underlying reason for significant increase in demand over the next 5 years. At the same time, supply is projected to be forthcoming as the industry is unlikely to experience any supply capacity constraints in meeting the rapid increase in demand.

Additionally, PED and PES are of significant importance in explaining the changes in Q and P.

PES is instrumental in explaining why Q increases at a faster pace given an increase in demand, thus easing upward pressure on P. Whilst PED is instrumental in explaining why P falls sharply given an increase in SS. Thus, without PED and PES the analysis would be incomplete.

Knowledge, Application/Understanding and Analysis

L3	For an answer that uses appropriate analysis to explain changes in the market in the market for consumer drones using demand, supply and elasticities factors	15-20 (18)
L2	Analysis is lop-sided. Focus is either mainly on demand or supply. For an answer that gives a descriptive explanation of changes in the market for consumer drones.	9-14 (12)
L1	For an answer that shows some basic but largely unexplained knowledge of demand and supply factors to explain the expected changes in the market for consumer drones.	1-8 (5)
E3	For an answer that uses analysis to support an evaluative appraisal of the importance of demand and supply factors in determining the anticipated changes in sales volume and price of consumer drones	4-5

E2	For an answer that makes some attempt at a judgment about the importance of demand and supply factors in determining the anticipated changes in sales volume and price of consumer drones.	2-3
E1	For an answer that gives an unsupported concluding statement about The importance of demand and supply factors in determining the anticipated changes in sales volume and price of consumer drones	1

3 Major airlines form alliances and charge passengers different airfares depending on when the booking is made and additional fees for extra baggage.

- (a) Explain whether the above mentioned pricing strategies are examples of price discrimination. **[10]**
- (b) Discuss the likely impact on profitability when firms decide to use alternative pricing strategies in an oligopolistic market. **[15]**

Suggested Mark Scheme
Part (a)
Introduction:
PD is the practice of charging different prices for identical products which are unrelated to differences in cost of supplying the product to the market. Discriminatory pricing is practiced by firms/businesses which have pricing or market power.
In the above mentioned context, airlines adopted 2 different pricing strategies of which only one of them can be considered as a good example of PD
Body (analysis)
a Different fares depending on when booking is made is a most likely a case of PD
Explain with reference to the set of criteria which distinguishes PD from non-PD
Today, many airlines have introduced internet booking or on-line booking for air tickets. This makes it easy for the airline to segregate the market and identify passengers with different willingness to pay for the good.
Is this a good example of PD?
Important criteria to fulfil/satisfy
1. Cost differences
Apparently there should be no cost differences in booking the same flight and same cabin class. In fact, it is common to find 2 passengers seated in the same cabin on the flight but both paying different fares depending on the time of booking. If ticket fare is higher because of better service provided that comes at an additional costs then it is not PD e.g. First Class fares are higher than economy class because of better service, comfort etc
2. Product identical
Yes if it the same flight and same cabin class– there is no difference in terms of consumer perception of the good as long as all passengers are taking the same flight and same cabin class. However, if those who pay higher fares get a better product or service it is not PD.

Bad example of PD:

More expensive to fly non-stop compared to connecting flights.
Flying non-stop is ideal, but that convenience isn't free.
Adding one stop could save \$100 round trip.

3. Differences in elasticities of demand

The aim of PD is to charge consumers according to their willingness to pay. This in turn is related or linked to consumers PED. It is a common practice to charge lower fares for early booking. Fares become more expensive as the flight date gets closer. The underlying economic principle is to charge higher fares to passengers who are willing to pay more. These passengers are presumably those who need to travel urgently (ie late bookings).

Early bookings are cheaper because it is assumed that the demand for air travel of such passengers are relatively price elastic. They have the time to plan their travel and consider various other options or substitutes available. Hence these passengers are not willing to pay as much as late comers, because their travelling schedule is probably non-urgent. On the other hand, urgent travelers faced a relatively price inelastic demand curve, making it possible for airline to charge more

4. No seepage/resale

FYI: Factors 1 to 3 are the most important considerations.

b. Charging baggage fees is not a case of PD

In contrast, this is a NOT a case of PD. Why?

Cost differences

While the product might be considered identical to every passenger on the same flight/class the COST of providing additional services to passengers is not necessarily the same.

From the perspective of airlines, it is more costly to provide the service to passengers who wish to carry extra baggage on board. This is similar to passengers on budget airlines who opt for food and other extra services. Thus to maintain profitability airlines got to charge for these extra services.

Extra costs is involved since extra baggage should

- occupy additional space (opportunity cost to airline. Extra space could be utilize to carry extra passengers).
- incur higher airport handling charges e.g. loading and uploading the bags
- consume more aviation fuel because airplane has to carry a heavier load. Hence, many airlines imposed extra charges based on weight and no of extra baggage.

Thus it can said this is not a good example of PD

Conclusion (sum up):

When faced with profit squeeze airlines resort to both PD and non-PD pricing strategies to increase revenue. In the given context, only charging different fares depending on time of booking is a good example of third degree inter-temporal PD.

Knowledge, Application/Understanding and Analysis

L3	For an answer that uses analysis to explain PD and considers both pricing strategies mentioned in the context/stem.	8-10 (9)
L2	Analysis is lop-sided ie consider only one but not both pricing strategies mentioned in the context. A descriptive explanation of PD and the required underlying conditions.	5-7 (6)
L1	Knowledge of what is meant by PD but answer is too superficial (e.g. a largely unexplained list.)	1-4 (3)

Part (b) Suggested Mark Scheme

Introduction

OG firms operate in a market where there are a few large sellers. Each seller has got significant market share/market power. Competition is characterized by a high degree of mutual interdependence in decision making. OG firms could either decide to collude or to compete in terms of pricing strategies. Moreover, the firms may also decide to adopt discriminatory as well as non-discriminatory pricing strategies. Impact on profitability is dependent on how successfully these strategies can be implemented. There are cost and benefit considerations for each pricing strategy.

FYI:

Choice of 3 pricing strategies should be sufficient for this essay.

Common examples

From the stem	PD and baggage fees
Cooperative models	Cartel/Alliances
Competitive models	Price wars (common) Price rigidity (kinked dd)

Body

From the stem: Discriminatory Pricing policies

Benefits of PD based on the criteria for successfully practicing PD)

Successful PD – provided OG firms can satisfy the following conditions:

Likely to be profit if PD can be successfully implemented. Why?

- (1) Firms can earn higher TR – by extracting consumer surplus. Making consumers pay what they are willing to pay
- (2) No differences in costs (refer to definition of PD)

Profits = TR -TC.

If TR rises and TC remains unchanged => profits will definitely increased.

However, success depends on the ability to fulfil the following set of criteria explained in part (a).

Impact on profitability depends on:

Ability to exercise its market power.

In times when the market conditions are bad (e.g. profit squeeze) difficult to charge high prices.

Pressure to opt for price discount to protect market share.

- Ability to segregate markets according to difference willingness to pay for the product
Different criteria to segregate markets e.g. age (children and adult fares); advanced booking and late bookings.

Internet makes it possible to identify different groups of consumers through SELF-selection ie according to what time or when they booked the tickets ie time sensitive or inter-temporal PD.

In reality, not every firm is able to segregate markets effectively.

Consumers may cancel bookings because of better deals.

However, airlines impose hefty 'change of reservation fees' (around \$75 to \$200) wiping out any savings from changing flights.

- Ability to prevent resale and seepage

In reality, not every firm is able to prevent seepage/resale. Airlines can issue personalized air tickets which are not transferable e.g. name, seat information printed for inspection.

Consumers cannot by-pass the seller to get the product from others who are able to obtain the product at a lower price. In the case of inter-temporal PD, cancellation is discouraged through the imposition of hefty cancellation fees and other behavioural techniques such as using a 2 staged game.

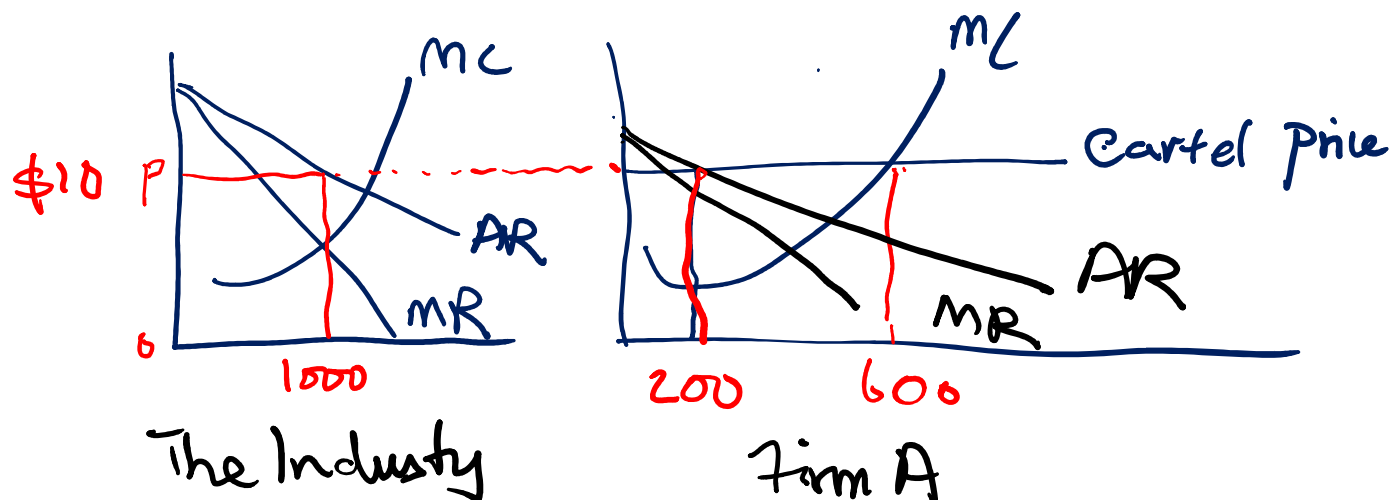
b_ Non-discriminatory pricing by OG firms

1. Collusive pricing strategies

Cartels or price fixing arrangements

Explain the benefits of cartels – joint profit max by collectively restricting supply to the market

Diagram



Profitability depends on

- Fragile –incentive to cheat. Refer to diagram in lecture notes P 22.3.30
 - Availability of Substitutes or control over market share e.g. shale oil v OPEC oil.
 - Difficulty in deciding on a common price to fix – due to differences in cost structures and product homogeneity.
 - Regulatory obstacle - most countries illegal/outlawed.
- Only tacit collusion exists and risks of being fined if caught e.g. Past cases of tacit price fixing arrangements uncovered by the regulators include sSchool bus operators, maid and modelling agencies and pest control firms in SG.

(i) Price wars

2 Non-collusive or competitive OG

Bleeding each other to death. Examples of budget airlines price war – ticket prices reduced to \$1

Overcrowded/saturated market e.g. recession shrinking market => overcapacity in the industry. Therefore need for industry shake out

Short-lived therefore unsustainable

Survival of the fittest

Impact on profitability depends on...

- Short run – losses for LT gains or profitability if firm can survive the shake out.
- Incumbents v new entrants (better chance for incumbents with lower costs of production and bigger market share)

3 | Charging for baggage fees (opportunistic pricing strategy)

Airlines used it to increase revenue without upsetting passengers upfront. In a very competitive market it is difficult for airline to unilateral raise fares without losing substantial market share.

charging for extra baggage is a form of “fuzzy pricing” (ie hidden costs). Fuzzy because passengers are not clear what the ticket price includes.... (unless they read the fine print or terms and conditions carefully).

Profitability or how successful depends on

- What other airlines do. If the market is competitive, passengers can switch to airlines that don't charge baggage fees.
Therefore either:
 - Collusion is required (tacit or explicit) to enforce fees for extra baggage.
 - Don't include baggage fees in the ticket fare charge separately or add-ons costs/hidden costs.
 - High exit costs ie cancellation fees
- Imperfect Information – travelers are unaware.
- Not effective if travelers are aware and can boycott airline

4. Price rigidity or Kinked demand Theory (non-collusive)

Matching price cuts but not price increases initiated by rivals

Profitability depends on...

- The cost of firm.
Since Prices are sticky, profit depends on ability of the firm to hold down costs.
In the above, airlines are facing profit-squeeze due to rising fuel costs. Thus, a tipping point may be reached when rising costs makes it very difficult to keep prices at prevailing market level.
- Product differentiation
Kinked demand theory assumes all firms are selling a homogeneous product.
If the airline is able to differentiate its services from its rivals, it can successfully raise price without losing market share.

Conclusion

Stand

In context of competitive OG market faced by profit squeeze such as airlines PD offers a most appropriate pricing strategies to increase profitability. Leverage on the principle of making consumers pay according to what they are willing to pay (ie taking away consumer surplus). Cost the same, so end of the day firm will end up with better profits without ruffling feathers.

Substantiation

Price wars e.g. budget airlines short-lived – unsustainable strategy. Price rigidity might not be sustainable given rising costs in the airline industry.

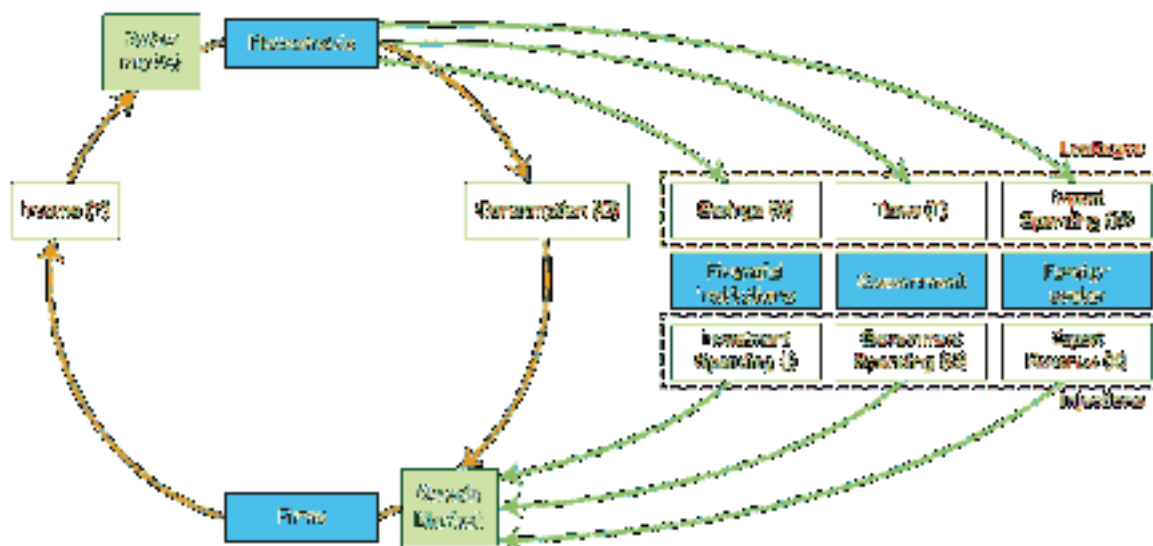
Baggage fees – consumers might resent it as a clever or opportunistic marketing strategy to take advantage of consumers ignorance (Asymmetric information). Cartels (explicit) are illegal. But airlines do engage in tacit collusion ie tacit agreement to fix fares but risk being heavily fined by authorities if uncovered.

L3	For an answer that uses appropriate analysis to explain the alternative pricing strategies of OG firms and impact on firm's profitability.	8-10 (9)
L2	Analysis is lop-sided. For an answer that gives a descriptive explanation of alternative pricing strategies of OG and impact on firm's profitability	5-7 (6)
L1	For an answer that shows knowledge of alternative pricing strategies of OG firms but answer is superficial.	1-4 (3)

E3	For an answer that arrives at an analytically well-reasoned judgement about the impact on firm's profitability of alternative pricing strategies in an OG market.	4-5
E2	For an answer that makes some attempt at a judgement about the impact on firm's profitability of alternative pricing strategies in an OG market.	2-3
E1	For an answer that gives an unsupported statement about the impact on firm's profitability of alternative pricing strategies in an OG market.	1

4

(a) Using the circular flow of income, explain how an increase in government spending can lead to a bigger change in national income. [10m]



- The circular income flow model is used to explain how production of the national output and level of income in an economy is driven by expenditure.
- Assume a 4 sector economy that is initially in equilibrium.
- Government spending (G) is an injection into the circular flow of income.
- Increased G represents an increase in injections such that total injections now exceed total withdrawals and the economy is no longer in equilibrium.
- Assuming a 4 sector economy with excess capacity, an injection or autonomous increase in spending of \$100 million (e.g. G on infrastructure projects) will generate income for households employed by firms in the construction industry.

- These households will spend a proportion of the additional income on consumption of \$50 million, depending on the size of their marginal propensity to consume (assume MPC 0.5), while the rest is leaked away as additional savings, taxes or imports spending of another \$50 million.
- As one man's spending is another man's income, the induced consumption creates income for households employed in the consumer goods industry who will also spend part of their additional income on additional consumption based on their MPC (which equals \$25 million in this example) while the rest constitutes further leakages (of another \$25 million here).
- This cycle of spending and re-spending will continue until the total increase in leakages (i.e. \$100 million here) equals to the initial injection (i.e. \$100 million here) into the circular flow of income.
- The eventual increase in national income is several times the initial increase in injections. In this numerical example, it will rise by \$200 million.
- The multiplier, k , represents how many times the national income increase with respect to the initial injection. In this numerical example, multiplier = 2.
- Therefore, the smaller the proportion of leakages or higher the proportion of induced consumption, the greater the size of the multiplier and that would mean a greater multiple increase in real national income whenever autonomous spending increase in the economy.

	Knowledge, Application / Understanding and Analysis	
L 3	For a well-analysed answer on how an increase in government spending can lead to a bigger change in national income through the multiplier process taking effect within the circular flow of income. No major conceptual errors/ good grasp of the concepts. A simple numerical analysis would suffice. The circular flow of income diagram is required.	8 – 10 (9)
L 2	For answer that gives a descriptive explanation to explain how an increase in government spending can lead to a bigger change in national income. Insufficient depth in analysis, missing out certain components or processes within the circular flow of income.	5 – 7 (6)
L 1	For an answer that shows some basic but largely unexplained knowledge of the circular flow of income.	1 – 4 (3)

b) In 2015, Singapore's GDP at 2010 prices grew by 2%, the total population grew by 1.2%, inflation (as measured by the consumer price index) was – 0.5% and overall unemployment stood at 1.9%.

Source: Yearbook of Statistics Singapore, 2016

Discuss how far the government can use these statistics to conclude if there is an improvement in the standard of living in Singapore. [15m]

- Define SOL
- **Assess how far the statistics point towards an improvement in material SOL**
 - Real GDP grew 2% → real per capita income ↑ since population ↑ < 2%; 1.2% → average ↑ in purchasing power → ↑ in average consumption → material SOL ↑
 - But need to assess income distribution changes → need Gini coefficient → worsening Gini implies ↑ in real per capita income overstates improvement in material SOL

- Need to consider composition of GDP changes → but unlikely for SG that GDP ↑ due to increased production of military goods and not consumption goods
- Growth → more tax revenue → govt can spend more to help residents, especially the lower income → improves material SOL for the average resident (EV: need data on government income redistribution)
- Inflation was negative → real value of savings ↑ → able to consume more → material SOL ↑
 - But depends on which components in the basket of goods caused the deflation. If deflation was due to fall in COE & property prices while core inflation on items like food and public transport prices rose, ↑ in real GDP would overstate extent of improvement in material SOL.
- Unemployment at 1.9% is low → most have jobs and income → able to consume → can maintain SOL
 - More useful statistics to measure CHANGE in SOL would be the CHANGE in unemployment rate
 - More useful statistics would be to consider resident unemployment rate rather than overall unemployment rate which includes unemployment rate of foreigners in SG which tend to be lower → may understate extent of unemployment woes & hence decline in material SOL of residents in SG.
- **Assess how far the statistics point towards an improvement in non-material SOL**
 - Growth → more tax revenue → govt can improve the education, healthcare, security → non-material SOL improves. (EV: need data on changes in govt. spending and what the govt is spending on)
 - But growth can come at the expense of longer working hours → less leisure time → non-material SOL worsens (EV: need data on average working hours)
 - But growth → more economic activities → can lead to more pollution → non-material SOL worsens. (EV: need data on PSI)
 - Low unemployment → less stressful → non-material SOL improves.
 - But implies more are working → lower average leisure hours & more work-related stress → non-material SOL worsens (EV: need data on stress levels)

Synthesis

- These statistics points towards a strong likelihood of improvement in material SOL in SG but lack the ability to shed any more conclusive light on whether non-material SOL improved in SG. Other more comprehensive composite indicators such as HDI or a range of complementary data are needed.

	Knowledge, Application/Understanding and Analysis	
L 3	For an answer using analysis to examine the extent to which these statistics show an improvement in the standard of living of in Singapore. Good and balanced analysis that considers both material and non-material aspects of SOL. Answer is well-contextualised.	8-10 (9)
L 2	For an answer giving a largely descriptive explanation on the extent to which these statistics show an improvement in the standard of living of in Singapore Lopsided analysis. Weak consideration of the Singapore context.	5-7 (6)
L 1	For an answer that shows knowledge of how the statistics show an improvement in the standard of living in Singapore	1-4 (3)
E3	For an answer that arrives at an analytically well-reasoned judgment about whether the statistics show an improvement in the standard of living of in Singapore.	4-5
E2	For an answer that makes some attempt at a judgment about whether the statistics show an improvement in the standard of living of in Singapore.	2-3
E1	For an answer that gives an unsupported evaluative statement(s) about whether the statistics show an improvement in the standard of living of in Singapore.	1

5.

In 2010, the Economic Strategies Committee recommended that Singapore focus on productivity-driven growth. While productivity rose initially, productivity growth was negative in 2014 and 2015. In response, the Singapore budget 2015 has extended the existing policies to drive productivity growth such as the Productivity and Innovation Credit (PIC) scheme.

Discuss the extent to which Singapore should depend on its productivity drive to achieve its macroeconomic aims. [25m]

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

Thesis: Productivity Drive helps to achieve macro aims.

- 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 $\downarrow \rightarrow$ COP $\downarrow \rightarrow$ downward shift of AS curve/SRAS $\uparrow \rightarrow$ actual economic growth + \downarrow cost-push inflation. This is especially helpful to Singapore given her tight domestic labour market.
- Moreover, productive capacity \uparrow as the economy is able to produce a greater quantity of goods and services \rightarrow outward shift of AS / LRAS $\uparrow \rightarrow$ potential growth
- Illustrate and explain the outcome using an AD-AS diagram – showing a \uparrow in LRAS leading to a \downarrow in GPL and \uparrow in Y – both actual and potential growth is achieved.
- Growth leads to job creation $\rightarrow \downarrow$ cyclical unemployment
- \uparrow in productivity $\rightarrow \downarrow$ COP $\rightarrow P_x \downarrow \rightarrow$ since demand for SG's exports is price elastic due to the availability of close substitutes produced by other countries, with a \downarrow in price of exports in foreign currencies, it will result in a more than proportionate \uparrow in Qd for exports in foreign currencies and a significant increase in DD for exports in SGD \rightarrow export revenue in SGD $\uparrow \rightarrow$ ceteris paribus, BOT improves. This is important for SG as X is a major component of GDP/AD \rightarrow current account and BOP improves
- A more productive workforce attracts more FDI (e.g. into Aerospace & Pharmaceutical industries). As it results in lower unit labour costs of production \rightarrow highly productive labour acts as a magnet for foreign investment in the country $\rightarrow \uparrow$ inflow of FDI \rightarrow improve financial & capital account \rightarrow long run capital accumulation $\rightarrow \uparrow$ in productive capacity \rightarrow potential growth. Furthermore, \uparrow leads to AD \uparrow in SR \rightarrow actual growth + \downarrow demand-deficient unemployment.
- If measures are taken to retrain workers (e.g. via Productivity and Innovation Credit (PIC) grants and the Workfare Training Scheme (WTS)) \rightarrow workers equipped with skills in demand in our higher value added industries \rightarrow structural unemployment \downarrow .
- 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. This is, the \uparrow in LRAS will help to dampen the DD-pull inflation in the long run.
- Higher labour productivity can help increase wages of previously low-skilled workers \rightarrow may allow for a more inclusive growth.

Anti-Thesis: Productivity Drive ineffective/insufficient to achieve macro aims.

- Productivity drive not working in recent years due to on the ground challenges
- Higher labour productivity via labour replacing automation can cause structural unemployment and not necessarily lead to a more inclusive growth if displaced workers cannot pick up new skill sets required to be employed.
- Need to rely on alternative policies to achieve macro goals, especially when faced with demand and supply shocks.
- To achieve low inflation, while productivity reduces cost push inflation, a strong ER is still needed to keep out imported inflation given the nature of our economy. Other long-run supply policies such as enhancing infrastructure (Tuas Mega port, T4 & 5, new MRT lines, etc) are still needed to prevent supply-side bottlenecks and demand-pull inflation.
- A strong ER & other SSP are also needed to help SG achieve sustained economic growth. Potential growth is needed for room for future actual growth while exchange rate policy of a stable Sing dollar is needed to keep exports competitive and our current attractive as an investment destination.
- Trade policies are needed to continue to diversify & mitigate adverse effects of globalisation on our macro aims such as contagion effects and international competition.
- Continued ability to attract FDI & skilled labour lies not only in our productivity drive but other policies such as a low income and corporate taxes and & other pro-business policies.

- Macroprudential policies such as property measures needed to keep cost of living & inflation low.
- Policies like a more progressive tax system, increased transfer payments and more subsidised retaining opportunities are necessary for a more inclusive growth as well.

Synthesis

- Productivity tend to be procyclical & the dips in productivity is not necessarily due to a failure of the existing productivity drive but simply due to the current economic slowdown.
- More difficult to ↑ labour productivity in some sectors such as the retail and construction sectors where it is harder to replace labour with machinery.
- Productivity increases take time to bear fruit & it is good to press on with existing policies.
- Increasing productivity is necessary if SG wishes to continue achieving its macro aims but it is not sufficient to rely only on that. A slew of other policies is needed to achieve her macroeconomic aims.

	Knowledge, Application/ Understanding and Analysis	
L 3	For an answer that appropriate analysis to explain the extent to which Singapore should depend on its productivity drive to achieve its macro. aims. Clear analysis on how higher productivity benefits her four macroeconomic goals. Clear analysis on how (at least two) other well elaborated policies are needed to help achieve her macro. goals.	15 – 20 (18)
L 2	For an answer which gives a descriptive explanation to explain the extent to which Singapore should depend on its productivity drive to achieve its macro. aims. Insufficient analysis on how higher productivity benefits her four macroeconomic goals. Lack depth or scope on how other policies are needed to help achieve her macro. goals.	9 – 14 (12)
L 1	For an answer which shows some basic but largely unexplained knowledge of how productivity drive helps Singapore to achieve its macro. aims.	1 – 8 (5)
E3	For an answer which uses analysis to support the extent to which Singapore should depend on its productivity drive to achieve its macro. aims. E.g. clear analysis of the limitations of the productivity drive to achieve its macro goals. Good consideration of the Singapore context.	4 - 5
E2	For an answer which makes some attempt at an evaluative appraisal of the extent to which Singapore should depend on its productivity drive to achieve its macro. aims.	2 - 3
E1	For an answer which gives a largely unsupported concluding statement or the extent to which Singapore should depend on its productivity drive to achieve its macro. aims..	1

6a) Explain why an economy's pattern of trade might change over time. [10m]

- Define pattern of trade in terms of:
 - Commodity composition of trade – i.e. what type of goods and services are exported and imported.
 - Geographical composition of trade – i.e. whom do we trade with – E.g. China's trade with major trading partners like US and Japan
- Briefly explain how pattern of trade can be account for via the CA theory (note: up to OC will do) before elaborating on how a country's opportunity cost & hence CA & hence pattern of trade can change over time. i.e.

A) Dynamic (i.e. changing) CA; i.e. Supply Factors

- Depletion of resources → lose CA
- Globalisation: ↑ competition from the rest of the world may cause some to lose their CA
- Technological advancements → gain/lose CA
- Govt. policies that help gain CA. *E.g. supply-side policies of tax incentives & subsidies to attract investments to develop a new area of CA*

- Briefly explain how other reasons can account for changes in pattern of trade.

B) Trade Policies

- Free-trade agreements steer trade pattern towards members of the FTAs.
- Protectionist measures (e.g. *tariffs*) ↓ trade with the country on which such measures are imposed

C) Changing Consumer Preferences; i.e. Demand Factors

- *E.g. food scandals in China → ↑ imports of more reputable overseas products (e.g. milk powder from Australia)*
- *E.g. rising affluence → ↑ demand for luxury goods → ↑ imports of such goods (e.g. luxury cars from Germany)*

Knowledge, Application / Understanding and Analysis		
L 3	For an answer using analysis to explain how changing CA and at least one other factor can cause an economy's pattern of trade to change over time. Consider changes in both the "who & what" of pattern of trade. No major conceptual errors/ good grasp of the concepts.	8 – 10 (9)
L 2	For answer that gives a descriptive explanation of how an economy's pattern of trade might change over time. Lacking in either depth or breadth of contributing factors.	5 – 7 (6)
L 1	For an answer that shows some basic but largely unexplained knowledge of how an economy's pattern of trade might change over time.	1 – 4 (3)

b) Discuss whether globalisation is more likely to have a larger impact on unemployment in a small and open economy than a large and less open economy. [15m]

- Define globalisation & unemployment
- Globalisation refers to the integration or inter-connectedness of economies through increased trade flows, capital flows and labour flows.
- Explain how globalisation the various impact unemployment in an economy.
- Analyse whether globalisation is more likely to have a larger impact on unemployment in a small and open economy than a large and less open economy.

Aspect of Globalisation	+ve Impact on Un	-ve Impact on Un
Freer movement of G&S	- Access to foreign markets boost exports → ↓ cyclical uN	- Contagion effects from external shocks → ↑ cyclical uN.

	<p><u>Comparison</u> Small economies with a small domestic market can rely on the relatively much larger external demand to stimulate growth and reduce cyclical unemployment. E.g. SG govt. has been encouraging local firms to go global to increase demand for their products & create more domestic jobs in the process.</p> <p>Small economies tend to lack natural resources. The ability to import from cheaper sources & export to external markets will lower COP & improve their competitiveness. The ability to import resources can also help them develop new areas of CA that they naturally would not have gotten.</p> <p>Small economies tend to lack EOS. Openness gives them the ability to export to external markets, which will lower COP & improve their competitiveness.</p> <p>Large countries can have more natural advantages than small economies and hence may be able to compete better with these natural advantages. E.g. they can avoid the middle-man & transport costs that small economies would have to incur.</p>	<p><u>Comparison</u> Small economies dependent on trade will be more susceptible to these shocks</p> <p>On the other hand, larger economies can turn inwards to buffer the effects by relying more on domestic market.</p> <p>- Competition from overseas → can ↓ demand for local goods → ↑ cyclical uN.</p> <p><u>Comparison</u> More open economies are more vulnerable to competition from foreign G&S. Competition from new imports can lower demand for domestically produced G&S or demise of a local industry → can ↑ structural uN.</p> <p><i>Note: This could potentially affect both small or large economy</i></p> <p>Less open economies are naturally less vulnerable to the contagion effects from external shocks since they rely less on external demand and supply factors in the first place. But for economies who decide to become less open and adopt protectionist measures instead, they may be able to mitigate negative effects of external shocks on unemployment, but this is subjective – depends on things like whether there is retaliatory measures by trading partners</p>
Freer movement of capital	<p>- Inward FDI leading to actual & potential growth → ↓ cyclical uN.</p> <p><u>Comparison</u> Large economies just have as much to gain from these benefits. Large economies with abundance of resources → Many potential areas of CA → Makes it attractive as FDI venue</p> <p>EV: Small economies like SG have been able to build CA in areas it naturally didn't have (e.g. pharmaceutical industry) & hence remain attractive to FDI & create jobs.</p>	<p>- Off-shoring/outsourcing of jobs → structural uN</p> <p><u>Comparison</u> Smaller economies may lack the EOS advantage → firms are more likely to outsource when possible to gain EOS elsewhere → more structural unemployment</p> <p>EV: But a more significant factor influencing where FDI are attracted to would be whether the country has the CA in the area of investment and whether government policies are pro-business.</p> <p>Small economies more affected than larger economies when FDI moves out given their greater reliance on them for actual and potential growth. E.g. FDI tends to be a larger proportion of their AD and productive capacity than larger economies.</p>

	<p>Large economies may also be more attractive to FDI due to the potential to target the domestic market.</p> <p>EV: By building a strong transportation hub, develop a network of FTAs to promote trade openness, SG has been able to overcome her lack of a large domestic market.</p> <p>Small economies who have been able to attract FDI would benefit more from FDI than large economies due to a relatively smaller pool of domestic investment to rely on.</p> <p>Small economies typically would also tend to have less technologies than large economies. Hence would benefit more from the technical transfers FDI bring and the jobs they create.</p>	
Freer movement of labour	<p>- Brain gain → increase potential growth / ease supply side bottlenecks → boost future actual growth + more attractive to FDI → more jobs created in the future → ↓ cyclical uN.</p> <p><u>Comparison</u> Small economies are more likely to “run out” of the desired type of labour than large economies. Hence may have greater benefit from the ability to tap on foreign labour.</p> <p>Large economies can also benefit from these if they are open to foreign labour. E.g. Silicon Valley in USA.</p>	<p>- Brain drain → slow down potential growth → limit future actual growth + less attractive to FDI → less jobs created in the future → ↑ cyclical uN.</p> <p><u>Comparison</u> Not so much about small or large economy. Whichever economy has the jobs or attractive working & living environment will suffer less from brain drain, vice-versa. Hence developed countries tend to be a greater recipient of foreign labour unless they face serious economic problems and are unable to provide job opportunities.</p>

Synthesis: Small or large economy is but one parameter that would influence the impact of globalisation on their economy. The impact of globalisation often has to do with the government policies. E.g. despite being a small economy with less natural advantages, the Singapore government has been able to employ sound economies policies to tap on the employment opportunities globalisation brings and mitigate its negative effect on unemployment as well. Less open economies naturally would be less affected by globalisation – they would suffer less of its ill effects, but also benefit less from what globalisation has to offer.

	Knowledge, Application/Understanding and Analysis	
L 3	<p>For an answer that appropriate analysis to explain whether globalisation is more likely to have a larger impact on unemployment in a small and open economy than a large and less open economy.</p> <p>Clear analysis on how the various aspects globalisation can have beneficial and harmful effects on various types of unemployment.</p> <p>Clear comparison on unemployment impact between the two types of economy</p>	8-10 (9)
L 2	<p>For an answer which gives a descriptive explanation to explain whether globalisation is more likely to have a larger impact on unemployment in a small and open economy than a large and less open economy.</p> <p>Insufficient analysis on the impact of globalisation on unemployment. Insufficient analysis on how globalisation can have a larger/smaller impact on small & open economy vs large & less open economy.</p>	5-7 (6)
L 1	For an answer which shows some basic but largely unexplained knowledge of how globalisation impacts unemployment in an economy.	1-4 (3)
E3	<p>For an answer that arrives at an analytically well-reasoned judgment about whether globalisation is more likely to have a larger impact on unemployment in a small and open economy than a large and less open economy.</p> <p>Clear considerations of the features of the 2 different types of economy in forming the judgement.</p>	4-5
E2	For an answer that makes some attempt at a judgment about whether globalisation is more likely to have a larger impact on unemployment in a small and open economy than a large and less open economy.	2-3
E1	For an answer that gives an unsupported evaluative statement (s) about whether globalisation is more likely to have a larger impact on unemployment in a small and open economy than a large and less open economy.	1