Essay Notes (Economics)

Theme: Survival of Small Firms

Introduction

- To survive means to be able to maintain at least LR normal profits where TR=TC or AR=AC.
- In Extract 3, it is stated there are several hundreds of fish farms. Despite the market being oligopolistic, the existence of many small farms may point towards certain revenue and cost advantages that they may possess.

Since profits must be examined, look at revenue and cost conditions (profit = revenue - cost)

Thesis: Small farms can survive due to their revenue and cost advantages

i. Revenue Strategies

- Provide for a niche market
 - A niche market is a small subset of a market in which a specific product feature is focused.
 - In Extract 3, it is stated that small farms have found ways to raise high quality fish. They use lumpsucker fish instead of chemical pesticides. By catering to a niche group of consumers who are health conscious, demand may rise and even be price-inelastic as such consumers do not mind paying a higher price for pesticide-free salmon. Small farms can then raise price, and yet enjoy an increase in total revenue.

ii. Cost strategies

Banding:

Small farms may band together (while remaining separate entities) to enjoy cost advantages. They may enjoy marketing advantages through bulk purchase of fish feed and fish cages in bulk. Bulk buying is likely to lead to discounts from suppliers, thus reducing the unit cost for each farm. This allows the small farms to save on cost, despite not enjoying economies of large-scale of production.

- <u>Firms in the industry may reach minimum efficient scale at very low levels of output.</u> And the LRAC remains constant thereafter. Therefore, there is no obvious advantage in being large, and both large and small farms can co-exist in the industry. This accounts for the 'several hundreds of fish farms' despite the industry being oligopolistic.
- Different cost structure.

Small farms may have lower total fixed cost with less complex fish cages as well as other less sophisticated technology. They may also incur lower total variable cost by buying fish feed and other raw materials of different quality. This may contribute to a lower MC and AC, thus allowing the small farms to make sufficient profits to survive.

Anti-thesis: Small farms may not be able to survive due to the cost and revenue advantages of large farms

Small fish farms may incur a higher LRAC as they may not enjoy the benefits of large-scale production. The resultant lower profit levels reduce their ability to survive in times of weak demand. And makes them less able to compete with the large firms in terms of R&D and pricing competition.

i. Internal economies of scale of large farms (Cost disadvantages of small firms)

• The large farms are likely to enjoy technical economies of scale. With possible larger supernormal profits and the indivisibility of certain factor inputs, they can invest in more sophisticated machinery such as fish cages and infrared technology. The total cost is spread over a significantly larger output. And with the principle of increased dimension, larger machinery need not lead to a doubling of cost. These lead to a lower unit cost of production. Thus the large firms may be able to price their products at a level below that of small fish farms, making it difficult for the small farms to survive.

Optional Ideas (but should be applied to case):

- Financial economies of scale: Investment in infrastructure and technology in fish farming is likely to be very costly. Small firms may lack the supernormal profits to do so effectively. If they borrow from financial institutions, they are likely to be charged a higher interest rate due to their lack of credit-worthiness. This increases their unit cost of production
- Marketing economies

ii. R&D of large farms leads to even lower unit cost and higher revenue

- The ability of large farms to use their larger supernormal profits to invest in R&D may yield both cost and revenue advantages. R&D can lead to better production methods, with the effect of lowering average cost for every unit of output. This means that the LRAC curve has shifted downwards.
- Moreover, R&D can also lead to an increase in output as well as higher quality and greater varieties of fish, which serves to increase demand and market share further. The higher TR earned is likely to lead to higher profits.

iii. Large farms can use predatory pricing to edge out small farms

• Large farms can deliberately set very low prices (at times even where AR<AC) to edge out rivals including smaller farms. The former can do so as they can rely on their past supernormal profits.

A possible conclusion:

All in all, small fish farms seem to have survived rather well, as evidenced by the 'hundreds of fish farms' existing in the industry. This is most likely due to their differing cost structures and the limited economies of scale in the industry. Perhaps those can survive well are the ones that cater to niche markets. However, in times of fluctuations in demand and use of predatory pricing by large farms, there is no guarantee that small family-run farms can continue surviving since they lack huge supernormal profits to wade through such adversities.

Theme: Relevance of Elasticity Concepts

Introduction – Q is specific to revenue changes

- Revenue = Price X Quantity
- In Extract 4, it is indicated that there is a 'revenue loss' for the year as well as a 'downward price pressure'.

Thesis: Relevant

- i. Relevance of Price Elasticity of Demand in explaining a change in TR.
- In Extract 4, supply of wild salmon rose due to good harvest.
- Since those who consume wild salmon are mainly 'coastal, upscale consumers' i.e possibly the higher income group, demand for wild salmon may be price inelastic because it takes up a relatively small proportion of their income.
- As shown in Figure 2, as supply increases, the supply curve shifts from SS0 to SS1. As demand for wild salmon is price-inelastic, the fall in price from P0 to P1 leads to a less than proportionate rise in quantity demanded from Q0 to Q1. Therefore, TR of wild salmon farmers fell since Area C is less than area B.
- ii. Relevance of Cross Elasticity of Demand
- From Extract 4, it is indicated that wild salmon producers face stiff competition from farmed salmon producers, implying that wild salmon and farmed salmon are close substitutes. This is further corroborated in Extract 1 where 'the primary benefit of farmed salmon is in price and availability'. So the value of CED is likely > 1.
- Increased competition may lead to lower prices of farmed salmon. This causes the demand for wild salmon to fall more than proportionate. From Figure 3, the huge leftward shift of the demand curve leads to a fall in both price a nd quantity, with TR falling drastically from area 0P0aQ0 to 0P1bQ1.





Anti-thesis: Not relevant (any 1 or 2 ideas well-discussed)

1. Income Elasticity of Demand

- There is no evidence in the case material about changes in income, thus, effect of YED cannot be examined.
- 2. There are factors in case material other than demand elasticity concepts which affect TR
 - In Extract 4, the US\$ has strengthened, especially against Japanese yen. This means that foreigners will need more foreign currencies to buy one unit of US\$ and Alaskan salmon will now be relatively more expensive to them. This is likely to cause the demand for Alaskan wild salmon to fall, leading to a fall in TR. This is independent of demand elasticity values.
 - No ceteris paribus in reality changes in other relevant variables not found in case material might have affected TR too.
 - In the analysis of effect of PED, TR was likely to have fallen due to price-inelastic demand. But, if concurrently, there is a rise in incomes, the increased demand could instead lead to higher TR.

Evaluation: Therefore, there is a need to look at changes in all variables simultaneously.

- Values of elasticity may change
- Value of <u>PED</u> may change: When producers manage to penetrate lower-expense markets, demand may be price-elastic in these countries since it is likely to be a larger proportion of such consumers' incomes. Thus, producers must be aware that the effect on TR can change with differing markets.
- Value of <u>CED</u> may also change: Value of CED was assumed to be greater than 1. However, as consumers become more aware of the superiority of wild salmon over farmed salmon, the CED value may become smaller. As a result, TR of Alaskan wild salmon producers may fall less even if farmed salmon becomes cheaper. Synthesised Conclusion

A possible conclusion:

While elasticity values can explain the changes in TR to some extent, farmers must be mindful that factors other than elasticity can affect the demand and/or supply of wild salmon. Moreover, even PED, CED and YED can affect TR differently. To compound the problem of predicting effects on TR, values of elasticity do change with firms' marketing efforts, people's awareness of the benefits of consuming wild salmon as well as changes in economic conditions. Hence, it is essential to look at changes in all variables simultaneously.

Theme: Relevance of Elasticity Concepts

Milk prices that were at record-high levels in 2014 have abruptly plunged this year. Economic slowdown in China, the abolition of EU dairy-production quotas and record low prices of cattle feed are some of the factors that account for the low milk prices.

(a) Explain the likely impact of the abovementioned factors on milk farmers' revenue. [10]

[15]

(b) Evaluate the impact of the falling milk prices on related markets.

Candidates are expected to explain the impact of the three main events mentioned in the preamble (1. Economic slowdown 2. Abolition of EU dairy-production quotas 3. Low price of cattle feed) on total revenue. Use of demand and supply analysis with an explanation of the price adjustment process is expected. Candidates may choose to explain the impact of these changes in either an isolated (through the use of elasticity concepts) OR compounded (through simultaneous shifts) manner.

Introduction

- Define key terms:
 - Demand: willingness and ability to consume the good over a range of prices o Supply: willingness and ability to produce the good at a range of prices
 - Total revenue is defined as the product of price and quantity.
- The events mentioned in the preamble have affected the demand and supply and thus total revenue of milk farmers.

Body

1. Effect of the 'economic slowdown in China' on market for milk

- Economic slowdown is usually associated with a period of falling incomes.
- As milk is a normal good, as incomes fall, purchasing power falls and consumers are less
- willing and able to purchase milk. Thus, demand for milk falls.
- Define YED & explain that 0<YED<1 for milk as it is a necessity. Thus when income falls, demand falls less than proportionately.
- Ceteris paribus, total revenue of milk farmers' falls.

2. Effect of 'abolition of EU dairy-production quotas' on market for milk

- A dairy-production quota is a quantitative limit on the amount of milk that a farmer is legally able to produce for a given period of time.
- When quotas are removed, supply of milk is likely to increase as farmers are incentivised to produce more milk as they may gain greater revenue.
- Ceteris paribus, the effect on total revenue depends on the relative price elasticity of demand for milk.
- As milk is habitually consumed and constitutes a small proportion of an average consumer's income, the demand for milk is likely to be relatively price inelastic.
 - Thus, an increase in supply, which will cause a fall in price of milk, ceteris paribus, will lead to a less than proportionate rise in quantity demanded.
 - Diagram showing changes in TR: Overall, total revenue of milk farmers will likely fall.

2. Effect of 'record low prices of cattle feed'

- Since cattle feed is a factor of production used in the production of milk, when the price of cattle feed falls, cost of production falls and thus supply of milk rises.

- As the demand for milk is likely to be price inelastic (as analysed above), ceteris paribus, total revenue of milk farmers will likely fall.

3. Price adjustment process

- Overall, there is an increase in supply (from SS0 to SS1) and a fall in demand (from DD0 to DD1).

- Assuming that the <u>increase in supply exceeds the fall in demand</u> as demand is likely to fall less than proportionately when income falls, at initial equilibrium price there is a surplus as quantity supplied exceeds quantity demanded.

- This puts a downward pressure on prices and overall price falls to P1 where the surplus is eliminated.

Overall, price has fallen to P1 and quantity has increased to Q1.

- From Figure 1, the fall in total revenue due to the fall in price is greater than the rise in total revenue due to the rise in equilibrium quantity. Thus, **overall total revenue falls.**



Figure 1 Market for Milk

Part (b)

Candidates are expected to explain the effects of the falling milk prices on consumers and producers in <u>at least</u> <u>3</u> distinct related markets (both a demand and supply relationship should be explored). This may be expressed in terms of the effects on price, quantity and total expenditure/revenue. Consumer and producer surplus may also be explained to assess the impact from a consumer's and/or producer's perspective. Finally, evaluative comments regarding the extent of the effect on the related market should be touched on.

Introduction

- The falling prices of milk have effects on its related markets especially in the substitute and product markets.
- However, the extent of the impact may differ.

Body

Related market 1: Substitutes of milk

- Define cross elasticity of demand.
- CED of milk and its substitutes will likely be >0 (or <1: requires justification) as they fulfil the same need for calcium. A fall in the price of milk will thus increase quantity demanded for milk and decrease demand for its substitutes.
- Substitutes of milk include alternatives to milk e.g. nondairy creamers, soy milk, almond milk, rice milk, coconut milk, milo etc.
- When price of milk falls, consumers switch away from consuming milk-substitutes to consuming milk as it is relatively cheaper and thus demand for milk substitutes falls from DD0 to DD1.



From Figure 2, a fall in demand creates a surplus at initial equilibrium price and puts a downward pressure on prices. **Overall, price and quantity falls to P1 and Q1 respectively. Total revenue falls as well.** Effect on CS and PS may be explained as well.

Possible Evaluation:

- Extent of impact will depend on the degree of substitutability between milk and its substitutes (strong vs. weak substitute); some won't switch to consuming milk aslactose intolerant etc.
- Also depends on availability/ease of accessing substitutes.
- Differing impact in SR vs LR: in the LR, consumers able to switch to substitutes easily compared to the SR so that impact in the SR may be limited.
- Other factors may impact final impact on substitute market (e.g. taste and preferences).
- Even though CED value between milk and a given substitute might be low, if the price of milk falls significantly, consumers may still be inclined to switch away from consuming milk substitutes to consuming milk as it is relatively cheaper. Thus, the demand for milk substitutes may still fall significantly.

Related market 2: Products made from milk (Dairy products)

- As milk is a factor of production of dairy products (or any other final product that requires milk), the fall in price of milk will lead to lowered cost of production of dairy products.
- When cost of production falls, producers are more willing and able to increase quantity supplied of milk at every price.
- This leads to an increase in supply of dairy products from SS0 to SS1.
- Overall, price falls and quantity increases.
- Effect on TR will depend on PED of dairy product (+ diagrammatic analysis)
 - If PEDdairy product >1: **TR/TE will rise.**
 - If PEDdairy product <1 : **TR/TE will fall.**
- Possible Evaluation:
 - Extent of impact will depend on the importance of milk as a factor of production for these products *C* thus affecting extent of fall in COP.
- Also depends on substitutability of milk as a factor of production.

Related market 3: Complements of milk

- CED of milk and its complements likely to be <0. The falling price of milk will thus lead to an increase in demand for its complements.
- Examples of complements of milk include goods that are consumed jointly with milk e.g. Oreos, cookies, cereal etc.
- When price of milk falls, more milk will be consumed thus the demand for its complements rises from DD0 to DD1.
- Overall, price and quantity increases thus TR/TE increases unambiguously.

Possible Evaluation:

Weak complementary relationship between milk and its complements (quite one-sided) thus impact is likely to be negligible.

Related market 4: Competitive Supply

- Another related market to milk is the beef market, which is in competitive supply with milk.
- Given limited resources, farmers typically choose between raising cattle for milk or beef production as they are in competitive supply.
- When the price of milk falls sharply, famers are less incentivised to channel resources to the production of milk and will channel resources to raising cattle for beef production instead.
- Thus, supply of beef rises, ceteris paribus. This causes a rightward shift of the supply curve from SSO to SS1.
- Overall price of beef falls and quantity rises.
- The effect on TR depends on the relative PED for beef. Since beef is not typically habitually consumed and has a low degree of necessity, the demand for beef is likely to be relatively price elastic. Given a fall in price, quantity demanded rises more than proportionately and thus total revenue rises.

Possible Evaluation:

- Weak relationship that may not hold for all breeds of cattle as milk cows are typically not slaughtered for beef.
- Farmers are unable to respond to falling milk prices quickly thus these events may only be apparent in the long run.



Conclusion

- Overall, fall in milk prices has both positive and negative impact on related markets
- Likely to have the greatest impact on dairy product markets.
- However, the degree of impact depends on the closeness of relationship between the 2 goods and the importance of milk as a factor of production etc.
- Moreover, there are various factors that may affect the market for related goods besides the price of milk alone.
- Finally, the impact on related markets will differ across countries due to differing tastes and preferences and income levels.

Theme: Relevance of Elasticity Concepts

The terrorist attack on New York on 11 September 2001 caused a worldwide recession and an increased fear of flying. Airlines also implemented more security measures in response to the terrorist threat.

Discuss the usefulness of demand elasticities concepts to an airline company.

[15]

Analysis: The 3 demand elasticities are PED (Price Elasticity of Demand), YED (Income Elasticity of Demand) and CED (Cross Elasticity of Demand)

Introduction:

- State the aim of an airline company to maximize profits through increasing revenue or reducing cost.
- Define elasticity of demand and highlight that it can influence revenue and thus, its usefulness in terms
 of pricing and non-pricing policies that an airline company can undertake to increase its revenue and
 profits.

Thesis: Explain the relevance of PED, CED and YED to an airline company.

YED

- Define YED and briefly explain why YED for flights tend to be positive. This information is in turn useful to the airline companies as it allows them to make plans regarding the frequency of flights to be offered or to reallocate their resources to focus on destinations consumers are likely to consider given a fall in their incomes during the recession.
 - Due to the recession, the demand for travel will decline particularly long haul flights. This will have an adverse effect on the airline company's TR. The airline company expecting such a fall in demand for its long haul flights will also start reducing the number of flights and operation staff. This was witnessed in SIA's reduction of flights to US and Europe, coupled with mandatory no-pay leave for some of their pilots.
- To minimize the adverse effect on its revenues and profits, the airline may also consider appropriate measures such as offering more economical/budget flights (assuming it is also operating an existing budget airline wing) or target nearby destinations or destinations which are growing. This can be seen in the shift of flights from long haul destinations to growing regional destinations.
- YED could be useful also to aid the airline company in identifying different consumer groups and marketing to them. By recognizing that certain groups could consider travel as necessities (business travel), such flights could continue (or be promoted), while other destinations (holiday locations) could have a reduction in frequency.

PED

- Define PED and briefly explain that demand for air travel tends to be price elastic. Provide reasons (e.g. expenditure on air travel constitutes a substantial amount of consumer's income, availability of close substitutes where consumers can choose other forms of transport (depending on the destination) or other airlines flying similar routes.
- This information is useful to an airline company's pricing policy. Explain how a price reduction will help to increase TR when PED >1. Thus, appropriate measure that the airline company can adopt is to set competitive prices, especially during non-peak periods. Illustrate with diagram to show the effects of a reduction in prices on TR.
- If the airline company wishes to increase its price to increase its TR and profit, cet. par, it can try to differentiate its product in terms of quality and uniqueness of service (give an appropriate eg or two). This will help lower the PED value for its airline services. Explain how with a PED <1, an increase price will lead to higher TR.

• Define CED and highlight that the information and values of CED will enable to recognize the substitutes and complements to its products. This will in turn be useful for the airline company's decision in making appropriate marketing strategies to increase its revenue and profits (or prevent adverse impacts on their revenue and profits).

Provide examples to elaborate on and illustrate the above point.

- For e.g. high substitutability between the different airlines' products/services (CED>1) suggests that any price cuts by rival companies will have an adverse effect on the demand for the airline company's products/services and thus its revenue.
 - This may in turn call for appropriate strategies to be undertaken to counter the fall in demand such as matching price cuts of the rivals in the short run.
 - In the long run, the airline company will have to adopt strategies to reduce the degree of substitutability between its service and that of rival airline companies
- For CED<0, this suggests that the goods/services are complements.
 - The airline company can capitalize on this information by establishing business partnerships with these related firms to increase its revenue and profits. For example, it may useful for an airline company to partner hotels and travel agencies as these are complements to air travel.

CED

Anti-thesis: Limitations of strategies and/or the usefulness of elasticity concepts. Elasticity of demand concept assumes ceteris paribus assumption. However, ceteris paribus assumption does not hold.

PED:

- For example, seeing that the demand for its airline services is price elastic, the airline may decide to cut price to increase total revenue. However, its pricing policy may not achieve its desired aim of increasing its total revenue if cutting prices results in a price war. Should a price war result and persists, the airline company and all other airline companies could end up making smaller or even sub-normal profits.
- PED reflects how quantity demanded will change when price changes, this assumes that demand is unchanged. However, in this scenario, demand has fallen significantly, so a fall in price will be unlikely to raise total revenue, but more to dampen fall in revenue. PED becomes less useful.
- PED application is meant to increase/maximize revenue but without cost considerations. However, it is difficult to ascertain where the profit maximizing point is. For example, in adopting non-pricing strategies such as advertising to brand its product, total cost is also likely to rise. Thus profits will only rise if increase in TR > increase in TC.

YED:

- May be used to predict expected fall in demand for different routes of an airline company, but may not be able to alleviate the fall in demand since inferior goods are unlikely to be seen. Thus majority of airlines (with the exception of budget airlines) are likely to see a fall in demand.
- Also, previously thought of necessities like business travel actually saw huge reductions in demand as companies suffering from the recession face cost cutting measures and opt to tele-conference instead of meeting face to face. This therefore also reflects computation difficulties for companies as a fall in income may cause certain necessities to become luxuries in the situation of a recession.

CED:

• With numerous competing airline rivals, it will be extremely difficult for any particular airline to monitor and match price cuts for all substitutes. Accuracy of the data may be in question due to the dynamism of the market, with frequent entries and exit of firms (substitutes and complements)

Conclusion

Evaluation: Comment on the extent of the usefulness of the concepts, e.g. whether some concepts are more useful than others. Could argue that YED may be most useful in terms of predicting consumption from consumers and thus allow companies to plan routes and hiring policies. CED's difficulty due to the constant changes in terms of pricing of rivals may make the actual computation of values extremely difficult and thus make the strategies ineffective

Theme: Pricing Decisions + Desirability

(a) Explain how, in economic theory, a monopolist would determine the pricing and output decision that would maximise profits.

Introduction

- A monopoly is the producer of a unique good or service for which there are no close substitutes and there are complete barriers to entry (natural or artificial) in this market structure.
- Hence, for a pure monopoly, the firm is the industry.
- The demand curve facing the firm is the market demand curve. The monopolist is able to determine either the price or the output but not both. The negative slope of the demand curve implies that it faces a trade-off between the price it charges and the quantity it sells. The monopolist cannot raise price without losing quantity demanded or gain quantity demanded without charging a lower price. This means that in order to sell more of his products, he needs to reduce his price.

Define profits: profits =TR-TC

- Most firms traditionally aim to maximise profits. To do so, the monopolist will produce at the <u>output</u> where MC = MR. The profit maximizing output Q_e is attained at the output level where marginal revenue (MR) and marginal cost (MC) meets. (i.e. MR=MC). At the profit maximising output level, the firm will set the price Pe as seen from the AR / demand curve since the demand curve highlight the max. price that consumers are willing and able to pay for the good.
- Example of monopolies include natural monopolies in the rail / public utilities industry or in the case of Singapore, MediaCorp in the provision of free to air TV where there is complete barriers to entry (eg. exclusive licence) with no close substitutes and imperfect knowledge (e.g., quality of transmission etc.)

Body:

Significance of output where MC=MR

At output where MC < MR

 At output Q₁, MC of bQ₁ falls short of MR of aQ₁. The last unit of output produced adds more to the firm's revenue than it does to the firm's costs. Firms that increase production will see that the addition to revenue earned exceeds the additional cost of producing those extra units thereby enjoying higher levels of profits.. They should increase production to maximise profits.



[10]

At output where MC > MR

• At output Q₂, MC of cQ₂ exceeds MR of dQ₂. The last unit of output produced adds more to the firm's costs than it does to the firm's revenue. Production of that unit actually reduces the firm's total profits. To maximise profits, the firm should reduce production.

At output where MC = MR

• At output Q_e, MC exactly equals to MR (eQ_e). The last unit of output produced adds as much to the firm's cost as it does to its revenue. It is not possible to increase profits further by either increasing or decreasing production. In other words, this is the point where total profits are maximised.

As in Figure 1 above, the profit-maximising output is at Q_e where Marginal Cost (MC) = Marginal Revenue (MR). The price is determined by the demand curve. On the demand curve corresponding to the profit maximizing output Q_e , is the price P_e that will be charged.

- In addition, the shaded rectangle gives the firm's profits at this price-output combination. At output Q_e, Total Revenue is given by 0PefQe while Total Cost is given 0ACgQe and profits in this case, (SNP), is given by the shaded area PefgAC which is the maximum possible.
- At any other output levels where MR is <u>not equal</u> to MC, profits are still enjoyed but smaller (eg at output Q₂, MR < MC, profit is given by area wcyz).

Conclusion:

For a pure monopoly, equilibrium means that there is no incentive to either increase or decrease his output. This happens when profit is maximised i.e. the greatest positive difference between total revenue and total costs or when MC = MR.