

## 2015 Year 6 Preliminary Examination – Market Structure

- Explain how the degree of barriers to entry can affect the price and output decision of firms. [10]
- Globalisation affects the degree of barriers to entry faced by firms as well as their access to world markets.

Discuss the extent to which globalisation necessarily brings about more advantages than disadvantages for firms. [15]

### Part (a) Suggested Answer

#### Introduction:

Barriers to entry (BTE) refer to any impediment that prevents new firms from competing on an equal basis with existing firms in an industry. The degree of BTE is an important determinant in firms' pricing decision because it affects the number of firms in the industry. In turn, this plays a part in determining how much market power a firm has in terms of setting its prices or output. Specifically, it determines whether the firm is able to set its own price or take price as given by the market demand and supply.

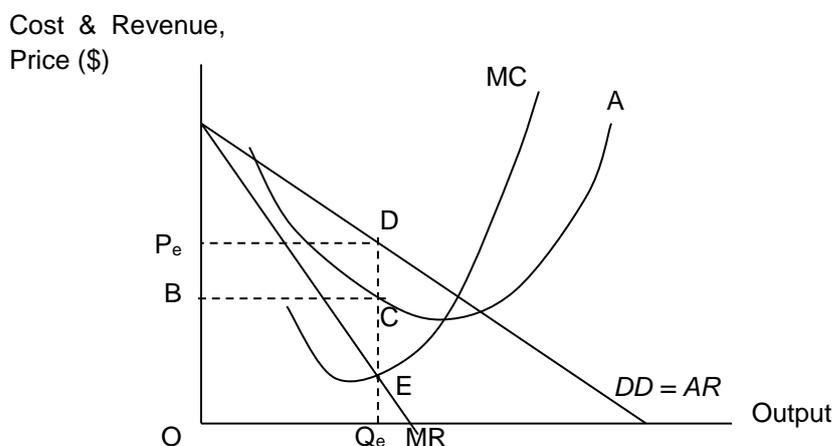
#### Development:

##### 1. Market structure with high BTE – Monopoly/ Oligopoly

Industries with high BTE approximate that of monopoly. In this case, high BTE leads to a situation where there is one dominant firm in the industry. With imperfect information and unique product sold by the monopolist, the firm has significant market power and is able to set prices which are further enhanced by their high barriers to entry.

Examples of barriers to entry are large economies of scale in production, network effects and government policies.

With high BTE, in the extreme, a single firm (pure monopoly) or a dominant firm exist in the market. With only a single or single dominant firm in the market, the product is unique or with no close substitutes. The demand for the product is relatively price inelastic. The monopoly will be able charge high prices to earn more and even possible to earn supernormal profits in the long run as rival firms can be prevented from entering the market to erode away the profits.



**Figure 1: Price and output of a monopolist**

With reference to Figure 1, the profit-maximising condition, where  $MR = MC$  and  $MC$  cut  $MR$  from below, occurs at point E. The monopolist restricts output at  $OQ_e$  and proceeds to charge the maximum price ( $OP_e$ ) that consumers are willing and able to pay at that output level.

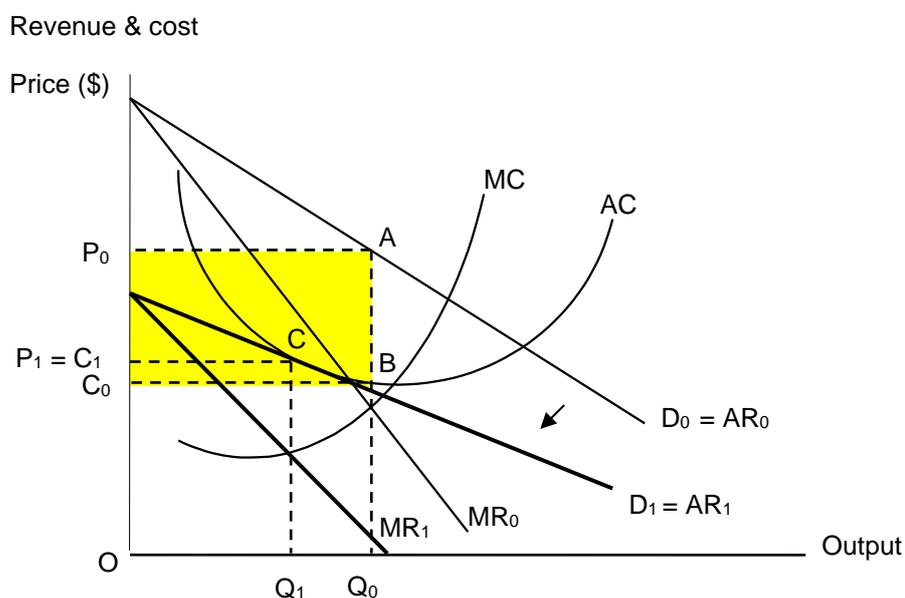
With high barriers to entry, the monopolist can keep its rivals out and thus able to continue setting high prices which enables her to continue earning supernormal profits even in the long run.

## 2. Market structure with low BTE – Monopolistic Competition

Industries with low BTE approximate that of monopolistic competition. In this case, low BTE also leads to the case where there are many small firms. Since the products offered by different firms are slightly differentiated, a firm that raises its price will not lose all its sales. Thus, each firm has some control over price and faces a downward sloping demand curve. However the firm's demand curve is relatively price elastic as each firm faces competition from a large number of close substitutes. A relatively small increase in the price of that product will lead many consumers to switch to one of the many close substitutes.

In the long run with low barriers to entry, firms will enter or leave the industry such that a monopolistic competitive firm will make only normal profits. For example, if existing firms are making supernormal profits, others will enter the industry, positioning themselves to take away customers from the most profitable sellers.

Assume that existing firms are earning supernormal profits in the short run



**Figure 2: Adjustment towards long-run equilibrium position**

Referring to Figure 2, an existing firm faces a demand curve  $D_0$ , and is maximising profit by producing at output  $Q_0$  where  $MR_0 = MC$ . The price  $P_0$  ( $AR_0$ ) is higher than the average cost and thus, the firm earns supernormal profits represented by the area  $C_0P_0AB$ . New firms will be attracted to enter the industry with low barriers to entry.

As more firms enter, the existing firm will have more competitors, so demand for its products decreases and becomes more price elastic. The demand curve shifts to the left and becomes gentler.

This process continues until the demand curve  $D_1$  is reached which is tangential to the AC curve at point C. At this point, the firm maximises profit by producing at  $Q_1$  where  $MC = MR_1$  and the price  $P_1$  is just sufficient to cover average cost. Consequently, the MC firm earns only normal profits in the long run.

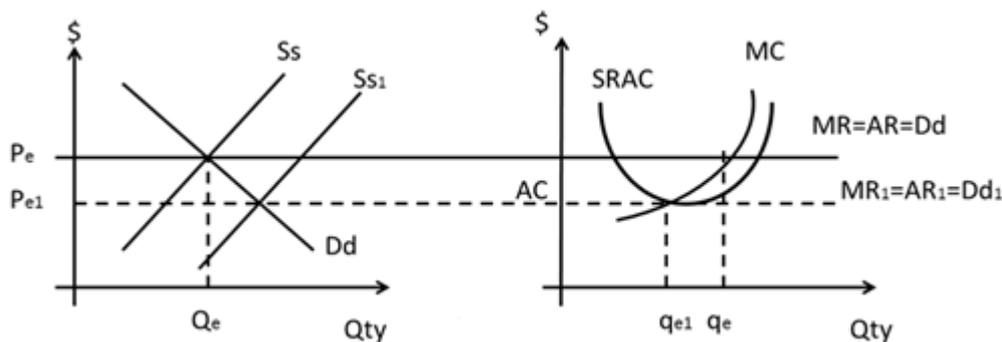
Although MC firms can set price, low BTE causes the firm's demand to fall, leading to a fall in price. Thus, the MC firm charges a price and produce at a quantity that is likely to be lower than that in the short run.

### 3. Market structure with no BTE – e.g. Perfect Competition

Industries with no BTE approximate that of perfect competition. In this case, the absence of BTE is likely to lead to a situation where there are many firms in the industry. In a perfectly competitive industry, where product sold is homogeneous and with the existence of perfect knowledge together with no BTE, firms are price takers in the market.

If a firm charges more than the market price, buyers will go elsewhere. The firm may sell any quantity it likes but only at the market price.

Assume the PC firms are making supernormal profits in the short run



**Figure 3a: Perfectly Competitive Industry**

**Figure 3b: Perfectly Competitive Firm**

Assume that initially, the PC firms take the initial market price  $P_e$  determined by the market forces of  $DD$  and  $SS$ . Existing PC firms are making supernormal profits, hence new firms will want to enter the industry. This is made possible as there are no barriers to entry for the industry. Market supply thus increases, as reflected by a rightward shift of the supply curve from  $S_s$  to  $S_{s1}$ , causing the market equilibrium price to fall from  $P_e$  to  $P_{e1}$ , as observed in Fig. 3a.

Increase in the total number of firms will translate into higher competition for existing firms in perfect competition; each firm will now be selling fewer quantities than before, *ceteris paribus*.

In Figure 3b, prior to entry of new firms,  $AR$  is greater than  $AC$  at the profit maximizing output  $q_e$ . Firms will be earning supernormal profits, which is area of  $TR(AR \cdot q_e)$  minus area of  $TC(AC \cdot q_e)$ . With the increase in market supply, price falls and since these firms are price takers, individual firm's demand curve will now shift downwards from  $D_d$  to  $D_{d1}$ . Holding marginal cost constant, in order to maximize profits with falling price  $P_e$  ( $AR$  and  $MR$ ) to  $P_{e1}$  ( $AR_1$  and  $MR_1$ ), firms will lower equilibrium output from  $q_e$  to  $q_{e1}$ . Failure to adjust when price and marginal revenue fall will result in negative marginal profit at the original output level  $q_e$ . New firms will continue to enter and increase total market supply of the good until eventually the price falls to  $P_{e1}$  where the firms earn only normal profit. At this point, there will be no further entry of firms and the market supply would have shifted to  $ss_1$ . Each firm

will now produce at a lower output level than before ( $q_{e1}$ ) where MC cuts  $MR_1$  from below and  $AC = AR_1$ , earning normal profits.

In the case for perfectly competitive firms, the absence of BTE implies that firms take their price as given by market demand and supply. At this price, they can choose to sell the quantity they desire.

**Conclusion:**

Thus BTE is an important factor affecting a firm's pricing decision and in particular to the type of profits it can possibly earn in the long run.

Level	Descriptors	Marks
L3	A well-developed and rigorous explanation showing clearly the impact of entry into the industry when existing firms make supernormal profits in the short run, and link clearly to pricing and output decision for all of the following: (i) no BTE (ii) low BTE (ii) high BTE	8-10
L2	An underdeveloped explanation of two or more of the following: (i) no BTE (ii) low BTE (ii) high BTE affecting a firm's pricing and output decision; lacking in rigour.  OR  A well-developed explanation of (i) no BTE or (ii) weak BTE or (iii) high BTE affecting a firm's pricing and output decision.	5-7
L1	For an answer which shows some knowledge on how the existence of BTE can affect a firm's pricing and output decision. Answer contains errors and inaccuracies.	1-4

**Part (b) Suggested Answer**

**Introduction**

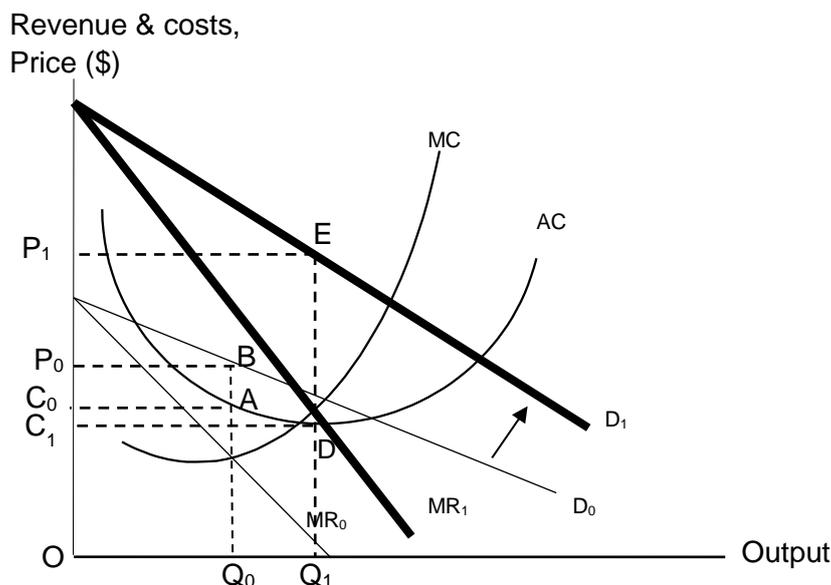
Globalisation refers to the increasing integration of national economies in terms of financial flows, trade, movement of factors of production, ideas, and changes in information and technology. It can have an impact on firms' cost, revenue (& in turn profits). As such, the presence of globalisation can bring about both advantages and disadvantages for firms. Globalisation can help to lower BTE if foreign firms are allowed greater access into domestic markets. With greater competition, this translates to a fall in demand for the products offered by the incumbents, causing a fall in revenue. On the other hand, globalisation may raise BTE as incumbents can possibly move to other countries/markets more easily due to fewer restrictions, leading to higher demand and consequently an increase in revenue. Moreover, globalisation allows firms to tap on foreign sources of technology through foreign direct investment and cheaper sources of labour, hence lowering costs of production. Whether profits eventually increase or decrease would depend on the nature of the economies, government policies, as well as the market structure which the firm is operating in.

## Body

**Thesis: Yes, globalisation brings more advantages than disadvantages for firms. Why? How so?**

Globalisation leads to the **lowering of both trade and non-trade barriers**, as well as **promote greater technology transfer** and **flow of labour**. Domestic firms can benefit from the opportunities afforded by these trends.

Greater access to foreign markets provides an opportunity for domestic firms to increase their exports. This **increases demand for their products and hence is likely to translate to higher revenues**, ceteris paribus. Referring to Figure 4 below, an existing firm faces a demand curve  $D_0$ , and is maximising profit by producing at output  $Q_0$  where  $MR_0 = MC$ . The price  $P_0$  ( $AR_0$ ) is higher than the average cost and thus, the firm earns supernormal profits represented by the area  $C_0P_0AB$ . With access to more markets, the existing firm would experience an increase in demand for its products from  $D_0$  to  $D_1$ , ceteris paribus. The profit maximising output where  $MC=MR$  and where  $MC$  cuts  $MR$  from below is now higher at  $Q_1$ , with the firm charging a higher price of  $P_1$ . The firm earns greater supernormal profits than before, represented by the area  $P_1C_1DE$ .



**Figure 4: Increase in profits due to an increase in demand**

The production of certain goods such as cars and aircraft are usually subjected to decreasing average costs as output increases. However, the domestic market in some countries (e.g. Singapore) may be too small to fully exploit the economies of scale. With the removal of BTE, firms have access to more markets. Exporting to other nations helps widen the market for the products and **allow internal economies of scale (EOS) to be realised**. For instance, firms may reap marketing EOS as purchasing factor inputs in bulk gives the firm a stronger bargaining power with suppliers enabling it to negotiate for steeper discounts. As a result, firms may be able to **reduce average costs**. As firms' unit costs move down the LRAC, they produce closer to the minimum efficient scale, **reducing productive inefficiency**. **Oligopoly and monopoly firms are more likely to benefit than MC firms in this regard due to their greater scale of production. If firms are able to harness these**

**opportunities by reducing average cost, they would be able to increase their overall profit.**

Moreover, firms may gain access to **cheaper foreign inputs** such as labour (outsourcing) or cheaper raw materials. **This helps to reduce their average costs of production.**

Globalisation allows firms to tap on **foreign sources of technology**. It facilitates an exchange of ideas and techniques that increase the efficiency of production. The transfer of technology and ideas will allow firms to produce more output with same amount / less inputs. This translates to **lower average cost** for the firms.

Similarly, the **threat of competition** would spur the domestic firms with monopoly power and the ability to retain supernormal profits to **invest more in R&D**. If the investment translates to more efficient production methods, this may also lead to a **fall in cost of production** for the producers. **Successful R&D will lead to the development of better quality and more sought-after products**. This instills 'brand loyalty' thus making it more difficult for new firms to break into existing markets, helping to reinforce/consolidate the existing firm's share of the market or even increase consumer base, **translating to higher revenue**.

Given the increase in competition from foreign competitors, domestic firms would have more incentive to become less complacent and more cost efficient to maintain profits. Firms will therefore try to produce **on the LRAC**, thereby **reducing X-inefficiency**. The **reduction in X-inefficiency** would help to lower AC, and hence increase profits.

**Anti-thesis: No, globalisation may instead bring about more disadvantages for firms. Why? How so?**

Just as globalisation may bring about the above advantages, there exist situations where there may be disadvantages too. Most prominently, for domestic firms who are producing goods in direct competition with foreign competitors, the easy of entry of these foreign firms due to globalisation may cause some adverse impact on the firms' market share.

Globalisation can help to lower BTE if foreign firms are allowed greater access into domestic markets, and/or if domestic firms can gain access to alternative sources of factors of production. This promotes competition. E.g. new firms are able to access a foreign source of essential raw materials or wholesale/retail outlets, or even if the existing monopoly has control over the only domestic source. For existing price setters, ceteris paribus, this may lead to a **fall in demand for their goods** and a leftward shift of their DD curves, **hence lowering profits**. This would be the reverse of what is shown in Figure 4.

The removal of trade barriers expose firms to competition from abroad, permitting existing customers to switch to foreign suppliers who are able to produce cheaper products or offer better product quality. With such intense competition from foreign firms, firms which operate at higher unit cost than the competition will not be able to match the price offered by their competitors. As demand for their goods decline, firms may eventually have to shut down when the revenue can no longer cover the cost. For example, the influx of cheap imports such as clothing, shoes, bags etc. has caused such industries in developing countries to be unable to compete with less developed countries such as Vietnam and China, due to the erosion of comparative advantage in labour-intensive manufacturing.

## Synthesis/ Overall Conclusion

- Overall, whether the profits of firms would increase or decrease depends on the extent to which they can prevent the fall in revenue vs increase in AR due to increased market access in face of greater competition, as well as reduce their costs of production. This is the deciding factor as to whether the firms benefit or lose out as a result of globalisation.
- If there is a significant lowering of BTEs that leads to the entrance of large foreign firms, certain industries may evolve from an oligopoly to become increasingly more MC. On the other hand, if there is significant strengthening of BTEs, certain industries may evolve from MC into an oligopoly market.
- Other factors that would determine the impact on firms:
  - **Nature of economies:** E.g. small and open economies (SoEs) like Singapore are more likely to be affected by globalisation trends as compared to large and closed economies. This is because SoEs are relatively more dependent on the external sector for both resources and in terms of expanding the markets for their exports.
  - **Government Policies:** In face of global competition, some governments may opt for protectionism. If so, local firms would be largely sheltered from the effects of globalisation **OR** some governments may implement measures to encourage contestability to maximise the advantages brought about by being open to globalisation. For example, the liberalisation of the banking sector by Singapore government has resulted in foreign banks setting up their operations in Singapore, and the greater competition has led to greater efficiency, improving service quality and product ranges, translating to higher profits for the domestic banks.

Level	Descriptors	Marks
L3	Developed discussion that examines <b>both</b> the advantages and disadvantages of globalisation on firms, considered <b>both</b> impacts on revenue and costs (& in turn profits) and varying impacts on different market structures	9-11
L2	A developed answer lacking in breadth: <ul style="list-style-type: none"> <li>- Only considered the advantages of globalisation without considering its disadvantages, <b>or</b></li> <li>- Only considered either impact on revenue <b>or</b> costs</li> </ul> <p><b>OR</b></p> An undeveloped discussion lacking in depth: <ul style="list-style-type: none"> <li>- Advantages <b>and</b> disadvantages of globalisation</li> <li>- Impact on revenue <b>and</b> costs</li> </ul>	6-8
L1	Displays clear lack of understanding of question. Shows <b>brief, generic</b> & conceptually weak/incorrect description of concepts. Answer is <b>descriptive</b> with conceptual <b>errors</b>	1-5

Evaluation		
E2	For an evaluative assessment based on economic analysis. E.g. whether globalisation brings about more disadvantages or advantages really	3 – 4

	depends on other factors such as government policies, nature of economies or the time period (i.e. projecting into the future, will these advantages and disadvantages remain or will it evolve?)	
E1	For an unexplained assessment, or one that is not supported by economic analysis.	1 - 2