Chapter 14

Firms in Competitive Markets

REVIEW QUESTIONS

Describe the difference between average revenue and marginal revenue. Why are both of these revenue measures important to a profit maximizing firm?
ANSWER: Average revenue is total revenue divided by the amount of output. Marginal revenue is the change in total revenue from the sale of each additional unit of output. Marginal revenue is used to determine the profit maximizing level of production and average revenue is used to help determine the level of profits.

Explain what it means if a firm in a competitive market is labeled as a price taker.
ANSWER: A price taker is a firm whose production decisions have no influence on market price.

List and describe the characteristics of a perfectly competitive market.
ANSWER: There are many buyers and sellers in the market. The goods offered by the various sellers are largely the same. Firms can freely enter or exit the market.

Use a graph to demonstrate the circumstances that would prevail in a competitive market where firms are earning economic profits. Can this scenario be maintained in the long run? Carefully explain your answer.
ANSWER: In a competitive market where firms are earning economic profits, new firms will have an incentive to enter the market. This entry will expand the number of firms, increase the quantity of the good supplied, and drive down prices and profit.

Explain the role of opportunity costs in differentiating between economic profits and accounting profits.
ANSWER: Accounting profits do not account for the opportunity cost of doing business. Economic profits take into account the opportunity cost of production (or conducting business).
Explain how a firm in a competitive market identifies the profit maximizing level of production. When should the firm raise production, and when should the firm lower production?

**ANSWER:** By selecting the level of output at which marginal revenue is equal to marginal cost. If MR > MC, profit will increase if the firm increases Q. If MR < MC, profit will increase if the firm decreases Q.

Explain the relationship between a firm's supply curve and its costs.

**ANSWER:** The marginal cost curve above the minimum of average variable cost is the supply curve for a firm in a competitive market.

Give two reasons why the long-run industry supply curve may slope upward. Use an example to demonstrate your reasons.

**ANSWER:** Some resource used in production may be available only in limited quantities and firms may have different cost structures. The example provided in the text for the first reason is the market for farm products. As more people become farmers, the price of land is bid up since its supply is limited. As the price of farm land is bid up, the cost of all farmers in the market rises. The example used to support the second reason is the market for painters. Anyone can enter the market for painting services, but not everyone has the same costs because some painters work faster than others.

There are 500 profit maximizing firms in a competitive market. When market price is $5 per unit each firm produces exactly 10 units of output. What is the total quantity supplied to the market and the marginal revenue per unit?

**ANSWER:** 5,000, $5

Why would a firm in a perfectly competitive market always choose to set its price equal to the current market price? If a firm set its price below the current market price, what effect would this have on the market?

**ANSWER:** It could not sell any more of its product at the lower price than it could sell at the higher price. As a result, it would needlessly forgo revenue if it set a price below the going price.

Use a graph to demonstrate the circumstances that would prevail in a perfectly competitive market where firms are experiencing economic losses. Identify costs, revenue, and the economic losses on your graph. Using your graph, determine whether this firm will shut down in the short run, or choose to remain in the market. Explain your answer.

**ANSWER:**

![Graph showing supply, demand, and economic losses in a perfectly competitive market.](image)
The loss and revenue are identified on the individual firm graph. Total cost is equal to the sum of the losses and revenue. The decision about whether this firm shuts down or remains in the market depends upon the position of average variable cost. If average variable cost is below $P_0$ at output level $Q_0$, the firm will remain in the market. If average variable cost is above $P_0$ at output level $Q_0$ the firm will exit the market.

Under what conditions would a firm choose to shut down? When would it decide to exit the market?
ANSWER: When price is below average variable cost. The exit decision is a long-run decision in which the firm has no prospect of being able to cover its cost of production.

At its current level of production a profit-maximizing firm in a competitive market receives $12.50 for each unit it produces, and faces an average total cost of $10. At the market price of $12.50 per unit, the firm's marginal cost curve crosses the marginal revenue curve at an output level of 1000 units. What is the firm's current profit? What is likely to occur in this market and why?
ANSWER: $2,500; firms are likely to enter this market since existing firms are earning economic profits.

Discuss the process that induces firms to operate at efficient scale in the long run in a competitive market with free entry and exit.
ANSWER: If all firms in a competitive industry face the exact same cost structure, the exit and entry of firms will force every firm in the market to operate at the efficient scale of production. If it does not operate at efficient scale, it will be incurring economic losses because market price will settle at the minimum of long-run average cost. Firms that choose a level of production that is not at the point of minimum of long-run average cost will experience $P > ATC$.

In the late 1990s a study sponsored by the California Agriculture Board found that moderate daily consumption of red wine reduced the incidence of heart disease in laboratory rats. As a result of national press coverage of the report, the demand for red wine increased dramatically. Assume that the wine market satisfies all of the attributes of a competitive market. Further assume that red grapes are the most expensive input into the red wine production process.

a. Use a graph of the market for wine to demonstrate the effect of the report on market equilibrium.

b. Graph the reaction of individual incumbent firms to the increase in market demand. In your graph, identify the firm's revenue and cost structures.

c. What would you predict would happen to long-run industry supply if the price of red grapes increased as wine producers increased their production of red wine. Use a graph to demonstrate the validity of your prediction.
a. (See figure above, panel a.)
Demand will increase, the quantity exchanged in the market will increase from Q₀ to Q₁ and market price will rise from P₀ to P₁.
b. (See figure above, panel b.)
The market price will rise from P₀ to P₁ and individual firm output will rise from Q₀ to Q₁.
c. (See figure above, panel c.)
If the price of red grapes rises as producers increase production of wine, then average total cost will increase (from ATC₀ to ATC₁) as output is increased. This will lead to upward sloping industry supply as reflected in the market figure of panel c.

If identical firms that remain in a competitive market over the long run make zero economic profit, why do these firms choose to remain in the market?
ANSWER: Because a normal rate of return on their investment is included as part of the opportunity cost of production.