Chapter 11

Special Pricing Practices

Managerial Economics: Economic Tools for Today's Decision Makers, 4/e
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Special Pricing Policies

- Introduction
- Cartel Arrangements
- Revenue Maximization
- Price Discrimination
- Nonmarginal Pricing
- Multiproduct Pricing
- Transfer Pricing
- Other Pricing Practices

Introduction

- Examine pricing decisions made in specific situations.
- Imperfectly Competitive Markets

Cartel Arrangements

- Monopoly profits are the largest profits available in an industry.
- A cartel arrangement occurs when the firms in an industry cooperate and act together as if they were a monopoly.
- Cartel arrangements may be tacit or formal
- Illegal in the U.S.
  - Sherman Antitrust Act, 1890
- OPEC

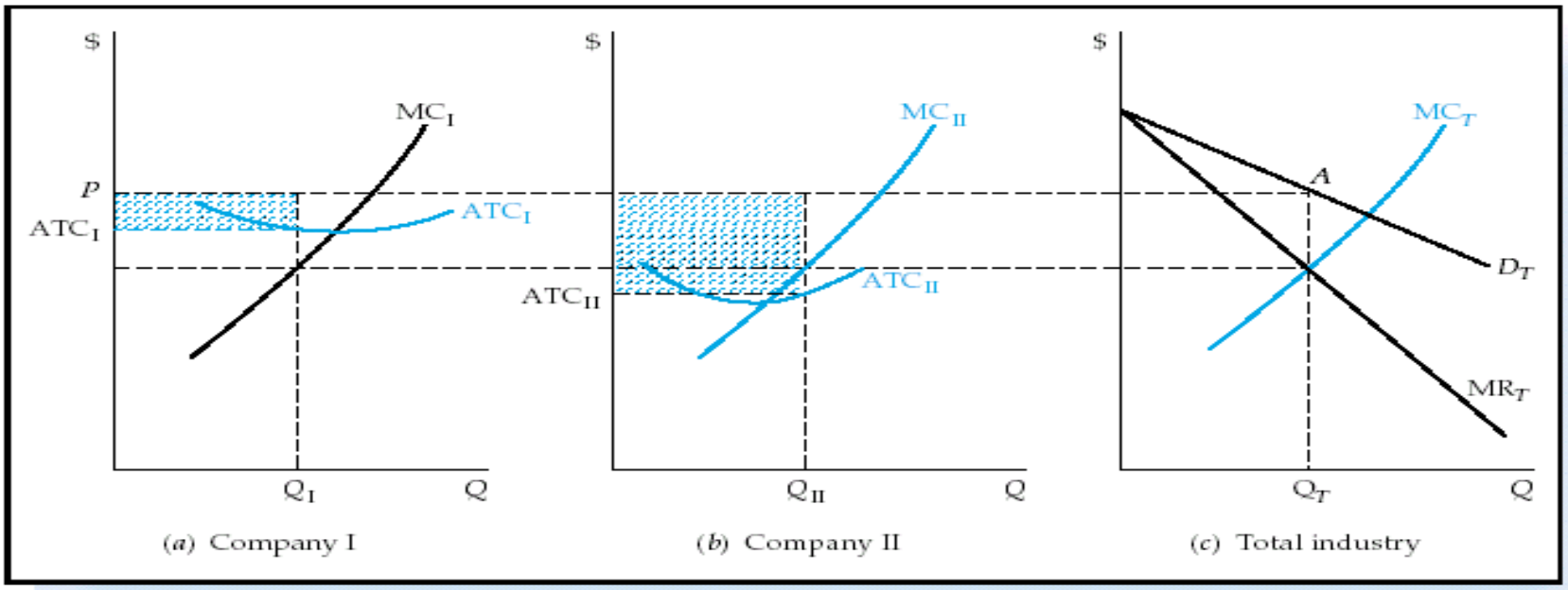
Cartel Arrangements

- Conditions that influence the formation of cartels
  - Small number of firms in the industry
  - Geographical proximity of the firms
  - Homogeneous products
  - Stage of the business cycle
  - Difficult entry
  - Uniform cost conditions

Cartel Arrangements

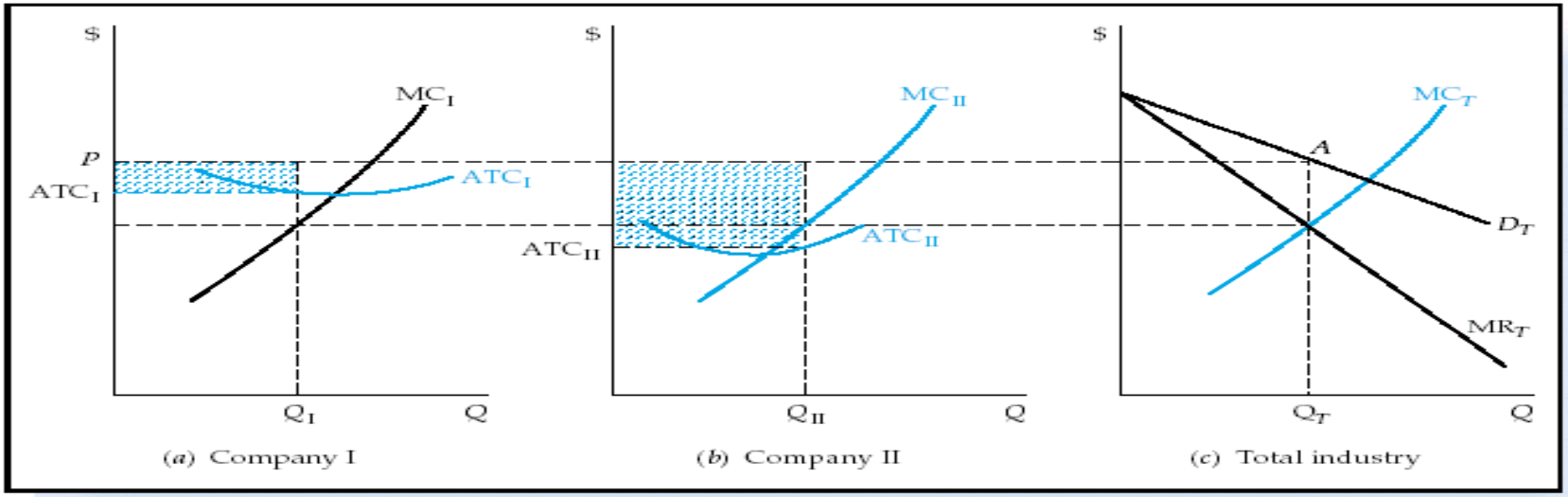
- In order to maximize profits, the cartel as a whole should behave as a monopolist.
- To accomplish this, the cartel determines the output which equates marginal revenue with the marginal cost of the cartel as a whole.
- The marginal revenue is determined in the usual way (Chapter 9)
- The marginal cost of the cartel as a whole is the horizontal summation of the members' marginal cost curves.
- To illustrate, consider a cartel formed by two firms. The situation is shown in the next graph.

Cartel Arrangements



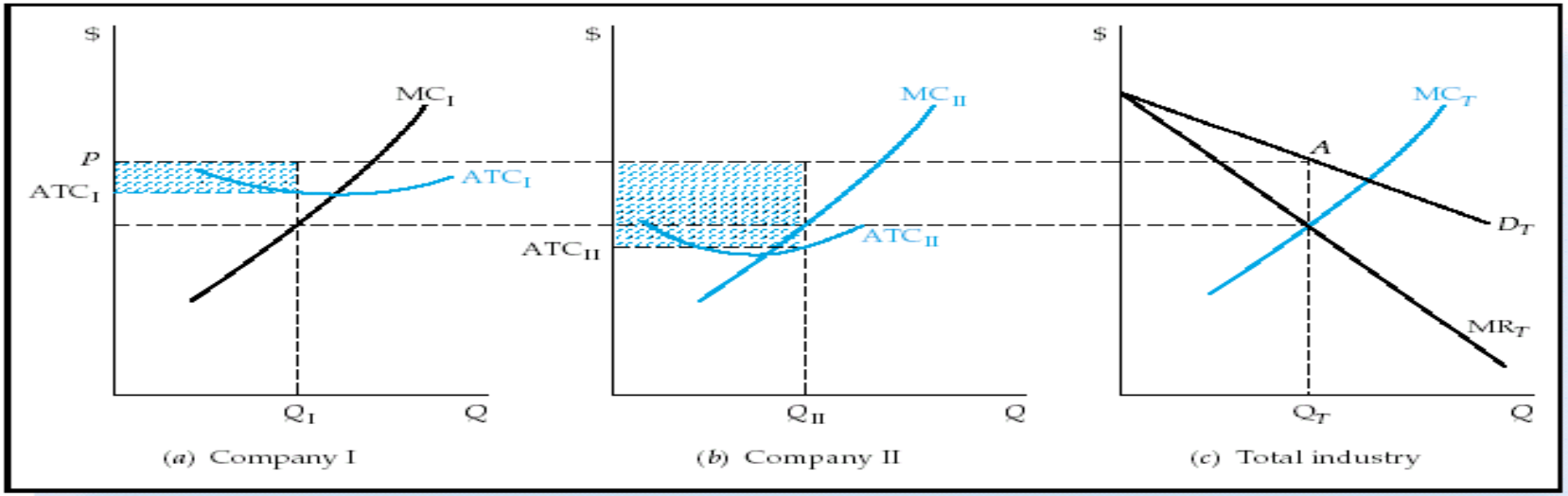
- MC_T is the horizontal sum of MC_1 and MC_2
- Q_T is found at the intersection of MR_T and MC_T
- Price is found from the demand curve at Q_T
- This is the price that maximizes total industry profits.

Cartel Arrangements



- In order to determine how much each firm should produce, draw a horizontal line back from the MR_T/MC_T intersection.
- Where this line intersects each individual firm's MC determines that firm's output, Q_1 and Q_2.
- Note that the firms may produce different outputs.
- The key point is that the marginal cost of the last unit produced is equated across both firms.

Cartel Arrangements



- Profits for each firm are shown in blue. We assume that each firm earns profits only from its own sales.
- Firms may earn different levels of profit.
- Combined profits are maximized.
- Incentive for firms to cheat on agreement.
- Cartels are unstable.

Cartel Arrangements

- Additional costs facing the cartel
  - Formation Costs
  - Monitoring Costs
  - Enforcement Costs
- Weigh the benefits of collusion (increased profits) against these additional costs.

Price Leadership

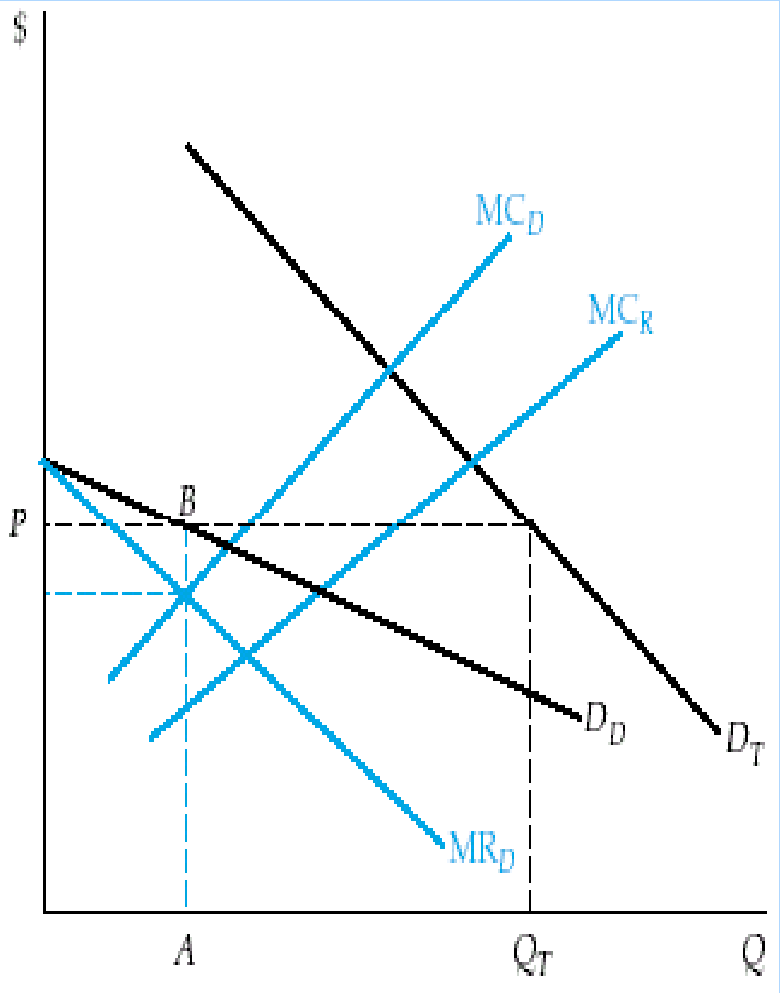
- Barometric Price Leadership
  - One firm in an industry will initiate a price change in response to economic conditions.
  - The other firms may or may not follow this leader.
  - Leader may change.

Price Leadership

- Dominant Price Leadership
  - One firm is recognized as the industry leader.
  - Dominant firm sets price with the realization that the smaller firms will follow and charge the same price.
  - Determining the optimal price is illustrated in the following graphs.

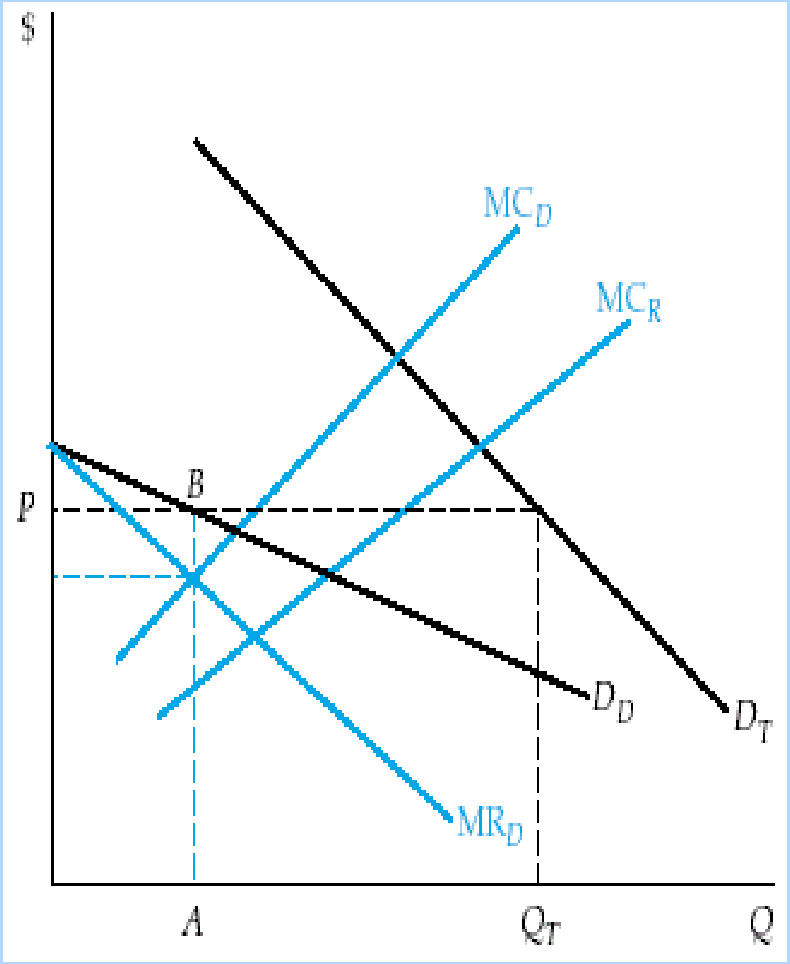
Price Leadership

- D_T is the demand curve facing the entire industry.
- MC_R is the summation of the marginal cost curves of all of the follower firms. You can think of MC_R as a supply curve for these firms.
- In choosing its price, the dominant firm has to consider the amount supplied by the follower firms.



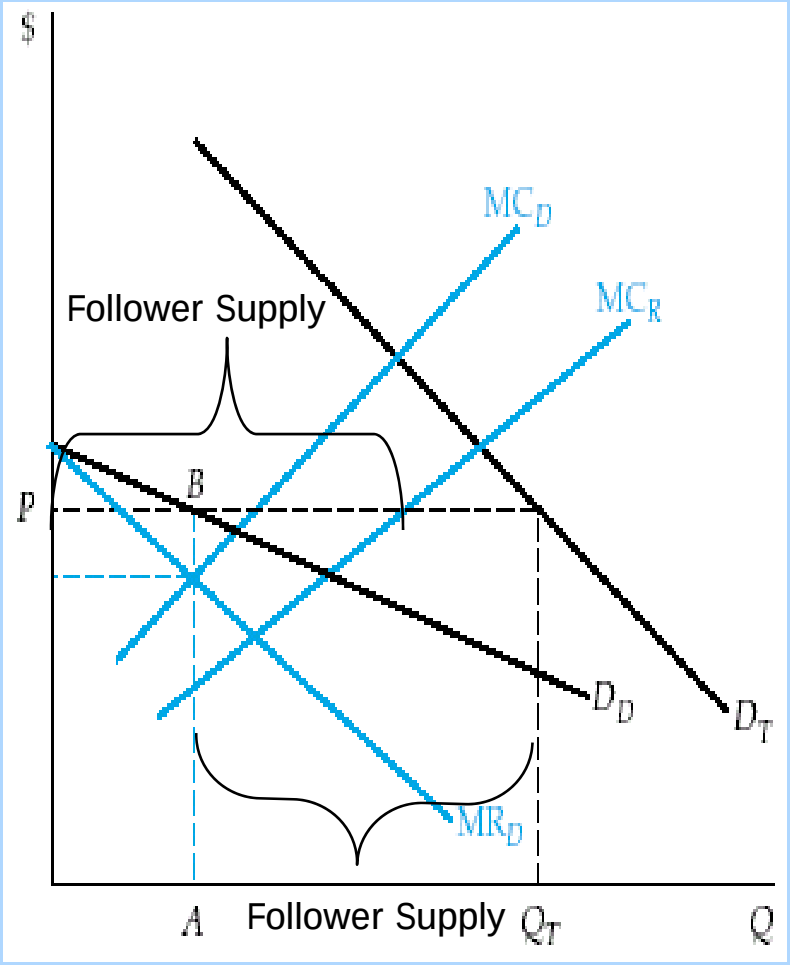
Price Leadership

- For any price chosen by the dominant firm, some of the market demand will be satisfied by the follower firms. The "residual" is left for the dominant firm.
- The demand curve facing the dominant firm is found by subtracting MC_R from D_T. This "residual demand curve" is labeled D_D.



Price Leadership

- To determine price, the dominant firm equates its marginal cost with the marginal revenue from its residual demand curve.
- The dominant firm sells A units and the rest of the demand (Q_T – A) is supplied by the follower firms.



Revenue Maximization

- Baumol Model
  - Firms may maximize revenue subject to maintaining a specific level of profits.
  - Reasons
    - A firm will become more competitive when it achieves a large size (in terms of revenue).
    - Management remuneration may be more closely related to revenue than profits.

Price Discrimination

- Price discrimination means
  - Products with identical costs are sold in different markets at different prices.
    - Senior citizen or student discounts
  - The ratio of price to marginal cost differs for similar products.
    - Identical products sold with different packaging.

Price Discrimination

- To be successful, price discrimination requires that
  - The markets in which the product is sold must by separated. I.e., no resale between markets.
  - The demand curves in the market must have different elasticities.

Price Discrimination

- Three types of price discrimination
  - First Degree Price Discrimination
    - Seller can identify where each consumer lies on the demand curve and charges each consumer the highest price the consumer is willing to pay.
    - Allows the seller to extract the greatest amount of profits.
    - Requires a considerable amount of information.

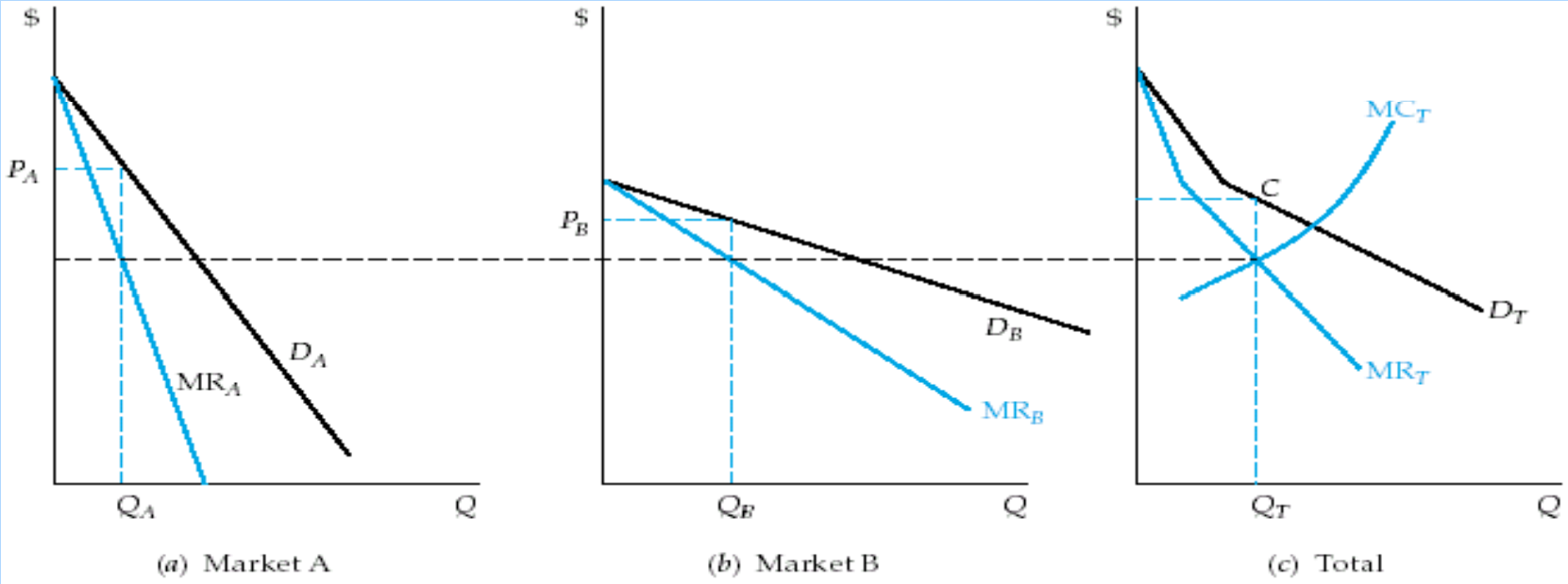
Price Discrimination

- Three types of price discrimination
  - Second Degree Price Discrimination
    - Differential prices charged by blocks of services.
    - Block pricing
    - Requires metering of services.

Price Discrimination

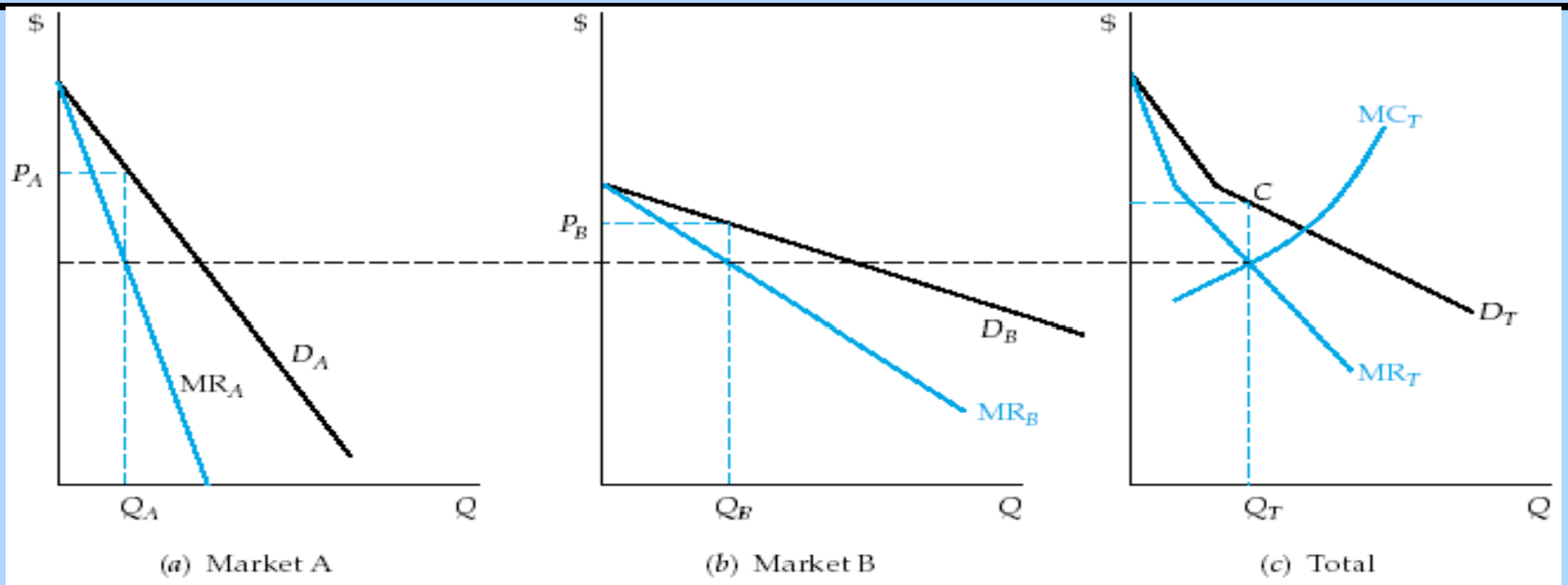
- Three types of price discrimination
  - Third Degree Price Discrimination
    - Customers are segregated into different markets and charged different prices based on each group's elasticity of demand
    - Segmentation can be based on any characteristic such as age, geographic location, gender, income, etc.
    - Illustrated graphically in the following figures.

Third Degree Price Discrimination



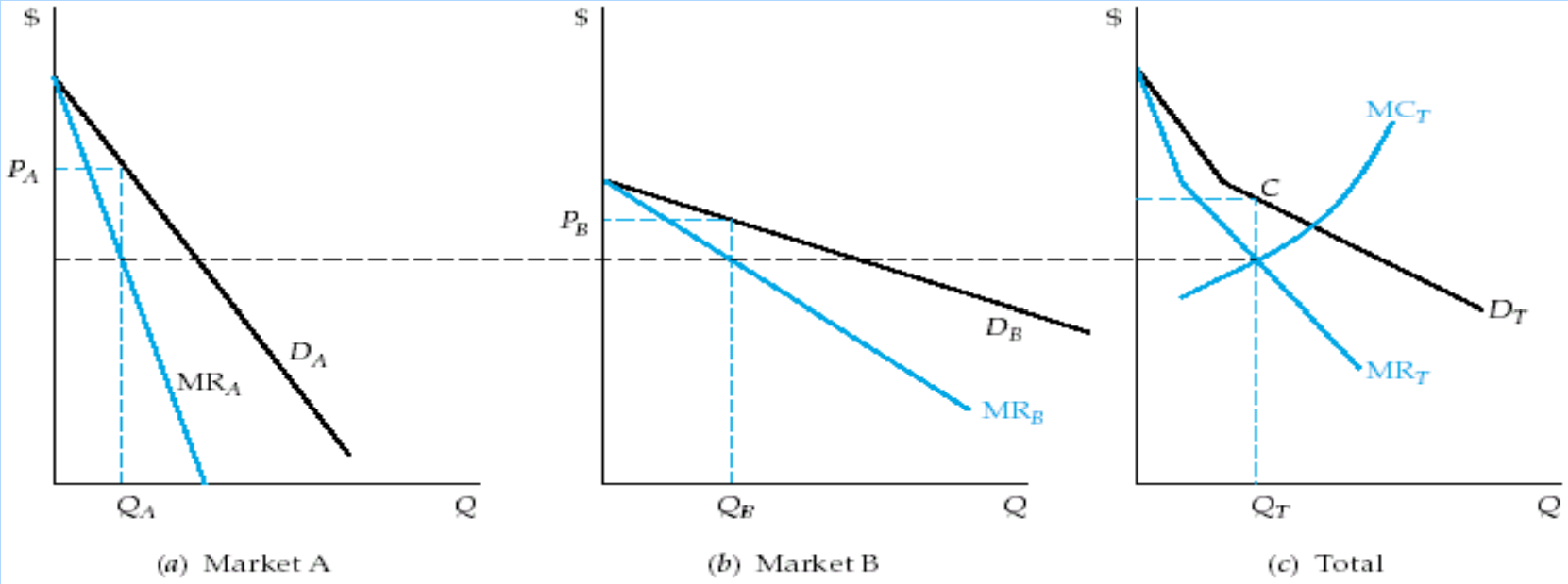
- Assume the firm operates in two markets, A and B.
- The demand in market A is less elastic than the demand in market B.
- The entire market faced by the firm is described by the sum of the demand and marginal revenue curves. This is illustrated in the graph at the far right.

Third Degree Price Discrimination



- The firm finds the total amount to produce by equating the marginal revenue and marginal cost in the market as a whole. This is labeled as Q_T.
- If the firm were forced to charge a uniform price, it would find the price by examining the aggregate demand D_T at the output level Q_T. This is represented by point C in the graph.
- However, the firm can increase its profits by charging a different price in each market.

Third Degree Price Discrimination



- In order to find the optimum price to charge in each market, draw a horizontal line back from the MR_T/MC_T intersection.
- Where this horizontal line intersects each submarket's MR curve determines the amount that should be sold in each market; Q_A and Q_B.
- These quantities are then used to determine the price in each market using the demand curves D_A and D_B.

Price Discrimination

- Are tying arrangements a form of price discrimination?
  - A tying arrangement exists when a buyer of one product is obligated to also by a related product from the same supplier.
  - Illegal in some cases.
  - One explanation: firms with market power in one market will use tying arrangements to extend monopoly power into other markets.
  - Other explanations of tying
    - Quality control
    - Efficiencies in distribution
    - Evasion of price controls

Nonmarginal Pricing

- Types of nonmarginal pricing
  - Cost-Plus Pricing
  - Incremental Pricing and Costing Analysis

Nonmarginal Pricing

- Cost-Plus Pricing
  - Price is set by first calculating the variable cost, adding an allocation for fixed costs, and then adding a profit percentage or markup.
  - Are there similarities between cost-plus pricing and using the MR=MC rule?
  - When MC=AC, the MR=MC rule and cost-plus pricing yield the same results.

Nonmarginal Pricing

- Incremental Pricing and Costing Analysis
  - Similar to marginal analysis
  - Incremental analysis deals with changes in total revenue and total cost resulting from a decision to change prices, introduce a new product, discontinue an existing product, improve a product, or acquire additional capital equipment.
  - Only the revenues and costs that will change due to the decision are considered.

Multiproduct Pricing

- More often than not, firms produce multiple products that may be related either on the demand side or on the cost side.

Multiproduct Pricing

Four types of relationships:

1. Products are complements in terms of demand
   - An increase in the quantity sold of one will bring about an increase in the quantity sold of the other.
   - A fast-food restaurant sells both hamburgers and soft drinks.
2. Products are substitutes in terms of demand
   - An increase in the quantity sold of one will bring about an decrease in the quantity sold of the other.
   - Honda produces both Preludes and Accords

Multiproduct Pricing

Four types of relationships:

3. Products are joined in production
   - Products produced from one set of inputs
   - Soybean meal and soybean oil, beef and leather
4. Products compete for resources
   - Using resources to produce one product takes those resources away from producing other products.
   - Honda may use steel to produce either Preludes or Accords.

Transfer Pricing

- Modern companies are subdivided into several groups or divisions.
- Each of these divisions may be charged with a profit objective.
- As the product moves through these divisions on the way to the consumer it is “sold” or transferred from one division to another at a “transfer price.”
- If each division is allowed to choose its own transfer price without any coordination, the final price of the product to consumers may not maximize profits for the firm as a whole.

Transfer Pricing

- Firms must pay special attention toward designing a transfer pricing mechanism that is geared toward maximizing total company profit.
- Design of the optimal transfer pricing mechanism is complicated by the fact that
  - each division may be able to sell its product in external markets as well as internally.
  - each division may be able to procure inputs from external markets as well as internally.

Transfer Pricing

- Examples

  Assume that a firm has two divisions

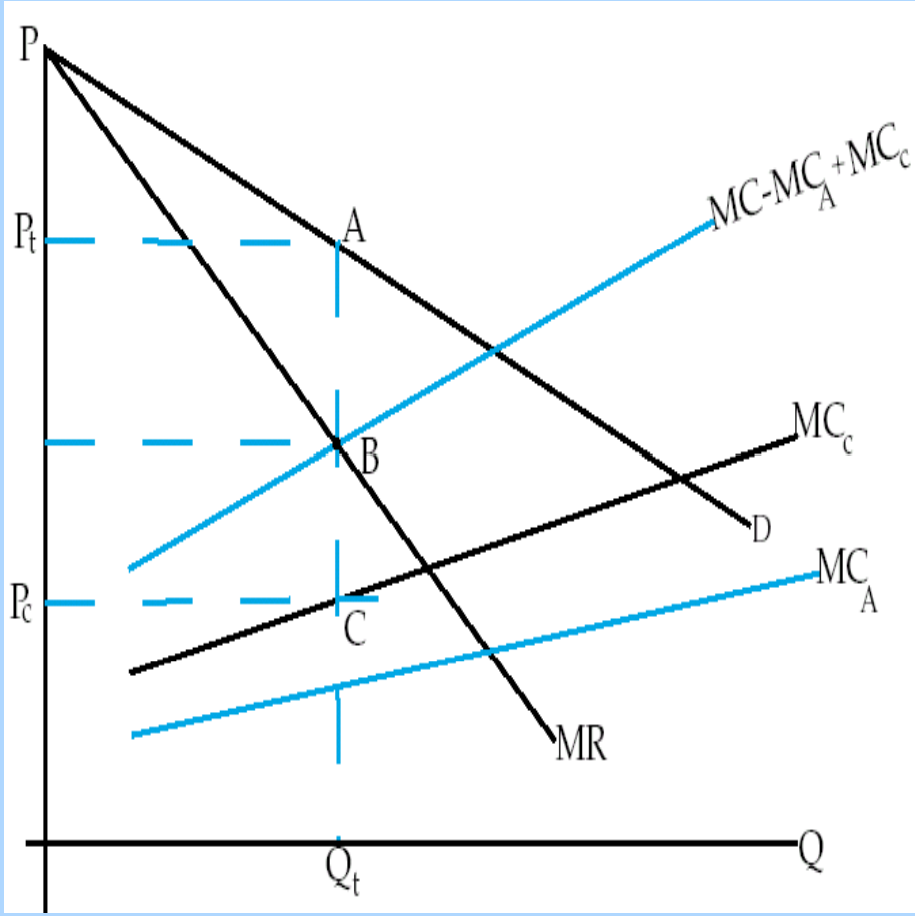
  - Division C manufactures components
  - Division A assembles the components into a final product and sells it.

Transfer Pricing

- Case 1: No External Markets
  - The two divisions must deal with equal quantities.
  - Division C will produce exactly the number of components that will be used by division A.
  - One demand curve and two marginal cost curves.

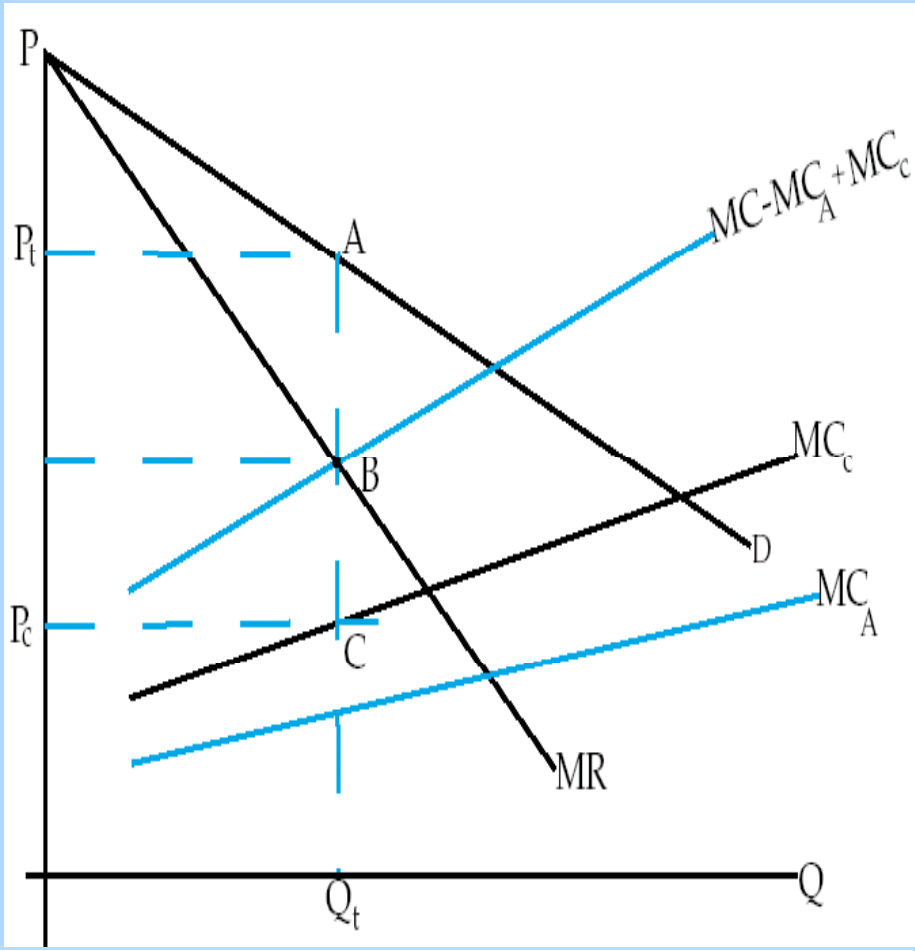
Transfer Pricing

- The firm's total marginal cost is found by vertically summing the marginal costs from the two divisions.
- Production should occur where marginal revenue equals the firm's total marginal cost. Point B.



Transfer Pricing

- The final price is determined from the demand curve at this quantity.
- The optimal transfer price is given by division C's marginal cost at the optimal output level.
- Thus, the optimal transfer price is P_C.

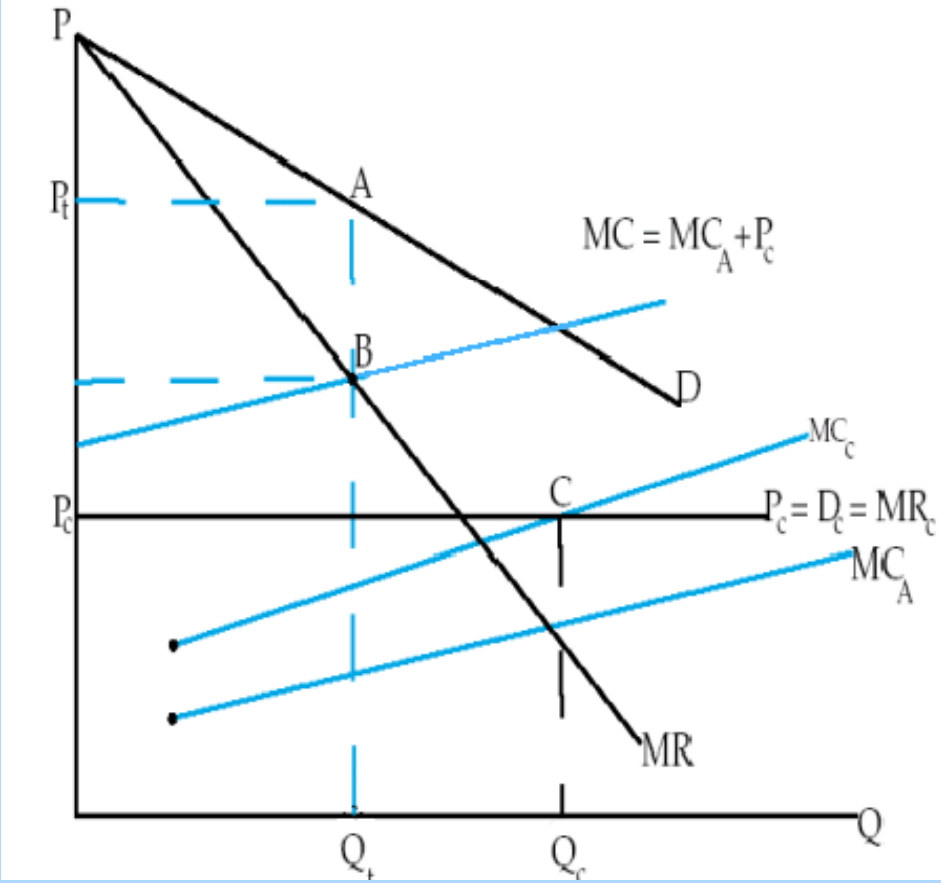


Transfer Pricing

- Case 2: External Markets
  - Division C has the opportunity to sell its intermediate product in a competitive market.
  - Division A has the opportunity to purchase the intermediate product in the same market as well as directly from division C.

Transfer Pricing

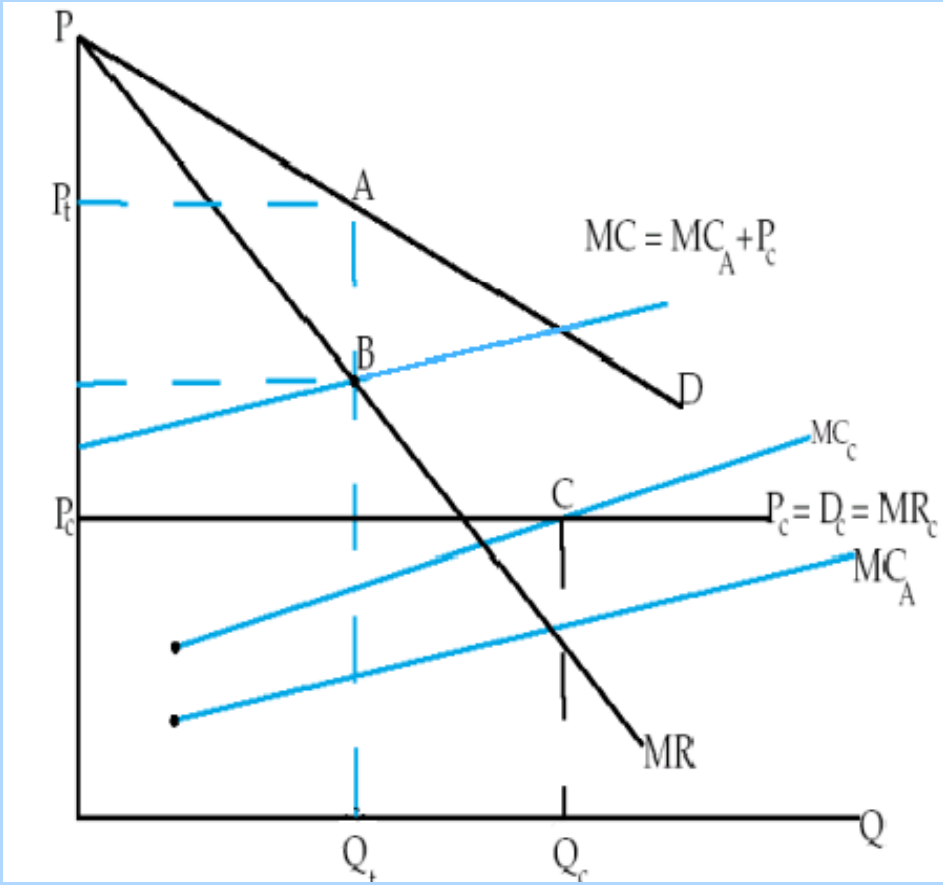
- Division C produces at the point where MC_C intersects D_C (also MR_C since competitive market). Q_C
- The transfer price should reflect the competitive price P_C.



Transfer Pricing

- Division A's total marginal cost becomes

  $MC=MC_A + P_C$.
- Optimal production of the firm's final output is found by equating MC with MR in the market for the final product. Q_t



Other Pricing Practices

- Price Skimming
  - The first firm to introduce a product may have a temporary monopoly and may be able to charge high prices and obtain high profits until competition enters
- Penetration Pricing
  - Selling at a low price in order to obtain market share

Other Pricing Practices

- Prestige Pricing
  - Demand for a product may be higher at a higher price because of the prestige that ownership bestows on the owner.
- Psychological Pricing
  - Demand for a product may be quite inelastic over a certain range but will become rather elastic at one specific higher or lower price.