chapter: 13

>> Monopoly

Krugman/Wells Economics

WHAT YOU WILL LEARN IN THIS CHAPTER

- The significance of **monopoly,** where a single **monopolist** is the only producer of a good
- How a monopolist determines its profit-maximizing output and price
- The difference between monopoly and perfect competition, and the effects of that difference on society's welfare
- How policy makers address the problems posed by monopoly
- What **price discrimination** is, and why it is so prevalent when producers have **market power**

Types of Market Structure

Are Products Differentiated?

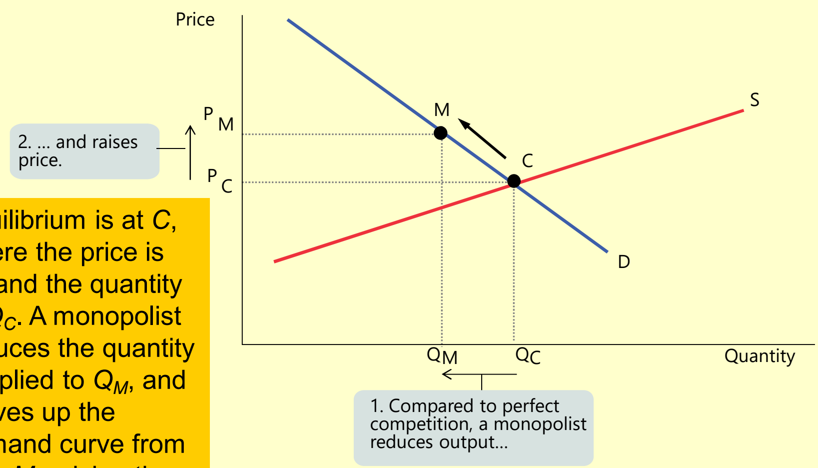
How Many Producers Are There?	No	Yes
One	Monopoly	Not applicable
Few	Oligopoly	
Many	Perfect competition	Monopolistic competition

This system of market structures is based on two dimensions:

- The number of producers in the market (one, few, or many)
- Whether the goods offered are identical or *differentiated*

Differentiated goods are goods that are different but considered somewhat substitutable by consumers (think Coke versus Pepsi).

What a Monopolist Does



Equilibrium is at *C*, where the price is P_C and the quantity is Q_C. A monopolist reduces the quantity supplied to Q_M, and moves up the demand curve from *C* to *M*, raising the price to P_M.

Why Do Monopolies Exist?

A ***monopolist*** has *market power* and as a result will charge higher prices and produce less output than a competitive industry. This generates profit for the monopolist in the short run and long run.

Profits will not persist in the long run unless there is a **barrier to entry**. This can take the form of:

- control of natural resources or inputs
- increasing returns to scale
- technological superiority
- government-created barriers including patents and copyrights

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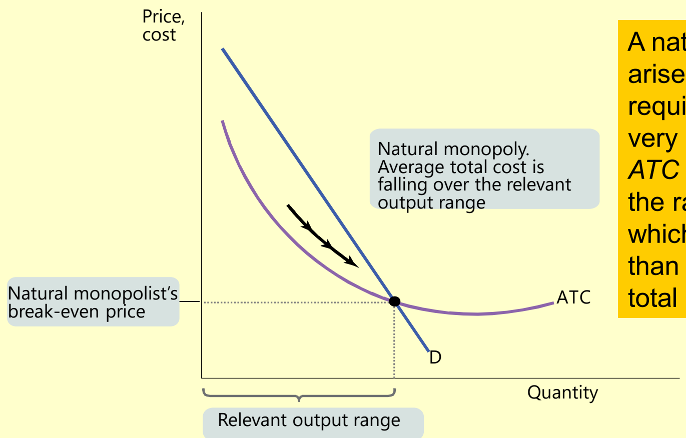
Increasing Returns to Scale Create Natural Monopoly



A natural monopoly can arise when fixed costs required to operate are very high → the firm's *ATC* curve declines over the range of output at which price is greater than or equal to average total cost.

This gives the firm economies of scale over the entire range of output at which the firm would at least break even in the long run. As a result, a given quantity of output is produced more cheaply by one large firm than by two or more smaller firms.

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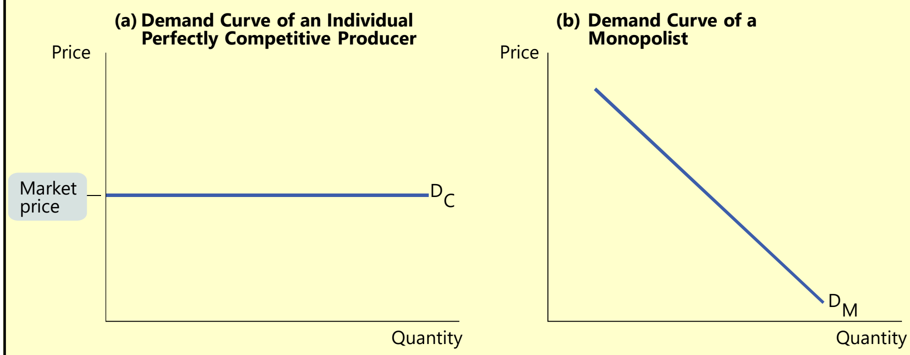
Comparing the Demand Curves of a Perfectly Competitive Producer and a Monopolist

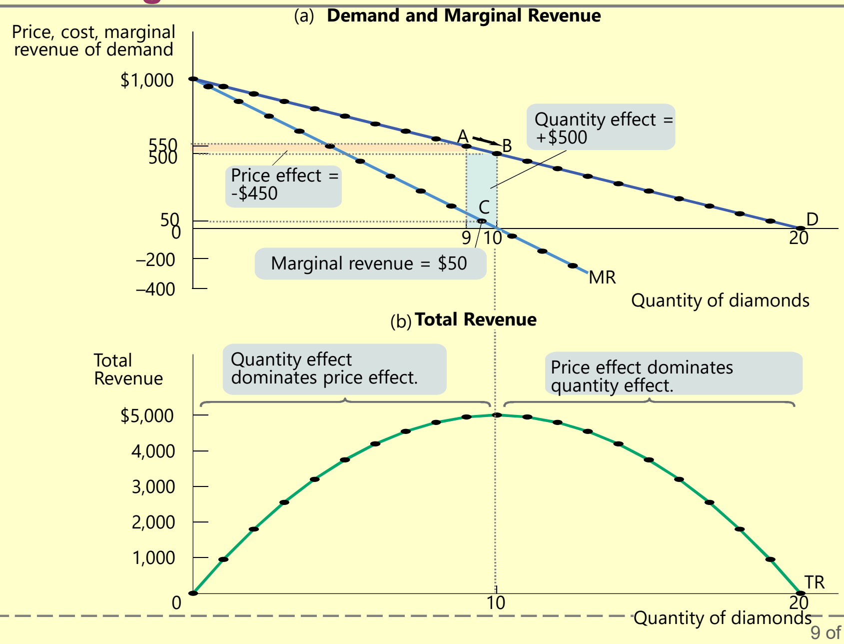


An individual perfectly competitive firm cannot affect the market price of the good → it faces a horizontal demand curve *DC,* as shown in panel (a). A monopolist, on the other hand, can affect the price (sole supplier in the industry) → its demand curve is the market demand curve, *DM,* as shown in panel (b). To sell more output it must lower the price; by reducing output it raises the price.

How a Monopolist Maximizes Profit

- An increase in production by a monopolist has two opposing effects on revenue:
  - *A **quantity effect***. One more unit is sold, increasing total revenue by the price at which the unit is sold.
  - *A **price effect***. In order to sell the last unit, the monopolist must cut the market price on *all* units sold. This decreases total revenue.
- The quantity effect and the price effect are illustrated by the two shaded areas in panel (a) of the following figure based on the numbers on the table accompanying it.

A Monopolist's Demand, Total Revenue, and Marginal Revenue Curves

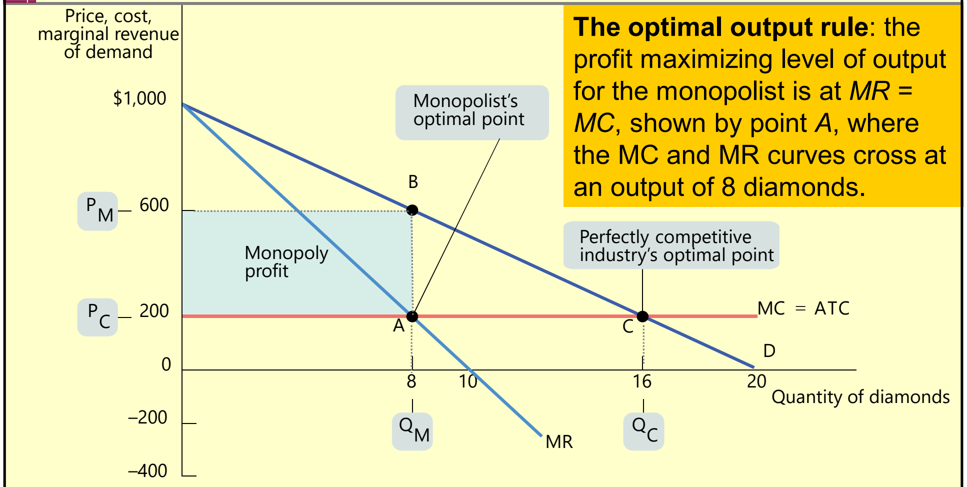


The Monopolist's Profit-Maximizing Output and Price

- To maximize profit, the monopolist compares marginal cost with marginal revenue.
- If marginal revenue exceeds marginal cost, the monopolist increases profit by producing more; if marginal revenue is less than marginal cost, the monopolist increases profit by producing less. So the monopolist maximizes its profit by using the optimal output rule:
- At the monopolist's profit-maximizing quantity of output:

MR = MC

The Monopolist's Profit-Maximizing Output and Price



The optimal output rule: the profit maximizing level of output for the monopolist is at *MR* = *MC*, shown by point *A*, where the MC and MR curves cross at an output of 8 diamonds.

The price the monopolist can charge per diamond is found by going to the point on the demand curve directly above point *A*, (point *B* here)—a price of $600 per diamond. It makes a profit of $400 × 8 = $3,200.

Monopoly Versus Perfect Competition

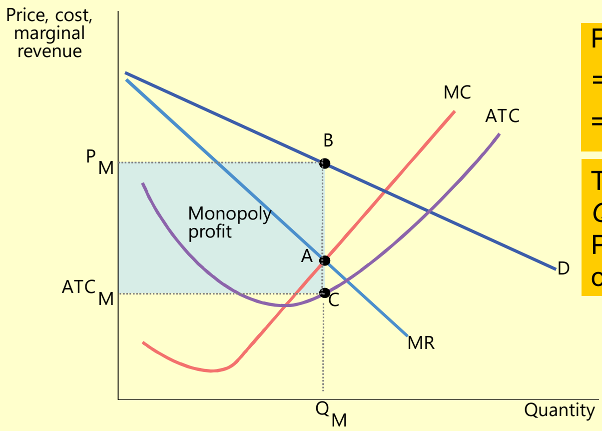
P* = *MC *at the perfectly competitive firm's profit-maximizing quantity of output*

P* > *MR* = *MC *at the monopolist's profit-maximizing quantity of output*

Compared with a competitive industry, a monopolist does the following:

- Produces a smaller quantity: *QM* < QC
- Charges a higher price: *PM* > PC
- Earns a profit

The Monopolist's Profit



Profit = *TR* − *TC*

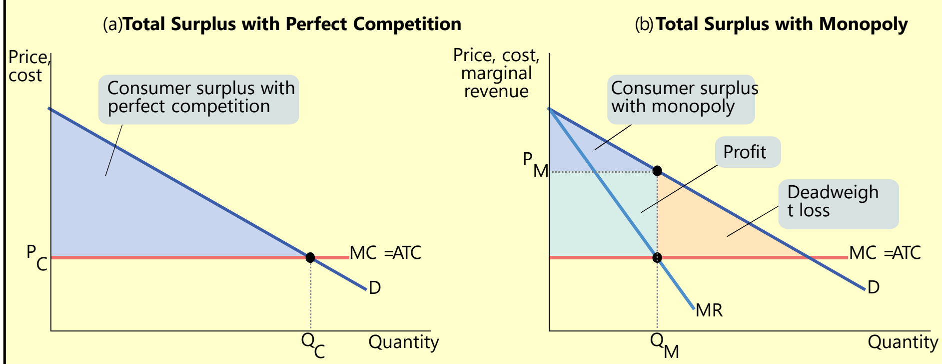
= $(P_M \times Q_M) - (ATC_M \times Q_M)$

= $(P_M - ATC_M) \times Q_M$

The average total cost of *QM* is shown by point *C*. Profit is given by the area of the shaded rectangle.

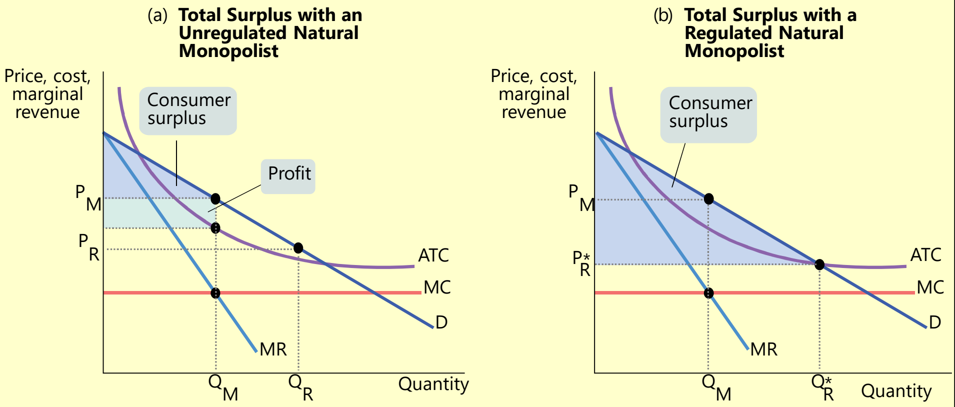
In this case, the MC curve is upward sloping and the ATC curve is U-shaped. The monopolist maximizes profit by producing the level of output at which *MR* = *MC*, given by point *A*, generating quantity *QM*. It finds its monopoly price, *PM* , from the point on the demand curve directly above point *A*, point *B* here.

Monopoly Causes Inefficiency



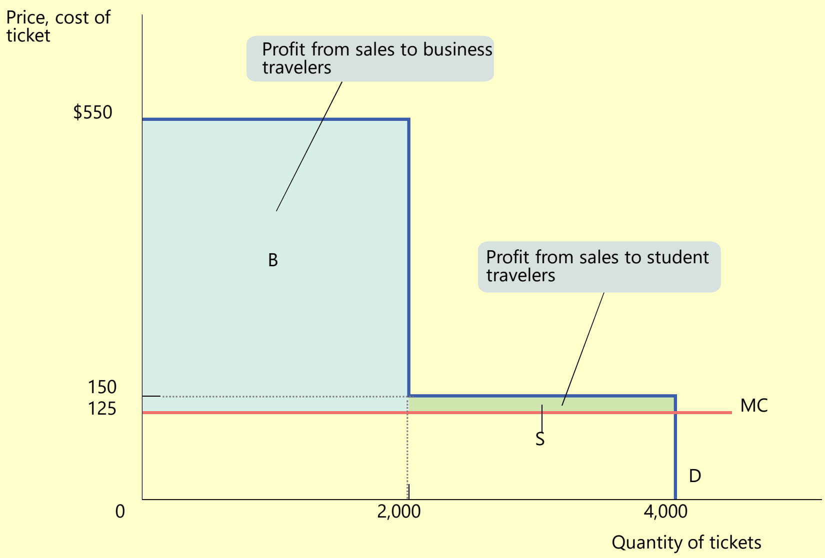
Panel (b) depicts the industry under monopoly: the monopolist decreases output to *QM* and charges *PM*. Consumer surplus (blue triangle) has shrunk because a portion of it has been captured as profit (light blue area). Total surplus falls: the deadweight loss (orange area) represents the value of mutually beneficial transactions that do not occur because of monopoly behavior.

Unregulated and Regulated Natural Monopoly



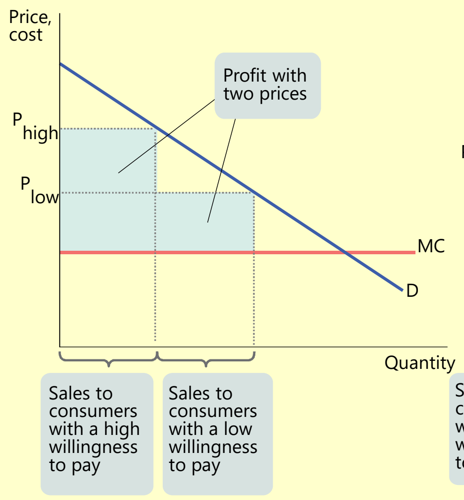
Panel (b) shows what happens when the monopolist must charge a price equal to average total cost, the price P_R^*. Output expands to Q_R^*, and consumer surplus is now the entire blue area. The monopolist makes zero profit. This is the greatest consumer surplus possible when the monopolist is allowed to at least break even, making P_R^* the best regulated price.

Two Types of Airline Customers

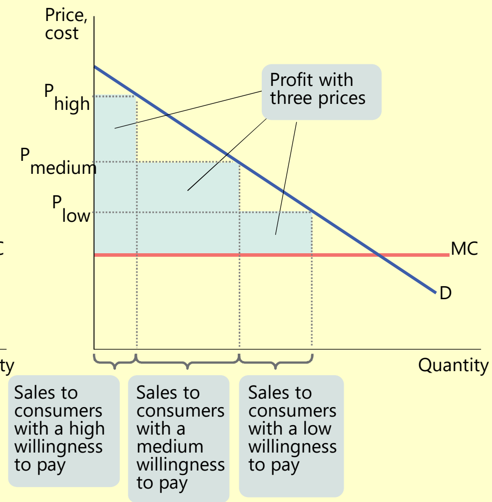


Price Discrimination

(a) **Price Discrimination with Two Different Prices**

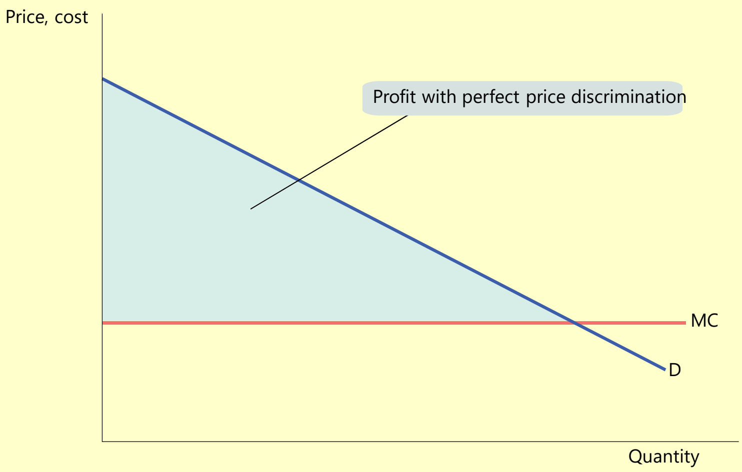


(b) **Price Discrimination with Three Different Prices**



Price Discrimination

(c) **Perfect Price Discrimination**



The End of Chapter 13

Coming attraction:

Chapter 14:
Oligopoly