# The Ultimate Unit 4 Cheat Sheet

**Everything you need to know about monopolies, monopolistic competition, oligopolies, and game theory**

## Imperfect Competition

**Imperfect Competition:** A market structure that fails to meet the conditions of perfect competition, where firms have some control over the price.

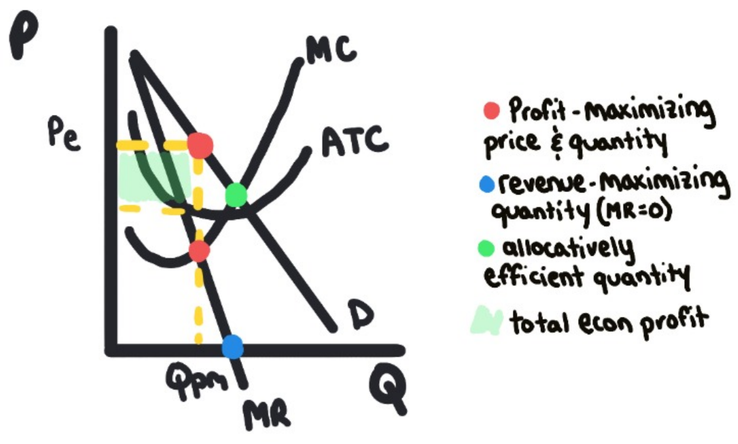
| | Perfect Competition | Monopolistic Competition | Oligopoly | Monopoly |
|---|---|---|---|---|
| Number of Firms | Many | Many | Few INTERDEPENDENT firms | One |
| Types of Products | Identical | Differentiated | Identical or differentiated | Unique |
| Barriers to Entry | Low, None | Low | High | High |
| Price Control | None; Price-Takers | Some price control through differentiation | Significant | Significant |
| Long Run Profit | Zero Economic Profit | Zero Economic Profit | Positive economic profit | Positive economic profit |
| Efficiency | • Always allocatively efficient<br>• Productively efficient in LRE | Not allocatively or productively efficient | Not allocatively or productively efficient | Not allocatively or productively efficient |

## Monopoly

**Monopoly:** A market structure where there is only one large firm (the firm is the market) producing a unique product.

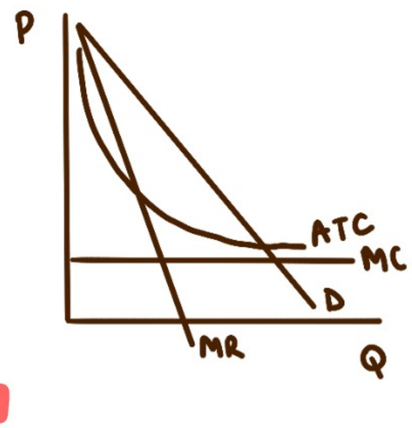
**Single-Price Monopoly:** a type of monopoly firm that sells its output at one single price for all customers; does not engage in price discrimination.

- **Marginal Revenue (MR) < Demand (D):** if a single-price monopoly lowers its price to attract more customers, it gains revenue from the additional units sold BUT loses the revenue it could have earned from selling at a higher price to other customers




**Keys to Graphing Single-Price Monopolies:**

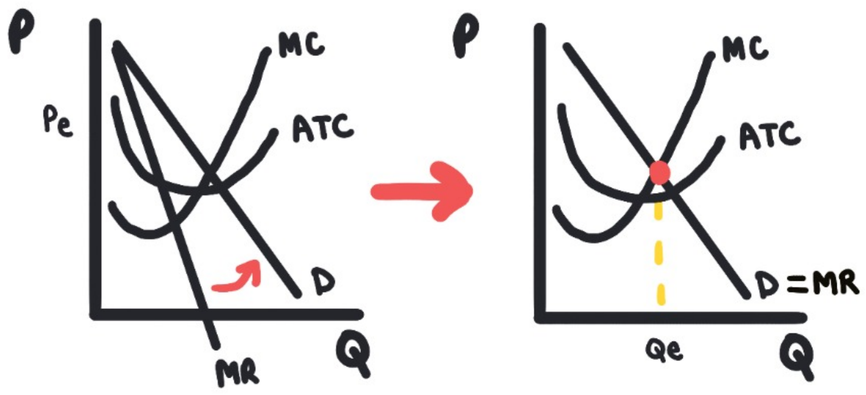
- Profit-maximizing quantity is where MR = MC
- Must go UP to demand curve to find Ppm
- At Qpm, P > ATC (economic profit)
- Make sure MC crosses ATC at ATC's lowest point




## Price Discrimination

**Price Discrimination:** The practice of selling the same product to different buyers at different prices based on their willingness to pay.

- In order to effectively price discriminate, you must be able *to group your customers based on willingness to pay* and *stop the resale of your good or service*




**How Price Discrimination Changes Monopoly Graphs:**

- MR and D are no longer separate
- Consumer surplus goes to zero
- The firm produces the allocatively efficient output (P = MC)
- We cannot label a single profit-maximizing point, because different people pay different prices

**Natural Monopoly:** A distinct type of monopoly where one firm can produce the socially optimal quantity at the lowest cost due to economies of scale.

- ATC decreases across entire demand curve

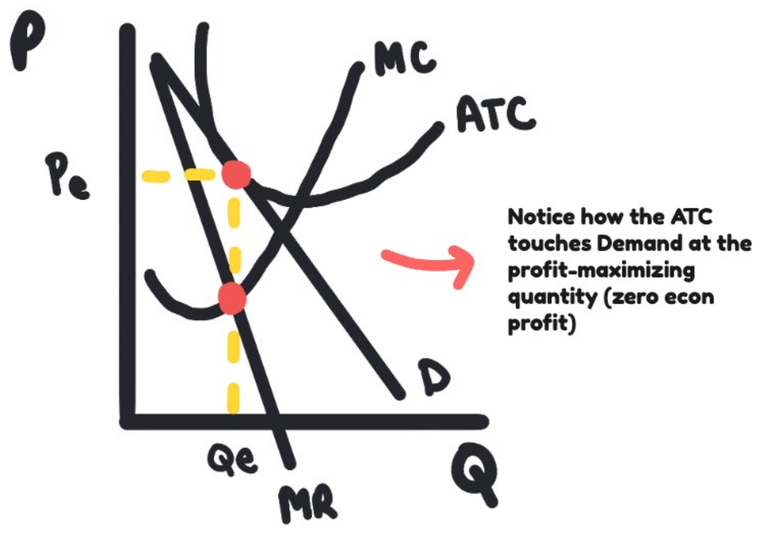
## Monopolistic Competition

**Monopolistic Competition:** A market structure with many sellers offering differentiated products.

- earn zero economic profit in LRE
- are not allocatively or productively efficient

**Production Differentiation:** Strategies used by firms to distinguish their products from competitors, such as branding, quality, or features.

- makes demand less elastic
- gives the firm some power to control prices




## Oligopolies & Game Theory

**Oligopoly:** A market structure dominated by a few large producers.

- the firms are *interdependent*
- significant price control
- positive economic profits in the long run

**Cartel:** a group of oligopolistic firms that coordinate prices and output to maximize the group benefit or profit

- cartels are ***not stable*** in the long run; individual firms will break the agreement, trying to maximize personal benefit

**Collusion:** the act of firms coming together to coordinate prices and output

- they mimic monopoly behavior, leading to higher prices, increased group profit, and less market efficiency

**Dominant Strategy:** when a firm's best choice is always the same action, regardless of their opponent's decision

**Nash Equilibrium:** a combination of actions where neither firm has the incentive to change their decision

- How to Find: circle each player's best choice, depending on how to other player acts
- If any cell has two circled payoffs, that is a Nash equilibrium (there can be more than one!)

**Both firms have a dominate strategy of High & High, High is the Nash equilibrium.**

Firm B

| Firm A | Low | High |
|---|---|---|
| Low | ($120, $120) | ($50, $160) |
| High | ($160, $50) | ($100, $100) |