

ECON 101: Principles of Economics I

Market Types Summary

University of Michigan at Ann Arbor

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University of Michigan ECON 101: Market Types Summary

	Perfect Competitive	Monopoly	Oligopoly (Duopoly)										
Concept	A perfect competitive market/industry is a market/industry in which they are: 1. Many buyers and sellers (no big market share). 2. All individuals are <u>price-takers</u>. 3. Standardized good or service. 4. <u>Free</u> entry and exit (no additional cost or constraints beyond the normal “startup costs”). # Exiting happens in the long run only.	Monopolist is a firm that is the only producer of a good that has no close substitutes. Monopsonist is a firm that is the sole buyer in the market. Monopoly is an industry controlled by a monopolist. Monopsony is a market where there is only one buyer of a good. Market power is that ability of an individual to change the price in the market. The monopolist will raise the price relative to the competitive level.	Imperfect competition is that when no one firm has a monopoly, but producers nonetheless realize that they can affect market prices. Oligopoly is an industry with only a small number of producers. Oligopolist is a producer in an oligopoly industry Determine oligopoly using HHI: $HHI = \sum_{i=1}^n X_i^2$, where X_i is the market share of one firm in the industry. <table><tr><th>HHI</th><th>Market Characteristic</th></tr><tr><td>[0, 1500)</td><td>Strongly Competitive</td></tr><tr><td>[1500, 2500)</td><td>Moderately Concentrated</td></tr><tr><td>[2500, 10000)</td><td>Oligopoly (Highly Concentrated)</td></tr><tr><td>10000</td><td>Monopoly</td></tr></table> Collusion: Sellers engage in collusion when they cooperate to rate their combined profits. Cartel: an agreement by several producers that increase their combined profits by telling each one bow much to produce Non-cooperative behavior: ignoring the effects of their actions on each others’ profits.	HHI	Market Characteristic	[0, 1500)	Strongly Competitive	[1500, 2500)	Moderately Concentrated	[2500, 10000)	Oligopoly (Highly Concentrated)	10000	Monopoly
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Profit	A firm’s desire if to maximize profit, which is $\pi = Total\ Revenue - Total\ Cost$. $Total\ Revenue = Price \times Quantity$ <u>Transformation:</u> $\pi = (Price \times Quantity) - \left(\frac{Total\ Cost}{Quantity} \times Quantity\right)$ $= Quantity \left(Price - \frac{Total\ Cost}{Quantity}\right)$ $= Quantity(Price - ATC)$ Very important!												

ATC, AVC,
MR, and
MC

Long run:

$Price > \min ATC$ → Profitable, keep production, entry, profit decreases

$Price = \min ATC$ → Break-even price

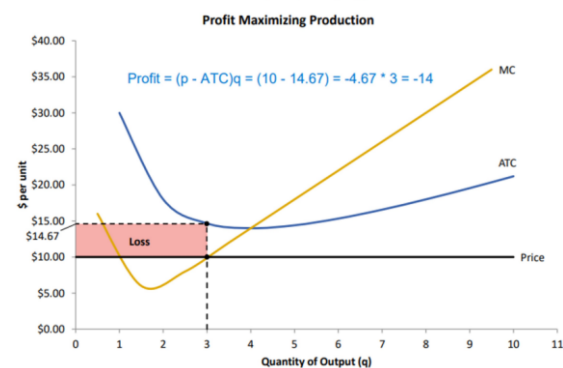
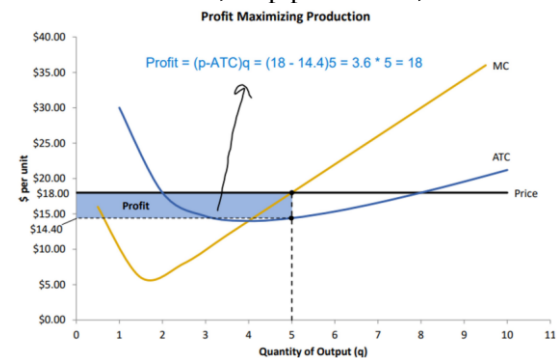
$Price < \min ATC$ → Unprofitable, stop production, exit

Same in total revenue and total cost:

$TR > TC$ → Profitable, keep production, entry

$TR = TC$ → Break-even price

$TR < TC$ → Loss, stop production, exit



The minimum ATC is the first break-even price

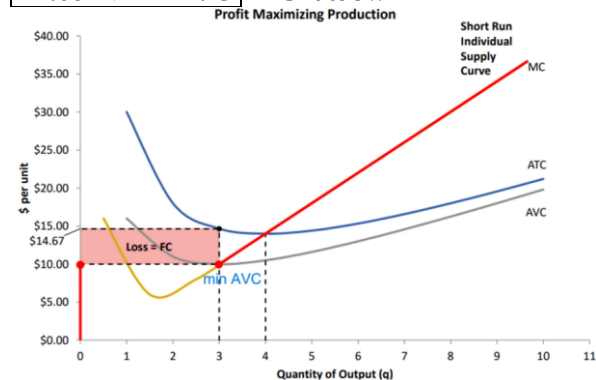
Firms can only exit in long run because they have fixed cost in short run.

Short run:

$Price > \min AVC$ → Produce

$Price = \min AVC$ → Indifferent

$Price < \min AVC \rightarrow \text{Shutdown}$



The industry supply curve is the **horizontal** sum of all individual producers' quantities supplied at each price.

Profit & Price & AVC & ATC relation:

$$AVC < P < ATC \rightarrow \pi > 0$$

$$AVC < P = ATC \rightarrow \pi = 0$$

$$AVC = P < ATC \rightarrow \pi = -FC$$

$$AVC < P < ATC \rightarrow -FC < \pi < 0$$

$$P < AVC < ATC \rightarrow -(FC + VC) < \pi < -FC$$

Profit Maximizing

Price = $Marginal Revenue = Marginal Cost$

$Price = Marginal Revenue$ because the demand curve overlaps with the marginal revenue in perfect competitive market (all individuals are price takers).

$Marginal Revenue = Marginal Cost$ always holds for profit maximizing.

Price > $Marginal Revenue = Marginal Cost$

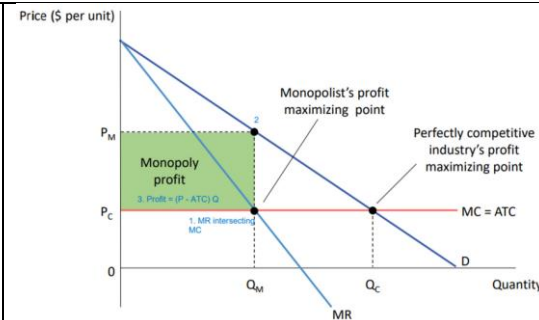
$Price > Marginal Revenue$ because of the price effect. As monopolists increase quantity, the price decreases.

Because the monopolist must lower the price on all units in order to sell additional units, marginal revenue is less than price.

Because marginal revenue is less than price, the marginal revenue curve will lie below the demand curve.

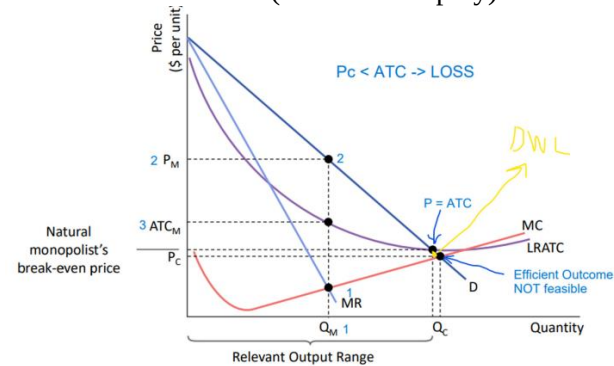
$Marginal Revenue = Marginal Cost$ always holds for profit maximizing.

Assume there is no cost, **Marginal Cost = 0**, **Fixed Cost = 0**, the maximized profit is just the biggest **Total Revenue**.



Supply and Demand	The industry supply curve is the horizontal sum of all the individual supply curves in the industry (assume all firms are identical). If there are 100 firms in the industry, one firm produces $q_1 = 5$. Then $Q_{Industry} = 5 \times 100 = 500$. More firm entering, less price (marginal revenue, as well as profit). The supply curve becomes more and more elastic as the quantity increases. In long run, there is free entering and exiting which is driven by profit. Long run market equilibrium occurs when entering and exiting stop, which means profit is 0. At minimum ATC. In long run, as the supply increases, the demand will decrease to maintain the same equilibrium price. Because in the long run, the price should be elastic. Short run industry supply curve is inelastic. Long run industry supply curve is elastic.		
Why do monopolist exist		Profits will not persist in the long run unless there is a barrier to entry. 1. Control of natural resources or inputs (cannot produce unless you have access the resource)	

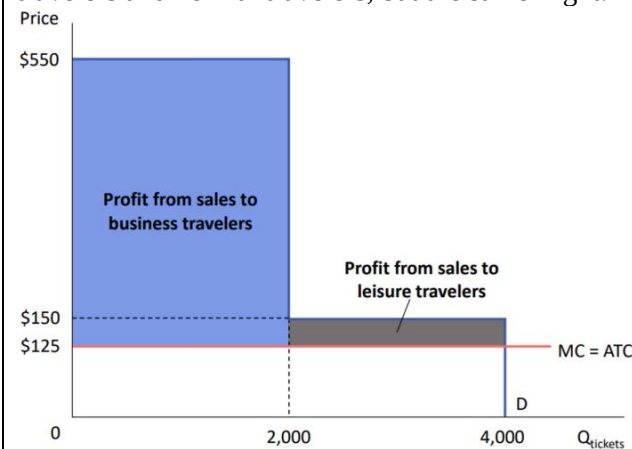
2. Technological superiority (this can be maintained if a company is always on the frontier of technology)
3. A network externality – the value of a good or service is greater when many other people use the good or service as well.
4. Legal restrictions imposed by governments (patent and copyrights)
5. Economies of scale (natural monopoly)



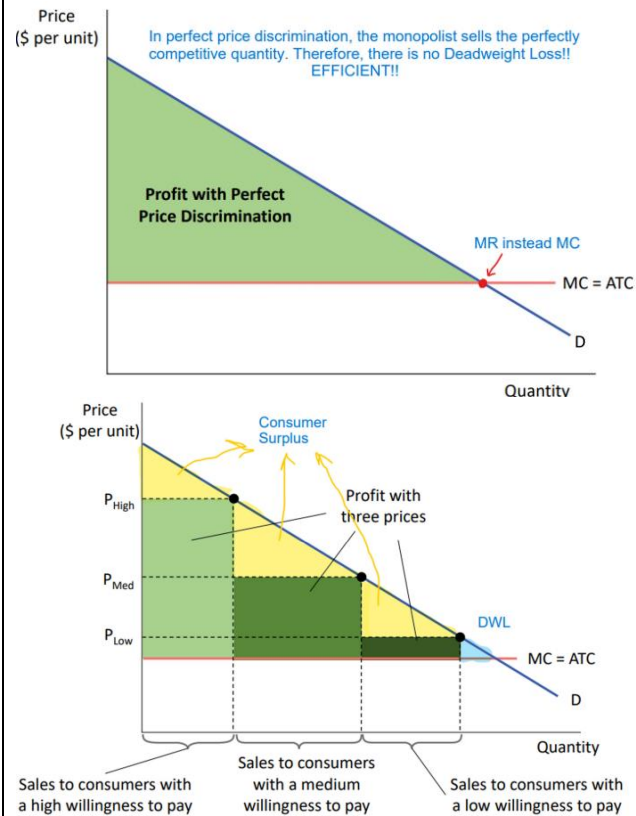
Price Discrimination

Price discrimination is charging different customers different prices for the same good in order to increase profits.

For example, student price, normal price, but the same movie. Flying ticket price for business travelers and normal travelers, but the same flight.



Perfect Price Discrimination: Everyone has different willingness to pay (every person is unique). Every unit is sold at a unique price found on the demand curve. This means MR is found on demand.



Common forms of price discrimination:

1. Advance purchase restrictions
2. Student, senior, military, and other discounts
3. Volume or quantity discounts
4. Two-part tariffs

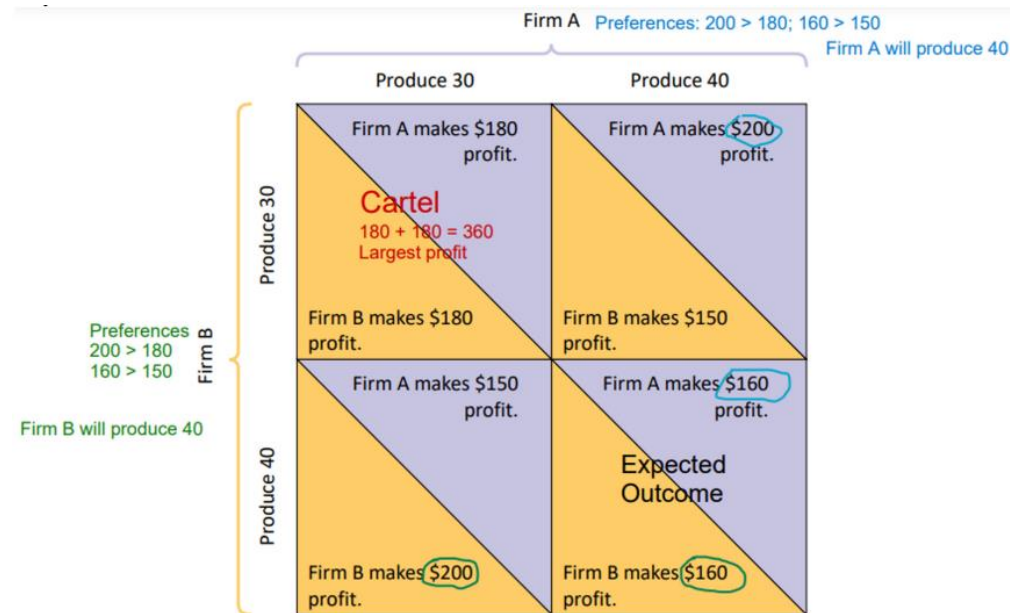
Game Theory

Interdependence means the decisions of two or more firms significantly affect each other's profits.

Game theory is the study of behavior in situations of interdependence.

The prisoner's dilemma:

- Payoff is the reward received by a player in a game, such as the profit earned by an oligopolist
- Payoff matrix shows how the payoff to each of the participants in a two game depends on the actions.



Dominant strategy is a player's best action regardless of the action taken by the other player.

Nash equilibrium, also known as a non-cooperative equilibrium, is the result when each player in a game chooses the action that maximizes his or her payoff given the actions of other players, ignoring the effects of his or her action on the payoffs received by those other players.

Repeated Inaction:

Strategic behavior – Sacrificing short-run profit to influence future behavior

Tacit collusion – When firms limit production and raise prices in a way that raises each other's profits, even though they have not made any formal agreement.

		Firm A	
		Tit for tat	Always Cheat
Firm B	Tit for tat	Firm A makes \$180 profit each year. Firm B makes \$180 profit each year.	Firm A makes \$200 profit in the first year, and \$160 each later year. Firm B makes \$150 profit in the first year, and \$160 each later year.
	Always Cheat	Firm A makes \$150 profit in the first year, and \$160 each later year. Firm B makes \$200 profit in the first year, and \$160 each later year.	Firm A makes \$160 profit each year. Firm B makes \$160 profit each year.

Tacit collusion is limited by a number of factors, including **1)** large numbers of firms; **2)** complex pricing (more complicated pricing system harder to deal with); **3)** conflicts of interest among firms.

Restraint of Trade and the Antitrust Laws

Antitrust laws make it illegal to restrain trade or attempt to monopolize a market. 1) Sherman Antitrust Act of 1890; 2) Clayton Act of 1914.

Arguments on some points of the law:

1. Resale Price Maintenance (*legal* today): Producer of a good does not dictate the price (can suggest a price to sell)
2. Predatory Pricing (illegal): Pricing below cost
3. Tie-in Sales (sometimes illegal): Buy things in bundles