
Econ 100A: Intermediate Microeconomic Analysis Lecture 17

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Plan for today

- We start Ch. 10
 - Monopoly and Monopsony
 - Monopolist's Pricing; relationship of price markup with elasticity of demand
 - Lerner Index
 - Shifts in demand and monopoly prices
 - Effects of taxes
 - Sources of monopoly power

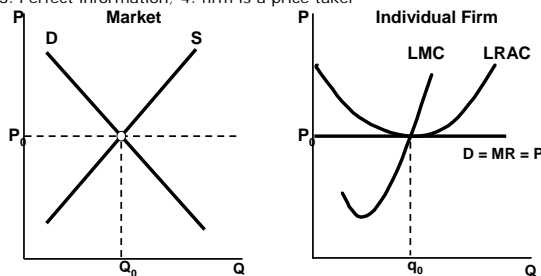
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Review of Perfect Competition

Normal profits = LR: zero economic profits; $P = LMC = LRAC$

1. Homogenous product; 2. large number of buyers & sellers
3. Perfect information; 4. firm is a price taker



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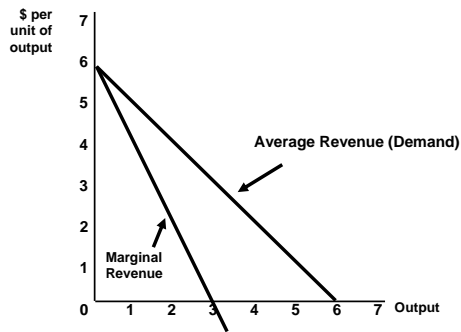
Perfect Competition versus Monopoly and Monopsony

- Perfect Competition
 - 1. Large number of buyers and sellers
 - 2. Homogenous product
 - 3. Perfect information
 - 4. Firm is a price taker
- Monopoly
 - 1. One seller - many buyers
 - 2. One product (no good substitutes)
 - 3. Barriers to entry
 - 4. Monopolist is a Price Maker (not price taker)
- Monopsony
 1. A market with a single buyer
- An oligopsony is a market with only a few buyers
- Monopsony power is the ability of the buyer to affect the price of the good and pay less than the competitive price (i.e., the price that would exist in a competitive market)

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Average and Marginal Revenue



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Monopoly

- The monopolist = the supply-side of the market (completely controls the amount offered for sale) [→ no supply curve!]
- The monopolist controls price but must take consumer demand into account
 - As the sole producer, the monopolist works with the market demand to determine output and price
- Profits are maximized at the output level where marginal revenue equals marginal cost:

$$MR = MC$$
- The monopolist's **average revenue** (i.e., the price received per unit) is the market demand curve
- Monopolist production decision depends on **marginal revenue** (a change in revenue due to a unit change in output)

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Monopoly & Competitive Firm

- For a monopolist:
 - 1. to increase sales the price must fall
 - 2. $MR < P$
- For perfectly competitive firm:
 - 1. No change in price to change sales
 - 2. $MR = P$

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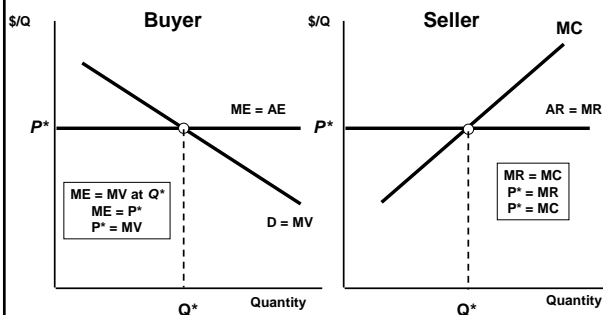
Monopsony

- The monopsonist buys until the benefit (marginal value) from last unit equals that unit's cost (marginal expenditure)
- Marginal value is the additional benefit derived from purchasing one more unit of a good (MV is analogous to MC)
- Marginal expenditure is the additional cost of buying one more unit of a good (depends on buying power) (ME is analogous to MR)

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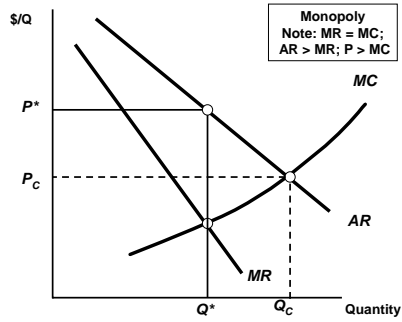
Competitive Buyer and Competitive Seller



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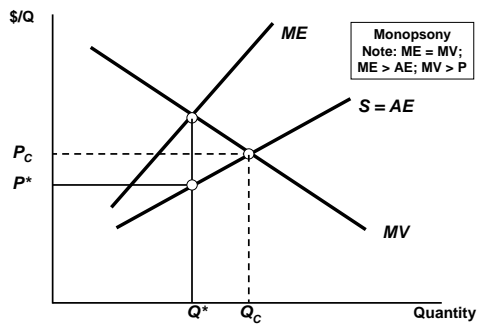
Monopoly (& Monopsony on the next slide)



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Monopsony



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Monopoly and Monopsony

- | | |
|--|---|
| <ul style="list-style-type: none"> • Monopoly • $MR < P$ • $P > MC$ • $Q_m < Q_C$ • $P_m > P_C$ | <ul style="list-style-type: none"> • Monopsony • $ME > P$ • $P < MV$ • $Q_m < Q_C$ • $P_m < P_C$ |
|--|---|

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Monopsony & Monopoly in words

- **Monopsony:**
 - ME = MV
 - ME > AE & MV > P
- **Monopoly**
 - MR = MC
 - AR > MR & P > MC
- Competitive Buyer (similar to a perfectly competitive firm)
 - Price taker
 - P = ME (Marginal expenditure) = AE (Average expenditure)
 - Demand = Marginal value
- Monopolist & Monopolist Buyer (aka Monopsonist)
 - Monopolist sells above MC, and monopsonist buys below MV
 [[Monopolist can charge price above MC because faces downward sloping demand (demand = AR average revenue), (monopsonist can set the price below his marginal value (demand = ME marginal expenditure)]
 - Monopolist MR < AR (monopsonist: AE < ME)
 - MR = MC gives quantity lower than competitive market and price higher, (monopsonist ME = MV gives quantity higher than competitive market and price lower)

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Monopolist's Output Decision

1. Profits maximized at the output level where MR = MC:

$$\pi(Q) = R(Q) - C(Q)$$

$$\frac{\Delta \pi}{\Delta Q} = \frac{\Delta(PQ)}{\Delta Q} - \frac{\Delta C}{\Delta Q} = 0$$

$$MR - MC = 0$$

$$MR = MC$$

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A Rule of Thumb for Pricing: 1

$$1. MR = \frac{\Delta R}{\Delta Q} = \frac{\Delta(PQ)}{\Delta Q}$$

- Producing one more unit and selling this unit at a price P, brings in revenue equal to price P = (P)x1
- BUT: with downward sloping demand, producing and selling one more unit results in small drop in price $\Delta P/\Delta Q$, which reduces revenue from all units sold \rightarrow change in revenue: $Q(\Delta P/\Delta Q)$

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A Rule of Thumb for Pricing: 2

$$(1) MR = \left(\frac{\Delta R = \Delta PQ}{\Delta Q} \right)$$

$$= P + Q \left(\frac{\Delta P}{\Delta Q} \right)$$

$$= P + P \left(\frac{Q}{P} \right) \left(\frac{\Delta P}{\Delta Q} \right)$$

$$(2) \left(\frac{P}{Q} \right) \left(\frac{\Delta Q}{\Delta P} \right) = E_d \implies \left(\frac{Q}{P} \right) \left(\frac{\Delta P}{\Delta Q} \right) = \frac{1}{E_d}$$

$$\text{From (1) \& (2): } MR = P + P \left(\frac{1}{E_d} \right)$$

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A Rule of Thumb for Pricing: 3

π is maximized where $MR = MC$

$$P + P \left[\frac{1}{E_d} \right] = MC$$

$$\frac{P - MC}{P} = - \frac{1}{E_d}$$

$$P = \frac{MC}{1 + (1/E_d)}$$

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The Monopolist's Markup

- The markup over MC as a % of price is:
 $(P - MC)/P$
- For the monopolist, markup equals the inverse of the elasticity of demand (see slide 17)
 - If E_d is large, markup is small
 - If E_d is small, markup is large
- If demand is very elastic (i.e. close to horizontal), there is little benefit to being a monopolist
- Note: the monopolist never produces a quantity in the inelastic portion of demand curve

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Measuring Monopoly Power: Lerner Index

- Q: How to measure monopoly power & compare firms?
- A: Monopoly power could be measured by how much the price exceeds MC for each firm
- Lerner's Index of Monopoly Power
 - $L = (P - MC)/P$
 - The larger the value of L, where $L \in [0,1]$ the greater the monopoly power
 - L is expressed in terms of E_d
 - $L = (P - MC)/P = -1/E_d$
 - E_d is elasticity of demand for a firm, not the market

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Markup Pricing: Supermarkets & Convenience Stores

- Supermarkets:
 - Prices set about 10-11% above MC (from $E_d = -10$)
- Convenience Stores (higher prices: convenience differentiates)
 - Prices set about 25 % above MC (from $E_d = -5$)

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Sources of Monopoly Power

- Monopoly power comes from the firm's ability to set price above marginal cost →
- Monopoly power depends on demand elasticity: The less elastic the demand, the higher the monopoly power
- The elasticity of demand for a specific firm is determined by:
 - 1. The elasticity of market demand
 - 2. The number of firms in market
 - 3. The interactions between the firms
- 1. If one firm (monopoly) → the demand curve is market demand curve. Then:
 - Degree of monopoly power is determined solely by elasticity of market demand
- 2. If many firms → firm & market demands differ (firm demand is more elastic than market demand curve)

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Summary of Today & plan for the next lecture

- Today we covered:
- Monopoly and monopsony
 - Monopoly price markup and demand elasticity
 - Lerner Index (a measure of monopoly power)
 - Demand elasticity and monopoly power
 - The lower the elasticity, the higher monopoly power
- Your preparation: read ch. 10 - 11
- Next lecture
 - We will continue analyzing market power
- Have a Nice Day

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The Multi-Plant Firm

- If firm produces at several plants with different costs, at each plant:

$$MR = MC$$

- We can show this algebraically:
 - Q_1 and C_1 is output and cost of production for Plant 1
 - Q_2 and C_2 is output and cost of production for Plant 2
 - $Q_T = Q_1 + Q_2$ is total output
 - Then, profit is:

$$\pi = PQ_T - C_1(Q_1) - C_2(Q_2)$$

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The Multi-plant Firm

- Firm should increase output from each plant until the additional profit from last unit produced at Plant 1 equals 0:

$$\frac{\Delta\pi}{\Delta Q_1} = \frac{\Delta(PQ_T)}{\Delta Q_1} - \frac{\Delta C_1}{\Delta Q_1} = 0$$

$$MR - MC_1 = 0$$

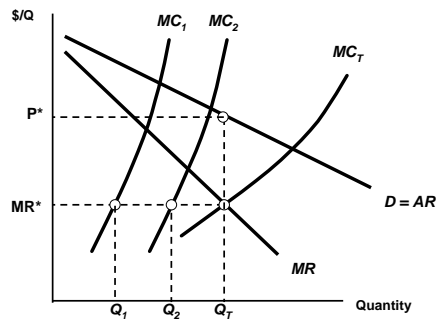
$$MR = MC_1$$

- Similar for Plant 2, thus: $MR = MC_1 = MC_2$

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Production with Two Plants



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