Summary Chapter 12 – Monopoly

**Defining Monopoly**

- A monopoly is a market structure in which a single seller of a product with no close substitutes serves the entire market.
- One practical measure for deciding whether a firm enjoys significant monopoly power is to examine the cross-price elasticity of demand for its close substitutes.
- The difference between perfect competition and monopoly often goes down to the question of which type of buyer we have.
- *The important distinction between monopoly and competition is that the demand curve facing the individual competitive firm is horizontal (irrespective of the price elasticity of the corresponding market demand curve), while the monopolist’s demand curve is simply the downward-sloping demand curve for the entire market.*

**Five Sources of Monopoly**

- There are five factors which alone or in combination can enable a firm to become a monopolist.
  
  - **Exclusive Control over Important Inputs**
    Complete or large control over necessary inputs for production causes some companies to be the sole power in an industry, as competitors cannot form due to the lack of inputs.
  
  - **Economies of Scale**
    If the LAC is downward sloping, it is essentially wise to have only a single producer in the market. This is called a *natural monopoly*, as every additional competitor makes production more costly and wasteful.
  
  - **Patents**
    A patent typically confers the right to exclusive benefit from all exchanges involving the invention to which it applies. Patents can be harmful and beneficial for a market, as they give rise to monopolistic powers, but without them some inventions would simply not occur at all.
  
  - **Network Economics**
    Once the fraction of consumers owning a certain product passes a critical threshold, (especially if it has many complements like a VHS player has VHS), *network economies* can occur which are economies of scale which occur because of a monopoly or natural monopoly power.
  
  - **Government Licenses of Franchises**
    Government or local authorities can give out licenses for firms in certain areas so they gain
exclusive rights of operations for example. These licenses are for industries or areas in which more than one firm would be harmful, however they come with regulations and restrictions

- The far most important factor of explaining monopolies is economies of scale

**Information as a Growing Source of Economies of Scale**

- Economies of scale have always been an important feature of the modern industrial landscape

**The Profit-Maximizing Monopolist**

- A monopolist’s goal is to maximize economic profit, which means that in the short run he chooses the level of output for which the difference between total revenue and short-run total cost is greatest

**The Monopolist’s Total Revenue Curve**

- The main difference between a monopolist and a perfect competitor is the way in which total and marginal revenue varies with output
- As price falls, the total revenue for a monopolist does not rise linearly with output, instead it reaches a maximum value at the quantity corresponding to the midpoint of the demand curve after which it begins to fall
- Total revenue reaches its maximum value when the price elasticity of demand is unity
- The vertical distance between short-run total cost and total revenue curves is greatest when the two curves are parallel

**Marginal Revenue**

- The slope of the total cost curve at any level of output is by definition equal to marginal cost at that output level
- The slope of the total revenue curve is the *marginal revenue*:

\[
MR_Q = \frac{\Delta TR_Q}{\Delta Q}
\]

- A profit-maximizing monopolist in the short run will choose that level of output \(Q^*\) for which

\[
MR_{Q^*} = MR_Q
\]

- The **Optimality condition for a monopolist** defines a monopolist maximizes profit by choosing the level of output where marginal revenue equals marginal cost
- The monopolist wants to sell all units for which marginal revenue exceeds marginal cost, so marginal revenue should lie above marginal cost prior to intersection

**Marginal Revenue and Elasticity**

- Marginal revenue and price elasticity share links as well
\[ MR_Q = P \left(1 - \frac{1}{|e|}\right) \]

- This equation tells us that the less elastic demand is with respect to price, the more price will exceed marginal revenue
- Also, it tells us that in the case of infinite price elasticity, marginal revenue and price are exactly the same

**Graphing Marginal Revenue**
- Plugging in the price and PED in the function above, one can plot the MR curve quickly
- By doing so, one can see that the slope of the MR is twice that of the demand curve

**Graphing Interpretation of the Short-Run profit Maximization Condition**
- The profit-maximizing level of output for a monopolist is the one for which the marginal revenue and marginal cost curves intersect
- At that quantity level, the monopolist can charge a price that will yield in an economic profit equal to the rectangle where price hits demand curve from the left and the ATC hits the demand curve from below

**A Profit-Maximizing Monopolist Will Never Produce on the Inelastic Portion of the Demand Curve**
- A profit maximizing monopolist will never produce an output level of the inelastic portion of the demand curve
- The profit-maximizing level of output must always lie on the elastic portion of the demand curve, where further price increases would cause both revenue and costs to go decrease
- If the output level lies on the inelastic part of the demand curve, then increases in price will cause profits to increase, therefore higher production is necessary

**The Profit-Maximizing Markup**
- The profit-maximizing condition MR = MC can be combined with the above equation to derive the profit-maximizing markup for the monopolist:
  \[
  \frac{P - MC}{P} = \frac{1}{|e|}
  \]

**The Monopolist’s Shutdown Condition**
- The condition for the monopoly to shutdown is that there exists no quantity for which the demand curve lies above the average variable cost curve (short run). In this condition, the monopolist should cease production in the short run and
- Monopolists should cease production whenever average revenue is less than average variable cost at every level of output
- The local minimum profit point is that point where a firm can earn higher profits by either contracting or expanding production
- The local maximum point it that point where a firm will earn lower profits by either contracting or expanding production
- For a monopolist, a global maximum profit point might occur either on the rising or on the falling portion of the MC curve, but it must be at a appoint where the MR curve intersects the M curve from above
- Both, monopolists and perfect competitors do best to shut down in the short run if price is less than average variable cost for all possible levels of output

**A Monopolist has NO Supply Curve**
- Monopolists don’t have a supply curve as they are not price takers. They is no unique correspondence between price and marginal revenue when the market demand curve shifts
- When a monopolist’s demand curve shifts, the price elasticity of demand at a given price generally will also shift
- Monopolists have a supply rule which is to equate marginal revenue to marginal cost

**Adjustments in the Long Run**
- The best a monopolist can do in the long run is to produce a quantity for which long-run marginal cost is equal to marginal revenue
- Sometimes economic profits will vanish in the long run for monopolists just as they do for perfect competitors
- Natural monopolies can hold high economic profits over longer periods of time

**Price Discrimination**
- Monopolists often charge different prices to different buyers, a practice known as price discrimination
- When price discrimination is possible, monopolists can shift some of the consumer surplus to its own profits

**The Perfectly Discriminating Monopolist**
- First degree price discrimination is the term used to describe the largest possible extent of market segmentation
- When a producer is able to charge different prices for each unit, he captures all the consumer
surplus. The consumer pays the maximum he would have been willing to pay for each unit, and as a result receives no surplus
- The marginal revenue curve of a perfectly discriminating monopolist is exactly the same as the demand curve
- Because he can discriminate perfectly, he can lower his price to sell additional output without having to cut price on the output originally sold, thus price and marginal revenue are one and the same
- Perfect discriminators produce a higher level of output because they don't need to be concerned with the effect of a price cut on the revenue from output produced
- There is generally a positive consumer surplus under nondiscriminating monopolists, but none under the perfect discriminator

Second-Degree Price Discrimination
- Second degree price discrimination refers to a practice by which many sellers post a schedule long which price declines with the quantity you buy (aka. Declining tail-block rate)
- The second degree discriminator offers the same structure to every consumer, which means that they make no attempt to tailor charges to elasticity differences among buyers
- The limited number of rate categories tends to limit the amount of consumer surplus that can be captured under second degree schemes

Third-Degree Price Discrimination
- Third-degree Price discrimination defines a producer selling his goods in two different markets at two different prices
- The markets where the producer sells his goods should not be able to communicate with each other, otherwise all consumers will buy in the cheapest market
- If the monopolist cannot sell his goods at different prices in the different markets, then he must see the markets as one big one

The Hurdle Model of Price Discrimination
- The hurdle model of price discrimination is an idea in which the most elastic buyers will identify themselves
- The hurdle model requires the buyers to first jump over a hurdle in order to get a rebate or something similar
- The hurdle model is not perfect as some people would buy a product if it wasn’t on sale as well, but rather wait a bit if there is the chance to get it cheaper
- Like first-degree price discrimination, the hurdle model tries to tailor prices to the elasticities of individual buyers, however the hurdle model cannot capture all of the consumer surplus

**The Efficiency Loss from Monopoly**
- The perfectly discriminating monopolist and the perfectly competitive industry lead to the same result, with the difference that in the former case, all of the benefit comes in the form of producer surplus, and in the latter one all in the form of consumer surplus
- The efficiency loss from monopoly is the result of failure to price discriminate perfectly, which is also called *deadweight loss from monopoly*

**Public Policy Toward Natural Monopoly**
- There are two objections to the equilibrium price-quantity pair of the single-price natural monopoly: (1) the *fairness objection*, which is that the producer earns economic profit; and (2) the *efficiency objection*, which is that price is above marginal cost, resulting in lost consumer surplus
- There are five options which respond to the fairness and efficiency objections:

  1. **State Ownership and Management**
     - Because private firms are not able to charge prices less than average cost and remain in business in the long run, the single-price firm has not alternative but to charge more than marginal cost.
     - An option that would rid this is state ownership, which would cause a lack of innovation and efficiency
     - *X-inefficiency* is a condition in which a firm fails to obtain maximum output from a given combination of inputs
     - Nevertheless, state-operated natural monopoly may be the best solution in some cases

  2. **State Regulation of Private Monopolies**
     - Governments can leave ownership to private firms, providing guidelines and regulations though
     - The *rate-of-return regulation* defines a regulation