***King Saud University***
***College of Business Administration***
***Department of Health Administration - Masters` Program***

# ***HHA 524 Health Economics***
# ***Second Semester 1442/ 1443***

**Mohammed S. Alnaif, Ph.D.**

**alnaif@ksu.edu.sa**

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

## *Learning Objectives*

- ***Explain the various ways to characterize a market structure.***
- ***Compare the characteristics of the healthcare market with those of a perfectly competitive market.***
- ***Describe how an oligopolistic and monopolistically competitive market structure relates to healthcare markets.***
- ***Evaluate the market structure of the pharmaceutical industry.***
- ***Describe the trade-off between efficiency and equity in the healthcare market***
- ***Explain how the monopoly and monopolistic competition market structures can be used to understand health economic issues.***

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

## *Core Concepts*

- ***To gain an understanding of current public health and health system issues—such as competition among hospitals, shortage of the flu vaccine, and oversupply of specialists—one must have a solid understanding of different market structures.***
- ***A market structure can be categorized in numerous ways.***

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

## *Core Concepts*

- ***Typically, economists assess first whether a market (consisting of buyers and sellers) has characteristics that align with perfect competition.***
- ***If it does not, economists then evaluate what market structure is at play—a monopoly, oligopoly, duopoly, or something else***

# *Exhibit 6.1. Types of Market Structures*

***Market Structure can be categorized in numerous ways.***

***Perfect Competition***
***Many small firms. Many individual buyers. Freedom of entry and exit from the industry.***

***Monopsony** **a buyer (or a group of buyers) has the ability to reduce the purchase price below the price offered in a competitive market.***

***Monopoly***
***a market structure with one seller***

***Oligopoly** **A market structure consisting of a few dominant sellers. Many health-related goods and services compete under this market structure.***

***Duopoly** **consists of just two sellers, price is lower than in a monopoly, equilibrium quantity is shared between the two sellers***

***Monopolistic Competition** **is a market structure in which no cooperation occurs among the many sellers.***

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

## *Perfect Competition*

- ***The assumptions associated with perfect competition are fairly strict, and the reality is that most markets are not perfectly competitive.***
- ***However, the assumptions of perfect competition are used here as a jumping-off point to understand other market structures.***

## *Perfect Competition*

***The conditions under which perfect competition operates are as follows:***

- ***Many small firms.*** ***Each firm produces an insignificant percentage of total market output. Hence, no individual firm has control over the market price.***
- ***Many individual buyers.*** ***No individual buyer (or small group of buyers) has control over the market price.***
- ***Freedom of entry and exit from the industry.*** ***People (and firms) make production and consumption decisions on the basis of their own free will.***

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

***Perfect Competition***

***The conditions under which perfect competition operates are as follows:***

- ***Homogeneous products.*** ***Products sold by any one firm are indistinguishable from the products sold by a competing firm.***
- ***Perfect knowledge.*** ***Consumers know what choices are available. Firms have access to the same production technology. No firm can produce its good faster, better, or cheaper.***
- ***Perfect knowledge*** ***A situation in which consumers and producers have equal information about price, production, or quality of a good or service.***

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

***Perfect Competition***

***The conditions under which perfect competition operates are as follows:***

- ***Price takers.*** ***Assuming that many buyers and sellers exist in the marketplace, the equilibrium price is determined by a huge number of different transactions.***
- ***Economists typically say that a firm "takes the price" from the market. If a firm decides to sell goods (that are identical to other goods in the marketplace) at a price higher than the price set by competitors, no one will purchase the product.***
- ***Likewise, a firm cannot set a price that is below the equilibrium price because its competitors would also lower their prices, and all firms will earn less profit. For these reasons, firms in competitive markets are called price takers.***

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

***Perfect Competition***

***The conditions under which perfect competition operates are as follows:***

- ***No externalities. An externality arises when an economic transaction negatively or positively affects a person (or third party) that is not a willing participant (either a buyer or a seller) in the transaction.***
- ***Under perfect competition, the assumption is that buyers are not negatively affected by other buyers' market decisions.***
- ***A common example of a negative externality is pollution. An individual who is not a buyer or manufacturer of a product may be negatively affected by the pollution generated by the manufacturing facility.***

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

***Perfect Competition***

***The conditions under which perfect competition operates are as follows:***

- ***Zero economic profits.*** ***The act of competition is what drives the market toward equilibrium price and quantity.***
- ***At equilibrium, a firm makes zero economic profits.***
- ***Zero economic profits mean that firms are earning just enough to cover the costs of production and to cover the opportunity costs of their investment.***
- ***As the assumptions of perfect competition are quite stringent, most markets related to healthcare are more similar to monopolistic competition, duopoly, or oligopoly.***

## ***Other Market Structures***

***Sometimes, the seller has the market power to influence the terms of the exchange, meaning the price and quantity. This situation occurs in the following market structures:***

- ***Monopoly, a market with only one seller***
- ***Duopoly, a market with two sellers***
- ***Oligopoly, a market with a few sellers***
- ***Monopolistic Competition, a market with many sellers***

## *Other Market Structures*

***Monopoly, a market structure with one seller—exists for three reasons:***

1. ***One firm owns all of some resources. For example, one company-controlled 100 percent of the hospitals in the market.***
2. ***The government allows a monopoly to exist. This is not common in some countries, airlines or railways are government-designated monopolies.***
3. ***A physical reason exists for a company to have a monopoly. For example, a local power company is the sole service provider in a town because it is the only one with an established power infrastructure.***

## *Other Market Structures Monopoly,*

- ***A monopolist can set a fairly high price, as it has no competitors to drive down price.***
- ***However, if a price is set too high, people may buy less even if no exact substitutes exist.***
- ***There are situations in which one company is the only supplier, but related goods and services are available that some consumers are willing to purchase.***

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

## *Other Market Structures Monopoly,*

- ***For example*, in a geographic area served by only one hospital, residents with certain conditions may substitute medical management (e.g., prescription medicine and physical therapy) for surgical care. In this instance, the hospital has a monopoly on care that can only be provided in a hospital; however, for some consumers it is reasonable to look at alternatives for services that may generate the desired outcome.**

## *Other Market Structures Monopoly,*

***A monopoly market structure can lead to the following:***

1. ***Lower quantity of goods or services than would be produced in a competitive market.***
2. ***Higher price than the equilibrium price in a competitive market.***
3. ***Higher profit level for the firm; other firms are not able to enter the market and drive down the price.***

## *Other Market Structures* Duopoly,

- ***In a duopoly, the marketplace consists of just two sellers.***
- ***The price is lower than in a monopoly structure but higher than would be in a perfectly competitive market.***
- ***The equilibrium quantity is shared between the two sellers.***
- ***The best outcome for the two firms is to share the profits between them, but each has an incentive to cheat, which can result in a different equilibrium.***

# *Other Market Structures* Duopoly,

- ***The duopoly structure is fairly common in healthcare*, especially when the service is capital intensive (e.g., MRI [magnetic resonance imaging]) or has a limited demand.**
- ***For example, in a medium-sized community*, the demand for neurosurgeons is likely small.**
- ***The community might have just two neurosurgeons* who, together, control 100 percent of the neurosurgery market.**

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

## ***Other Market Structures Oligopoly,***

- ***Oligopoly is often referred to as "competition among the few."***
- ***Each firm in an oligopolistic market produces goods or services that are similar but are not considered perfect substitutes for each other.***
- ***As a result, each firm can influence the competitors' market shares.***
- ***Many health-related goods and services compete under this market structure.***
- ***For example, in one community, three or four facilities may offer similar outpatient surgical services.***

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

## *Other Market Structures Oligopoly,*

***An oligopoly market structure is different from other market types in the following characteristics is in order:***

1. ***Interdependence. Any change in price and output by one firm has a direct effect on the profits of the other firms. Hence, if one firm makes a change, the other firms also change their price and output. Simply put, the firms under oligopoly market structure are interdependent.***

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

## *Other Market Structures Oligopoly,*

2. ***Reliance on advertising. Firms must spend a considerable amount on advertisements and other promotional measures to gain market share. Under perfect competition and monopoly, large expenditures on marketing are not necessary.***
3. ***Demand uncertainty. Mutual interdependence creates uncertainty for all of the firms. As a result, estimating the quantity demanded at different price levels is extremely difficult.***

## Other Market Structures Oligopoly,

4. ***Product differentiation. When firms produce slightly different products and that differentiation can be discerned by consumers, each firm behaves as a monopolist in terms of price setting and output determination.***
5. ***Sticky prices. Under an oligopoly structure, prices tend to be fairly "sticky" (meaning prices do not budge). If any firm reduces its price (in an attempt to gain market share), its rival firms immediately make the same price cut. Then, all firms have reduced profits. Hence, prices remain fairly stable and higher than they would be in a perfectly competitive situation.***

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

## *Other Market Structures Monopolistic Competition*

- ***Whereas oligopoly brings about a low level of cooperation among competing firms in the market (at least in theory), a monopolistic competition is a market structure in which no cooperation occurs among the many sellers.***
- ***The following characteristics of monopolistic competition borrow from both the competitive market structure and the monopoly market structure***

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

## *Other Market Structures Monopolistic Competition*

1. ***Product differentiation**. Monopolistic competitors produce heterogeneous products. Sellers find ways to differentiate their goods and services from similar offerings in the market. This can lead to excessive product differentiation and excess capacity.*
2. ***Many buyers and sellers**. Similar to a perfect competition, monopolistic competition has many buyers and sellers in the market. Each seller has a relatively small market share. In comparison, a monopolist has 100 percent market share.*

## Other Market Structures Monopolistic Competition

3. **Reduced likelihood of minimizing cost.** *Firms may have an incentive to produce goods and services that are "over the top" and as a result incur high production costs.*
4. **Price setters.** *Each firm has its own demand curve and is a price setter (rather than a price taker). In a sense, each firm has its own market. Thus, the price for a good or service is set higher than it would be if the market was perfectly competitive.*

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

## *Other Market Structures Monopolistic Competition*

- ***Under monopolistic competition*, brand loyalty is essential. If consumer loyalty is high, the seller has the ability to increase prices without the risk of losing its entire customer base.**
- ***For example, many (but definitely not all) patients* have long-standing relationships with their physicians.**
- ***The personal ties between patients and physicians give providers monopolistically competitive power*.**

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

***Other Market Structures Monopolistic Competition***

***A monopolistically competitive firm can earn a profit in the short run. Higher profit levels lead to***

1. ***more providers entering the market to try to reap some of the potential profit, and***
2. ***existing providers further differentiating their products to attract more customers.***

## *The Cost of Differentiation (Example)*

- ***Suppose an ambulatory surgical center (ASC) is in competition with other ASCs and hospital-based outpatient surgery centers. To attract patients, the ASC may choose to add valet parking, an on-site pharmacy, and free follow-up home health care. These changes are costly. For the ASC to maintain (or increase) its profit level, it will likely raise prices, with the hope that the added benefits will outweigh the price increase.***

# Deviations From Competitive Markets

**Healthcare markets deviate from perfect competition in some typical ways.**

- *Asymmetric Information*
- *Uncertainty*
- *Product Differentiation*
- *Barriers to Entry Certificate of need (CON)*
- *Negative and Positive Externalities*
- *Monopsony*

# *Asymmetric Information*

- ***In almost every industry, the seller has more or better information about the product than the buyer does. This asymmetric information is highly prevalent in healthcare.***
- ***Physicians and other providers have a knowledge advantage, which enables them to influence the type and amount of health-related goods and services a consumer purchase. (Keep in mind that having the ability to influence the purchasing decision is not the same as actually doing so.)***

# *Asymmetric Information*

- ***For example**, repairing a herniated disc may seem to be a routine procedure, but surgeons know they can use slightly different techniques or tools, or follow their own methods.*
- ***Patients can try to understand what is involved in the procedure**, but without specialized training necessary, the nuances of such a procedure are difficult to grasp.*
- ***Conversely, patients may hide some information** from their physicians. This lack of disclosure may stem from fear, embarrassment, or ignorance (e.g., the patient may believe a symptom he is experiencing is not important).*

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

## *Uncertainty*

- ***In a perfectly competitive market structure*, the quality of the product and all of its attributes are known. *In healthcare, this is not the case. Different physicians* may not agree on the medical condition underlying the symptoms the patient presents.**
- ***Even if physicians agree on the diagnosis*, they may not agree on the course of treatment (e.g., medical management vs. surgery). *Additionally, regardless* of the treatment, some degree of uncertainty exists regarding the ultimate health outcome.**

## *Product Differentiation*

- ***Each provider offers a different experience*. *Differences between providers include (but are not limited to) technology, human interaction, and diagnostic capabilities*.**

## *Barriers to Entry*

- ***Newly licensed physicians and other medical practitioners may find entering the healthcare market difficult.***

# *Barriers to Entry*

- ***Why? First, it takes time to build strong relationships with patients—let alone with a sufficient number of patients to enable a provider to compete with others in the marketplace.***
- ***Second, certain legal restrictions limit market access. In many countries, opening or expanding a facility and making a large capital purchase require providers to obtain certificate-of-need (CON) approval from the government.***

## *Barriers to Entry*

- ***Certificate of need (CON)*** ***An approval required by a government before the acquisition, expansion, or creation of a medical facility or the purchase of capital equipment.***
- ***Barriers to entry also exist for those training to become healthcare providers. Physician education and licensing are a lengthy and costly process.***
- ***Moreover, the competition to get accepted into well-respected medical schools and nursing programs is tight.***

## Negative and Positive Externalities

- Under perfect competition, externalities do not exist.
- A positive externality occurs when the societal benefit of buying a good exceeds the benefit received by those who actually buy that good.
- A negative externality occurs when the societal cost of buying a good exceeds the actual cost of the purchase.

## Negative and Positive Externalities

- ***A commonly used example to explain externalities is vaccinations. When individuals get vaccinated, society benefits.***
- ***For example, if 28 students, in a class of 30, purchase and receive a vaccination for the flu, then the remaining 2 students receive some protection from the flu by virtue of spending a large part of their day with classmates who will likely not be struck by (and thus spread) the virus.***

## *Negative and Positive Externalities*

- ***This is called herd immunity. In theory, the price a person is willing to pay for vaccination depends on that person's valuation of the benefit of immunization.***
- ***This price typically does not take into account the societal benefit (e.g., herd immunity).***
- ***If the societal benefit and the personal benefit were considered, the economically efficient price of the vaccination would be higher than the market price.***

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

## *Monopsony*

- ***In a monopsony, a buyer (or a group of buyers) has the ability to reduce the purchase price below the price offered in a competitive market.***
- ***Monopsony discussions in healthcare often center on whether an insurance company can force providers to accept below-market reimbursements.***
- ***Providers negotiate reimbursement rates with insurance companies on a yearly basis. Providers are willing to negotiate because patients are more likely to go to a provider who accepts their insurance.***

## *Monopsony*

- ***If one insurance company controls a large share of the insurance market* in a geographic area, providers may have no choice but to accept a low reimbursement rate for their services.**
- ***An insurance company that has negotiated low payment rates* is able to retain a larger share of its enrollees' premiums and thus generate higher profit.**

# *PERFECT COMPETITION AND OTHER MARKET STRUCTURES*

## *Market Structure in the Pharmaceutical Industry*

- ***There are two types of pharmaceutical companies:***

1. ***those that engage in R&D (research and development) to produce brand-name drugs, and***
2. ***those that manufacture generic drugs.***

- ***The average cost of developing and getting approval to market a new drug is about $2.6 billion*** ***(Tufts Center for the Study of Drug Development 2014)***

## *Market Structure in the Pharmaceutical Industry*

- ***Patent protection** of a drug serves as a legal barrier to pharmaceutical firms entering the market.*
- ***A patent is a property right granted by the government to an inventor** "to exclude others from making, using, offering for sale, or selling the invention throughout the country or importing the invention into the country" for a limited time.*

## *Market Structure in the Pharmaceutical Industry*

- ***Two different forms of patent protection apply to pharmaceuticals.***
- ***The first safeguards the process by which a drug is produced. T***
- ***The second protects the formula of the drug.***
- ***Patents last approximately 20 years.***
- ***The pharmaceutical market is often used as an example of a monopoly or oligopoly.***

## *Market Structure in the Pharmaceutical Industry*

- ***Typically, the price consumers pay for a new drug is much higher than the drug's cost of production.***
- ***Prices are generally set according to the demand structure and the price sensitivity of consumers.***
- ***The more innovative the drug and the fewer close substitutes it has, the greater the price markup over costs.***

## Efficiency and Equity

- *When markets work efficiently, goods and services are not underproduced or over-produced, and prices are set at a level that consumers are willing to pay—not too high and not too low.*
- *But this is not the case in healthcare.*
- *For example, without government intervention, the supply of hospitals in rural areas would be low.*
- *The patient volume in rural areas is not high enough to generate the revenue needed to cover the cost of running a hospital.*

## Efficiency and Equity

- ***If only efficiency is considered*, only those who can afford health-related goods and services will purchase them.**
- ***Healthcare consumption, however*, is not determined exclusively by willingness or ability to pay.**
- ***Many individuals, for lack of better options*, present them-selves in emergency departments to obtain care that could be delivered in a less expensive setting, such as a physician’s office.**

## *Efficiency and Equity*

- ***In some countries**, health insurance determines a person's ability to obtain health-related goods and services.*
- ***Most other countries** do not view healthcare as a typical commodity, for example, denying individuals treatment just because they cannot pay is incomprehensible.*
- ***However, there remain some fundamental obstacles** to the development of a healthcare system that bases access to care on need rather than on ability to pay.*

# THANK YOU