Definition of the market, nature and measurement of market concentration, indices of concentration, inequality measures.

Introduction:

In economics, market concentration is a criterion that can be used to rank order various distributions of firms' shares of the total production or total capacity or total reserves in a market. Market concentration is used when smaller firms account for large percentage of the total market. It measures the extent of domination of sales by one or more firms in a particular market. Thus, the concentration of economic power may be defined as the economic position which enables the firm to command control over production or market exchange or employment in respect of any good or service. Control over production may result from possession of considerable share of the total productive capacity, control over raw material and other inputs, or exclusive ownership of know-how including patent rights, trade marks, industrial designs etc.

Market concentration is considered bad for the economy because abuse of dominance may occur in the economy. A dominant position is generally defined in terms of the position of strength enjoyed by a firm or enterprise in the relevant market. In that case it enables the firm to operate independently of competitive forces prevailing in the relevant market.

Manifestation of Market Concentration:

Normally market concentration in the industrial and services sector may be manifest in any or all of the following forms:

1. Considerable share of productive capacity:

If productive capacity of the firm is higher than the required capacity under the law in the relevant country then it is said to be the dominant position of that firm in the relevant market. As a result, the firm will be able to buy the raw material with lower prices and will be able to control the prices of the raw material. Then the firm is able to supply more goods and services and control the market with lower prices of the product or a service, because it is also in a position to control the price of the commodity or service it produces.

2. Control over the market:

If an undertaking either by itself or together with its inter-connected undertakings control over the certain share of the market then it is also known as market concentration. Larger the share of the firm in the market, larger will be control over prices in the market. This kind of firm is normally regarded as a dominant undertaking.

3. Large assets:

The value of the assets of the firm will also give some indication of the market concentration too. Larger the assets of the firm, larger will be the monopoly.

4. Considerable share in employment:

If the firm is employing large number of persons in the factory and its share in total employment of the industry is large then it also becomes an instrument to control the wages of the labor. The larger firm is normally in a position to control the price of the labor. If it is in a position to pay less wages to the labor, then the production cost will be less and price of the product will be lower in the market and that will give the firm an added advantage in the market of the product. Therefore, the percentage of the workers of the industry employed be a firm is sometimes taken to decide the extent of its economic power and dominance.

Causes of Market Concentration:

There are many factors that contribute to the market concentration that leads to economic power. The Monopolies Inquiry Commission in India has spelt out the following causes:

1. Growth of Joint Stock Companies and Technological Advances:

Development of joint stock company form for the production of goods and services leads to economies of scale. Production of a good or service on large scale naturally brings down the fixed cost of production. That also leads to technological advances for further reduction of cost. This is the main cause of the market concentration. The urge of reduction in cost of production leads to research and development activities in the firm to make the firm competitive in the market.

2. Inter-connection:

Inter-company investments, inter-locking of directors, mergers and acquisitions and amalgamations etc have also contributed to the market concentration in various sectors of economy.

3. Managing Agency:

The system of managing agency supplying managerial skill in different forms and diverse ways has proved a fruitful source for market concentration.

4. Control and Command economy:

The system of controls in the form of industrial licenses, import restrictions, exchange controls, etc. have also helped the big business houses to remain big enough to control the market in India for long time. These controls normally restrict the competition in the market and lead to market concentration.

5. Inherent Opportunities:

Those who are economically powerful and wealthy always try to control the market for profit maximization. The working of India's planned economic growth has encouraged this process of market concentration by facilitating the growth of existing big business houses in India.

6. Assistance from Financial Institutions:

It also happens that the big business houses obtain assistance from banks and other financial institutions and thus it leads to market concentration. Big banks and financial institutions normally give preference to big business houses in funding their big ticket projects.

Market Structure

Normally market structure is understood with varied degree of competition prevalent in the market. Here we understand various markets with their basic characteristics.:

1. Perfect competition:

It is a market in which there are larger numbers of firms selling homogeneous goods to larger number of buyers. There is freedom of entry and exit to the firms and so in the long run firm will end up earning only normal profits. It is also assumed that un this market transactions cost is zero and economic actors behave rationally.

2. Monopoly :

It is a market characterized by the presence of a single firm, existence of strong barriers to entry and absence of close substitutes. In this market the firm earns super normal profit.

3. Oligopoly:

It is a market characterized by the few firms selling homogeneous or differentiated goods to many buyers. Firms either tend to cooperate or compete with each other.

4. Monopolistic competition :

It is a market characterized by the presence of many firms selling differentiated products to large number of buyers. There is freedom of entry and exit to firms, selling costs are necessary due to product differentiation. Firms earn normal profit.

5. Contestable markets:

It refers to markets where there is an industry with freedom of entry and exit of firms and presence of low sunk costs. The theory of contestability suggests the number of firms is not so important, but the threat of competition is important.

Normally market concentration occurs when there is monopoly in the market of a particular good or service.

Monopoly and Market Concentration:

Monopoly strictly refers to a situation where the whole market for a product is controlled by a single firm and there is no substitute for that product. Normally, this kind of market is rare and the term 'monopoly' is used to refer to 'normal monopoly' situation. Degree of monopoly indicates the extent control or power of a monopolist firm. Today it is usual to describe a firm as monopolist if it by itself or with a few other firms, controls the major part of the market of a particular good or a service.

Sources and Types of Monopoly:

Many obstacles to entry in to the market of a product lead a firm to monopolize an industry and prevent entry of new firms. These obstacles may refer to legal, technical or economic barriers prevalent at a particular period in the economy. These types of monopoly create barriers of entry and lead to market concentration:

1. Natural Monopoly:

A natural monopoly occurs when the most efficient number of firms in the industry is one. A natural monopoly will typically have very high fixed costs meaning that it impractical to have more than one firm producing the good. The natural monopolist always enjoys increasing returns to scale. The industry in public utilities is a good example of a natural monopoly.

2. Strategic Resource Monopoly:

This refers to a situation where a firm has achieved monopoly position by gaining control of an essential input or resource for production of a good or service. If a firm is having total control of inputs, then that will naturally lead to market concentration of the product it produces.

3. Patent Monopoly:

Patent is given to a firm to make, use or vend its own invention or discovery for the production of a good or service. When a patent is given to a firm by the government for a particular period to produce a particular product, it monopolizes for the production of that product for a certain period. Many times this monopoly is extended in the market for a much longer time than the stipulated time under the patent.

4. Licensed Monopoly:

Prof C. N. Vakil has used this term to refer to the situation where the domestic producers are enabled to obtain monopoly power by the protection accorded to to them from foreign competition by the government.

Concentration:

Concentration within an industry refers to the degree to which a small number of firms provide a major portion of the industry's total production. If concentration is low, then the industry is considered to be competitive. If the concentration is high, then the industry will be viewed as oligopolistic or monopolistic. Government agencies examine concentration within an industry when deciding to approve potential mergers between industry firms. The most common measure of concentration is the four-firm concentration ratio, which is defined as the percentage of the industry's output sold by the four largest firms. An industry with a four-firm concentration ratio of forty percent is generally considered to be competitive.

Description: Concentration

The market concentration ratio measures the combined market share of all the top firms in the industry. 'Market Share' is used as a reference here in the formulae. It could be sales, employment statistics, number of people using a company's services, number of outlets etc. The value of top firms or top 'n' firms may be three or maximum five. If the top firms keep on gaining market share, then we say that the industry has become highly concentrated. To understand market concentration, let's first understand 'concentration'. Concentration within an industry can be defined as the degree at which a small number of firms make up for the total production in the market. If the concentration is low, it simply means that top 'n' firms are not influencing the market production and the industry is considered to be highly competitive. On the other hand, if the concentration is high, it means that top 'n' firms influence the production or services provided in the market the industry then is said to be oligopolistic or monopolistic.

While perfectly competitive markets have a homogeneity of goods, price-searcher markets have a differentiation of goods. The differentiation could be in the form of location, taste, packaging, design, quality and many other factors. Some textbooks use the phrase "monopolistic competition" to describe markets where each firm has something unique about its product while facing significant competition. A good example would be a gas station. Although there are many competing gas stations, an individual gas station is the only one at its particular location and, therefore, to some degree it has a monopoly or is a sole seller. The CFA text prefers the term "competitive price searcher".

Firms in a price-searcher market with low barriers to entry have some flexibility to raise prices, as they will not lose all their customers if they do so. For example, if Valvoline raises the price of its motor oil, some people will be willing to pay the price for the motor oil they prefer. However, rival firms such as Pennzoil or Castrol also provide similar motor oils. As Valvoline raises its prices, many customers will switch to rival suppliers. The demand curve faced by firms in competitive price search markets, such as motor oil, will be highly elastic.

Firms in price-searcher markets with low barriers to entry face competition from existing suppliers and potential new entrants. If economic profits are being made in the market, then more firms will be expected to enter the market. Price searchers can set their prices, but the actual quantities sold will depend upon market forces.

Monopoly refers to a "single seller". The single seller will have a market with no well-defined substitute. The monopolist does not need to worry about the reactions of other firms. Utility companies are often monopolists in particular markets.

Herfindahl - Hirschman Index (HHI):

The most common measure to calculate the market concentration is the Herfindahl-Hirschman Index (HHI). The HHI calculates concentration ratios by squaring the market share of the fifty largest firms in an industry. The formula can be expressed as follows:

Formula:

$$\mathbf{HHI = S_1^2 + S_2^2 + S_3^2 + ... + S_n^2}$$

(Where S_n is the market share of the i^{th} firm).

A monopoly would have the largest possible value - $100^2 = 10000$. The HHI for a highly fragmented industry would be close to zero. The Justice Department of the USA generally considers an industry with an HHI above 1800 to be highly concentrated.

Thus this index is calculated by adding the square root of the percentage market share of each individual firm in the industry. For example in a market consisting of only five firms with shares of 30%, 30%, 20%,10% and 10%, the Herfindahl Index would be 2400 (900 + 900+ 400+ 100+100). The index may rise as high as 10,000 if the market has a monopoly. But, lower the index is, more competitive the market becomes. The indicator could become zero for the perfect competition.

Market concentration is a function of the number of firms in a market and their respective market shares. As an aid to the interpretation of market data, we can use the Herfindahl-Hirschman Index ("HHI") of market concentration. As said earlier, HHI is calculated by summing the squares of the individual market shares of all the participants. Unlike the four-firm concentration ratio, the HHI reflects both the distribution of the market shares of the top four firms and the composition of the market outside the top four firms. It also gives proportionately greater weight to the market shares of the larger firms, in accordance with their relative importance in competitive interactions.

Here we divide the spectrum of market concentration as measured by the HHI into three regions that can be broadly characterized as unconcentrated (HHI below 1000), moderately concentrated (HHI between 1000 and 1800), and highly concentrated (HHI above 1800). Although the resulting regions provide a useful framework for merger analysis, the numerical divisions suggest greater precision than is possible with the available economic tools and information. Other things being equal, cases falling just above and just below a threshold point present comparable competitive issues.

General Standards

In evaluating horizontal mergers, the Agency will consider both the post-merger market concentration and the increase in concentration resulting from the merger. Market concentration is a useful indicator of the likely potential competitive effect of a merger. The general standards for horizontal mergers are as follows:

(a) Post-Merger HHI Below 1000: The Agency regards markets in this region to be unconcentrated. Mergers resulting in unconcentrated markets are unlikely to have adverse competitive effects and ordinarily require no further analysis.

(b) Post-Merger HHI Between 1000 and 1800: The Agency regards markets in this region to be moderately concentrated. Mergers producing an increase in the HHI of less than 100 points in moderately concentrated markets post-merger are unlikely to have adverse competitive consequences and ordinarily require no further analysis. Mergers producing an increase in the HHI of more than 100 points in moderately concentrated markets post-merger potentially raise significant competitive concerns depending on the factors.

(c) Post-Merger HHI Above 1800: The Agency regards markets in this region to be highly concentrated. Mergers producing an increase in the HHI of less than 50 points, even in highly concentrated markets post-merger, are unlikely to have adverse competitive consequences and ordinarily require no further analysis. Mergers producing an increase in the HHI of more than 50 points in highly concentrated markets post-merger potentially raise significant competitive concerns, it will be presumed that mergers producing an increase in the HHI of more than 100 points are likely to create or enhance market power or facilitate its exercise. **Factors Affecting the Significance of Market Shares and Concentration**

The post-merger level of market concentration and the change in concentration resulting from a merger affect the degree to which a merger raises competitive concerns.

Changing Market Conditions

Market concentration and market share data of necessity are based on historical evidence. However, recent or ongoing changes in the market may indicate that the current market share of a particular firm either understates or overstates the firm's future competitive significance. For example, if a new technology that is important to long-term competitive viability is available to other firms in the market, but is not available to a particular firm, the Agency may conclude that the historical market share of that firm overstates its future competitive significance. The Agency will consider reasonably predictable effects of recent or ongoing changes in market conditions in interpreting market concentration and market share data.

Degree of Difference Between the Products and Locations in the Market and Substitutes Outside the Market

All else equal, the magnitude of potential competitive harm from a merger is greater if a hypothetical monopolist would raise price within the relevant market by substantially more than a "small but significant and non-transitory" amount. This may occur when the demand substitutes outside the relevant market, as a group, are not close substitutes for the products and locations within the relevant market. There thus may be a wide gap in the chain of demand substitutes at the edge of the product and geographic market. Under such circumstances, more market power is at stake in the relevant market than in a market in which a hypothetical monopolist would raise price by exactly five percent.

For example, a market consisting of four firms with market shares of 30 percent, 30 percent, 20 percent and 20 percent has an HHI of 2600 ($30^2 + 30^2 + 20^2 + 20^2 = 2600$). The HHI ranges from l0,000 (in the case of a pure monopoly) to a number approaching zero (in the case of an atomistic market). Although it is desirable to include all firms in the calculation, lack of information about small firms is not critical because such firms do not affect the HHI significantly. The increase in concentration as measured by the HHI can be calculated independently of the overall market concentration by doubling the product of the market shares of the merging firms. For example, the merger of firms with shares of 5 percent and 10 percent of the market would increase the HHI by l00 (5 x l0 x 2 = l00). The explanation for this technique is as follows: In calculating the HHI before the merger, the market shares of the merging firms are squared individually: $(a)^2 + (b)^2$. After the merger, the sum of those shares would be squared: $(a + b)^2$, which equals $a^2 + 2ab + b^2$. The increase in the HHI therefore is represented by 2ab.

Limitations of Concentration Measures

Concentration ratios have some of the following limitations:

1. Foreign production:

Concentration ratios often fail to fully incorporate the revenue from foreign companies, thus overestimating the concentration of a domestic industry and underestimating the impact of foreign goods on competition.

2. Ease of entry:

An industry may have relatively few participants, but low barriers to entry. In such cases, a concentration ratio will overstate the power of current suppliers.

3. Elasticity of demand:

Concentration ratios do not factor in the elasticity of demand and the availability of substitutes. Many highly-concentrated industries (metals, airlines, et al) are constrained by the availability and cost of substitute products and services.

4. Imprecise definitions:

A narrowly-defined industry will appear to be more concentrated than a more broadly-defined industry. Suppose we were looking at concentration within the shoe industry. Should the market be simply "shoes", or do we break that down further into "athletic shoes", "men's shoes", "children's shoes", etc.?

Coordinating Economic Activity

Economic activity can be coordinated by markets or by individual firms. A firm organizes input production factors so as to produce and market goods and/or services. Auto manufacturers are actually assemblers of cars - most the parts in a car are produced by hundreds of component suppliers. This is an example of market coordination. If a car company decides to coordinate all activities associated with brake components, then the coordination is being done by that firm. A firm will decide to coordinate a particular type of economic activity when it can do so more efficiently than what is provided by the market. Firms can be more efficient than markets due to:

1. Economies of scope:

This applies when a firm hires specialized resources that can produce a broad range of goods and services. For example, a person with a difficult to diagnose medical condition would probably be sent to a hospital, which will have a broad range of medical specialists and diagnostic equipment.

2. Economies of scale:

For many types of goods, per unit production costs decline as larger volumes of output are produced by an individual firm.

3. Team Production: Team production can often lower production costs.

4. Transaction costs:

Transaction costs are often reduced when economic activity is coordinated by a firm.

Summary:

In this session we have learnt about different market structures in context of market concentration. We also learnt about some methods employed to measure market concentration, namely, concentration ratio & HHI. The common attitude is against the concentration of market because it leads to concentration of economic power in the economy. It is believed that the market concentration is associated with the exploitation of consumers and many other evils. There are some beneficial effects of market concentration in terms of technological developments the harmful effects may tend to outweigh the beneficial effects. Sometimes concentration of markets may foster development leading to technological advancements and further leading to higher GDP growth. But the measurements of market concentration force us to believe that it is quite harmful.