Agricultural Marketing: Concept and Definitions

Agriculture fulfils the basic need of human kind by producing food. About a century ago, farmer used to produce food commodities mostly for self-consumption or for exchange with others (cash or kind) mostly in the same village or nearby places. They were primarily self-reliant. But,now production environment has changed considerably from self- reliance to commercialization. Technological advancement in the form of high yielding varieties, use of fertilizers, insecticides, pesticides, farm mechanization has led to a substantial increase in farm production and consequently the larger marketable and marketed surplus. The improved production is accompanied by the increasing urbanization, income, changing life style & food habits of the consumers and increasing linkages with the overseas market. Today consumers are not limited to rural areas where food is produced. Further, increasing demand for processed or semi-processed food products requires value addition in the raw agricultural produce. These developments require movement of food commodities from producer to consumers in the form of value added products. Agricultural marketing brings producers and consumers together through a series of activities and thus becomes an essential element of the economy. The scope of agricultural marketing is not only limited with the final agricultural produce. It also focuses supply of agricultural inputs (factors) to the farmers.

Definitions of Agricultural Marketing

The term *agricultural marketing* is composed of two words- agriculture and marketing. Agriculture, generally means growing and/or raising of crops and livestock while, marketing encompasses a series of activities involved in moving the goods from the point of production to point of consumption. Many scholars have defined agricultural marketing and incorporated essential elements of time, place, form and passion utility. Some of the definitions of agricultural marketing are given below;

- ❖ Human activity directed at satisfying the needs and wants through exchange process (Phillip Kotler).
- ❖ Performance of business activities that directs the flow of goods and services from producers to users (American Marketing Association).
- ❖ The study of agricultural marketing comprises all the operations, and the agencies conducting them, involved in the movement of farm produced foods; raw materials and their derivatives, such as textiles, from the farms to the final consumers, and the effect of such operations on the farmers, middlemen and consumers (Thomsen). This definition does not include the input side of agriculture.
- ❖ Agricultural marketing is a process which starts with a decision to produce a saleable farm commodity, involves all the aspects of market structure or system, both financial and institutional, based on technical and economic considerations, and includes pre- and post-harvest operations, assembling, grading, storage, transportation and distribution (National Commission on Agriculture, 1976).

Key aspects of agricultural marketing

- Agricultural marketing comprising of all activities involved in supply of farm inputs to the farmers and movement of agricultural products from the farms to the consumers.

- The agricultural marketing system includes two major sub-system viz. product marketing and input (factor) marketing. The product marketing sub-system includes farmers, village/primary traders, wholesalers, processors, importers, exporters, marketing cooperatives, regulated marketing committees and retailers. The input sub-system includes input manufacturers, distributors, related associations, importers, exporters and others who make available various farm production inputs to farmers.

- The agricultural marketing system is understood and developed as a link between the farm and non-farm sectors. A dynamic and growing agriculture sector requires fertilizers, pesticides, farm equipments, machinery, diesel, electricity, packing material and repair services which are produced and supplied by the industry and non-farm enterprises. The expansion in the size of farm output stimulates forward linkages by providing surpluses of food and natural fibres which require transportation, storage, milling or processing, packing and retailing to the consumers. These functions are performed by the non-farm enterprises. Further, if the increase in agricultural production is accompanied by a rise in real incomes of farm families, the demand of these families for non-farm consumer goods goes up as the proportion of income spent on non-food consumables and durables tends to rise with the increase in real per capita income. Several industries, thus find new markets for their products in the farm sector.

- The marketing system should be such as may bring about the overall welfare to all the segments (producers, consumers, middlemen and traders) society. Government act as a watch-dog in ensuring the interest of all the groups associated in the marketing.

- The subject of agricultural marketing includes marketing functions, agencies, channels, efficiency and costs, price spread and market integration, producer’s surplus, government policy and research, training and statistics on agricultural marketing and imports/exports of agricultural commodities.

- The overall objective of agricultural marketing in a developing country like India is to help the primary producers *viz.* the farmers in getting the remunerative prices for their produce and to provide right type of goods at the right place, in the right quantity and quality at a right time and at right prices to the processors and/or ultimate consumers on the other.

Importance of Agricultural Marketing

Agricultural marketing plays an important role not only in stimulating production and consumption, but also in accelerating the pace of economic development. It is the most important multiplier of agricultural development. In the process of shifting from traditional to modern agriculture, marketing emerges as the biggest challenge because of production surpluses generated by the shift. The importance of agricultural marketing is revealed from the following;

1. **Optimization of Resource use and Output Management**
   An efficient agricultural marketing system leads to the optimization of resource use and output management. An efficient marketing system can also contribute to an increase in the marketable surplus by scaling down the losses arising out of inefficient processing, storage and transportation. A well-designed system of marketing can effectively distribute the available stock of modern inputs, and thereby sustain a faster rate of growth in the agricultural sector.

2. **Increase in Farm Income**
   An efficient marketing system ensures higher levels of income for the farmers reducing the number of middlemen or by restricting the cost of marketing services and the malpractices, in the marketing of farm products. An efficient system guarantees the farmers better prices for farm products and induces them to invest their surpluses in the purchase of modern inputs so that productivity and production may increase. This again results in an increase in the marketed surplus and income of the farmers. If the producer does not have an easily accessible market-outlet where he can sell his surplus produce, he has little incentive to produce more.

3. **Widening of Markets**
   An efficient and well-knot marketing system widens the market for the products by taking them to remote corners both within and outside the country, i.e., to areas far away from the production points. The widening of the market helps in increasing the demand on a continuous basis, and thereby guarantees a higher income to the producer.

4. **Growth of Agro-based Industries**
   An improved and efficient system of agricultural marketing helps in the growth of agro-based industries and stimulates the overall development process of the economy. Many industries like cotton, sugar, edible oils, food processing and jute depend on agriculture for the supply of raw materials.

5. **Price Signals**
   An efficient marketing system helps the farmers in planning their production in accordance with the needs of the economy. This work is carried out through transmitting price signals.

6. **Adoption and Spread of New Technology**
   The marketing system helps the farmers in the adoption of new scientific and technical knowledge. New technology requires higher investment and farmers would invest only if they are assured of market clearance at remunerative price.

7. **Employment Creation**
   The marketing system provides employment to millions of persons engaged in various activities, such as packaging, transportation, storage and processing. Persons like commission agents, brokers, traders, retailers, weighmen, hamals, packagers and regulating staff are directly employed in the marketing system. This apart, several others find employment in supplying goods and services required by the marketing system.

8. **Addition to National Income**
   Marketing activities add value to the product thereby increasing the nation's gross national product and net national product

9. **Better Living**
   The marketing system is essential for the success of the development programmes which are designed to uplift the population as a whole. Any plan of economic development that aims at diminishing the poverty of the agricultural population, reducing consumer food prices, earning more foreign exchange or eliminating economic waste has, therefore, to pay special attention to the development of an efficient marketing for food and agricultural products.

10. **Creation of Utility**
   Marketing is productive, and is as necessary as the farm production. It is, in fact, a part of production itself, for production is complete only when the product reaches a place in the form and at the time required by the consumers. Marketing adds cost to the product, but, at the same time, it adds utilities to the product. The following four types of utilities of the product are created by marketing:

   a. **Form Utility:** The processing function adds form utility to the product by changing the raw material into a finished form. With this change, the product becomes more useful than it is in the form in which it is produced by the farmer. For example, through processing, oilseeds are converted into oil, sugarcane into sugar, cotton into cloth and wheat into flour and bread. The processed forms are more useful than the original raw materials.

   b. **Place Utility:** The transportation function adds place utility to products by shifting them to a place of need from the place of plenty. Products command higher prices at the place of need than at the place of production because of the increased utility of the product.

c. **Time Utility:** The storage function adds time utility to the products by making them available at the time when they are needed.

d. **Possession Utility:** The marketing function of buying and selling helps in the transfer of ownership from one person to another. Products are transferred through marketing to persons having a higher utility from persons having a low utility.

Characteristics of Agricultural Products and Production

The subject of agricultural marketing has been treated as separate discipline because agricultural commodities possess special characteristics than manufactured commodities. The special characteristics of agricultural commodities are given below:

1. **Perishability of the product:**
   Most farm products are perishable in nature; but the period of their perishability varies from few hours to a few months. Their perishability makes it almost impossible for producers to fix the reserve price for their farm grown products. The extent of perishability of farm products can be reduced by processing function: but they can not be made non-perishable like manufactured products. The more perishable productsrequire speedy handling and often-special refrigeration, whichraises the cost of marketing.

2. **Seasonality of production**
   Farm products are produced in a particular season of the year. They can not be produced throughout the year. It leads to intra-year seasonality in the prices. In the harvest season, prices of farm products fall. But the supply of manufactured products can be adjusted or made uniform throughout the year.

3. **Bulkiness of products**
   The characteristics of bulkiness of most farm products makes their transportation and storage difficult and expensive. This fact also restricts the location of production to somewhere near the place of consumption or processing. The price spread in bulky products is higher because of the higher costs of transportation, handling and storage.

4. **Variation in quality of products**
   There is a large variation in the quality of agricultural products, which makes their grading and standardization somewhat difficult. There is no such problem in manufactured goods because they can be produced of uniform quality.

5. **Irregular supply of agricultural products**
   The supply of agricultural products is uncertain and irregular because of the dependence of agricultural production on natural conditions. With the varying supply, the demand

remaining almost constant, the prices of agricultural products fluctuate substantially more than that of manufactured products.

6. **<u>Small size of holding and scattered production</u>**
   Farm products are produced throughout the length and breadth of the country and most of the producers are of small size. This makes the estimation of supply difficult and also creates problem in marketing.

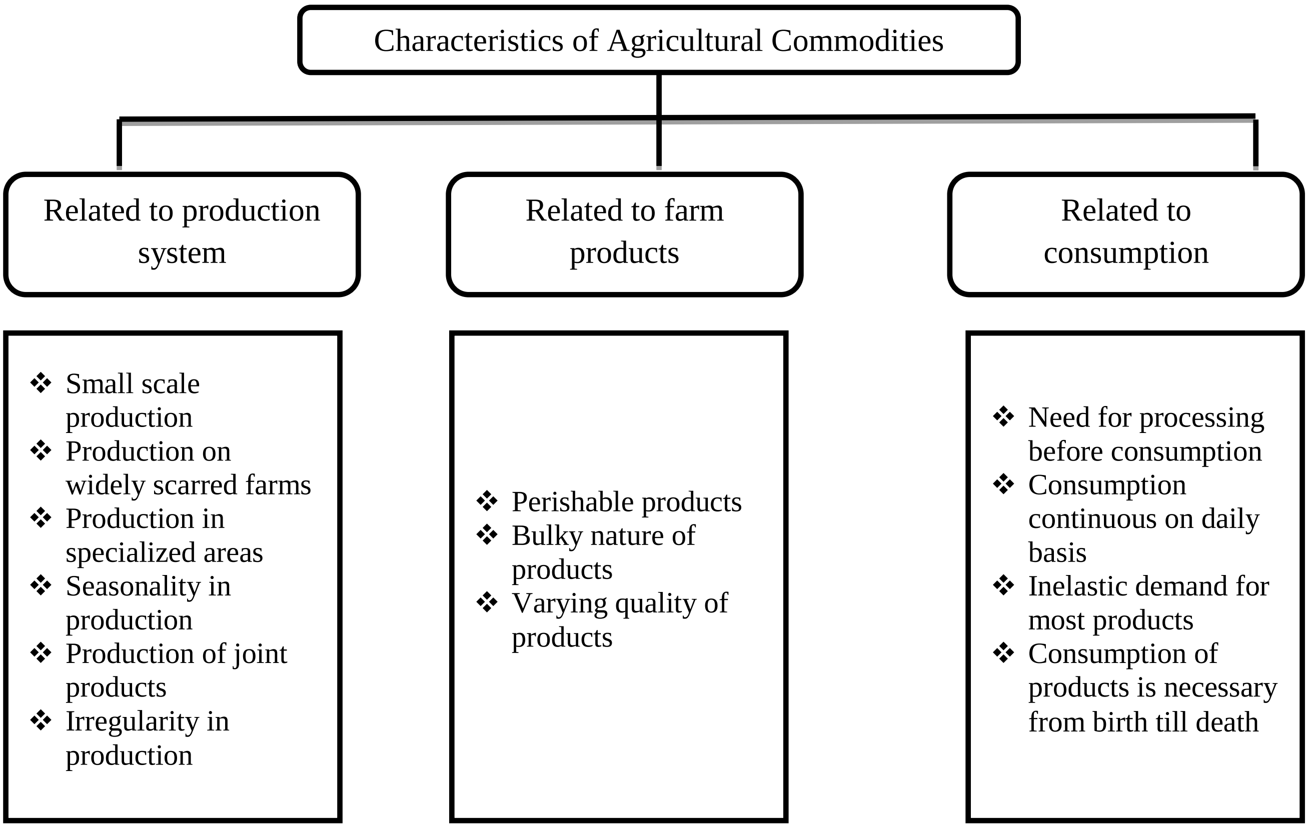

Figure 1. Some distinguishing characteristics of agricultural commodities that make their marketing system complex and different

7. **<u>Product pricing</u>**
   Apart from the problem in estimation of total supply in a small-farm agriculture, an individual farmer faces a typical marketing situation. As his share in total supply is very small, he can not influence the market supply. Further, owing to the inelastic nature of demand of most of the farm products, the market price for his product is determined independent of his supply. It is in this context that an individual farmer is supposed to be operating in a buyer's market. Contrary to this, most of the manufacturing firms, owing to their larger share in the market, can control, to some extent, the supply and thus influence the price of the product they sell.

8. **Processing**

   Most of the farm products need some kind of processing before consumption by the ultimate consumers. The processing function, though adds value, increases the price spread of agricultural commodities. Processing firms enjoy the advantages of monopsony, oligopsony or duopsony in the market. This situation sometimes creates disincentives for the producers.

   The characteristics of agricultural commodities mentioned above make their marketing system complex and different than that for manufactured goods. These are illustrated in figure 1.

Growth of agricultural marketing in India

Marketing of agricultural commodities developed after the man was able to produce more food than he needed for himself, and exchange of his products with others started. This transition from production for consumption to production for exchange came about slowly. About a century ago, farmers used to consume most of what they produced; but, now most of what the farmers produce is exchanged for other things what they require. This tendency has increased their dependence on marketing, which has resulted in the overall development of the market mechanism.

The importance of an efficient marketing system as a vital link between the farmer and consumer was recognised way back in 1928 by the Royal Commission on Agriculture. Since then a good deal of progress has been achieved by adoption of various administrative and legislative measures by the government from time to time. The establishment of Directorate of Marketing and Inspection in 1935, the enactment of the act for the grading and standardization of agricultural commodities in 1937, the conduct of market surveys, and the establishment of regulated markets in the country are some of the measures to improve the marketing situation and make agricultural marketing as efficient as possible.

During the first and second five year plans, agricultural marketing did not receive importance. Whatever development took place in the sphere of marketing was due to the gradual progress towards commercialization of agriculture and not because any specific government efforts.

National Commission on Agriculture (the first commission which suggested measures for the development of agriculture in the post-independence period) remarked that “there is an increasing awareness that it is not enough to produce a crop or animal product, it must be marketed well. Increased production, resulting in a greater percentage increase in the marketable surplus accompanied by the increase in demand from urban population, calls for a rapid improvement in the existing marketing system”. Since then, lots of efforts were made in various five year plans to promote organized marketing of agricultural commodities through a network of regulated markets. Most of the states and union territory governments enacted legislations (Agricultural Produce Market Regulation Acts), and the number of regulated markets went upto 7139 as on March 31, 2009. These have helped mitigate the market handicaps of producers/sellers at the wholesale assembling level. During the 10th Five year plan, the union Ministry of Agriculture formulated another modified Model Law on agriculture marketing, which provides for establishment of private markets/yards, direct purchase centres, consumers or farmers' market for direct sale, and promotion of public-private partnership in the management and development of agricultural markets in the country.

Drivers of growth of agricultural marketing in India

1. **Technological change in Agriculture:**
   Technological developments in agriculture, such as the evolution of high yielding varieties of seeds, increased use of modern inputs and cultivation practices in the agricultural sector, have resulted in substantial increase in farm production. The marketed surplus of agricultural produce has therefore increase. This has resulted into the growth on the marketing system.

2. **Specialization:**
   The tendency towards increasing specialization by farmers and regions in certain crops or livestock has resulted in an increase in their efficiency and the breakdown in the self-sufficiency of the family unit. Specialization, thus, has resulted in increased production, which is the base for the growth of marketing and, in turn, of the economy. This has also resulted in improved use efficiency of natural resources like land and water.

3. **Urbanization:**
   Urban people are the main buyers of agricultural surpluses. The urban population of India has increased significantly which necessitated a faster growth of agricultural marketing activities. The rate of growth of urban population is much higher than rural population (due to rural-urban migration) which has further increased the importance of marketing system for farm products.

4. **Transportation and communication**
   The increase in transportation and communication facilities has widened the market for farm products. The length and breadth of the market to which a product is taken from the production areas have increased. In the absence of these facilities, the movement of produce from one area to another was limited, and the consumption of a product was restricted only to the areas of production or; at the most, to nearby areas. The scope of marketing has, thus increased manifold.

Characteristics of a Developed Market

A developed market is the *sine qua non* of any developing economy. It should satisfy the objectives of marketing system for all the persons associated with marketing in the process of the movement of produce from producer to consumer. A good developed market should possess the following characteristics:

1. A good developed market should provide commodities which the consumers want and are ready to pay for.
2. It should provide a wide variety of products to the consumers so that they may easily choose for themselves. The varieties should not be so wide as to create confusion for them.
3. No harmful products should be offered for sale in the market. Precaution should be taken to protect consumers.
4. The information on the presence of goods in the market and their relative merits should be available to all the prospective consumers.
5. There should not be any pressure on the consumers to buy products from a particular trader or class of traders.
6. The retailing services should be available in the market (together with the wholesale facilities) for small consumers.
7. Prices should be fair and uniform for the products for all the category of consumers.
8. There should not be any wastage of products in the market.
9. The producer should be able to sell his surplus quickly and get a price which is consistent with the demand and supply of situation.
10. Adequate and efficient storage, transportation and processing facilities should be available.
11. Proper grading facilities should be available.
12. The methods of packaging should be as per the requirement of different farm products.

Problems in agricultural marketing in India

Indian system of agricultural marketing suffers from a number of defects. As a consequence, the Indian farmer is deprived of a fair price for his produce. The main defects of the agricultural marketing system are discussed here.

Improper Warehouses: There is an absence of proper ware housing facilities in the villages. Therefore, the farmer is compelled to store his products in pits, mud-vessels, "Kutcha" storehouses, etc. These unscientific methods of storing lead to considerable wastage. Approximately 1.5% of the produce gets rotten and becomes unfit for human consumption. Due to this reason supply in the village market increases substantially and the farmers are not able to get a fair price for their produce. The setting up of Central Warehousing Corporation and State Warehousing Corporation has improved the situation to some extent

Lack of Grading and Standardization: Different varieties of agricultural produce are not graded properly. The practice usually prevalent is the one known as "dara" sales wherein heap of all qualities of produce are sold in one common lot Thus the farmer producing better qualities is not assured of a better price. Hence there is no incentive to use better seeds and produce better varieties.

Inadequate Transport Facilities: Transport facilities are highly inadequate in India. Only a small number of villages are joined by railways and pucca roads to mandies. Produce has to be carried on slow moving transport vehicles like bullock carts. Obviously such means of transport cannot be used to carry produce to far-off placesand the farmer has to dump his produce in nearby markets even if the price obtained in these markets is considerably low. This is even truer with perishable commodities.

Presence of a Large Number of Middlemen: The chain of middlemen in the agricultural marketing is so large that the share of farmers is reduced substantially. For instance, a study of D.D. Sidhan revealed, that farmers obtain only about 53% of the price of rice, 31% being the share of middle men (the remaining 16% being the marketing cost). In the case of vegetables and fruits the share was even less, 39% in the former case and 34% in the latter. The share of middle- men in the case of vegetables was 29.5% and in the case of fruits was 46.5%. Some of the intermediaries in the agricultural marketing system are -village traders, Kutchaarhatiyas, puccaarhatiyas, brokers, wholesalers, retailers, money lenders, etc.

Malpractices in Unregulated Markets: Even now the number of unregulated markets in the country is substantially large. Arhatiyas and brokers, taking advantage of the ignorance, and illiteracy of the farmers, use unfair means to cheat them. The farmers are required to pay arhat (pledging charge) to the arhatiyas, "tulaii" (weight charge) for weighing the produce, "palledari" to unload the bullock-carts and for doing other miscellaneous types of allied works, "garda" for impurities in the produce, and a number of other undefined and unspecified charges. Another malpractice in the mandies relates to the use of wrong weights and measures in the regulated markets. Wrong weights continue to be used in some unregulated markets with the object of cheating the farmers.

Inadequate Market Information: It is often not possible for the farmers to obtain information on exact market prices in different markets. So, they accept whatever price the traders offer to them. With a view to tackle this problem the government is using the radio and television media to broadcast market prices regularly. The news papers also keep the farmers posted with the latest changes in prices. However the price quotations are sometimes not reliable and sometimes have a great time-lag. The trader generally offers less than the price quoted by the government news media.

Inadequate Credit Facilities: Indian farmer, being poor, tries to sell off the produce immediately after the crop is harvested though prices at that time are very low. The safeguard of the farmer from such "forced sales" is to provide him credit so that he can wait for better times and better prices. Since such credit facilities are not available, the farmers are forced to take loans from money lenders, while agreeing to pledge their produce to them at less than market prices. The co-operative marketing societies have generally catered to the needs of the large farmers and the small farmers are left at the mercy of the money lenders.

Need for Market Regulation

Under the traditional system of marketing of agricultural products, producer sellers incurred a high marketing cost, and suffered from unauthorized deductions of marketing charges and the prevalence of various malpractices. To improve marketing conditions and with a view to creating fair competition conditions, there is a strong need of market regulation.

A regulated market is one which aims at the elimination of the unhealthy and unscrupulous practices, reducing marketing charges and providing facilities to the producer-seller in the market. Any legislative measure designed to regulate the marketing of agricultural produce in order to establish, improve and enforce standard marketing practices comes under the market regulation. The establishment of regulated market is not intended at creating an alternative marketing system. The basic objective has been to create conditions for efficient performance of private trade, through facilitating free and informal competition. In the regulated markets, the farmer is able to sell his marketed surplus in the presence of several buyers through open and competitive bidding. The legislation for the establishment of regulated markets does not make it compulsory for the farmer to sell his produce in the regulated market yard. The basic philosophy of the establishment of regulated markets is elimination of malpractices in the system and assignment of dominating power to the farmers or their representatives in the functioning of the markets.

Objectives of market regulation:

1. To prevent the exploitation of farmers by overcoming the handicaps in the marketing of their products;
2. To make the marketing system most effective and efficient so that farmers may get better prices for their produce, and the goods are made available to the customers at reasonable prices;
3. To provide incentive prices to the farmers for inducing them to increase the production both in quantitative and qualitative terms; and
4. To promote and orderly marketing of agricultural produce by improving the infrastructural facilities.

Present status of regulated market in India

Though the establishment of regulated market was started during 1930s, the programme got momentum only after the independence. The number of regulated market has increase from 236 before the commencement of first five year plan (April, 1951) to 7157 in March 2010. At present, all the wholesale markets are functioning under the regulation programme. On an average, each regulated market in the country serves an area of 459 square kilometre. The National Commission on Agriculture (1976) has recommended that the facility of a regulated market should be available in general, within a radius of 5 km. Accordingly the country needs 41838 markets. There are as many as 27738 markets spread all over the country. Of these, 21221 are primary rural markets. The remaining 6261 are wholesale assembling and terminal markets. The infrastructural facilities, amenities, commodities covered vary considerably across different states.

Producers Surplus of Agricultural Commodities

Producer's surplus is the quantity which is, or can be, made available to the non-producing population of the country. From the marketing point of view, this surplus is more important than the total production of commodities. The rate at which agricultural production expands determines the pace of agricultural development, while the growth in the marketable surplus determines the pace of economic development. An increase in production must be accompanied by an increase in marketable surplus for the economic development of the country. The knowledge of producer's surplus helps the policy makers as well as the traders in the following areas;

- **Framing sound price policies:** Price support programmes are an integral part of agricultural policies necessary for stimulating agricultural production. The knowledge of quantum of marketable surplus helps in framing these policies.
- **Developing proper procurement and purchase strategies**: The procurement policy for feeding the public distribution system has to take into account the quantum and behavior of marketable and marketed surplus. Similarly, the traders, processors and exporters have to decide their purchase strategies on the basis of marketed quantities of different farm products.
- **Checking undue price fluctuations**: A knowledge of magnitude and extent of the surplus helps in minimization of price fluctuations in agricultural commodities because it enables the government and traders to make proper arrangements for the movement of produce from one area, where they are in surplus, to another area which is deficient. The knowledge of marketed surplus also helps the traders and the government in decisions related to storage.
- **Export/import decisions**: Advanced estimates of the surplus of such commodities which have the potential of external trade are useful in decisions related to the export and import of the commodity. If surplus is expected to be less than what is necessary, the country can plan for imports and if surplus is expected to be more than what is necessary, avenues for exporting such surplus can be explored.
- **Development of transport and storage system**: The knowledge of marketed surplus helps in developing adequate capacity of transport and storage system to handle it.

Types of producer's surplus:

The producer's surplus is of two types, 1) Marketable surplus, and 2) Marketed surplus.

1. *Marketable surplus:*

The marketable surplus is the quantity of the produce which can be made available to the non-farm population of the country. It is theoretical concept of surplus. The marketable surplus is the residual left with the producer-farmer after meeting his requirement for family consumption, farm needs for seeds and feed for cattle, payment to labour in kind, payment to artisans-carpenter, blacksmith, potter and mechanic-payment to landlord as rent, and social and religious payments in kind. This may be expressed as follows:

$$MS = P - C$$

where,

MS = Marketable surplus
P = Total Production, and
C = Total requirement (family consumption, farm needs, payment to labour, artisans, landlord and payment for social and religious works)

2. Marketed surplus:

Marketed surplus is the quantity of the produce which the producer farmer actually sells in the market, irrespective of his requirements for family consumption, farm needs and other requirements. The marketed surplus may be more, less or equal to the marketable surplus.

According to Bansil, There is only one term- *marketable surplus*. This may be defined subjectively or objectively. Subjectively, the term marketable surplus refers to theoretical surplus available for sale with the producer-farmer after he has met all the requirements. Objectively, the marketable surplus is the total quantity of arrivals in the market out of the new crop.

Relationship between marketed surplus and marketable surplus

The marketed surplus may be more, less or equal to the marketable surplus, depending upon the condition of the farmer and type of the crop.

1. The marketed surplus is more than the marketable surplus when the farmer retains a small quantity of the crop than his actual requirements for family and farm needs. This is true especially for small and marginal farmers, whose need for cash is more pressing and immediate. This situation of selling more than the marketable surplus is termed as distress or forced sale. Such farmers generally buy the produce from the market in a later period to meet their family and/or farm requirements. The quantity of distress sale increases with the fall in the price of the product. A lower price means that a larger quantity should be sold to meet some fixed cash requirement.

2. The marketed surplus is less than the marketable surplus when the farmer retains some of the surplus produce. This condition holds true under the following conditions.

a.) Large farmers generally sell less than the marketable surplus because they retain extra produce in the hope that they would get a higher price in the later period.

b.) Farmer may substitute one crop for another crop either for family consumption purpose or for feeding their livestock because of the variation in prices. With the fall in price of the crop relative to competing crop, the farmer may consume more of the first and less of the second crop.

3. The marketed surplus may be equal to the marketable surplus when the farmer neither retains more nor less than his requirement. This holds true for perishable commodities.

Factors affecting marketable surplus

The marketable surplus differs from region to region and, within the same region, from crop to crop. It also varies from farm to farm. On a particular farm, the quantity of marketable surplus depends on following factors;

1. Size of holding: There is a positive relationship between size of the holding and the marketable surplus.

2. Production: The higher the production on a farm, the larger will be the marketable surplus, and *vice-versa.*

3. Price of the commodity: The price of the commodity and marketable surplus have a positive as well as negative relationship. The positive relationship is based on the assumption that farmers are price conscious. With a rise in the price of the product, farmers are tempted to sell more and retain less. As a result, there is increased surplus. The converse, too, holds true. On the other hand, inverse relationship between prices and marketed surplus assumes that the farmers have inelastic cash requirement. The argument is that farmers sell that quantity of the output which gives them the amount of money they need to satisfy their cash requirements. With the rise in the prices of the product, they sell a small quantity to get the cash they need, and *vice versa*. In other words, with a rise in price, farmers sell a smaller, and with the fall in price, they sell a larger quantity.

4. Size of the family: The larger the number of members in a family, the smaller the surplus on the farm.

5. Requirement of seed and feed: The higher therequirement for these uses, the smaller the marketable surplus of the crop.

6. Nature of commodity: The marketable surplus of non-food (cotton, jute, rubber) crops is generally higher than that for food crops. Even among food crops, for such commodities like sugarcane, spices, oilseeds which require some processing before final consumption, the marketable surplus as proportion of total output is larger than that for other food crops.

7. Consumption habits: The quantity of output retained by the farm family depends on the consumption habits. For example, rice forms a relatively small proportion of total cereals consumed by farm-families compared to those in southern or eastern states. Therefore, out of a given output of paddy/rice, Punjab farmers sell a greater proportion than that sold by rice eating farmers of other states.

Market Intermediaries

In the movement of agricultural commodities from producer to consumer, the role of market middlemen/intermediaries has increased in the recent past because a substantial part of the produce moves through them. Middlemen/intermediaries are those individuals or business concerns which specialize in performing various marketing functions and render services involved in the marketing of goods. The number of intermediaries may vary from one to many. They may be classified into five groups as follows;

1. Merchant middlemen:

Merchant middlemen are those individuals who take title of the goods they handle. They buy and sell on their own and gain or lose depending upon the difference in the sale and purchase prices. They may suffer loss with a fall in the price of the product. Merchant middle are of four types:

a) ***Wholesalers:*** Wholesalers are those merchant middlemen who buy and sell agricultural commodities in large quantities. They may buy directly from farmers or from other wholesalers. They sell agricultural commodities either in the same market or in other markets. They sell to retailers, other wholesalers or processors. They do not sell significant quantities to ultimate consumers. They own godowns for the storage of the produce.

The wholesalers performs following functions in the marketing

I. They assemble the goods from various localities and areas to meet the demand of buyers.
II. They sort out the goods in different lots according to their quality and prepare them for the market.
III. They equalize the flow of goods by storing them in the peak arrival season and releasing them in the off-season.
IV. They regulate the flow of goods by trading with the buyers and sellers in various markets.
V. They finance the farmers so that the later may meet their requirements of production inputs; and
VI. They assess the demand of prospective buyers and processors from time to time, and plan the purchase and movement of the goods over space and times.

b) **Retailers:** Retailers buy goods from wholesalers and sell them to the consumers in small quantities. Retailers are the closest to consumers in the marketing channel.

c) ***Itinerant traders and village merchant:***Itinerant traders are those merchant who move from village to village and directly purchase the produce from the cultivators. They transport it to the primary or secondary market and sell it there. Village merchants may have their small establishment in the villages. They purchase the produce of those farmers who have either taken finance from them or those who are not able to go to the market. Village merchants also supply essential consumption goods to the farmers. They act as the financers of poor farmers. They often visit nearby markets and keep in touch with the prevailing prices. They either sell the collected produce in the nearby market or retain it for sale at a later date in the village itself.

d) ***Mashakakhores:***This is a local term used for big retailers or small wholesalers dealing in fruits and vegetables. Earlier, the mashkakhores used to dealonly in one or two fruits and vegetables, purchasing from the commission agents or wholesalers in substantial quantities usually three to four quintals of produce. They usually sell to the bulk consumers like hotelwalas, para-military units or small retailers/vendors in lots of about 5 kg to 10 kg each. However, in the recent years, mashkakhores have started retailing to all types of customers without the condition of a minimum quantity. In other words, the mashkakhores are now working more like ordinary retailers.

2. Agent middlemen:

Agent middlemen act as representatives of their clients. They do not take title to the produce and, therefore do not own it. They merely negotiate the purchase and/or sale. They sell services to their clients (buyers or sellers) and not the goods or commodities. They receive income in the form of commission or brokerage. Agent middlemen are of two types :

a) Commission Agents or Arhatias:

A commission agent is a person operating in the wholesale market who acts as the representative of either a seller or a buyer. A commission agent normally takes over the physical handling of the produce, arranges for its sale, collects the price from the buyer, deducts his expenses and commission, and remits the balance to the seller. Commission agents or *arhatias* in unregulated market are of two types i.e. *Kacchaarhatias* and *Paccaarhatias*. *Kacchaarhatias* primarily act for sellers, including farmers. They sometimes provide advance money to the farmers and the itinerant traders on the condition that the produce will be disposed on through them only. On the other hand, *Paccaarhatia* acts on behalf of the traders in the consuming market. The processors (eg. Rice millers, oil millers and cotton or jute dealers) and big wholesalers in the consuming market employ *Paccaarhatias* as their agents for purchase of specified quantity of goods within a given price range. In a regulated market, only one category of commission agent exists under the name of 'A' class trader. The commission agent keeps an establishment- a shop, a godown and a rest house for his clients. He renders all the facilities to the clients.

b) Brokers:

Brokers render personal services to their clients in the market; but unlike the commission agents, they do not have the physical control of the produce. The main function a broker is to bring together buyer and sellers on the same platform for negotiations. Their charge is called brokerage. They may claim brokerage from buyer, seller or both depending upon the market situation and service rendered. Brokers usually have no establishment in the market. They simply wander about in the market and render their services to clients. They do not render any other service except to bring buyers and sellers on the same platform. There is no risk to them.

3. Speculative middlemen:

Those middlemen who take title to the product with a view to making a profit on it are called speculative middlemen. They are not regular buyer or seller of the produce. They specialize in risk taking. They buy at low prices when arrivals are substantial and sell in the off-season when prices are high. They make profit from short run as well as long run price fluctuations.

4. **Processors:**

   Processors carry on their business either on their own or on custom basis. Some processors employ agents to buy for them in the producing areas, store the produce and process it throughout the year on continuous basis. They also engage in advertising activity to create a demand for their processed products. They add form utility to agricultural commodities.

5. **Facilitative middlemen:**

   Some middlemen do not buy or sell directly but assist in the marketing process. These middlemen receive their income in the form of fees or service charge from those who use their services. The important facilitative middlemen are:

   a) ***Hamlas or labourers:***They physically move the goods in marketplace. They do unloading from and the loading on to the bullock carts and trucks. They assist in weighing the bags. They perform cleaning, sieving, and refilling jobs and stitch the bags. Hamlas are the hub of the marketing wheel. Without their active cooperation, marketing system would not function smoothly.
   b) ***Weighmen:*** They facilitate the correct weighement of the produce. They use a pan balance when quantity is small. Generally, a scalebeam balance is used. They get payment of their services through the commission agent. The weighbridge and electronic balance system also exist in big markets.
   c) ***Graders:*** These middlemen sort out the product into different grades, based on some defined characteristics and arrange them for sale. They facilitate the process of price settlement between buyer and seller.
   d) ***Transporters:***They assists in movement of the produce from one market to another. The main market means are the railways and trucks. Bullock carts or tractor-trolleys are also used in villages for the transportation of agricultural commodities.
   e) ***Communication agency:*** It helps in the communication of the information about the prices prevailing, and quantity available in the market. Sometimes the transactions take place on the telephone. The post and telegraph, telephones, mobiles, newspapers, the radio and informal links are the main communication channels in agricultural marketing.
   f) ***Advertising agencies:*** It enables prospective buyers to know the quality of the product and decide about the purchase of commodities. Newspaper, radio, television, print media, etc are the main media for advertisement.
   g) ***Auctioners:***They help in exchange function by putting the produce for auction and bidding by the buyers.

Market

The word *market* comes from the latin word *marcatus*which means merchandise or trade or a place where business is conducted. In common parlance, a market includes any place where persons assemble for the sale or purchase of commodities intended for satisfying human wants. However, in economic sense, the term market carries a broad meaning. Some of the definitions of market are given as follows;

1. A market is the sphere within which price determining forces operate.

2. A market is the area within which the forces of demand and supply converge ti establish a single price.

3. The term market means not a particular market place in which things are bought and sold but the whole of any region in which buyers and sellers are such a free intercourse with one another that the prices of the same goods tend to equality, easily and quickly.

4. Market means a social institution which performs activities and provides facilities for exchanging commodities between the buyers and sellers.

5. The American Marketing Association has defined a market as the aggregate demand of the potential buyers for a product/service, while Kotler defined market as an area for potential exchanges.

A market exists when buyers wishing to exchange the money for a good or service are in contact with the sellers who are willing to exchange goods or services for money. Thus, a market is defined in terms of existence of fundamental forces of supply and demand and is not necessarily confined to a particular geographical location.

Components of a market:

For a market to exist, certain conditions must be satisfied. These conditions should be both necessary and sufficient. They may also be termed as the components of a market.

1. The existence of a good or commodity for transaction (physical existence is, however, not necessary).

2. The existence of buyer and sellers.

3. Business relation or intercourse between buyers and sellers and

4. Demarcation of area such as place, region, country or the whole world.

The existence of perfect competition or a uniform price is not necessary.

Classification of markets

Markets may be classified based the different dimensions as follows;

1. **On the basis of location or place of operation**

   a) **Village market:** A market which is located in a small village, where major transaction takes place among the buyers and sellers of a village, is called village market.

   b) **Primary market:** These markets are located in towns near the centres of production of agricultural commodities. In these markets, a major part of the produce brought for sale by the producer-farmers themselves. Transactions in these markets usually take place between farmers and primary traders.

   c) **Secondary wholesale market:** These markets are located generally at district headquarters or important trade centres or railway junctions. The major transactions in commodities in these markets take place between primary/village traders and wholesalers. The bulk of arrival in these markets is from other markets. The produce in these markets in handled in large quantities. Therefore, there are specialized marketing agencies (commission agents, brokers, etc) performing different marketing functions.

   d) **Terminal markets:** A terminal market is one where the produce is either finally disposed of to the consumers or processors or assembled for export. In these markets, merchants are well organized and use modern methods of marketing. Commodity exchange exists in these markets which provides facilities of forward trading in specific commodities. Such markets are present either in metropolitan cities or at sea-ports.

   e) **Modern terminal market:** The Department of Agriculture and Cooperation, Ministry of Agriculture, Govt. of India has taken initiative to promote modern terminal markets for fruits, vegetables and other perishable commodities in important urban centres of the country. These terminal markets are envisaged to operate on a 'hub and spoke' format where the terminal market (the hub) is linked to a number of collection centres (the spokes) to allow easy access to farmers for marketing of their produce. These markets are to be build, owned and operated by either a corporate, private or cooperative entity. Government of India has launched a scheme under which subsidy is available upto 25% for capital investment in agricultural marketing infrastructure for terminal markets with a ceiling limit of Rs 50 lakhs for private agencies.

   f) **Seaboard markets:** Markets which are located near the seaboard and are meant mainly for the import and or export of goods are kwon as seaboard markets.

2. **On the basis of area/coverage:**

   a) **Local or village market:** A market where buying and selling activities are confined among the buyers and sellers belonging to the same village or nearby villages. These markets usually exists for the perishable commodities in small lots.

   b) **Regional market:** A market in which buyers and sellers for a commodity are drawn from a larger area than he local markets. Regional markets in India usually exist for foodgrains.

c) **National market:** In national market, buyers and sellers are spread at the national level. Earlier national markets existed for only durable goods like jute and tea. But, with the expansion of roads, transport and communication facilities, the markets for most of the agricultural commodities have taken the form of national market.

d) **World or international market:** A market in which the buyers and sellers are drawn from more than one country or the whole world. These markets exist in the commodities which have world-wide demand and/or supply, such as coffee, machinery, gold, silver, etc. In recent years many countries are moving towards a regime of liberal international trade in agricultural products like raw cotton, sugar, rice and wheat.

3. **On the basis of time span:**

a) **Short period market:** The markets which are held only for a day or few hours are called short-period markets. The products dealt within these markets are of a highly perishable nature such as fish, fresh vegetables and liquid milk. In these market, prices are governed mainly by the extent of demand rather than by the supply of the commodity.

b) **Periodic market:** The periodic markets are congregation of buyers and sellers at specified places either in villages, semi-urban areas or some parts of urban areas on specific days and times. These markets are held weekly, biweekly, fortnightly or monthly according to the local traditions.

c) **Long period market:** These markets are held for a longer period than the short period market. The commodities traded in these markets are less perishable and can be stored for some time like foodgrains and oilseeds. The prices are governed both by the supply and demand forces.

d) **Secular market:** These are the markets for permanent nature. The commodities traded in these markets are durable in nature and can be stored for many years. Examples are markets for machinery and manufactured goods.

4. **On the basis of volume of transaction:**

a) **Wholesale market:** A wholesale market is one in which commodities are bought and sold in large lots or in bulk. These markets can be further classified as primary, secondary and terminal wholesale markets.

b) **Retail markets:** A retail market is one in which commodities are bought are sold to the consumers as per their requirement. Transaction in these markets takes place between retailers and the consumers. The retailers purchase the goods from the wholesale market and sell in small lots to the consumers.

A retail market means that the buyers are generally the ultimate consumers, whereas in wholesale market the buyers can be wholesalers or retailers. But sometimes bulk conusmers also purchase from the wholesale markets. The quantity transacted in the retail markets is generally smaller than the wholesale markets.

5. **On the basis of nature of transactions:**

   a) **Spot or cash market:** A market in which goods are exchanged with money immediately after the sale is called the spot or cash market.

   b) **Forward market:** A market in which the purchase and sale of a commodity takes place at time t but the exchange of the commodity takes place on some specified date in future i.e. time t+1. Sometimes even on the specified date in the future (t+1), there may not be any exchange of the commodity. Instead, the difference in the purchase and sale prices are paid or taken.

6. **On the basis of number of commodities in which transaction takes place:**

   a) **General market:** A market in which all types of commodities, such as foodgrains, oilseeds, fibre crops, gur, etc., are bought and sold is known as general market.

   b) **Specialized market:** A market in which transactions take place only in one or two commodities is known as specialized market. Eg. Foodgrains markets, vegetables market, wool market and cotton market.

7. **On the basis of degree of competition:**

   a) **Perfect markets:** a perfect market is one in which following conditions hold good
   1) There are large number of buyers and sellers
   2) All buyers and sellers have perfect knowledge of demand, supply and prices
   3) Prices at any time are uniform over the geographical area, plus or minus the cost of transportation from surplus to deficit areas
   4) Prices are uniform at any one place over the periods of time, plus or minus the cost of storage from one period to another
   5) Prices of different forms of the product are uniform, plus or minus the cost of converting the product from one form to another

   b) **Imperfect markets:**The markets in which theconditionsof perfect competition are lacking are characterised as imperfect markets. Based on the degree of imperfection, following situations may be identified;

   1) Monopoly market: In monopoly market, there is only one seller of a commodity. Indian farmers operate in monopoly marker when purchasing electricity for irrigation. When there is only on buyer of a product, the market is termed as monopsony market. The sugarcane farmers in the catchment areas of a sugar factory generally face a monopsony market situation.

   2) Duopoly market:A duopoly market is one which has only two sellers of a commodity. The market situation in which there are only two buyers of a commodity is known as duopsony market.

   3) Oligopoly market: A market in which there are more than few but still a few sellers of a commodity is known as oligopoly market. A market having a few (more than two) buyers is known as Oligopsony market.

   4) Monopolistic market competition: When a large number of sellers deal in heterogeneous and differentiated form of a commodity, the situation is called monopolistic competition. The difference is made conspicuous by different trade marks on the product. Different prices prevail for the same basic product. For example. Farmers have to chose between various makes of insecticides, pump sets, fertilizers and equipments.

8. On the basis of nature of commodity:

a) **Commodity market:** A market which deals with the goods and raw materials, such as wheat, barley, cotton, fertilizers, seeds, etc., are termed as commodity market.

b) **Capital market:** The market in which bonds, shares and securities are bought and sold are called capital market. Eg. Money market, share market.

9. On the basis of stage of marketing:

a) **Producing markets:** Those markets which mainly assemble the commodity for further distribution to other markets are terms as producing markets. Such markets are located in producing areas.

b) **Consuming markets:** Markets which collect the produce for final disposal to the consuming population are called consumer markets. Such markets are generally located in areas where production in inadequate or in thickly populated urban centre. The urban areas, including cities are consuming markets for agricultural commodities.

10. On the basis of extent of public intervention:

a) **Regulated market:** These are those markets in which business is done in accordance with the rules and regulations framed by the statutory market organization representing different sections involved in the marketing.The marketing costs in such markets are standardized and, marketing practices are regulated.

b) **Unregulated or informally regulated markets:** In unregulated markets, business is conducted without any set rules and regulations. Traders frame the rules for the conduct of the business and run the market. These markets suffer from many ills, ranging from unstandardized charges for marketing functions to imperfections in determination of prices.

11. On the basis of type of population served:

a) **Urban market:** A market which serves mainly the population residing in urban area is called an urban market.

b) **Rural market:** The word rural market usually refers to the demand originating from the rural population.

12. On the basis of market functionaries and accrual of marketing margins:

On the basis of as to who are the market functionaries and to whom the market margin accrue, market may be classified as, a) farmers market, b) cooperative market and c) general market.

Market Structure: Conduct and Performance

The term *structure* refers to something that has organization and dimension-shape, size and design; and which is evolved for the purpose of performing a function. The term *market structure* refers to the size and design of the market. It also includes the manner of the operation of the market. Some of the expressions describing the market structure are:

1. Market structure refers to those organization characteristics of a market which influence the nature of competition and pricing, and affect the conduct of business firms.
2. Market structure refers to those characteristics of the market which affects the traders' behaviour and their performances.
3. Market structure is the formal organization of the functional activity of a marketing institute.

An understanding and knowledge of the market structure is essential to identify the imperfections in the performance of a market.

Components of market structure:

The components of the market structure, which together determine the conduct and performance of the market are;

1. Concentration of market power:

The concentration of market power is an important element determining the nature of competition and thus market conduct and performance. This is measures by the number and size of the firms existing in the market. The extent of concentration represents the control of an individual firm or a group of firms over the buying and selling of the produce. A high degree of market concentration restricts the movement of goods between buyers and sellers at fair and competitive prices, and creates an oligopoly or oligopsony situation in the market.

2. Degree of product differentiation:

Whether or not products are homogeneous affects the market structure. If the products are homogenous, the price variations in the market will not be wide. When products are heterogeneous, the firms have the tendency to charge different prices for their products.

3. Conditions for entry of firms in the market:

Another dimension of the market structure is the restriction, if any, on the entry of firms in the market. Sometimes, a few big firms do not allow new firms to enter the market or make their entry difficult by their dominance in the market.There may also be some government restrictions on the entry of firms.

4. Flow of market information:

A well-organized market intelligence information system helps all the buyers and sellers to freely interact with one another in arriving at prices and striking deals.

5. **Degree of integration:**

The behaviour of an integrated market will be different from that of a market where there is no or less integration either among the firms or of their activities. Firms plan their strategies in respect of the methods to be employed in determining prices, increasing sales, co-ordinating with competing firms and adopting predatory practices against the rivals or potential entrants.

Market conduct and market performance

The term *market conduct* refers to the patterns of behaviour of firms, specially in relation to the pricing and their practices in adopting and adjusting to the market in which they function. Specifically, market conduct includes;

- Market sharing and pricing setting policies
- Policies aimed at coercing rivals, and
- Policies towards specification of the quality of products.

The term *market performance* refers to the economic results that flow from the industry as each firm pursues its particular line of conduct.

Critaria for measuring market performance:
Society has to decide critaria for the satisfactory market performance. Some of the critaria for measuring market performance and of the efficiency of the market structure are as follows;

1. Efficiency in the use of resources, including real cost of performing various marketing functions
2. The existence of monopoly or monopoly profits, including the relationship of margins with the average cost of performing various functions
3. Dynamic progressiveness of the system in adjusting the size and number of the firm in relation to the volume of business, in adopting technological innovations and in finding and/or inventing the new form of product to maximize the social welfare.
4. Whether or not a system aggravates the problem of inequalities in inter-personal, inter-regional or inter-group incomes. For example, inequalities increase under the following situations:

   A. A market intermediary may pocket a return greater than its real contribution to the national product.
   B. Small farmers are discriminated and are offered a lower return because of the low quantum of surplus.

The market structure has always to keep on adjusting to changing environment if it has to satisfy social goals. For a satisfactory market performance, the market structure should keep pace with changes in 1) Production pattern, 2) Demand pattern, 3) costs and patterns of marketing functions, and 4) technological changes in the industry.

Market structure analysis using concentration ratio:

The traditional approach to study the market structure is known as *Structure-Conduct-Performance (SCP)* paradigm. There is a stable, causal relationship between the structure of an industry, firm conduct and market performance. The SCP model predicts that the structure of an industry indirectly affects its performance through its impact on the market conduct. Since conduct is difficult to observe directly, the focus is on identifying market structure elements such as firm's size (market concentration of sellers) and testing their impact on profitability, market power and strategic behaviour. Two measures of seller concentration are: Concentration Ratio (CR) and Herfindahl-Hirschman Index (HHI). These two are known as the traditional structural measures of market concentration (based on market shares)

1. Concentration ratio (CR):

A concentration ratio is a measure of the total output produced in an industry by a given number of firms in the industry. The most common concentration ratios are the CR_4 and the CR_8, which means the market share of the four and the eight largest firms. The change in concentration ratio over time is widely used as summarized indicator of structural change in the market.

Example: The beverage industry is composed of 5 firms with market shares as follows;

Company A has 30% market share
Company B has 30% market share
Company C has 20% market share
Company D has 15% market share
Company E has 5% market share.

The three-firm concentration ratio for the beverage industry is 80% (30%+30%+20%)
The four firm concentration ratio for the beverage industry is 95% (30%+30%+20%+15%)

The concentration ratio of the n largest firms in an industry can be calculated as follows

$$CR_n = \sum_{i=1}^{n} S_i \qquad \text{i= 1,2,3,….n}$$

$$S_i = \frac{Q_i}{Q}$$

where,

S_i = The share of i^{th} firm in total output of the industry
Q_i = quantity of i^{th} firm/seller in the market
Q = total output in the industry

The centration ratio ranges from 0 to 100 per cent based on which the extent of market competition can be guessed

No concentration:

0% means **perfect competition** or at the very least **monopolistic competition.** If for example CR_4=0 %, the four largest firm in the industry would not have any significant market share.

Total concentration

100% means an extremely concentrated **oligopoly**. If for example CR_1= 100%, there is a **monopoly**

Low concentration

0% to 50%. This category ranges from perfect competition to oligopoly.

Medium concentration

50% to 80%. An industry in this range is likely an oligopoly.

High concentration

80% to 100%. This category ranges from oligopoly to monopoly

Limitation of concentration ratio:

The definition of the concentration ratio does not use the market shares of all the firms in the industry and does not provide the distribution of firm size. The concentration ratios just provide a sign of the oligopolistic nature of an industry and indicate the degree of competition. The **Herfindahl-Hirschman index** provides a more complete picture of industry concentration than the concentration ratio.

2. Herfindahl-Hirschman Index (HHI):

The HHI is a measure of size of firms in relation to the industry and an indicator of the amount of competition among them. It is defined as the sum of the squares of the market shares for each firm within the industry and is always less than one.

$$HHI = \sum_{i=1}^{n} {S_i}^2 \qquad i= 1,2,3,\ldots.n$$

Where Si is the market share of firm i in the market and n is the number of firms. Decrease in HHI index

Example: The beverage industry comprises 5 firms with market shares as follows:

Company A has 30% market share
Company B has 30% market share
Company C has 20% market share
Company D has 15% market share
Company E has 5% market share.

Herfindahl-Hirschman Index for the beverage industry will be calculated as follows;

$$(0.30)^2 + (0.30)^2 + (0.20)^2 + (0.15)^2 + (0.05)^2 = 0.245$$

Example 2.

For instance, two cases in which the six largest firms produce 90% of the goods in a market:

- Case 1: All six firms produce 15% each.
- Case 2: One firm produces 80% while the five others produce 2% each.

We will assume that the remaining 10% of output is divided among 10 equally sized producers.

The six-firm concentration ratio would equal 90% for both case 1 and case 2. But the first case would promote significant competition, where the second case approaches monopoly. The Herfindahl index for these two situations makes the lack of competition in the second case strikingly clear:

- Case 1: Herfindahl index = $(0.15^2+0.15^2+0.15^2+0.15^2+0.15^2+0.15^2) + (0.01^2+0.01^2+0.01^2+0.01^2+0.01^2+0.01^2+0.01^2+0.01^2+0.01^2+0.01^2)= 0.235$
- Case 2: Herfindahl index = $0.80^2 + 5 * 0.02^2 + 10 * 0.01^2 = 0.643$

Increases in the Herfindahl index generally indicate a decrease in competition and an increase of market power, whereas decreases indicate the opposite

A HHI index below 0.01 indicates a highly competitive index.
A HHI index below 0.15 indicates an unconcentrated index.
A HHI index between 0.15 to 0.25 indicates moderate concentration.
A HHI index above 0.25 indicates high concentration

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