CHAPTER III

CONCEPTUAL FRAMEWORK AND METHODOLOGY

A comprehensive survey of studies on fishing industry was given in the last chapter. This chapter is devoted to present the conceptual framework in which the study on fish marketing is undertaken and the method of study followed.

I. Meaning of Marketing

The terms ‘Market’ and ‘Marketing’ are closely related. A concourse of buyers and sellers is called Market. It is viewed as some sphere or space, where the market forces are at work to determine or modify price.\(^1\) The term ‘Market’ is derived from the Latin word ‘Mercatus’ which means ‘Market place’.\(^2\) It is defined as a group of buyers and sellers with facilities for trading with each other.\(^3\) They may be gathered together at market place or scattered over a large area, that is only incidental. They are highly sensitive to each others’ transactions and what one did affect the other.\(^4\) The forces of the market, viz., demanders (buyers or lessees) and suppliers (sellers or lessors) are engaged in the contract for transferring ownership to use a factor, good or service.\(^5\) Wentz and Eyrich, pointed out that a market could be defined in many ways, geographically, demographically, institutionally or politically\(^6\) and popular classifications are local, regional, national and international.

The concept of marketing refers to all the activities that are carried on from production till the product reached to the final consumer. The connotation of the term ‘marketing’ has undergone much change depending upon commodities, institutions involved in the marketing processes and the passage of time. Philip Kotler\(^7\) considered marketing as a human activity meant for satisfying human wants through the processes of transaction. Pyle\(^8\) and Stanton\(^9\) viewed marketing as that phase of business activity designed to plan, price, promote and distribute commodities with which human wants can be satisfied. It encompasses all of the intermediate steps from primary production to ultimate consumption. Marketing system bridges the gap between the producer and the consumer.\(^11\)
Irwin made a functional classification of marketing into physical functions and intangible functions. The physical functions comprised transporting, processing, storing, and grading of the products and the intangible functions referred to the transfer of ownership included pricing plus financing and risk taking and guiding products to consumers.\textsuperscript{12}

Different people viewed the concept marketing differently. Varadarajan summed up it as a group of business activities, as a trade phenomenon, as a frame of mind, as a co-ordinate and integrative function in policy making, as a sense of business purpose, as an economic process, as a structure of institutions, as a process of exchange or transferring ownership of products, as a process of concentration, equalisation and dispersion, as the creation of time, place and possession of utilities, as a process of demand and supply adjustment and as many other things.\textsuperscript{13} Abbott and Makeham\textsuperscript{14} also had the same idea while they stated that to the house-wife it meant shopping for food, to the farmer it meant the sale of his produce and to the fertiliser distributor, it meant selling to the farmer. Some people thought of marketing as high-pressure salesmanship. Teachers of marketing practice included all those business activities associated with the flow of goods and service from production to consumption. All these views reflected different aspects of the same marketing process and constituted parts of the whole.

Hence to the present study, the term marketing of fish included all such activities that would be done to transfer fresh fish from the landing centre to the retail market.

**II. Market Forms**

Economists use certain terms to describe the various possible situations in which the determination of prices and output levels is taking place. These situations referred to as market forms or market structures or market morphologies. Market morphologies cover a wide spectrum. “They are boxes in which the economists file actual firms and industries. The question of market morphology or taxonomy mainly concerns sellers\textsuperscript{15}.

Baumol\textsuperscript{16} lists the market structure into pure competition, pure monopoly, monopolistic competition, monopsony, discriminating monopoly, bilateral monopoly and oligopoly. Baird\textsuperscript{17} has four divisions, namely, perfect competition, monopoly, monopolistic
competition and oligopoly. Alchian and Allen in their taxonomic approach made the
distinction between price takers under perfect competition and price makers under monopoly
and searchers\(^{18}\) under monopolistic competition and oligopoly. Galbraith\(^{19}\) drops the standard
taxonomy of market structures in favour of the distinction between competition and monopoly
as the first and second extreme market systems respectively. Triffin\(^{20}\) has two classes, namely,
homogeneous competitions and heterogeneous competitions. Samuelson,\(^{21}\) Joan Robinson,\(^{22}\)
Chamberline\(^{23}\) and Stonier and Hague\(^{24}\) prefer to divide competition into perfect competition
and imperfect competition. Stigler\(^{25}\) observes, “a competitive market is easily defined only for
a perfect market: it is then a market in which the individual buyer or seller does not influence
the price by his purchase or sales. Alternatively stated, the elasticity of supply facing any buyer
is infinite and the elasticity of demand facing any seller is infinite. A market is obviously
competitive on only one side: a million buyer can deal with only one seller (monopoly) or a
million sellers can deal with one buyer (monopsony), or a market with differentiated product,
(monopolistic competition) or a firm which charges different prices to different customers for
the same commodity (discriminating monopoly), or an industry with a small number of large
firms producing the bulk of its output (oligopoly)”\(^{26}\). To identify different types of market,
Koutsoyiannis\(^{27}\) forms the following chart.

<table>
<thead>
<tr>
<th>Type of Market</th>
<th>Substitutability of product Criterion.(^{28})</th>
<th>Interdependence of sellers Criterion(^{29})</th>
<th>Ease-of-entry Criterion(^{30})</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pure Competition.</td>
<td>(e_p \cdot ji = \frac{dqj \cdot Pi}{dpi \cdot qj})</td>
<td>(e_Q \cdot ji = \frac{dpj \cdot qi}{dpi \cdot pj})</td>
<td>(E = \frac{Pa - Pc}{Pc})</td>
</tr>
<tr>
<td>2. Monopolistic</td>
<td>(o &lt; e_p \cdot ji &lt; \alpha)</td>
<td>(\rightarrow o)</td>
<td>(\rightarrow o)</td>
</tr>
<tr>
<td>Competition.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Pure oligopoly</td>
<td>(\rightarrow \alpha)</td>
<td>(o &lt; e_Q \cdot ji &lt; \alpha)</td>
<td>(E &gt; o)</td>
</tr>
<tr>
<td>4. Heterogeneous</td>
<td>(o &lt; e_p \cdot ji &lt; \alpha)</td>
<td>(o &lt; e_Q \cdot ji &lt; \alpha)</td>
<td>(E &gt; o)</td>
</tr>
<tr>
<td>Oligopoly.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Monopoly</td>
<td>(\rightarrow o)</td>
<td>(\rightarrow o)</td>
<td>blockaded entry</td>
</tr>
</tbody>
</table>

Among the above mentioned market forms, Stigler\textsuperscript{31} feels that, "Perfect competition is a typical example of a concept of everyday life that has been taken over by economists." Samuelson\textsuperscript{32} considered it a 'limiting pole.' Beardshow\textsuperscript{33} recognises that, in the real world, there are, however, close approximations to perfect competition by ensampling the marketing of agricultural commodities. For agricultural produce, there are thousands of sellers and ultimately millions of buyers and it is easy for the producers to enter or leave the market by switching crops. Once the crops graded, they attain the characteristic of homogeneity. Besides this, the producers have good knowledge about the market and it appears that they can sell what they want at the market prices. These, which are essential for the working of a competitive market system, supposed to prevail in fishing industry also, which is considered as one among the chief constituents of the primary sector. This study admits that at present there is no precise and scientific theory for analysing the working of the internal marine fresh fish marketing system. The 'Competitive model' represents the ideal functioning of the free market system in agriculture. Hence a close look at it with respect to the fishing industry, helps the present investigation a lot.

\textbf{III. Competition: Pure and Perfect}

The common meaning of competition is rivalry.\textsuperscript{34} Tibor Scitovsky observes that the eighteenth and early nineteen century economists regarded competition as a beneficent force, an "invisible hand," which curbed the individuals' economic power and brought order into economic affairs without regulation by the State or other authority.\textsuperscript{35} They believed that competition was a natural state of affairs and that the order it caused was a natural order. A competitive market may be pure or perfect. Chamberline understood a pure competitive market as one without monopoly elements, for this it requires a large number of traders, a standardised homogeneous commodity and a perfectly elastic demand curve.\textsuperscript{36} Stigler would like to add perfect knowledge as another condition of pure competiton.\textsuperscript{37}

Joan Robinson treats a perfect competitive market as one where, "the demand for the output of each producer is perfectly elastic. This entails, first, that the number of sellers is
large, so that the output of any one seller is a negligibly small proportion of the total output of the commodity, and second, that buyers are all alike in respect of their choice between rival sellers, so that the market is perfect. By a perfect market, Stonier and Hague means a market situation in which the cross-elasticity of demand for the product of a single firm with respect to a change in the price of the rest of the industry will be infinite. It implies that the proportionate fall in the demand for the product of a single firm will be infinitely large compared with any given proportionate fall in the price of the product of the whole industry.

To Samuelson, the perfect competition is a technical term, which exists only in the case where no farmer, business or labourer is big enough part of the total market to have any individual influence on market price. For a market to be competitive, it must have several members on both the buyer's and seller's side, absence of artificial restraints, mobility of goods and services, homogeneity of product knowledge about the market. In such market there is little incentive for product improvement, no trade secrets exist and prices come closer to cost. In a competitive market, Marshall believes that the price of a commodity is determined by the free play of the market forces, viz., supply and demand and it settled at the point of balancing of these forces.

It follows from the foregoing discussion that perfect competition is a market structure characterised by a complete absence of rivalry among the individual firms because of the existence of conditions such as, large number of sellers and buyers, product homogeneity, free entry and exit of firms, perfect mobility of inputs of production, no government regulation and perfect knowledge of the market.

In a competitive market, it is inferred that, the producer is always aiming to maximise his profits. Profit maximisation assumption about the behaviour of the producer is one of the most fundamental assumptions of economic theory. It is regarded as a rational behaviour. While a producer maximises his profits, he is in equilibrium. The conditions required for the equilibrium of the producer in a competitive market is analysed in the following section.
Equilibrium of the Producer under Perfect Competition

Under perfect competition, a producer is in equilibrium when he does not show a tendency either to expand or to contract the supply of his product. At this point he earns ‘normal profit’ or zero economic profit, that is to say he maximises profit. Henderson and Quandt formulated the following model that describes the equilibrium of firm under pure competition. The model assumes that the objective of the firm is to maximise its profit. Let $q$ the output produced by the firm, and $p$ the market price of the product, which is given to the firm. $R$ is the total revenue that equals the product of quantity and price.

$$R = Pq$$ \hspace{1cm} (1)

The Marginal revenue is,

$$
dR/dq = P + q \left( dP/dq \right) \hspace{1cm} (2)
$$

$$= P$$

Since $dp/dq = 0$, as the market price is given to the firm; combining equation (1) and (2) we obtain,

$$dR/dq = R/q = P \hspace{1cm} (3)$$

Marginal revenue equals average revenue equals price. If $C$ is the total cost of producing output $q$, total profit, $\Pi$ are,

$$\Pi = R - C \hspace{1cm} (4)$$

For total profit to be maximised, it is necessary that

$$\partial \Pi / \partial q = 0, \text{ and } \partial^2 \Pi / \partial q^2 < 0$$

Differentiating eq. (4) with respect $q$, and setting the rest to zero, we have

$$\partial \Pi / \partial q = \partial R / \partial q - \partial C / \partial q = 0$$

or

$$\partial R / \partial q = \partial C / \partial q \hspace{1cm} (5)$$

This is the first order condition for the maximisation of profit that is to say that the marginal revenue from the sale of output should be equal to marginal cost. To assure that the resultant profit is maximum, it requires that the second order conditions should also be satisfied. For this,
\[ \frac{\partial^2 \Pi}{\partial q^2} = \frac{\partial^2 R}{\partial q^2} - \frac{\partial^2 c}{\partial q^2} < 0 \]

or

\[ \frac{\partial^2 R}{\partial q^2} < \frac{\partial^2 c}{\partial q^2} \]

It means that for any small increase in output, the rate of increase in the marginal revenue should be lesser than the rate of increase in the marginal cost at the point of equilibrium. The equation (3) shows that in a pure competitive market condition, the marginal revenue equals average revenue, which denotes the infinite elasticity of the demand curve of the individual producer in a competitive market. Hence at the point of equilibrium, as the output increases in smaller quantity, the increase in marginal revenue is zero. The marginal cost curve, which is ‘U’ shaped, will cut the marginal (average) revenue (demand) curve possible at two points. However the condition (6) met only at the point whereas output increases, the marginal cost curve cuts the marginal revenue curve from below. At this point, the first order and second order conditions (MR = MC and MC cuts the MR from below), both the necessary and sufficient conditions for the maximisation of profit are met.

IV. Fishing Industry and Competitive Market Model

The following section examines the application of the competitive market model in marine fresh fish marketing system.

Fishing is an important activity that is usually coming under agriculture and allied sector. It is commonly said that agricultural production and marketing are carried out under the condition of perfect competition. Margaret Capstick states that, as far as agricultural sector is concerned, “it is in general true to observe that for producers, the market is competitive, there are in the world millions of farmers, each of whom produces only a very small fraction of total global supplies of any one commodity. In very many cases, selling is completely unorganised and the farmer is a price taker.” Looking from this angle, to a greater extent, the competitive norms are applicable to the fishing industry also. In market oriented economies, the fishing industry generally operates under the market form that approaches what is called pure competition, which is characterised by (as stated in the previous section), (1) homogeneous products, (2) large numbers of buyers and sellers, and (3)
free entry and exit from the industry. These characteristics have profound effects on the individual fishing firm. First, a fishing vessel can rarely differentiate its product or harvest from others. Second, it must compete with hundreds or sometimes thousands of other firms. The action of one fishing firm (i.e., how much it harvests) has no appreciable impact upon total supply. Third, the capital investment to start a new fishing firm is rather low when compared to the investment required in other sectors, such as automobile plant, petroleum refinery, steel mill, etc. Thus, there are no real constraints on entry into most fisheries. This indicated in the rapid increase of fishing vessels in most fishery of the world as the demand for fishery products increased.

Since the fish harvesting market is characterised by pure competition, each fishing firm is regarded as a "price-taker" as opposed to a "price maker." Fish price is determined by the aggregate supply and demand (see chapter v). The individual fishermen have no control over the price. Figure 3.1 shows for the individual fisher the typical relation between price and quantity under pure competition.

**Figure 3.1**

**Relationship between price and quantity of fish sold under pure competition.**

AC = Average cost

MSY = Maximum sustainable yield

Source: Frederic W. Bell, op. cit., p.312.
Frederick W. Bell illustrates, "in panel (a) of the figure 3.1, the forces of supply and demand determine a stable equilibrium \((AC = P)\), where \(P\) stands for price, is a stable equilibrium for the fishing industry because of the MSY curve and the common property nature of the resources) at a price 50 cents per pound of fresh cod and a total market quantity sold of 200 million pounds. For any one fishing trip, the hold capacity of the individual cod vessel in question is 10,000 lb., as shown in panel (b). Why is individual cod fishing firm a price-taker? Let us look at his options. Suppose the cod-fishing firm is not willing to accept 50 cents per pound for cod and raises its price to 60 cents. What buyer will pay 60 cents for cod if he can buy it at the market price of 50 cents? Cod is Cod, or simply -- the product is homogeneous from firm to firm. If the cod--fishing firm could differentiate its product by claiming that it is superior, more fresh, over meat per pound, more nutritious, more everything -- it might persuade buyers to pay a little more. However, this is unlikely, since the entire cod fleet catches its fish from the same fishing grounds, spends about the same number of days at sea, and preserves the fish with about the same amount of ice per fishing firm. Thus the individual firm can make no sales above 50 cents per pound. At 50 cents per pound or lower, the firm can sell its entire capacity of 10,000 lb. In addition, withholding the 10,000 lb. from the market will have but a small impact on total market supplies (0.005 per cent).

This illustration makes it clear that the buyers and sellers under perfect competition, have no appreciable impact on total market supply.

Excepting for the above conditions, the fishing industry, in general, differs from the competitive norms as in the following ways.

1. The fish--harvesting market consists of large number of sellers and few buyers. Frederick Smith observes, "There are over 100,000 commercial fishermen, but there are only several hundred sea-food dealers. Some ports have as few as one dealer. In situations such as this, there is little incentive for the dealer to increase the price to fishermen when he can meet an increased demand with his existing supply and a greatly inflated price to the consumers." This condition, when it exists, makes the market imperfect.

2. Under competitive market conditions, the producers are independents, but the fish producers are dependants. Their financial position is so weak that forced them to borrow from the commission agent-cum-money lenders to meet their production requirements and personal needs. For marine fishing, sea is the centre of fishing activities, which is very precarious; hence there is no certainty about their production. For production requirements, they borrow money in the midst of uncertainty. It is not certain that they will always get good
catch, a consistently good catch is a rare phenomenon. In most cases they have to return empty handed, which is a common experience in the lean season. Their expenses mount with every trip to the sea, and they try to meet the expenses by indulging in more and more borrowing. The money lender is always willing to lend them, because lending is always made with the understanding to sell the catch of the borrower to the money lender. Since this is a permanent phenomenon in the fishing sector, the fish producer is always in a debt trap.

3. The primary fish market consists of few independent buyers or traders. Broadly the marketing of fish carried on at two centres mainly; (1) at the landing centres, known as beach markets or primary markets, and (2) at the wholesale or retail markets, which usually situated in the interior parts of a country. The buyers of fish in the beach markets are generally traders and not the ultimate consumers, and it is the wholesale or retail markets that serve the ultimate consumer of fish through the market functionaries. The number of buyers in these two markets also differs and the wholesale or retail markets have an edge over the other. Hence, there is no direct link between the fish producer and the ultimate consumer, which mitigates the competitiveness of the fish markets.

4. Marine fishery is a common property resource. No one has an exclusive ownership over it or owns the oceans' fishes until they are caught. Anybody can catch fish from it at any time and withhold himself from doing that. No one has the incentive to voluntarily reduce quantities of catch to their reproduction and renewal. The marine fishery sector offers entry and exit in the production sector, which assures bitter competition between traditional and modern sectors of the fishery and within each sector. While the traditional sector exclusively predominated by the actual fishermen, the modern sector thrown open to all categories of people who follow modern methods of fishing unlike those in the traditional sector. Due to mechanisation, the modern sector is able to explore more fishing grounds, and hence its share in the total output is consistently larger. As a result, there exists an unequal distribution of income in the fishery sector in favour of the modern sector. Such a state of affair is not favourable to competitive market situation, which is assumed to assure always a "fair" and "equitable" distribution.
5. Fishing is a highly complex activity involving production (catching), processing and marketing. Fullest development of this sector is possible only when there exists a proper co-ordination between production, processing and marketing and efficient dissemination of information about them does play a prime role, which is lacking in the fishing industry, in less developed economies. Fish producers are not fully informed about the quantity and the price of the species even in the same beach market itself. The same species may be auctioned at different prices in the market at the same time. The producers are not being informed about the prices of the fish in the wholesale and retail markets or about the preference of the consumers. In short, perfect knowledge about the market situation, which is an essential condition for a competitive market is absent in the fishing industry.

6. In modern times every government is keen to improve the social and economic conditions of its people. Promotion of social welfare is its motto. Hence the development of the fishing sector has become a matter of great concern for Government of Kerala also. To uplift this sector, it brought under the planned development of the State. With this, the Kerala Government has implemented many restrictive and promotional measures in this sector. It means that there is direct involvement of the State Government, which is ruled out in a competitive market model.

7. The process of price determination under the competitive market condition related to the actions of maximizers—producers who cease production at the point at which marginal revenue equal to marginal cost. But the marine fish producers are non-maximizers. Their area of production is sea, which is an embodiment of uncertainties. There is no surety about the catch. Hence the profit maximisation condition of the competitive market finds little application, in the fishing industry. The non-maximisation is, in any industry, an imperfection in competition.

The foregoing analysis has made it clear that imperfections arise in (1) market structure, (2) market channel, (3) market functionaries and (4) ultimately in the price system of the fishing industry. It limits the use of the competitive model in analysing the fish marketing system.
Any description about the competitive market model will not be complete without reference to the consumption side of the product. To analyse the consumption of the fishery product, one must specify the relationship between consumption and the determinants of consumption. To do these, scholars have started with one consumer who typifies the average consumer and generally adheres to the "general law of demand." A consumer usually faces unlimited wants, conditioned and created by physiological need, personal characteristics and the social and physical environment. His resources are limited and hence confront with the problem of choice. The consumption of fish also influenced by all these factors. Compared to past, in modern time, the consumption of fish shows a persistent rise. This trend has raised several pertinent questions such as: What determines and how fast the per capita consumption of fish has risen? Why has it not remained constant? Why did the quantity of fish consume by the average consumer remain constant? One can answer these questions by hypothesising what is called a demand "function" for fish, as

\[ qf = f(Pf, \frac{Y}{N}, Cg, P1, \ldots, Pn) \]

where

- \( qf \) = per capita consumption of fish
- \( \frac{Y}{N} \) = real per capita income of the consumer (e.g., real income of the consumer, \( Y \), divided by the population, \( N \))
- \( Cg \) = complementary goods.
- \( P1, \ldots, Pn \) = price per units of the substitutes of fish.

All the above elements have appreciable impact on fish consumption. It is important in economic analysis that the impact of each demand determinants should be examined separately to identify which determinants have been the most important and to what degree, in any observed changes in the per capita fish consumption. Since the present study mainly concerned with the structure and pattern of internal fish marketing system, which is a matter of supply side of fish, the demand side of fish is not examined in this study.
Limitations of the Model

The 'competitive market' approach to analyse the market structure of a commodity like fish has a certain inherent weakness. Though there are large number of producer-sellers of fish, yet, in general, the fish producers are ignorant about the fish market or the consumer's preferences. Therefore, there is the possibility either over production or under production. By the time the producers learn from their experiences, the situation may have changed drastically. In actual fish marketing situations, the conditions of the perfect competition are often violated in many ways. This gives us the impression that the perfect competition is a myth in the context of fish marketing system. The different are the ways in which violations occur:

1. In fish marketing system the producer -- sellers are not independent.
2. Perfect knowledge about the market always remains only a theoretical proposition.
3. Fish buyers or traders are only few.
4. Government involvement in production and marketing is the order of the day.

In view of the above violations of the competitive market conditions, it is inferred that the competitive market model has only theoretical validity and little relevance to the prevailing fish marketing system. Hence it is imperative to develop an alternative approach to examine the working of the internal marketing of the marine fresh fish.

V. The Alternative Approach -- A Study of Market Structure and Price System

In the light of the practical difficulties in using the 'Competitive Model' and its limitations, this study uses the alternative approach to analyse the real nature of the internal marketing of the marine fresh fish of Kerala by referring to its market structure, marketing channel, market functionaries, price determination, influence of demand and supply on fish price and the price spread. A brief explanation of this approach is given below.
Market Structure

Generally, “market structure” refers to the basic conditions within which the market functionaries have to act. Dahl and Hammond\textsuperscript{54} identified four market structure characteristics that determine the type of conduct of the market, viz., (1) the number and size of the producers, (2) nature of the product, (3) entry and exit conditions and (4) level of knowledge about costs, prices and market condition among the participants. While referring to the market structure, Purcell\textsuperscript{55} emphasises the organisational characteristics, which include the seller concentration, buyer concentration, barrier to entry and the degree of product differentiation. The same view expressed by Caves\textsuperscript{56} also. The degree of seller concentration is determined by the size distribution of sellers in the market and the degree of buyer concentration is determined by the size distribution of buyers in the market\textsuperscript{57}. The nature of the market structure always depends on the role played by its functionaries and traders who are involved in moving the produce from producer to the ultimate consumer\textsuperscript{58}. The nature of competition and the pricing within the market are governed by the nature of market structure\textsuperscript{59}, and the behaviour of the producer in the market depends on it\textsuperscript{60}. Studies made by Narver and Savitt\textsuperscript{61} and George and Singh\textsuperscript{62} found that the nature of competition and the pricing of the product are always influenced by the characteristics of the organisation of the market. Rao\textsuperscript{63} believes that degree of market power depends on the market structure and its network. The marketing network meets the needs of the society. At one end of the network, the producers initiate the flow of goods and services. This flow is maintained by the various intermediaries who finally put these goods and services at the disposal the consumers\textsuperscript{64}. In the present study it is proposed to discuss the organisational characteristics of the internal marketing of the marine fresh fish.
**Marketing Channel**

While a product is produced, we must see that the product must become transferred from the producer to the ultimate consumer. This transfer involves a set of relationships between the supplier and the immediate consumers which may be referred to as marketing channel or trade channel or channel of distribution. It is nothing but transfer of the title of the product. Usually the trade channel may have more than one transfer point, at each of which there is either an institution or a final buyer of the products. The transfer of the title may be direct or indirect. Direct transfer takes place when the producer sells the product outright to a wholesaler or retailer and the indirect transfer occurs when the agent or middleman negotiates its transfer to the buyer. A trade channel always includes both the producer and ultimate consumer for the product as well as all the merchants, agents and middlemen. The present investigation will look into the set of relationships involved in the transfer of marine fresh fish from the landing centre of the ultimate buyer.

**Market Functionaries**

The trade channel involves a large number of people. They can be classified according to the functions performed, known as market functionaries. In fish trade, the middlemen, wholesalers, commission agents and retailers are the chief market functionaries. Fish trade is smoothened by persons who specialised in purchase or sale, called middlemen. Wholesaler in fish trade is one who sold fish to retailer or to large consumers like marine industries, institutions and commercial users. He does not conduct business in large quantity with the ultimate consumer. The commission agent is one who negotiates the price for the sale of the good he handles, but do not bear title to the goods. He is generally acting as a mediator who collects the value of the goods transacted, deducts his commission and remits the balance.
to the party for whom he transacted business. Retailer is the only agent among the market functionaries who would be in close contact with the ultimate consumer. He generally handles small quantities and helps in the dispersion of the produce. Our analysis will take into account the role of these market functionaries.

The Price System

The price system prevails when the vital economic decisions are taken through the medium of price\(^69\). Various operations of an economy are carried on through the medium of market prices, which is the result of the interactions between the consumers' demand for goods and their supply by producers. The fish economy is no exception to this rule. The price of its produce is also determined by the interactions of buyers and producers of fish. The buyers in the primary market are not often the ultimate consumers of fish, instead the marketing intermediaries or the traders are the buyers.

In market models the buyer's side is represented by the demand function that is referred as the function of price, for example, \(D = f(P)\), and demand curve expresses the correlation between the quantity demanded and the price of the product. To get a realistic picture of this relationship, it is necessary to consider not just one correlation, but many. Thus demand will become a function of all variables which influences it: \(D = f(P, Y, T, \text{etc.})\), (where \(P\) stands for price of the commodity, \(Y\) is the income of the consumer and \(T\) is the trend variables).

The producer's side in the market models represented by the supply function, that is, a function of price, that is, \(S = f(P_t)\), (where \(t\) stands for the time). Emile Cheysson\(^70\) pointed out that for most of the product produced in the primary sector, it is the price in the previous period that determines their supply, that is, \(S = f(P_{t-1})\). He developed a simple
dynamic model of market price. His model can be applied to the prices and output of commodities whose production is discontinuous just like fish. It is assumed that the demand and supply of a commodity take place simultaneously and they respond to changes in price instantaneously. A new equilibrium will be determined by the equality of demand and supply. His model represents a simple version of the dynamics of demand, supply, and price under the conditions of a competitive market and the symbolic form of it is given below.

Demand function: \( Dt = a + \alpha Pt \)

Supply function: \( St = b + \beta Pt-1 \)

Both demand and supply functions are assumed to be linear.

For equilibrium, demand equals supply, i.e.,

\[ D_t = S_t \]

Therefore,

\[ \alpha + \alpha Pt = b + \beta Pt-1 \] ..........................(1)

Solving we get the Equilibrium Price (\( \bar{p} \))

Let \( \bar{p} \) be the equilibrium price,

So that, \( Pt = \bar{p} \)

Thus \( \alpha + \alpha \bar{p} = b + \beta \bar{p} \) ..........................(2)

\[ \alpha \bar{p} - \beta \bar{p} = b - a \]

\[ \bar{p} (\alpha - \beta) = b - a \]

Therefore, \( \bar{p} = \frac{b - a}{\alpha - \beta} \)

Subtracting equation (2) from equation (1) we get,

\[ (a + \alpha Pt = b + \beta Pt-1) - (a + \alpha \bar{p} = b + \beta \bar{p}) \]
\[ \alpha P_t - \alpha \bar{p} = \beta P_{t-1} - \beta \bar{p} \]

\[ \alpha (P_t - \bar{p}) = \beta (P_{t-1} - \bar{p}) \]

Therefore, \( \alpha P_t = \beta (P_{t-1}) \)

\[ P_t = \frac{\beta}{\alpha} (P_{t-1}) \]

Where \( \alpha \) and \( \beta \) are the slope of the Demand and the Supply Curves respectively.

Since the demand curve is generally negatively sloped, \( \alpha < 0 \), and since supply curve is positively sloped, \( \beta > 0 \)

Therefore, \( \frac{\beta}{\alpha} = \frac{(+Sign)}{(-Sign)} = - (Sign) \).

Since the production of the fishing industry also discontinuous, this study has used the best features of the above model to determine the fish price, its influence on the supply, and the response of the fish price to the changes in supply and demand.

To analyse the influence of price on the supply, this study has used a supply response model of the following form:

\[ Y_t = a_0 + \beta P_t \]

To examine the influence of supply and demand on price, two simple linear equations of,

\[ P_i = a_0 + \beta X \]
\[ P_i = a_0 + \beta_1 X_1 + \beta_2 X_2 \]

are used.

Where, \( P_i \) = the price index of the \( i^{th} \) specie.

\( X_i \) = total domestic availability of \( i^{th} \) variety.

\( X_1 \) = population index of Kerala.

\( X_2 \) = \text{Per capita income index of Kerala}
Price Spread

Price paid by the consumer is the revenue on the part of the producer. As far as the fish market is concerned, there are two transaction centres, where the price is determined; (1) at the beach market and (2) at the wholesale market. At the beach market, there is a direct contact of fish producer with the immediate buyer or trader, who may not be the ultimate consumer in all cases, but the marketing intermediaries. At the wholesale market, the contact is between the marketing intermediaries and the retailer or the ultimate consumer. So there is no direct contact between the fish producer and the ultimate consumer in usual occasion. This leads to the existence of difference between the price received by the fish producer and the price paid by the ultimate consumer, which can be discussed with the price spread analysis. It is made up of various costs incurred and margins of intermediaries in the marketing processes, such as those of assembling, processing, storage, transport, wholesaling and retailing. Price spread is the difference between the price paid by the consumer and the price received by the producer, that may represent an absolute margin. It would increase with the number of intermediaries and the extent of market services done between the producer and the consumers. Generally the less this spread, the greater is the efficiency of the market. This study has focused on the analysis of the division of consumer rupee among fish producer and marketing intermediaries.

Limitations of the approach

A prime limitation of this approach is that it is a micro study, which is confined to the structure and pattern of the internal marketing of the marine fresh fish only. As pointed out in the Chapter I, fish marketing is a vast area that comprises marine, inland and export markets. To get a general view about the fish marketing, the market structure, marketing
channels, marketing intermediaries, price system and price spread of all the components of the fish marketing should be analysed. Hence this approach fails to give a general view of the fish marketing in Kerala.

Another limitation of this approach is that it does not deal with the analysis of the characteristics of the market forces viz., supply and demand and the formation of supply and demand functions. Since this approach is aimed at the analysis of the structure and pattern of internal marketing of marine fresh fish, such efforts remain outside the purview of this approach.

Yet another practical difficulty of this approach is the severe paucity of the appropriate data to analyse various aspects of the market structure.

Despite the above limitations, this approach tries to unearth the actual working of the domestic marketing of marine fresh fish in Kerala.

VI. Data -- Base for the Study

This study is based on the primary and secondary data. There is severe dearth of appropriate published data regarding the fish marketing, mainly because it remains an unorganised sector. The major sources of the secondary data used in this study are: (1) the publications from the Department of Fisheries, Government of Kerala, Trivandrum, (2) the annual Administration Reports of the Department of Fisheries, (3) data published by the institutions related to fishing industry like the Central Marine Fisheries Institute, Cochin, The Marine Product Export Development Authority, Experts Committee Reports on Fisheries of the State of Kerala and Matsyafed. This study has further used the statistical information published by the State Planning Board, Census reports of Kerala, Quinquennial Livestock Census Reports and Marine Fisheries Information Service. It is important to note in this
connection that much of the information mentioned above was insufficient to analyse the market structure of the internal marine fresh fish in Kerala. To fill this lacuna, a case study about it is undertaken in one of the prominent marine districts of Kerala, namely, Alleppey, that is a true representative of fish economy of Kerala. (Description about the features of fish economy of Alleppey District is given in the next section.) The analysis of the price system of the fish is mainly based on the secondary data and the market structure is examined with the help of the case study.

VII. Description of the Study Area

Aleppey is one among the important nine marine districts of Kerala. It has a coast line of 81.7 Km. in length, which accounts for 14 per cent of the total sea coast of the Kerala State. The Vembanad and Kayamkulam backwaters and a net-work of canals and streams that flow into them have enriched the water potential and the fisheries wealth of the district. It is further enriched by the Kayamkulam bar mouth in Karunagappally taluk and Andakaran bar mouth in the Cherthala taluk.

The fish economy of Aleppey can be classified into marine and inland sectors. The marine sector consists of traditional and modern sectors, where the former is predominated by the actual fishermen and the latter by people from within and outside of the fishing community. The marine fisheries contribute major share of the annual fishery output of the district. The primary sector contributes an income of Rs.16017 lakhs of which the fishery sector accounted for nearly 12.88 per cent or Rs.2064 lakhs during 1993-94. This sector represents 6.41 per cent of the total domestic product of the district and 17.13 per cent of the total fisheries sector of the State income. The income details of this sector is shown in table 3.1
Fig. 3.1
Map of the Study Area (Alleppey)

Ernakulam
Cherthala
Kanjikuzhi
Kalavoor
Alleppey
Ambalappuzha
Purakkad
Kuttanad
Tiruvalla
Chenganoor
Mavelikara
Quilon
Table - 3.1.

**Net Domestic Product At Factor Cost (80-81 constant prices)**

**1993-94 (Rs.in lakhs)**

<table>
<thead>
<tr>
<th>Sector</th>
<th>District</th>
<th>State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fisheries</td>
<td>2064</td>
<td>12048</td>
</tr>
<tr>
<td>Primary Sector</td>
<td>16017</td>
<td>203460</td>
</tr>
<tr>
<td>Total Domestic</td>
<td>32164</td>
<td>492567</td>
</tr>
</tbody>
</table>


The continental shelf of Alleppey is without any rocky or coral formations and thus it affords excellent beds for travelling operations by mechanised vessels. The tidal influence felt moderately; the maximum height of the tidal waves varying between 2.5 feet and 3.5 feet only. Another important phenomenon is the annual recurrence of *Chakara* (mud-bank) which develops clearly towards the end of June after the backwater is swollen due to rains. The mud bank is formed off the beach and extends for a few miles into sea that affords a smooth anchorage for shipping and fish-catching during the monsoon. It is seen that Purakkad fishing village is often nourished by the mud banks every year. A considerable quantity of prawn is exploited from this region and this brings in a sizeable national income from exports. The *Chakara* is a regular annual feature of very great economic importance and it provides an occasion for universal rejoicing and get-together to the fisher-folk from all parts of Kerala coast.

According to the Planning and Statistical Cell of the Directorate of Fisheries, 1994, there are 30 fishing villages spread over Five taluks of Alleppey District. More than 106481 are solely engaged in the marine sector of this industry, of which 33178 are males, 32198 females and remaining 41105 children. According to the live stock census of 1987, the total number of persons engaged fully in fish collection in the marine sector is 28194 and 10163 persons are engaged on part time basis. The persons engaged in marketing is 3461, followed by repairing of fish net with 6725, processing of fish with 4515 and other occupation with 47474. The detail of above distribution is given in table 3.2.
Table 3.2

Distribution of Family Member in Fishing operation in the Marine sector of Alleppey District 1987

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Marine</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Actual fishing (full time)</td>
<td>28194</td>
</tr>
<tr>
<td>b. Actual fishing (Part time)</td>
<td>10163</td>
</tr>
<tr>
<td>c. Marketing of Fish</td>
<td>3461</td>
</tr>
<tr>
<td>d. Repairing of Fish nets</td>
<td>6725</td>
</tr>
<tr>
<td>e. Processing of Fish</td>
<td>4515</td>
</tr>
<tr>
<td>f. Others</td>
<td>47474</td>
</tr>
<tr>
<td>Total</td>
<td>100532</td>
</tr>
</tbody>
</table>


The average fish landing varies from year to year. In Alleppey landing facilities are not adequate, and a substantial quantity of fish caught are being landed outside the district. So marine landings in the district are much lower considering its share in the State’s coast-line.

The details of marine fish landings are shown in table 3.3

Table 3.3.

Marine Landings in Alleppey (1975 & 1988)
(In Tonnes)

<table>
<thead>
<tr>
<th>Species -wise</th>
<th>1975</th>
<th>1988</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Prawns</td>
<td>13350</td>
<td>9096</td>
</tr>
<tr>
<td>2. Oil Sardine</td>
<td>6500</td>
<td>5480</td>
</tr>
<tr>
<td>3. Sardine</td>
<td>1100</td>
<td>1242</td>
</tr>
<tr>
<td>4. Shark</td>
<td>150</td>
<td>51</td>
</tr>
<tr>
<td>5. Silver bellies</td>
<td>250</td>
<td>702</td>
</tr>
<tr>
<td>6. Mackerel</td>
<td>5000</td>
<td>9571</td>
</tr>
<tr>
<td>7. Cat Fish</td>
<td>180</td>
<td>460</td>
</tr>
<tr>
<td>8. Cuttle-fish</td>
<td>80</td>
<td>--</td>
</tr>
<tr>
<td>9. Anchovies</td>
<td>90</td>
<td>15183</td>
</tr>
<tr>
<td>10. Tuna</td>
<td>90</td>
<td>297</td>
</tr>
<tr>
<td>11. Rays, Dog fish</td>
<td>60</td>
<td>--</td>
</tr>
<tr>
<td>12. Seer fish</td>
<td>80</td>
<td>1530</td>
</tr>
<tr>
<td>13. Jew fish</td>
<td>120</td>
<td>1213</td>
</tr>
<tr>
<td>14. White bite</td>
<td>450</td>
<td>--</td>
</tr>
<tr>
<td>15. Miscellaneous</td>
<td>4500</td>
<td>13475</td>
</tr>
<tr>
<td>Total</td>
<td>31940</td>
<td>58300</td>
</tr>
</tbody>
</table>

2. Fact and Figures, 1990, Department of Fisheries, Government of Kerala.

The table 3.3. shows that Mackerels, Oil Sardines, Anchovies and Prawns are dominating over other species in the total fish landing of the district. Dug-out canoes are the most popular equipments used for fish-catching in this district. Drag nets, Gill nets, trawl nets and coast nets are the chief gears in operation. The mechanised craft of fill nets, trawler, liners and other mechanically propelled country-craft are widely used in the coastal areas of this district.

There are 30 marine fish-landing villages in Alleppey District. The names are as follows.

**Table - 3.4**

**List of Marine Fishing Villages In Alleppey (1993).**

<table>
<thead>
<tr>
<th>Name of Fishing Village</th>
<th>Fishermen Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Pallithodu South</td>
<td>3511</td>
</tr>
<tr>
<td>2. Pallithodu North</td>
<td>2681</td>
</tr>
<tr>
<td>3. Azheekal</td>
<td>4414</td>
</tr>
<tr>
<td>4. Ottamassery</td>
<td>4990</td>
</tr>
<tr>
<td>5. Thaikkal</td>
<td>3638</td>
</tr>
<tr>
<td>6. Arthinkal</td>
<td>5673</td>
</tr>
<tr>
<td>7. Chethy</td>
<td>2555</td>
</tr>
<tr>
<td>8. Chennaveli</td>
<td>3261</td>
</tr>
<tr>
<td>9. Pollathai</td>
<td>4081</td>
</tr>
<tr>
<td>10. Kattoor</td>
<td>5607</td>
</tr>
<tr>
<td>11. Chettikad</td>
<td>4802</td>
</tr>
<tr>
<td>12. Kanjiram chira</td>
<td>2610</td>
</tr>
<tr>
<td>13. Vadakkal North</td>
<td>5603</td>
</tr>
<tr>
<td>14. Thumboli South.</td>
<td>1498</td>
</tr>
<tr>
<td>15. Thumboli North</td>
<td>3082</td>
</tr>
<tr>
<td>16. Vadakkal South</td>
<td>3738</td>
</tr>
<tr>
<td>17. Punnapra North</td>
<td>4461</td>
</tr>
<tr>
<td>18. Punnapra South</td>
<td>3296</td>
</tr>
<tr>
<td>19. Neerkunnam</td>
<td>3231</td>
</tr>
<tr>
<td>20. Ambalappuzha</td>
<td>3822</td>
</tr>
<tr>
<td>21. Purakkad</td>
<td>2665</td>
</tr>
<tr>
<td>22. Punthala</td>
<td>3281</td>
</tr>
<tr>
<td>23. Thotapally</td>
<td>3263</td>
</tr>
<tr>
<td>24. Arattupuzha</td>
<td>2900</td>
</tr>
<tr>
<td>25. Pathiyankara</td>
<td>2860</td>
</tr>
<tr>
<td>26 Thrikunnapuzha</td>
<td>2176</td>
</tr>
<tr>
<td>27. Pallana</td>
<td>1986</td>
</tr>
<tr>
<td>28. Thayilkadavu</td>
<td>4127</td>
</tr>
<tr>
<td>29. Kalikad</td>
<td>3806</td>
</tr>
<tr>
<td>30. Valiazheekal</td>
<td>2926</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>106481</strong></td>
</tr>
</tbody>
</table>

Source: Marine Fisheries of Kerala at a glance, 1993, Department of fisheries, Government of Kerala, Trivandrum.
Fish Markets
Kayamkulam, Purakkad, Alleppey, and Cherthala are the four major fish markets in Alleppey District. The bulk of fish is marketed from these centres. Under the co-operative sector, the Alleppey Regional Fish Marketing Co-opereative Society and Cherthala Regional Fish Marketing Society that were effectively functioning. Now they have ceased to function.

Fish Curing Yards
Fish is cured by conventional methods. Most of the catches are sold in fresh condition for edible purposes. The district has six fish curing yards at Azhikkal, Kallikad, Thottappally, Thumboli, Pallithodu and Arthinkal.

Boat, Landing Centres and Cold Storage Facilities
There are 34 fish landing centres in this district. Of these, the mechanised boat centres constitute 4 and the remaining 30 constitute traditional craft centres. Kayamkulam, Andakaran Azhi, Thottappally and Pallithodu are the main four mechanised boat fishing centres in the district. There are two public ice or cold storage factories situated at Kayamkulam and Chengannur with a total production capacity of 5 tonnes per day. Taking into account the 78 ice plant units in the private sector, the production capacity per day is 875 tonnes. There are six freezing plants in the district with a freezing capacity of 272 tonnes per day. The storage capacity of fresh fish is 17 tonnes and storage capacity of frozen fish is 37 tonnes. Four boat building yards are functioning under private sector.

Inland Sector
Along with the marine sector, there exists inland sector also in this district. According to the Directorate of Fisheries, 59891 persons are engaged in this sector in 1993, of which 19607 are males, 18680 are females and the remaining 21129 children. Out of
66

59891, the number of active fishermen comes to 14942, i.e., 27.18 per cent. There are 24 inland fish landing villages in Alleppey. It has one brackish water fish farm under the Fisheries Department at Arattupuzha, which comes to 40 hectares and 739 hectares of prawn culture activities in low-lying fields adjoining the backwaters. The inland fish landing is estimated at 7909 tonnes in 1992-93 as against 7143 tonnes in 1991-92. Prawn, Tilappia, Catfish and Etroplus are the dominating species in the total fish landings. A fresh water fish farm is functioning at Edathua. I.C.A.R sponsored this scheme to study of the bionomics of palaemon farming with cyprinus carpio in paddy field.

**Institutional Agencies**

For the socio-economic upliftment of fishermen, a number of institutional agencies are working and the chief among them are the Kerala Fishermen’s Welfare Fund Board and Matsyafed. The former is engaged in promoting various welfare and relief measures for fishermen, such as group accident insurance scheme, financial assistance for marriage of daughters of fishermen or death of the dependants or natural death of fishermen, hut insurance, insurance of catamaran, fishermen pension, free ration of essential commodities etc. Matsyafed (The Kerala State Co-operative Federation for Fisheries Development) is the apex body of the fishermen co-operatives in the State. Its main aim is to promote fish production in the artisanal sector, procurement, processing and marketing of fish products and improving the quality of life of the fishermen. These agencies have their district offices in Alleppey and executing their programmes throughout the fishing villages of Alleppey.

**VIII. Design of the Study**

In consonance with the objectives given in the first chapter and the concepts presented in the third chapter, the methodology for the study was finalised, regarding the
Selection of sample respondents, data collection, specification of the empirical models and analysis. This section presents a description of the methodology for the study.

**Selection of Markets**

Producers and consumers of fish are separated by distances and a chain of market functionaries facilitates the movement of fish between them. An efficient and non-exploitative marketing system can, therefore, assure the welfare of both producers and consumers. In Alleppey district, over the years, there have come into existence four prominent fresh fish wholesale markets, viz., Kayamkulam, Purakkad, Alleppey and Cherthala and Six leading beach markets (primary markets), viz., Thrikunnappuzha, Arattupuzha, Purakkad, Thumboly, Chethi and Azheekal. Among them, one fresh fish wholesale market, namely, Cherthala and two beach markets, viz., Purakkad and Chethi were purposively selected for the study. It is from these centres that the bulk of the fish is marketed to the interior selling places and outside places of the State, even up to Mangalore in Karnataka and Thirunelveli in Tamil Nadu. From each of these centres, market functionaries were selected for the study. A sample of fish producers were also selected to study the sellers concentration and price spread and to understand the functioning of the retail markets, two local markets, viz., Kanjikuzhi and Kalavoor were brought under study.

**Selection of Producers and Traders**

Alleppey District formed the universe of the study. Market channels began with the producers of fish, who sold their produce in the beach markets either directly or through agents. Therefore, the study began with the sample producers of the fishing villages, viz., Purakkad and Chethi. A total of 110 fish producers were selected; 60 producers from Chethi
and 50 producers from Purakkad, whose details were collected from the office of the Kerala Fishermen Welfare Fund Board. Among the sample producers, a majority own craft and gear collectively with the assistance from Matsyfed. All of them were using motorised traditional craft and suitable modern gears fitted to it.

Traders, who bought fish from the beach level markets through the commission agents-cum-wholesalers, directed the produce to the interior or distant wholesale markets. Therefore the market channels between sample producers and the wholesale markets could easily trace. In the wholesale markets also the traders could not sell their produce directly to the retailers, but only through the commission agents (sales) who carried out the auctioning of the fish. It was the retailers who ultimately brought the fish for the use of the final consumers. The beach markets, wholesale markets and the retail markets remained unorganised. Hence a census about different marketing agencies operating along the marketing channels was difficult to prepare. Sample selection was made from those who were popular in their business. The sample consists of 40 traders, of whom 10 were commission agents-cum-wholesales, 10 wholesalers and 20 retail traders. They were good enough to give necessary information from their personal records, though with much reluctance. The sample retailers belonged to the Kanjikuzi and Kalavoor retail markets (10 each) and 10 Commission agents-cum-wholesalers were selected from Chethi beach market and 10 sample wholesalers were selected from Cherthala wholesale market.

**Collection of Data**

Time series and cross section data were used to test the hypothesis of the study. To estimate the cost, income and profit among producers, beach level data collected relating to the year 1994 June to 1995 May, from the records of the Matsyafed office of sample
villages. All the samples producers were actual fishermen, who were registered with the *Matsyafed* office and most of them obtained financial help from *Matsyafed* to own craft and gear collectively. *Matsyafed* offered the assistance to the fishermen under the condition that the sale of their produce and the distribution of income will be done by the *Matsyafed* till their liability is over. Hence the *Matsyafed* records remain a reliable source. Data relating to the volume of business, costs and earnings were collected for one year (1994-95) from the sample traders. The data on their fixed costs were recorded from enquiries and the details on business turnover and commissions recorded through periodic inspections and observations. For the analysis of the price system, the secondary data were collected from various sources whose details were given in the beginning of this section.

**Analysis of Data**

With reference to each of the objectives, the collected data were analysed. To study the producer-seller's concentration and the structural characteristics of fish market, Bain's concept of market structure and his four firm concentration ratios were used. To study the market imperfection if any, Gini ratio was estimated for marketing intermediaries. Lorenz curve analysis was also employed to estimate the imperfections. (Gini Ratio and Lorenz curve are the two important tools, that are used in economic analysis to measure the inequality). For price analysis, time series data on annual average wholesale prices of fish for 18 years from 1975 to 1993 were used. The price spread between the trader and producer-seller was estimated for different market channels with details to show the cost and margin of each of the intermediaries. In this study the estimated equations of various functions were evaluated by value of $R^2$ and $F$ test for five percent levels of significance.
Notes and References


28. The equation \( e_j = \frac{dP_i}{dP_j} \) measures the degree to which the sales of the jth firm are affected by changes in the price charged by the ith firm in the industry. If this elasticity is high, the products of the jth and the ith firms are close substitute. If the substitutability of products in a market is perfect (homogeneous products) the price cross-elasticity between every pair of producers approaches infinity, irrespective of the number of sellers in the market. If the products are differentiated but can be substituted for one another, the price cross-elasticity will be finite and positive. (A.Koutsoyiannis, op.cit.P.6).

29. The equation \( e_j = \frac{dP_j}{dP_i} \) "Measures the Proportionate change in the price of the jth firm resulting from an infinitely small change in the quantity produced by the ith firm. The higher the value of this elasticity is, the stronger the interdependence of the firms will be". (A.Koutsoyiannis, op. cit.)

30. The 'condition of entry' is defined by the expression \( E = \frac{Pa - Pc}{Pc} \)

where \( E \) = condition of entry, \( Pc \) = Price under pure competition and \( Pa \) = Price actually charged by firms. The condition of entry is a measure of the amount by which the established firms in an industry can raise their price above \( Pc \) without attracting entry. (A.Koutsoyiannis, op.cit).


41. Tibor Scitovsky, op. cit., p. 16.

42. Alfred Marshall, op. cit., p. 304.


45. Ibid.


48. C. Viswanathan, op. cit.


The restrictive measures include the ban of monsoon trawling, licences to craft and gear, legislation for marine fishing to control over-exploitation of this sector, etc. The promotional measures consist of the financial assistance for owning craft and gear, insurance to fishermen and their inputs, provision of housing scheme, sanitary facilities, fair price shops exclusively for fishermen, educational assistance, help for speedy modernisation, organising the fishermen on Co-operative basis, etc.


