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Auctions as an Alternate Method of Selling Fish in New England

Martin J. Vincent
University of Rhode Island

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AUCTIONS AS AN ALTERNATE METHOD
OF SELLING FISH IN
NEW ENGLAND
BY
MARTIN J. VINCENT

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
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FISH AUCTIONS
MARTIN J. VINCENT

MASTER OF ARTS THESIS

OF

MARTIN J. VINCENT

Approved:

Thesis Committee

Major Professor

James N. [unclear]
[unclear]
[unclear]
[unclear]
A. G. Michel

Dean of the Graduate School

ABSTRACT

Selling fish at the landings stage by auction, as opposed to the current practices of selling to middlemen and through cooperatives, has been proposed by several authors. They suggest that fishermen would receive higher prices and that auction competition would improve fish quality.

The aim of this study was to compile the rules and procedures of existing fish auctions, and to explore their effect on price formation. This would provide a basis for any who wished to determine the applicability of fish auctions in particular ports.

While the findings are relevant to all fish auctions, special emphasis was placed on the performance of New England's two existing fish auctions. Possible improvements to those two auctions were shown.

The study found that where minimum requirements in buyer competition and sales volume were met, fish auction prices would accurately reflect value. Fishermen often prefer stable and steadily increasing profits over maximum profits, and thus they support fish auctions on grounds other than that they give the best prices. Auctions are shown to be a very efficient means of marketing fish in terms of time and participant involvement, and are sometimes also used because crews want prices to be publicly displayed.

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I. INTRODUCTION

Selling fish at the landings stage by auction, as opposed to the current practices of selling to middlemen and through cooperatives, has been proposed on the grounds that fishermen would receive higher prices (Wilson, 1979). Fishermen frequently complain that they are not selling in a competitive market, that they do not have enough market information, that they have less market power than buyers, and that they therefore do not receive the highest possible price. They want the price they receive for their product to reflect its performance on the market, rather than the buyer's personal attitude. Also, they feel that they have neither sufficient access to markets, nor the mobility to move from one market to another as fishing grounds change (Nichols, 1978).

Fish dealers, on the other hand, frequently complain about the poor quality of fish they receive. Wilson (1979) suggested that auction quality-price differentials would increase fish quality by providing fishermen with greater incentive to take proper care of their catch.

To study all the marketing alternatives available to fishermen would be far too great a task. This study will focus on auctions since they are one of the most widespread marketing systems for fish in northern Europe, since most American fishermen are unfamiliar

with them, and since preliminary research shows potential for successful transfer.

This study is divided into three parts. The first part of the study will outline exactly what a marketing system should do. The second part will describe the performance of existing fish auctions, both in Europe and in the United States, in meeting these expectations. Finally, this study will extrapolate on the applicability of selling fish by auction in New England.

II. WHAT MARKETING SYSTEMS DO

If one wishes to determine which type of marketing system would be most suitable for fulfilling ones needs, one must first know what it is that marketing systems are supposed to do. Due to the nature of western economies, this paper will emphasize how the price system performs the market functions.

1. Marketing Systems' Functions.

Marketing is a social function; it is the way a society supplies its physical or consumptive needs. If every person, family or group could supply all its own needs, then marketing would not exist. It overcomes the "functional, informational, spatial, temporal and financial" separations between producers and consumers (Sommers, 1968, p.7).

Leftwich (1966) and Lindbeck (1977) agree on the five major functions of marketing systems. Namely, such a system must

- 1) transmit information concerning the preferences of its participants;
- 2) allocate resources to the various participants in accordance with their preferences;
- 3) promote efficient production techniques;

4) create incentives to invest and produce, to develop new methods of production, to use resources economically; and finally

5) coordinate the desires and decisions of all the producers and all the consumers so that the level of production in each industry exactly matches the demand.

These five functions can be regrouped into three: the allocation of resources, the creation of production incentives, and coordination.

2. How the Price System Performs these Functions.

2.1. Basic Price Theory.

The price of an article is an expression of its value or worth in exchange for other goods. Every consumer owns a certain amount of resources and will try to trade these for other types of resources until he owns the mixture which is most satisfying to him, in accordance with his personal preferences. The value of an article is thus based on personal preferences. One person may be willing to trade two fish for a loaf of bread whereas another would only be willing to give one. Or, correspondingly, one person might be willing to accept one dollar per fish whereas another might be

unwilling to trade for less than two dollars per fish.

Not only can one talk about individual willingness to buy or to supply, but the preferences of many individuals can be considered collectively. Just as one individual would only be willing to buy certain quantities of an article at various prices, so would a group of individuals, or society, change the quantity it demands with price. A list of quantities demanded corresponding to various prices is called a demand schedule, or if one represents it graphically, a demand curve. A graphical representation of willingness to supply at different prices is likewise called a supply curve.

Prices are formed in what is generally considered to be a free market when parties wishing to buy or sell interact competitively. At the equilibrium price, all sellers can find buyers and vice versa. The market can be "cleared". If the price is too high, some sellers will not be able to find buyers and will drop their prices to lure buyers away from their competitors. If the price is too low, then all buyers can not find suppliers and will raise their bid to divert supplies from competitors. Underlying this is the assumption that all buyers and sellers have knowledge of supply, demand, prices, and act upon that knowledge so as to maximize their profits. Finally, there must be enough participants, and their share of the market activity

small enough, so that the action of one party has no effect upon the actions of any of the others.

If one is trying to maximize consumer satisfaction, then one would want prices to equal average costs in order to get products at the least price. Under competition, when profits appear, new businesses are drawn into the industry until production is such that prices again equal average costs.

An atomistic market is characterized by many small sellers. The price of their product is determined by demand and their collective willingness to supply. Since none of the sellers has a significant level of production, their individual actions do not affect prices. They are price takers and adjust their own production level in response. They will, in fact, increase their output to that point where the marginal cost of producing an additional unit will just equal its selling price. If entry is easy, or if firms can expand without increasing their unit cost, then expansion will occur until prices are so low that

- a) "every firm is producing at the minimal attainable unit cost,
- b) market price is equal to this minimal cost, (which includes a normal profit),
- c) industry output is the largest which can be sold at a price covering cost,

d) and there are no profits in excess of the normal profits, (interest on owner's investment)," (Bain, 1968, p-28).

In monopolized markets, there is no competition on one side or the other. There may either be only one manufacturer from whom all must buy, or, as in the case of some fishing ports, only one buyer to whom all must sell. Not being exposed to competition, monopolists can hold their prices off the theoretical equilibrium price to earn extra profits. It should be stressed here, that when determining his willingness to supply, a supplier takes into account not only his costs, but also adds enough profit to motivate himself. Thus monopolistic profits are those which are greater than the level which competitors would be willing to accept. Profits are considered normal by Shank (1979) if they are at a level no higher than necessary to attract capital.

An oligopoly exists where there are few enough buyers or suppliers so that the actions of one will directly affect his competitors. The behavior of an oligopoly lies somewhere between that of competitive and monopolistic markets.

2.2. Perfect Market.

In the perfect market, all buyers and all sellers have perfect knowledge of demand, supply, and prices.

Furthermore, they are exposed to perfect competition and act rationally upon that knowledge in such a manner as to maximize their profits, (Shepherd, 1976).

Price differentials relating to space, time and form should equal corresponding cost differences. If buyers and products are spread out over space, then a market is still perfect if costs at remote points are equal to costs at near points plus the cost of shipping. Likewise, a market is perfect over time if prices during periods of relative scarcity equal prices during times of abundance plus the cost of storage.

The classification of goods into classes and grades makes the pricing process more objective. Information on the prices of various classes and grades can be quickly transmitted, but to transmit a description of each individual object would be too cumbersome. Classification reduces the haggling and bargaining about what a particular lot is worth. Price differences between grades should be relative to their different costs of production.

Perhaps the greatest difficulty in ever achieving a perfect market lies in the requirement that all buyers and sellers have perfect knowledge of demand, supply, and prices. The collection of information is costly, and if the costs are significant, then some sellers will agree to lower prices, rather than incur the expense of searching for buyers who offer more,

(Alchian, 1969). The collection of information is affected by economies of size, and, in the fish industry, wholesalers have definite advantages over fishermen.

Even thorough searches will not reveal all market information. Some market activity, such as private contracting and direct marketing, show no outward signs. If their share of the market activity is extensive, then cash markets will not reflect overall market performance. To correct this, Bonn (1976) suggests mandatory public reporting of all market information.

2.3. Allocation, Coordination, and Incentives.

Amihud (1976) and Shubik (1970) list several methods by which resources can be allocated. It may be done by chance, tradition, force, fraud and deceit, higher authority, voting, planning, bidding and auctioning, bargaining, or a price mechanism in an economic market. The use of the price mechanism is usually justified on the basis of its efficient creation of incentives, and coordination.

Incentives for investment, for the development of new production methods, and for the economical use of resources are desirable.

Brittan (1975) decided that there were three ways to get people to cooperate: by command, through

unenforced good behaviour, and by private interest to provide for others, namely a market system. Although production is sometimes a by-product of another activity, as in the case of some sportsmen, the incentive for most production is the expectation of material gain. In the price mechanism, it is the force of competition that brings developments and economical usages about. If one producer can find a way of producing a product more cheaply than others can, he will earn greater than normal profits. Competitors will be drawn by these excess profits to switch to his production method, until all are using the innovation and no excess profits exist.

The coordination of all the needs and wishes of millions upon millions of members of a society is the most intriguing market system function. Not only must each industry produce precisely the quantity of goods wanted by each household, but it must fulfill the needs of firms producing yet other goods as well.

On a lower scale, decisions could be made democratically, if the number of decisions were not too large. Lindbeck (1977), however, concluded that on a national level the only alternative to a market economy would be a central planning system. A super computer to figure everything out, he decided, would be too complex.

The price mechanism coordinates by creating

symbols (prices) that signify the rate of equivalence, or value, of all things. These signals reflect where a product comes from, how useful it is, its abundance, the effort required for its production and transportation, its longevity, and how many other people want it. Thus, instead of the consumer having to know all the details concerning all the attributes of a product, and the producer having to know the desires of an entire society, these price signals convey only the most essential information, and only to those concerned.

Alfred Whitehead proposed that "civilization advances by extending the number of important operations which we can perform without thinking about them" (Hayek, 1945, p.528).

One problem with the minimum of information passed along by the price system is that people do not know why they are made to do what they do. Accordingly, monopolists can manipulate them with false price signals.

Jacob Marschak, in his article on the economics of language (Fish, 1967), recalls an example of a fighter plane design where weight was crucial. All possible messages required between the pilot and bomber could be precoded and only a set of dials was needed. Psychologists, however, recommended the extra weight of a radio to allow social communications between the two,

to increase their sense of well-being and psychological fitness, and thus their survival rate. On the one side, efficiency in coordination is desirable, but more versatile communication increases the system's chance of survival.

3. Where the Price System Fails.

3.1. Historical Perspective.

Like the scientists of physics, biology and chemistry, economists of the eighteenth and early nineteenth centuries were sure that there was a natural order of the universe, and all they had to do was to discover it. They were positive that it was a "system of natural liberty," and did not have to be regulated by government authorities.

In the words of William Kapp (1971, p.5), "the philosophical presuppositions of classical economics determined the selection of the phenomena to be studied by economic science, the scope of which was thus more and more adapted to its original (normative) aim of demonstrating both the existence and the superiority of the system of natural liberty over alternative forms of economic organization."

Costs, profits, capital, rent and wages were correlated and non-rational behavior was said to be irrelevant or non-existent. Economic thought was

dominated by a wish to prove that maximum utility results from free competition. Social, collective wants were not respected by the market, and were considered minor and exceptional disturbances.

According to Adam Smith, (Clark, 1955), the pursuit of profit in a competitive market would be the incentive to produce sufficiently large quantities of goods for public consumption and reduce profits to such a level that they would just serve as an adequate stimulus. This was long the standard of good economic performance.

Under the classical system, people could pursue their own interests as long as they did not use their persons or property to injure others. Since no coercion was allowed, goods and services would be exchanged on an equivalent basis. To ensure that exchanges were equivalent, the system relied on competitive behavior. Individuals had to know their own interests, and it was assumed that they would look after those interests better than others would do on their behalf.

The factory system multiplied, and prices on items such as textiles dropped. The workers, however, were given such low wages that they were worse off than before. Karl Marx saw poverty as inevitable under the profit system. Others thought that worker poverty was bad, but saw it as the result of supply and demand, and

considered it to be the factory workers' ethical obligation to reduce their own rate of increase.

3.2. Cost Externalities.

Since resource allocation in the competitive market depends on prices, proper allocation will not result where costs or benefits can not be expressed in monetary terms and collected. For example, Lake Michigan is heavily laden with dangerous PCBs. These chemicals forced the closure of commercial fishing in the southern reaches, and threaten the health of all who eat fish from the lake. However, commercial fishermen and the tourist industry were not able to charge those who released the chemicals for the resulting damages.

Neighborhood effects of one participant upon another, outside their market interaction, need not always be detrimental. For example, municipal ocean dumping may increase the productivity of fish stocks in some areas.

3.3. How Economies of Size Destroy Competition.

The price system will not function properly without competition. This, in turn, requires that each participant act as though his actions do not affect price. Such is the behavior of farmers, most fishermen, and the general consuming public. If there

are economies of size in a particular industry, however, competition will break down (Ferguson, 1978). All firms will increase production because they can thus reduce average costs, and because their individual actions will not affect prices. Since all firms will have the same incentive to increase production, industry prices will decline and eventually drop below costs. At this point losses occur and some firms will leave the industry. As long as each firm believes that its actions do not affect price, they will continue to increase production to reduce costs, thereby realize the economies of size, and eventually, when production costs are low enough, make a profit. The same incentive continues to apply to all firms and so they will continue to increase production, causing prices to drop further, and causing additional firms to leave the industry. Eventually, there will be so few firms left that they will realize that their actions do affect prices. A price war may then follow resulting in a monopoly, or the oligopoly may continue.

3.4. Barriers to Entry.

When a sufficiently small number of firms exists so that their actions do affect prices, the firms may protect their position by raising barriers to entry. Established firms that have advantages over new entrants due to economies of scale, product

differentiation, or absolute costs, can persistently earn profits over competitive levels without attracting new firms to the industry.

Firms already in the market will try to raise the cost of entry as high as possible, to reduce the chance of a new entry, and to increase the probability of failure if a new firm does enter. Barriers to entry are most desirable when demand is fairly inelastic, that is, when consumer demand does not change much with price. If a change in price has little effect on the quantity demanded, then the prevention of new competition would enable existing firms to increase their profit by raising prices while maintaining their level of output.

Fishermen usually can not affect prices on an individual basis. They are price takers. Fish are perishable, and storage for sale at a later date usually costs more than it is worth. Fish buying, in contrast, is a more concentrated industry, with higher barriers to entry. Therefore, fishermen have less market power than buyers.

Economies of size are the most common barrier of entry to fish buying. The minimum optimal firm size take up a large share of the market, and the capital required to establish a firm of the optimal size may be difficult to obtain.

While economies of size are usually based on the

assumption that technical knowledge remains constant and daily output varies, learning effects are also important. Economies of size may accrue over time with a large cumulative output. Basically, one can perform routine operations more quickly with practice. If a production line has been working a long time, employees get better at working with the machines. Trade patterns with other dealers become well established and must not be renegotiated in full each time. "In the semi-conductor industry a learning effect has been reported in which costs may fall by 20 or 30 per cent as (aggregate) output doubles, and in different machine tool activities a reduction in labor costs of 16 to 25 per cent has been found as output doubles (over time)," (Pickering, 1974, p-39).

Existing buyers and processors may have absolute cost advantages due to special expertise and production techniques, which would be costly for competitors to obtain. Established plants with long records will also find it easier and less expensive to obtain loans, than new entrants will. Finally, some firms are able to get supplies more cheaply, either through direct control by vertical integration, or because of favorable agreements.

Product differentiation may be used as a barrier to entry in so far as fish dealers establish reputations. Boats may remain loyal to established

buyers because they always pay on time, or because they loaned the boat money during times of need and probably would do so again. Since fish between dealers is sold unseen, over the telephone, established dealers may receive higher prices due to their reputation of good fish quality and reliability.

Even when there is no difference between fish in the retail market, firms may create a perceptual difference between stores through advertising.

III. PERFORMANCE OF EXISTING FISH AUCTIONS

As shown in the previous sections, the price system is generally considered to be the best way to allocate resources, to create production and economization incentives, and to coordinate production with the desires of consumers. It was also shown that impediments to the perfect working of the price system may exist. Economies of scale in processing, transportation, or information collection may break down the competition required by the price system. Fishermen are usually paid a share of the catch value, yet this value may be set artificially low by vertically integrated processing firms that own their own boats. Difficulties in fish standardization may isolate fishermen in a detrimental way, reducing their ability to argue when negotiating quality discounts.

The author visited the fish auctions of New Bedford, Massachusetts; Hamburg and Cuxhaven, West Germany; Hvide Sande and Esbjerg, Denmark; Hull and Aberdeen, in the United Kingdom; and Ijmuiden, in the Netherlands. Observations recorded during these visits, as well as a series of interviews and the available literature, are used here to show how auctions can be used to facilitate the proper and efficient functioning of the price mechanism. The related question, concerning auction effects on fish quality, will also be addressed.

1. Types of Fish Marketing.

To present auctions in perspective, this section will list the fish marketing systems in use and give their global distribution.

Direct sales are usual in Canada, Greece, Turkey, the U.S. and in underdeveloped countries. Commissioned salesmen are common in Greece, Japan, and the United Kingdom inshore-catches. In general, direct sales will be found where the number of buyers and the quantity of fish are not too large (OECD, 1966).

Fishermen's cooperative societies are widespread in Denmark, West Germany, and Sweden.

Both Sweden and Norway utilize fishermen's sales organizations. In fact, in Norway, the fishermen's sales organization has the legal sole right to first-hand sale. Price boards are employed in Iceland.

Most fish processed at sea is sold by contract. Unless the complete product market is covered, buyers and sellers may be reluctant to sign contracts. Changes in the rest of the market could put either boats or buyers in a bad position. This is particularly hard to achieve when part of the supply comes from imports. Although Vidaeus (1977) reported that 70% of all frozen herring sold by the West German trawler companies' fish sales organization was sold under contract, this amounted to only 20% of that nation's total consumption.

Auctions are the most important first-sale system in Belgium, Denmark, France, West Germany, Ireland, Italy, the Netherlands, Portugal, Spain, Sweden, Turkey, and the United Kingdom. Dutch auctions, where the price is lowered instead of raised, are used in the Netherlands, at Hull in the U.K., in Portugal, Spain, Belgium, and to a small extent Japan. The Japanese also have simultaneous auctions in which all potential buyers bid at the same moment.

2. Nature and Applicability of Auctions.

Pricing systems fall into three general categories: fixed prices, price determination by private treaty, and competitive price determination.

Fixed prices are the most widespread system in modern economies. Although they change over time, prices in stores are fixed in the short run. There, one can only choose between buying an item or not buying it. Fishermen's cooperatives either buy fish at fixed prices, or charge a fixed amount per pound for handling.

Price determination by private treaty is characteristically used by middlemen. This system allows maximum flexibility, but has high costs in terms of time and information required. Fishermen may be in a very poor position if they act competitively and independently when buyers do not.

In an auction, sellers may register a minimum price, below which they will not sell, but otherwise they have a passive role, leaving the actual selling to the auctioneer. As each lot is sold, the owner temporarily assumes a monopolistic role and relies on competition among buyers to determine the price. Usually, to maintain actual and perceived honesty, the auctioneer is purely an outside agent who neither buys nor sells any goods for himself.

Although the British in Hong Kong and other governments have introduced them as part of a market reform (Cassady, 1976), auctions have several limitations.

For example, potential competition must already exist. Auctions can be used to break certain barriers to entry, but they will not create new competition where there was no potential. Competition must not only exist at the first level of buyers, but must extend all the way through to the consumer. A free and highly competitive auction at the first level does little good if all the fish ends up with a monopolistic processor at another level.

The best way to assure free competition at an auction is to attract as many buyers as possible so that coordination problems will make collusion difficult. Conditions of entry should be made as easy as possible, not only to allow access to buyers in

numbers, but to allow entry to buyers of different sizes and thus different cost structures. If grades and standards can be sufficiently defined and enforced, a teletype auction would open access to buyers in remote locations.

A second major limitation to auctions is that they require a substantial minimum value of sales to attract a sufficient number of buyers for competition and to carry overhead costs.

Auctions do not necessarily result in optimal resource allocation. Where bargaining, blocking, and recontracting take place, there will be no sub-optimal allocation in the Pareto sense. In other words, there will exist no alternative state in which one participant would benefit, without requiring some loss on the part of another. Traders will recontract until neither side can improve their position. No such recontracting rules exist in auctioning. Not only do mistakes in allocation occur, but they cannot be corrected. It may be possible to recontract outside of the auction and that often happens. For example, offshore oil leases bought at auctions are often resold privately (Amihud, 1976). "Pinhookers" buy lots of tobacco in early rounds of auctioning and resell them right on the floor of the auction later on.

Finally, auctions usually do not satisfy the requirements for path independence or neutrality. The

competitive allocating rule is neutral in itself, but the result of auctions depend on the sequence of goods to be sold. An exception to this of course is the New Bedford auction, where all lots are sold simultaneously.

In favor of auctions, is the fact that they are fast and inexpensive. They have often been justified on these grounds alone. When a port has many buyers and sellers, it is much faster to sell fish at an auction than it is to negotiate each lot over the telephone, shopping comparatively among many different sources. Auctions require minimal involvement on the part of the sellers. In Denmark, where fish auctions are very well developed, sellers usually do not even bother to attend the auction. Buyers also benefit, in that they get a maximum opportunity to see what is available on the market, with very little effort on their part.

Time limits, within which goods must be sold, are easily accomodated by selling through auctions. Although time limits are particularly important in the settling of estates, at the New Bedford fish auction they allow sellers to see the results quickly and limit the time crews must wait before knowing which buyer to take the boat to.

Auctions are especially useful as a value detecting device. The value of fish is frequently

unknown. It is highly perishable, and the amount landed varies from day to day. Furthermore, quality has not been standardized and its evaluation is frequently subjective. Since prices that will clear the market change from day to day, and since there is a great variability in quality between lots, auctions are very well suited to the sale of fish.

The standardization of fish quality would aid buyers at auctions in their appraisal of what lots are worth, and is required for the European Economic Community's program of price minimums. The standardization of hogs has progressed to a level allowing remote buyers to bid electronically at the Ontario Hog Producers Marketing Board auction. However, while extensive quality standardization would make auctions accessible to more buyers by not requiring the physical presence of a representative, the degree of standardization required for this usually results in contract selling. Where the value of an object is known, the motivation to use an auction is not as great. Auctions are not employed in Iceland because fish there is primarily canned or frozen, and thus becomes a standard stable-price item. In Ontario, all hogs sold to packers must go through the Hog Producers Marketing Board by law, giving it a legally enforceable selling monopoly.

Fluctuations in quantities of fish to be handled

are more easily accomodated by auctions than by middlemen or cooperatives. The later two usually store and handle the fish more than auctions do. Thus an increase in quantity would require an increase in facilities. Cooperatives have been known to refuse new members, believing that the number of boats and quantities of fish would stabilize below current levels, and believing that new facilities required to accomodate new members would soon become obsolete. Auction halls, on the other hand, are typically under utilized. Fish are unloaded, weighed, boxed and placed in the halls in the early morning, sales are completed within a few hours, and then the halls lay empty for most of the day. Capacity could easily be doubled by holding two auctions a day instead of one. The rate of sales in each hall can be increased by employing several auctioneers and holding several auctions simultaneously in the same hall, a common practice in Europe. It is also common in Europe for fish still to be unloaded and placed in one part of the auction hall, while auctions are progressing in a second part and fork-lifts have already removed sold fish from a third part. Increasing auction capacity involves very little risk since no new facilities are required. If volume increases turn out to be only temporary, the additional personnel can be laid off.

Auctions can be used as a mechanism to bring about

market centralization. This is facilitated where product standards are well defined and enforced, so that neither goods nor buyers need be physically assembled at one point. Currently, when fishermen loyally sell to one buyer in exchange for the guarantee that they will always have a market for their fish, middlemen must equalize fluctuations of supply by selling back and forth among themselves. Fish are often unnecessarily shipped hundreds of miles, only to be shipped right back to a neighboring dealer. This excess transportation is costly and reduces fish quality. Not only would this be corrected by market centralization, but competition would be improved as well.

The last major use of auctions is to remove suspicions of collusion between owners and buyers. Crews work on a share basis, and they want to prevent the owners from publicly selling at a low price, and privately getting a kick-back. Where boats are owned by vertically integrated firms, crew members are in a particularly weak position. Some trawler companies sell at auctions, even though they process fish, so that the crew share is not a matter of internal accounting, but publicly displayed.

3. Auction Rules.

The rules of an auction determine its outcome.

The rules currently used in fish auctions of northern Europe and the U. S. are given below.

3.1. English (Ascending-Bid) System.

3.1.1. Denmark, The United Kingdom, and West Germany.

The rules described in this section are employed by all the fish auctions of the United Kingdom except in Hull, and all those in Denmark and West Germany. They are suitable for auctions of unlimited size.

Fish from the same boat, of the same species, size, and quality are grouped into blocks and displayed on the auction floor. The fish have been weighed by auction personnel so that all boxes contain a standard weight. Fish are placed on the floor in the same order they are unloaded, which is the reverse order of their capture. Therefore quality gradations usually exist from one side of the block to the other.

The blocks are divisible, the buyer only being required to buy one box of fish in the case of large blocks, or one fish from very small blocks. The minimum allowable purchase is specified before the bidding on each lot begins. Sometimes a maximum allowable purchase less than the entire block is also specified.

Sellers may register a minimum price with the

auctioneer, below which they will not sell.

All participants may bid on all blocks.

The blocks are sold successively.

All bids are public in the sense that the intent of gestures with hands, eyes or head is easily understood, although the gesture itself may be subtle. Secret signals and book bids are not used.

Bids are made successively.

The bidding starts at a low price and is progressively upwards.

Making the highest bid for a block requires the bidder to buy at least the minimum, and usually gives him the option of buying the entire block. He may walk about the boxes and choose to buy as many as he wants, in any random order or pattern. Slips of paper bearing the companies symbol are placed in the claimed boxes to distinguish them. If a buyer accidentally marks more or less boxes than he said he would buy, he is held to what he said, which is recorded in the auctioneer's books.

If the highest bidder does not buy the entire block, other buyers may yell out the number of boxes they want to buy at the same price. This may continue until the entire block has been claimed.

If the entire lot is not sold at the highest bid, the auctioneer drops the price until he gets a response, and the bidding starts over again for the

remaining block. The second bidding may exceed the price paid for the first lot. Again, other buyers may claim remaining boxes, paying the same price as the winner of the second round of bidding. The auctioneer restarts the bidding until the entire block has been sold.

So that some processors can start work on the fish earlier, up to 25% of a boat's catch may be taken in advance to buyers in West Germany and the United Kingdom. The price is determined by what auction prices are for that day, and buyers at the auction know how much was taken.

In the fresh herring industries of the U. K., Belgium, and to a small extent in the Netherlands, buyers bid on samples, not the entire catch. This cuts down the facilities needed, and since the fish go directly from the boat to processing plants, they do not spoil while sitting exposed in the auction hall. Of course, the catch must be homogenous in terms of species, size, and quality.

Although frozen fish is often sold by contract and goes directly to buyers, it is also sold at auction in West Germany. It is stored in auction freezers and buyers bid on the basis of samples.

3.1.2. New Bedford.

Two auctions take place in the auction hall of New

Bedford each day, one for fish and one for shellfish. On a typical day, between five and ten boats land fish.

The captain's estimates of weight for their various fish species and size classes are posted below the boat's name on a blackboard. The fish remain in the boat until after they are sold. The price is determined on a per-pound basis. No discounts for poor quality are negotiated. A buyer must rely purely on the boat's reputation and his past experience to know what kind of fish quality and actual weights to expect.

A buyer must buy an entire boat at a time. Two or three main buyers do most of the bidding, and they negotiate with secondary buyers during the bidding to sell portions of the boat they do not want. A much used telephone bank in the auction hall allows buyers to contact distant dealers during the bidding, to negotiate further sales.

The first phase of bidding lasts fifteen minutes. Buyers yell out what they wish to pay per pound for each of the categories of fish listed below a boat's name. The price is written next to each category, and the buyer's initials or symbol is written at the bottom. A second buyer, wishing to take the boat away from the first, may not drop the price for any category. To get the boat he must raise the price per pound for any category of the boat's fish. The price rise affects only that specific boat; the price for the same fish on

other boats remains unchanged. The new price replaces the previous one on the blackboard, and the new owner's symbol is written at the bottom. This continues for fifteen minutes until a bell is rung.

The boat owners then have two minutes to look at the prices and may decide to withdraw their catch from the auction. This is their last chance to withdraw from the auction.

Finally, buyers are allowed a second period of bidding, lasting only five minutes. This allows bidders whose boats have withdrawn to make adjustments.

It is less expensive to gain control of a boat by raising the price per pound on a small quantity of fish than on a large quantity. Therefore price quotations for species landed in small volumes typically exceed what buyers would pay if the species were sold separately, and prices for abundant species are correspondingly too low.

3.1.3. Boston.

The New England Fish Exchange runs the auction at Boston. A small fleet characterized by long fishing trips lands there, so there are usually only a few boats landing their catch each day. The system in use would obviously be incapable of handling large landings.

Fish stay in the boat and are not seen by the

buyers until after the auction. They are sold "as if first quality", allowing quality discounts to be negotiated later. Buyers must rely on the boat's reputation and their own past experience to know what they are bidding on. Weight estimates by the captains for the various species and size classes are written on a board.

The fish from all boats are sold together by species and size class. The auctioneers quote a price per pound, and buyers make offers to buy certain weights from whatever boat they wish to specify. The first to make an offer on a boat gets the first fish off-loaded. These are the last caught and of the best quality. The last to bid get the bottom fish. The auctioneers add up all the offers to buy and keep raising the price until the market clears.

A boat may reserve a portion of its catch for a prearranged buyer who has agreed to pay the resulting auction price. The weight reserved is made public.

As mentioned before, all bids are made as if fish were first quality. If the buyer believes that the fish he receives is not first quality, he may try to negotiate a discount with the captain. Here prices are no longer formed by the impersonal force of buyer competition, but are affected by personal market power. Auction personnel will attempt to arbitrate the dispute if necessary. If the discount dispute can not be

with the winning bidder required to make a minimum purchase, and having the option of buying the entire block or any portion of it. The price is raised and the process starts anew for any remaining portions.

Simultaneous bids by two or more buyers under the Dutch system are somewhat troublesome, relying on the auctioneer's discretion in determining who was actually the first bidder. This ambiguity of winner does not make much difference where many similar lots are sold in one day, as in the case of fish auctions. The loser of the first lot may resolve to bid just a little earlier next time. The auctioneer's judgement, however, could become an important issue in the sale of unique and valuable objects, such as works of art. Under the English system, when the auctioneer recognizes one of two apparently simultaneous bids, the losing bidder has the opportunity to raise his bid.

The English system seems to be the most appropriate when the values are subjective, as in the case of art, antiques, unique objects, and collector items such as coins. Ascending bids allow potential buyers to become involved in a personal, non-rational, basis. By having made several bids which were later exceeded, bidders may feel a psychological investment they are unwilling to lose. Or they may find themselves caught up in the competitive spirit, and be persuaded by the auctioneer to bid above what they had set as

their ceiling price. This is most likely when buyers base their appraisal, in part, on what other bidders seem to think an object is worth.

Dutch auctions, on the other hand, are mechanical by nature. They do not lend themselves to changing the bidder's appraisal of value. Where lots are numerous and fairly similar, Dutch auctions may be more appropriate in that they seem to be faster. Under these conditions, buyers are more apt to have definite ideas on each lot's value and are less likely to be swayed by a prolonged process. In the case of fish, other sources of supply are available and professional buyers will not use an auction if it takes too long.

The auctioneer, under the English system, has considerable discretion as to when he closes bidding. Under the Dutch system, auctioneers may introduce a bias in recognizing one out of two apparently simultaneous bids. All personal influence on the part of the auctioneer is removed when the Dutch auction is done electronically.

3.2.2. Electronic Clock Method.

Dutch auctions by electronic clock are possible on several levels of sophistication.

Traditionally, buyers inspect lots, write down their impressions, and then assemble in the clock room. Such a room may have fifty or more small desks arranged

in tiers so that all have a clear view of the large clock at the front of the room. At the Ijmuiden fish auction, the outside edge of the clock is marked off in hundredths of guilders. The price in whole guilders and the buyer number are displayed electronically in the middle of the clock.

Buyers sit with their palms down on the desks, and their thumbs resting against the stop-button underneath the desk. This way no one can see when a buyer is about to bid, and bid just before him.

The lot number is announced, and in the case of vegetable, fruit, and flower auctions, a sample may be shown and described. The clock hand begins its counter-clockwise sweeping motion, dropping the price in hundredth guilder increments. The sale is completed when the first buyer presses his button. His buyer number will appear on the clock and the price is visible to all. Due to the speed of electronics, two buyers can not bid at the same moment.

At the time the Ijmuiden auction was visited, in January 1980, three auctions were usually held simultaneously: one in the clock room and two in the fish hall. (the three together sold over ten thousand boxes of fish per hour). At the time, the clock room was only used for high-value species such as sole and turbot. Other species were thought not to be sufficiently uniform, and buyers wanted to view them

while bidding. The Ijmuiden auction was planning to buy clocks that could be wheeled around among the boxes in the fish hall. Buyers would have remote stopping devices and the problem of detecting the first bid from thirty or forty crowding and pushing buyers would be alleviated. At that time detection was difficult. The auctioneer concentrated on the price while another employee watched for bids.

Although no fin-fish auction has reached this level of sophistication, the Ontario Hog Producers Marketing Board runs a Dutch clock auction by teletype. Buyers bid from terminals in their own office and the hogs are assembled at about twenty locations throughout the province. The buyers are informed over the teletype of the hogs' location, numbers, weight and sex. Prescribed quality discounts are recorded once the hogs have been slaughtered. Prices are dropped via the teletype, and pushing a button on the terminal will stop the clock. Although farmers may not reject sales, the Marketing Board employs minimum prices by stopping the clock, and may withhold hogs from sale for a day or two.

3.3. Japanese Simultaneous Bid System.

A type of fish auction prevalent in Japan requires that all interested buyers bid at the same time. Bids consist of hand signs that denote specific monetary

start with, the auctioneer requests whispered bids. They claim it is faster. It is possible that buyers would be hesitant about bidding for such odd lots during regular auctioning, due to group pressure. A higher price may be achieved when bids remain confidential and the buyer is not exposed to ridicule by his colleagues. Although the auctioneer announces the buyer, he does not state the price.

4. The Sequence of Sales.

The order in which lots are sold at auction, affects not only the prices received on the particular lots, but also affects both the number of lots sold and the total value of auction sales.

Fishermen can take advantage of the common practice that the first fish landed is the first to be sold. Buyers are willing to pay a slight premium on these lots so that the processors they represent can begin work as early in the day as possible.

The first phase of each auction is also marked by price fluctuations until the market performance establishes itself.

Sosnick (1963) warns buyers against price discrimination at auctions. Buyers are tempted into price discrimination in proportion to their eagerness to buy. Theoretically, he claims, the most eager to buy will win the first lot at a price higher than the

following lots. Each successively most eager to buy will buy at successively decreasing prices. Four factors, however, may explain why the predicted downtrends are only rarely observed.

1) The first downtrend can be interrupted by another one. Buyers may change; late-comers may enter, and buyers who have left to walk around may come back.

2) Quality variations between lots may mask the downtrends.

3) Buyers may not have a firm idea of what they can resell the lots for later, or what is available to them in alternative markets. If their perception of market prices rises during the course of the auction, this will upset a downtrend.

4) Buyers may change their behavior during the auction, bidding less when competing with friends and bidding more when in competition with strangers.

As the auction progresses, buyers use up their resources, whether it be storage space, money, or the quantity that they can resell. A buyer must decide whether to buy less preferred objects in the beginning, and thus be forced to pass up more preferred objects

that will be sold later. Yet there is no assurance that he will not be out-bid on later objects if he waits for them. If the auctioneer places goods with high reserve values, below which the sellers refuse to trade, for sale first, he can be sure of strong bidding. This will, however, use up resources as the auction progresses, leaving less for later goods.

The order in which goods are sold directly affects the auctioneer's earnings. Schotter (Amihud, 1976) studied the Bohm-Bawerk horse auction. He found that if horses with the highest reserve values were auctioned last, then the number of horses sold would not differ from the control group of randomly mixed horses, but that final prices would be higher. On the other hand, if the horses with the highest reserve values were sold first, then the last horses would sell for less than they would have in the control group, but more horses would have been sold. If the auctioneer was a profit maximizer, and if he was paid a percentage of sales, then he would sell the horses with the highest reserve values last. If he, instead, was paid a flat rate per horse, then he would sell those with high reserve value first. In this second case his interest would conflict with that of the sellers', which is to get the most for each horse.

5. Lot Size.

Allowing blocks to be broken frees the buyer of a certain amount of risk. If he recognizes that he has let himself bid too high, he only has to buy the minimum. A minimum required purchase on the part of the high bidder is necessary for the bidding to be meaningful. Setting a high minimum would speed sales, but would deny access to small buyers. At the very least, it would require small buyers to form a coalition and purchase jointly. Auction price determination, however, relies on free competition by as many participants as possible.

The auction at Hamburg, West Germany, makes a special effort to accommodate small buyers. The city of Hamburg, in an attempt to help its fish retailers, guarantees minimum prices above those of the European Community to draw boats that would otherwise not steam the eight hours up the Elbe River. The boats would sell on the Cuxhaven auction, at the mouth of the Elbe, instead.

Most auctions only sell in 50 kilogram boxes. While the Hamburg auction uses 50 kilogram (111 U. S. lb.) boxes for some species, flatfish are sold in special 40 kilogram (88 U. S. lb.) and 15 kilogram (33 U. S. lb.) boxes for small shops and restaurants.

Most auctions do not set maximum purchase limits, allowing an entire block of fish to be purchased at once. Due to the comparatively small amount of fish

landed there, (6,990 metric tons compared to 78,140 at Cuxhaven in 1977), Hamburg does set a maximum lot size. Breaking the block up, and thus increasing the number of sales, has the advantage of increasing the chances of arriving at the highest possible price (Goben, 1964). It also prevents a buyer from buying the entire block and then controlling the market. In order to buy his supplies, in the absence of maximum purchase limits, a small Hamburg buyer would have to practice price discrimination against himself. He would have to pay a premium to make sure he was one of the first high bidders, before a large buyer won and bought the remaining block.

6. Strategies.

6.1. Sellers at Auctions.

Sellers have fairly few strategic options available to them under auction rules, and are, as a rule, fairly passive. Vernon Smith (1964) showed that this relative lack of seller involvement did not necessarily hurt them, and could even be to their advantage.

In gaming experiments, Vernon Smith sold goods under the following three rules.

#1 Only sellers made offers; buyers could only accept or refuse.

#2 Both buyers and sellers could make offers, could make counter offers, and could accept or refuse them.

#3 Only buyers made offers; sellers could only accept or refuse them.

The highest equilibrium prices resulted under the third set of rules, where sellers only accepted or refused offers. If sellers remain silent, or passively accept tendered offers, then competitive pressure will reveal more information on the buyers' willingness to buy. The sellers do not disclose anything about their reservation price, which would eventually come to light under competition, and they can thus sell above the theoretical equilibrium.

6.1.1. Minimum Prices.

A widely used strategy on the part of sellers is to register a minimum price with the auctioneer before the start of bidding. On an individual basis, they are meaningless unless the fisherman is convinced that he could get at least his minimum price by selling on another market or by storing his fish until prices improve. If no available market will give him a high price, and if storing the fish is costly or impossible, then he does not gain by setting a high reserve price.

Although resources may be allocated optimally where prices accurately reflect supply and demand, most

firms attempt to avoid the risk that price fluctuations cause. Cooperatives offer more stable prices than auctions in that they may sell at an auction when prices are high, and also typically have storage facilities for periods of low demand. Furthermore, cooperatives may deal with buyers from a large geographical region, and their prices are not intimately linked to the performance of one particular market. Thus, in the early seventies, before there were minimum prices on herring, Denmark experienced a movement away from auctions in favor of cooperatives and their stable prices (Sorrig. Brabrand). Herring boats would return after fourteen days at sea only to find that the market had just been flooded and that their fish was worthless. There is a time lag in the ability of fishing boats to react to market prices. In the short-run the supply is fixed; the fish already caught must be sold. The longer the time between when fishermen last heard market prices, and when they can market their fish, the greater the risk. Even if fishermen return before they have caught any fish, due to low price reports over the radio, they are still left with high costs when the fishing grounds are distant.

Denmark did have minimum prices and equalization for plaice and haddock before the European Economic Community (EEC) introduced its own system. The money

for this came from the fishermen themselves. All that sold those two species above the established minimum had to pay a certain amount for each kilogram. In this way, market risk was leveled out among the boats. The actual establishment of price minimums, and the administration of the entire system, was carried out by the producer organizations. The Minister of Fisheries, however, had formal control. A board, set up in the Ministry of Fisheries, formally set price minimums and the producer organizations asked this board to change them whenever needed.

A system of minimum prices without equalization gives vertically integrated firms, which wholesale or process fish, a definite advantage. Before the British introduced equalization funds in 1954, large firms would buy their own fish and sell it at a slight loss rather than get the fishmeal price. Unintegrated firms, which could not buy their fish back and channel it to other markets, were at a disadvantage and had to take fishmeal prices in times of market glut (Taylor, 1960).

Two problems arise with price minimums. First, there is the problem of administration. One must find a way so that boats do not sell below the minimum price publicly, receive more money privately, and get minimum-price money. Ironically, although auction price fluctuations may create the need for a system of

minimums, auctions also facilitate their administration. Abusing price minimums through artificially low prices and kick-backs at auctions is difficult because sales are public and a specific buyer is not assured.

Secondly, a system of price minimums must be accompanied by a good system of fish grading. Without fish grading, there would be no incentive for boats to produce quality fish. They could bring partially spoiled fish to the market and still collect the minimum price.

Under the old German system, there was just one minimum price. With such a system, the strategy was to just produce a B (good) quality fish. Even though it would not be sold at the auction and be turned into fishmeal, the boat would get the guaranteed minimum.

The EEC now operates a minimum price system for all member countries, which is administered locally through producer organizations. Quality ratings are standardized and there are four classifications:

E extra prime quality. This is the last caught fish which remains on deck in cool weather, or fish caught on longlines.

A very good fish.

B good fish.

C taken off the market and processed into

fishmeal and oil.

Separate minimum prices are guaranteed for categories E through B. Although the grading is done organoleptically, it is done by specially trained veterinarians. If large quantities of fish are rated at a quality that the captain does not agree with, the fish are withdrawn from sale, and laboratory tests are performed which are completed the same day.

The implementation of individual reserve prices is allowed under the EEC's system but seldom carried out. Even though the minimum prices paid by the EEC are so low that no boat could survive totally on them, fishermen would rather settle for them than store or transport their already unloaded fish. Rather than set reserve prices of their own, they accept occasional low prices. They react to persistent low prices by landing in different ports, fishing less or fishing for other species, and trying to raise the EEC's minimum prices through political participation in producer organizations.

6.1.2. Withdrawal of Goods and Buying One's Own.

The withdrawal of goods and buying one's own goods are best used to protect oneself from unsuspected price drops. They are hind-sighted methods, and protection against suspected low prices is afforded through the use of reserve prices.

In New Bedford, the withdrawal of goods plays an important role because the use of reserve prices is more difficult there. As noted in chapter III, section 3.1.2., control of the boat can be gained by increasing the bid on the species with the least amount of fish. Since the whole boat is sold to one buyer, prices on each species need not reflect market value. Thus a reserve price by species can not be used. A reserve price could be set for the whole boat by multiplying the reserve price for each fish class by the estimated weight and adding them all together. But this involves more math than fishermen may be interested in, and the captains may not be that sure of themselves when selecting minimum prices in the first place. Not much market information is available to New England fishermen, and much of what is, is based on prices in New Bedford. It may be easier just to see how the auction goes, see if they get about the same as the other boats, and decide afterwards.

The withdrawal of goods after the bidding is most useful for unique objects where the value is really not known to the seller, and he must rely in part on his intuitive feelings during the auction to decide if the competition was the best he can expect. As fish quality standards become more defined, and as fish value becomes more apparent, the withdrawal of goods is discouraged in favor of reserve prices, due to time

considerations.

Bidding on one's own goods is also most useful for sales of unique objects. The purpose here is to stimulate competition by becoming a competitor oneself. Buying one's own goods is only a last resort, required only when one did not have the foresight to set a reserve price or make provisions for withdrawal. The disadvantage of it is that one must pay the auctioneer's fee to get one's own goods back.

6.2. Buyers at Auctions.

While sellers all try to get the most for their goods, buyers at auctions may have two different goals.

First, buyers may be interested in percentage buying. They may wish to buy a specified percentage of the goods up for sale, while keeping the average price of their purchase below a certain limit. Only a few oligopolists attempt this. They try to maintain a specified market share, and prevent competitors from buying less expensive supplies. Buyers of tobaccos work under such percentage instructions.

More commonly, buyers try to maximize monetary gain. In view of his other contracts, a buyer knows how much a lot will be worth to him at the end of the auction. He tries to enlarge the difference between what he pays and what the lot will be worth to him later. This includes buyers who supply processing

plants, and who attempt to provide a steady volume in light of the costs of shutting down and restarting production lines.

It is not necessary for every firm to have their own buyer at the auction, although most firms like to have this. At Hvide Sande, Denmark, only five to seven buyers usually attend the auction. Some of them represented three or four smaller firms that could not afford a buyer of their own. The buyers there were paid a flat rate per box purchased.

6.2.1. Collusion and Price Leadership.

Studying livestock auctions, Sosnick (1963) was interested in whether a person could bid monopsonistically at auctions. In other words, could a buyer "take advantage of knowing that the quantity he buys will affect his average costs"? Sosnick concluded that this was not possible in practice due to the amount of information which was required, and due to the lack of time during the auction to make the complicated calculations.

Buyer collusion is more likely and does occur. Three types are possible. Buyers may rotate purchases, they may agree not to exceed an upper limit, or they may practice price leadership.

Buyers have two counterbalancing motives. First, each wants to maximize joint profits of the industry as

a whole, and thus increase the profits on his share. Yet, each also would like to pay fishermen higher prices, thus decreasing joint profits but increasing his market share.

All buyers will try to maximize joint profits if

- 1) they are few enough in number to recognize interdependence;
- 2) they have equal shares of the market;
- 3) they have the same cost structures and thus the same output levels which are most profitable; and if
- 4) any change in either output or price would draw immediate response from rivals, so that there would be neither long nor short-term gain (Bain, 1968).

Organizers of an auction should thus make entry as free as possible because coordination between numerous buyers is more difficult than among a few. Secondly, an attempt should be made to attract buyers with many different cost structures. This will make it difficult for them to agree on a most profitable price.

Although an auction should not be organized if there does not appear to be sufficient potential competition, sellers may bring collusive buyers to court under the Sherman Anti-Trust Act. In *U.S. v. San Pedro Fish Exchange* (1941) and *U.S. v. Seattle Fish Exchange* (1942), the following activities were held to

be illegal:

- 1) participation in any way in the "raising, lowering, fixing, maintaining or stabilizing" of fish prices;
- 2) allocating or dividing fish "whether on a basis of groups or classes of buyers or sellers, on the basis of individual buyers or sellers, on any geographical basis, or otherwise".
- 3) agreeing before bidding "to permit any competitor to have the benefit of, or to divide with, or to give to any competitor any portion of such lot of fish, or trip, or otherwise to engage in the practice known as "splitting trips" among dealers or competitors before purchasing fish from fishermen";
- 4) "disclosing, disseminating, or circulating to any competitor the prospective bid of any dealer for any trip or lot of fish";
- 5) participating in any agreement "whereby uniform or differential prices are agreed upon or maintained for the respective products of different members, principals or dealers"; and
- 6) "making bids ... through or by a common agent".

6.2.2. Personal and Psychological Strategies.

Buyers develop their own distinctive style of bidding. In observed ascending-bid fish auctions, the auctioneer starts by raising the price and watching for eyesignals and nods from the buyers. If supplies are limited and buyers want to be sure they are seen, they may switch over to raising a hand.

A verbal bid has precedence over physical signal. Buyers verbally raise the price as often as the auctioneer does. There is an aspect of personal dominance in this, as well as an attempt to hurry the auction along. Buyers may raise the price considerably over the next increment to shake his competitors psychologically. It can be used as a signal that the buyer really wants the lot and that other buyers should quit wasting their time bidding for it, because they will not get it anyway. A few well known art buyers bid at auctions themselves, rather than use representatives, to affect the same dominance and intimidation.

An alternative strategy is to bid with marked lack of interest. Buyers frequently do not have fixed ideas on how much an object is worth, and rely in part on what other bidders seem to think. Most well known art dealers and collectors thus do not bid themselves. Their involvement would alert others to the value of the object.

6.2.3. Secret Bidding Signals.

Cassady (1967, p.150) gives several explanations for the use of secret bidding signs. They are used:

- 1) to avoid the noise and confusion resulting from audible bidding, especially when numerous spirited bidders are present;

- 2) to provide a more accurate way of communicating bids;
- 3) to prevent private collectors from following the lead of knowledgeable dealers who thus may be forced to pay higher prices and might even lose out in the bidding;
- 4) to protect buyers who bid on a low-quality item from the ridicule of colleagues;
- 5) to prevent dealers from detecting the interest of competitors and thus forcing them to pay higher prices than might otherwise be necessary;
- 6) to protect a professional who overbids on an item from loss of face with rival bidders;
- 7) to hold confidential the actions of traders who want to keep their business to themselves; and
- 8) to prevent detection of a dealers interest in what appears to be a "find", so that he will not lose his advantage.

Secret bids at fish auctions usually consist of signs that are very subtle and thus hard to detect, but whose intent is clear when they are seen. They are usually restricted to eye movements or nods of the head. The most complicated one reported by auctioneers who were interviewed was at the descending-bid auction in Ijmuiden, Netherlands. There, a particular buyer kept tapping his nose, and bid when he stopped.

Complicated secret bidding signs are rare at fish auctions since many similar lots of fish are sold at each auction, and thus the outcome of each sale is not that important. Complicated signals are difficult for

the auctioneer to remember and he may become confused. That was the case in the 1965 sale of Rembrandt's "Titus". The preauction agreement stipulated that if "Mr. Simon is sitting down, he is bidding. If he bids openly, he is also bidding. When he stands up, he has stopped bidding. If he sits down again, he is not bidding unless he raises his finger. Having raised his finger, he is bidding, until he stands up again" (Cassady, 1967, p.151). The auctioneer got confused and awarded the painting to the wrong person before being challenged by Mr. Simon, who in fact had still been bidding.

Cassady (1967) also tells of the time when a bidder had specified that he would be bidding while his coat was unbuttoned, and not bidding when the coat was buttoned. He left during the bidding with an unbuttoned coat, to be awarded an antique at a price he did not want. The argument then ensued, whether an unbuttoned coat outside the auction hall was the same as one inside.

6.2.4. Book Bids.

Book bids are not commonly used in the fish industry since most buyers prefer to inspect the fish themselves, and are thus in the auction hall anyway. They would be most useful where unlanded fish is sold or where the goods can be exactly specified. They

might be useful in New Bedford and Boston as fish sold there is bought without the buyer's prior inspection. One hundred, live, one-and-a-half pound lobsters, is an example of a lot that need not be inspected.

In the ascending-bid system, the auctioneer bids for the book buyer in the same increment as the previous bid until the book bidder wins or until the bidding exceeds the book bid. In the case of several book bids, the auctioneer starts one interval above the second highest book bid and then looks to the floor for higher bids.

Since the auctioneer may use the book bids to liven up the pace of bidding, throwing one in at any time he chooses, the book bidder is at a disadvantage. He may end up paying more than he would have if he had been present, bidding sluggishly to show little interest.

7. Auction Effects on Fish Quality.

7.1. Effects of Competitive Bidding.

Proponents of auctions, such as Wilson (1979), claim that auctions would improve fish quality, by allowing quality differentials paid by the consumer to be reflected back to the producer. The current strong interdependence and loyalties between buyers and fishermen are thought to prevent buyers from exerting

sufficient pressure on fishermen to raise fish quality. It is thought that the ability of fishermen to compare prices at auctions and see premiums being paid for top quality, would motivate them to take better care of their catch.

This is the case for fish that will be sold to the ultimate consumer fresh and whole (gutted but not filleted). Auctioneers were always eager to show the author their sales books, pointing out high prices paid to boats with top quality fish. Swedes, landing fish in Skagen, Denmark, always receive higher prices than the Danes, due to the extra care they take of their fish (Sorrig, Brabrand). To conserve stocks, Swedish fishermen made a voluntary agreement to limit their fishing to a certain number of boxes per man per week. To raise the total allowable catch per boat, thus increasing returns to the boat and decreasing the fixed costs per fisherman, they put more crew members on board. This extra crew has the time to treat the fish properly.

Although the auctioneers and the buyers may be aware of quality premiums, and the fact that some boats always get higher prices, this does not mean that fishermen will change their behavior. Prices may be likely to fluctuate more due to changes in supply than due to quality differences. Fishermen, as a result, may concentrate on quantities being landed by others

and pay little attention to quality differences.

Auctions will not improve the quality of fish that will be processed. Buyers will not pay premiums for quality if consumers can not tell the difference. In fact, "older" fish are even easier to process. One must wait at least six hours, until rigor mortis sets in, before filleting cod, or else one will get "green" fillets. Fish dealer Young (Aberdeen) claimed that waiting about a day was best, otherwise the fish would flop at the throat cut, discolor, and too much would have to be trimmed away. Flesh gradually separates from the bone after death, and a fish that has been dead for a long time is definitely easier to fillet.

In Europe, fish processors still buy the better quality fish within the B class first, but they do not pay the premium of fresh-fish dealers who buy top quality in classes E and A. When fish are plentiful, filleters will buy only B class fish. It is less expensive and one can hardly notice the difference on a fillet.

The unsold fish at auctions goes to fish meal plants and the boats receive the minimum price. Thus, if the fish will not be sold fresh anyway, and if the minimum prices are adequate, then boats will have no motivation to produce any better quality than what is just acceptable to get the minimum price.

7.2. Effects of Fish Handling at Auctions.

The major fault of auctions is, that by setting out the fish for display, the quality drops.

The principle factors affecting fish quality are storage temperature, care and cleanliness in handling, and the length of time since capture. It is the proper storage temperature that is found lacking at fish auctions. No auction hall visited by the author was refrigerated or air-conditioned. Fish in some halls is even stored for twelve hours at 50 °F (Bramsnaes, 1965). Spoilage is five times faster at 50 °F than at 32 °F, and so whitefish lose two and a half days of shelf-life just going through the market.

Danish auctions quit selling fish on Saturdays at the beginning of 1980, and have now partitioned off sections of the halls that will be cooled to 41 °F for fish landed on Saturdays. Without ice, even this temperature would not be sufficient. The body temperature of fish from the North Sea varies between 32 °F and 68 °F, averaging 56 °F. Chilling to 41 °F is a less dramatic change, and does less for storage life, than cooling beef from 98 °F to 41 °F (Hansen, 1977). Optimally, fish should be stored in ice with an ambient temperature of 40 °F. The ice will melt, cooling the fish to 32 °F, the fish will not freeze, and the melting ice will keep the fish from drying out.

Fish on display at auction halls are usually not

iced since they are bought principally on appearance and ice would prevent buyers from getting a full view. If fish can not be iced top and bottom as they should be, it might at least be possible to stack the boxes. In Danish halls, the bottoms of the boxes are iced before the weighed fish are added, and the boxes are arranged in rows, stacked five high. This way, only the top boxes do not have ice above them, and buyers occasionally lift off the top boxes to make sure that other boxes are the same. The Danish also passed a law requiring all fish unloaded during the summer to be sold within six hours. A second auction, in addition to the regular early-morning one, may be held at the request of fishermen.

7.3. Quality Standardization.

When regional systems of minimum prices are employed, the grading of fish is required to prevent boats from landing inedible fish and yet collecting the minimum price.

Quality classifications were introduced in West Germany, not only to increase market transparency, but also for educational reasons. The aim was to draw the fishermen's attention to quality problems, and show them what kind of fish they were producing. A criticism that Goben (1964) offered, was that it would be good to further subdivide the B class. In 1960,

fish had the following quality distribution: E, 0.07%; A, 22.84%; B, 74.63%; and C, 0.94%. Also, quality drop, especially for older fish, is most noticeable during the first few hours after unloading. Thus the first rated fish often gets a better rating than later rated fish.

Laboratory tests, completed on the same day, are used in West Germany when the captain and the specially trained veterinarian, who does the grading, do not agree. Usually organoleptic tests suffice. They are fast, no special equipment is needed, they can be done anywhere, and the ultimate consumer will judge the fish on the same basis.

IV. THE APPLICABILITY OF FISH AUCTIONS TO NEW ENGLAND

Previous chapters have discussed the functions of marketing systems, how prices perform those functions, and how auctions affect price determination. This chapter will consider the applicability of fish auctions to New England.

First, this chapter will discuss the economic requirements that must be fulfilled for a fish auction to be viable. Then the social, as well as the technical, aspects of auctions will be addressed.

1. Auction Requirements.

First, auctions require a sufficient volume of sales to attract buyers and to pay for the overhead costs of running the auction. It is beyond the scope of this study to carry out the port by port in-depth research needed to discover which New England ports have sufficient volume and potential competition to support an auction. A high value of landings in a port does not imply that many buyers will be attracted, since the particular species in question may be industrial fish, or may require other extensive processing. The fishmeal, canning, and frozen fish-portion industries are relatively concentrated (Capalbo, 1976), and have a minimum optimal plant size

that is sufficiently large to prevent landings at most ports from supporting more than just a few such firms. Where the fish will be sold fresh to the ultimate consumer, as in Denmark, the minimum optimal firm size is smaller, and it is possible for landings at ports to support more of such small firms.

Tables 1, 2, and 3 are presented to give the reader some feel for the volumes landed at the auctions of Denmark and West Germany, and at some New England ports.

The first obvious difference between German and Danish auctions is that the German ones require a much larger size to be viable. Almost all fish in West Germany is landed at the four major ports on the north coast, whereas Danish fish landings are geographically more dispersed. Due to the distance it must travel inland, German fish is processed more than Danish fish. The fresh fish trade is more extensive in Denmark. With its relatively low barriers to entry and small firm size, the fresh fish trade permits the operation of many small auctions. In Germany, on the other hand, the Hamburg auction of 6,990 metric tons is considered to be of marginal size and is subsidized by the city. The German state of Niedersachsen, which operates the Cuxhaven auction, discontinued its operation of the 6,085 metric ton Kiel auction. That auction is now being run by the local cooperative (Lauerman,

table 1.
Landings at all Danish Auctions, 1977

| <u>port</u> | <u>1000 kg</u> | <u>1000 kr.</u> |
|----------------|----------------|-----------------|
| Bogense | 1,203 | 2,277 |
| Esbjerg | 16,844 | 71,287 |
| Frederikshavn | 15,287 | 15,454 |
| Faborg | 1,100 | 2,214 |
| Gilleleje | 9,912 | 25,331 |
| Glyngore | 650 | 1,566 |
| Grena | 7,915 | 37,423 |
| Hanstholm | 27,106 | 125,222 |
| Hirtshals | 87,136 | 213,521 |
| Hundested | 2,358 | 10,710 |
| Hvalpsund | 596 | 869 |
| Hvide Sande | 21,371 | 122,117 |
| Jegindo | 1,908 | 6,029 |
| Kerteminde | 6,932 | 9,847 |
| Lemvig | 5,875 | 25,238 |
| Ringkobing | 194 | 692 |
| Ronne | 538 | 5,209 |
| Sjællands Odde | 1,550 | 5,552 |
| Skagen | 56,120 | 168,703 |
| Strandby | 42,580 | 39,897 |
| Saebj | 4,703 | 4,215 |
| Thorsminde | 3,835 | 27,049 |
| Thyboron | 24,746 | 117,840 |
| Arhus | 4,635 | 10,170 |

(Danish Minister of Fisheries, 1978)

table 2.
Landings at all West German Auctions

| <u>port</u> | <u>1000 kg</u> | <u>1000 DM.</u> |
|-------------|----------------|-----------------|
| Cuxhaven | 78,140 | 107,618 |
| Bremerhaven | 50,635 | 68,094 |
| Hamburg | 6,990 | 13,846 |
| Kiel | 6,085 | 9,234 |

(Kutterfisch, 1979)

table 3.
Landings at Some New England Ports

| <u>port</u> | <u>1000 kg</u> | <u>million dollars</u> | <u>million pounds</u> |
|------------------|----------------|------------------------|-----------------------|
| New Bedford, MA | 38,700 | 67.4 | 86.0 |
| Gloucester, MA | 72,090 | 29.7 | 160.2 |
| New Port, RI | 9,720 | 13.2 | 21.6 |
| Pt. Judith, RI | 24,440 | 11.0 | 54.3 |
| Boston, MA | 13,640 | 10.7 | 30.3 |
| Provincetown, MA | 10,940 | 10.3 | 24.3 |
| Portland, ME | 26,820 | 10.1 | 59.6 |

(National Marine Fisheries Service, 1980)

Cuxhaven).

Turning to New England, New Bedford and Boston currently have auctions, and one is very seriously being considered for Portland (C-E Maguire, December 1978). All seven New England ports listed in table 3 have landings of sufficient value to support an auctioneer. Whether they could attract non-collusive buyers is less certain.

Auctions do not function properly without competitive price formation on the part of buyers. One way to prevent collusion is to attract so many buyers that coordination between them becomes very difficult. Difficulties in agreeing on the most profitable prices will also increase as the variations in firm size and their respective price structures increase.

A scarcity of buyers at an auction need not result in collusion. If only a bank guarantee or similar bonding is required of potential auction buyers, and if the fish will ultimately be sold as fresh, barriers to entry may be held fairly low. The threat of new entrants may prevent buyers from raising their profit much above competitive levels, and the competitive behavior so essential to auction price formation may be maintained.

All fish species are not used in the same manner. Some species are typically sold fresh locally. Others are usually exported, filleted, frozen, canned, or

processed into fish portions or fishmeal. Buyers also usually specialize in just one of these marketing channels. Thus, where boats make short trips and have a relatively high ability to switch from fishing one species to fishing another, as they do in Pt. Judith, fishermen may disrupt collusion in one market sector by fishing for another species.

Collusion at an auction would be much more likely at ports such as Gloucester, where the concentrated industries of canning and fishmeal production predominate. The large purse seiners landing at Gloucester also do not lend themselves very easily to adaptation for other fisheries.

Again, in-depth studies are needed before meaningful conclusions can be drawn concerning the applicability of auctions on a port by port basis.

2. Auctions in Relation to Other Institutions.

The first German fish auction was held on November 20, 1886 (Goben, 1964). Steam power had entered the fishery, leading to a tremendous increase in harvest, which could not be handled by the traditional methods of direct sale, and sale through wholesalers. Transportation on land had also become much faster, increasing the potential for fish sale. Fish auctions had already proven themselves in England and Holland, and their introduction in Germany was an attempt to

overcome the market congestion resulting from technological advances.

In New Bedford, the auction is operated by the fishermen's union as part of its efforts to assure honesty in the sale of fish and proper payment for its members.

The first Danish fish auction was not held until 1922. A few were originally private businesses, but the government now strictly supervises all of them with the result that Danish fish is of higher quality than any other seen by the author.

Auctions do not operate in a void. Sellers must be willing to send goods there, buyers must be willing to attend, and someone must pay for the labor and facilities involved in the auction itself. Government agencies may also be involved in auctions to promote or enforce their fishery policies.

2.1. Middlemen.

First, the notion that traditional middlemen will be replaced is false. Their participation is needed for the success of an auction, although their relationship to sellers will change.

Middlemen are sometimes accused of earning money without "doing" anything. This rests on the distinction between production as "doing" something, and trading as not, (Lerner, 1949). Traders, however,

do not earn their money for nothing. They

- 1) provide an immediate market for landed fish,
- 2) grade the fish,
- 3) divide bulk catches into smaller lots for individual consumers,
- 4) transport fish to markets,
- 5) stabilize prices in times of glut or scarcity by curing fish, or by keeping it in cold storage, and selling it later,
- 6) provide loans and working capital to fishermen, and
- 7) transmit market information.

Many New England ports, particularly in Maine and Connecticut, are too small to support an auction. There, middlemen would continue to perform their functions although their prices would be affected by those at the nearest auctions. Where selling by auction is adopted, the primary functions of middlemen would be to transport fish to remote buyers, even to other auctions, and to divide lots into portions for individual consumers.

Bauer (1954) points out that middlemen will be bypassed unless:

- 1) the value customers get is greater than what they must pay for it,
- 2) the customer is unaware that it is cheaper to bypass, or
- 3) institutional arrangements prevent the bypass.

Auctions may be instrumental in circumventing some undesirable institutional arrangements, but only with limited effectiveness. The most remote ports, with the fewest buyers, and thus the potential for the highest dealer margins, could not support an auction and would be the least affected by the introduction of auctions in the major ports.

As mentioned before, middlemen themselves can benefit from the market transparency and higher speed of sales the auctions afford.

2.2. Cooperatives.

Where high volumes are required, and economies of scale are involved, monopolies or oligopolies will result. The motivation to form a cooperative is usually not to eliminate excess profits, but to divert them from owners to patrons, and thus provide marketing services at cost (Shepherd, 1976).

It is entirely possible for a cooperative, such as the one in Pt. Judtih, to operate an auction. In Cuxhaven, West Germany, the cooperative sells all of

its fish at the local auction. The Bremerhaven cooperative sells a portion of its fish at its local auction, sells some directly to other buyers, and processes some. Where cooperatives do not run the auction outright, they may provide associated services. They may own the auction boxes, as in Denmark, or provide ice. Fishermen in ports that cannot support their own auction could take advantage of economies of size by shipping their catches to the nearest auction cooperatively.

2.3. Auction Ownership and Operation.

The possibilities in auction ownership and operation are almost endless. The New England Fish Exchange in Boston is owned privately, whereas the one proposed for Portland would be run either by the city itself, or by a quasi-public entity such as a pier commission or authority (C-E Maguire, 1978).

Fish in Aberdeen, U.K., are all placed in the same hall and are auctioned in the same sequence in which they were landed. The auctioning, however, is carried out by several private firms that take turns according to where their boats' catches were placed in the hall. In Scotland, the existence of several auction companies in one harbor stems from the fact that the salesmen not only sell fish, but sell ship chandlery and own shares in boats as well. Where a fish salesman owns shares in

a boat, the boat of course is expected to sell through him. Otherwise, captains choose an auctioneer on the basis of personal characteristics: how well they get along, or if they are distant relatives. Auction companies charge 4-5% for their services and there appear to be only marginal price differences between them (Murray, Edinburgh). The large trawler companies of England, Wales and Aberdeen are often vertically integrated and auctioning there becomes an in-house thing.

In West Germany, the auctions are owned by the respective states, and as they are public, anyone may sell fish on them. Joining the Cuxhaven cooperative, boats agree to sell solely through that cooperative. The Cuxhaven co-op has chosen to sell all of its fish at the local auction. It does not process or store fish in times of market glut, but has the authority to keep member boats in port. The Bremerhaven co-op sells part of the fish at the local auction, and also sells fish directly to wholesalers as well as to individual store owners. It has facilities for head-and-gutting, filleting, and freezing fish. The Hamburg cooperative also chooses to freeze fish at times, although it does not appear to be quite so active in marketing. For their services the co-ops of Cuxhaven, Bremerhaven and Hamburg charge 1.5%, 6%, and 5% on the value of fish. The one in Cuxhaven is the least expensive since it has

no processing facilities. It is also the largest. As well as handling fish, German cooperatives provide boats with credit and supplies.

The only important issue in auction ownership and operation is that all related activities be performed fairly by a trusted party. Unfortunately, this is where existing New England auctions fail. Since there is no official inspection system, some Boston fishermen accuse buyers of down-grading good fish in order to discipline fishermen that become too independent (Boeri, 1976). The privately owned New England Fish Exchange, which runs the Boston auction, is not seen by the fishermen as a neutral party which protects their rights.

Dealers weigh the fish in New Bedford on their own scales, and fishermen there believe that buyers tamper with the scales. The fleet was tied up in 1947 and again in 1971 to protest. Neither time were fishermen successful in having weigh-outs supervised by bondsmen, or in getting city-inspected scales that display weight without requiring the manipulation of weights.

3. Suggested Rules and Handling Procedures.

One of the primary objectives of this study was to determine which set of rules and handling procedures would be most likely to allow accurate price formation at New England fish auctions.

First, to promote competition among as many buyers as possible, fish should be displayed on the auction floor in boxes of standard weight, and a minimum purchase of only one box should be permitted. Where only small volumes of fish are landed, a maximum lot size may also be desirable. This would give small buyers a chance to buy fish without paying a premium to beat large dealers, that would buy the entire block.

Entry should be as free as possible, allowing any boat and even any wholesaler to sell fish, and requiring only a bank guarantee or similar bonding on the part of potential buyers. Required membership and user fees, which in Boston exceed nine hundred dollars per year for a buyer who does not have a place of business on the pier, are very discriminatory against small buyers. All auction revenue should be based on either the value or volume of fish sold, so as to be nondiscriminatory. Charging a percentage on value would align the auctioneer's interests with those of the fishermen. A deposit on auction boxes, and a small fee to cover box sterilization and ice may also be charged.

Bidding could be either ascending or descending. Descending systems are faster and lend themselves to later conversion to remote and electronic methods, but an ascending system may feel more natural to New England buyers.

The grading of fish would involve additional expenses, but would be worthwhile for market transparency and educational purposes.

Due to the general inelasticity of demand for food fish, (Hubner, 1971), fluctuations in landings will cause larger fluctuations in auction prices. Where the fluctuations are severe, fishermen may wish to protect themselves by instituting a system of minimum prices. Such a system is most effective if done on a regional basis, requires fish to be graded, and should include money for equalization.

The most efficient and hygienic handling of fish observed by the author occurred in Denmark. So that more boats could be unloaded simultaneously, boats were not docked broadside to the hall, but at an angle (see figure 1). Conveyor belts carry fish into the hall, dumping it into bins, and a second conveyor belt underneath carries the ice back out. Four men stand at each set of bins, tossing fish of different sizes and grades into various buckets on a set of rollers before them (figure 2). When the buckets appear to contain 50 kilogram, they are rolled across scales by other employees to make sure the weight is exact. The fish are then dumped into boxes with fresh ice on the bottom.

Contrary to West Germany, where boxes are arranged in huge blocks, and where every box is visible but

figure 1.
Angular Docking of Fishing
Boats, Esbjerg, Denmark

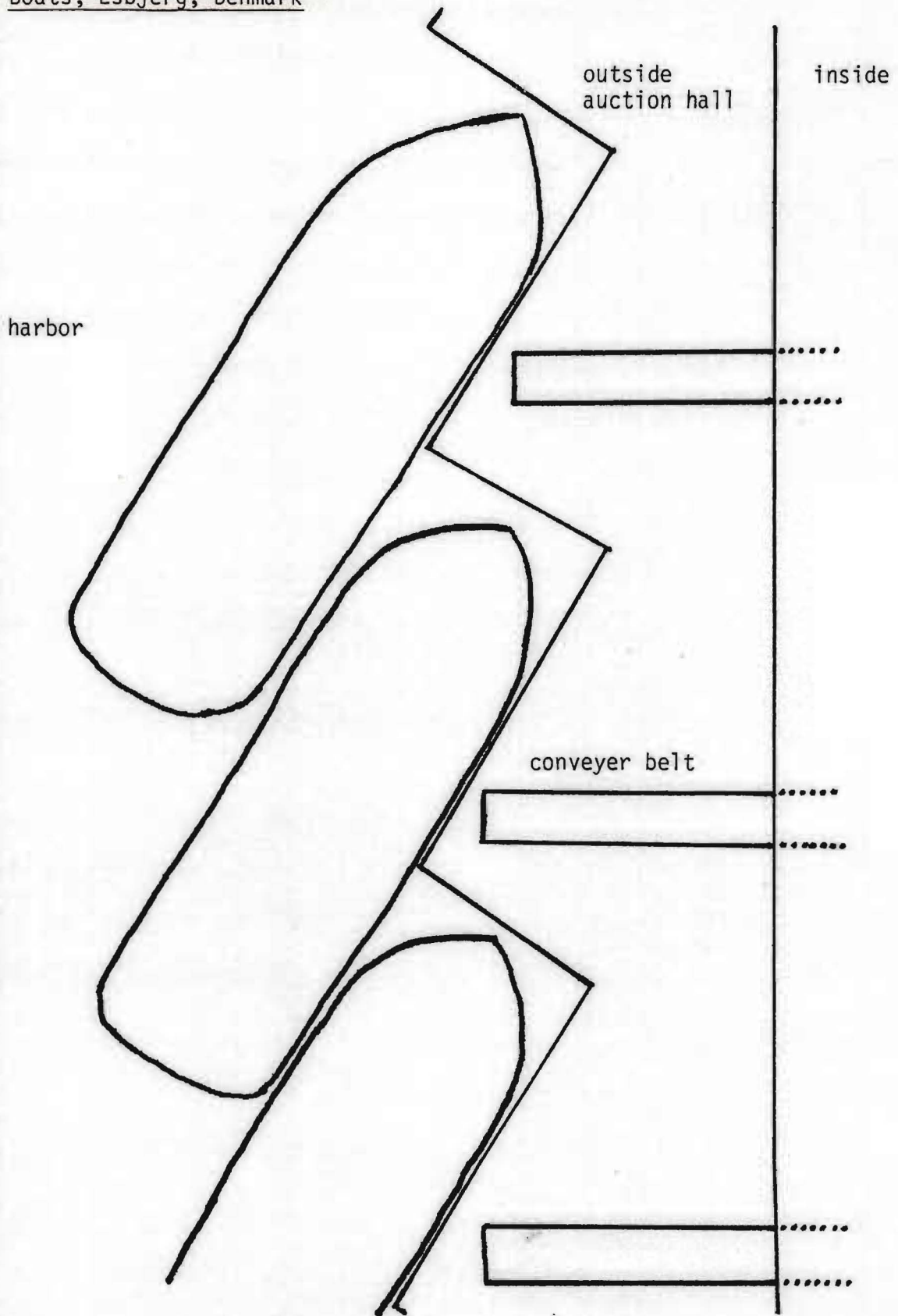
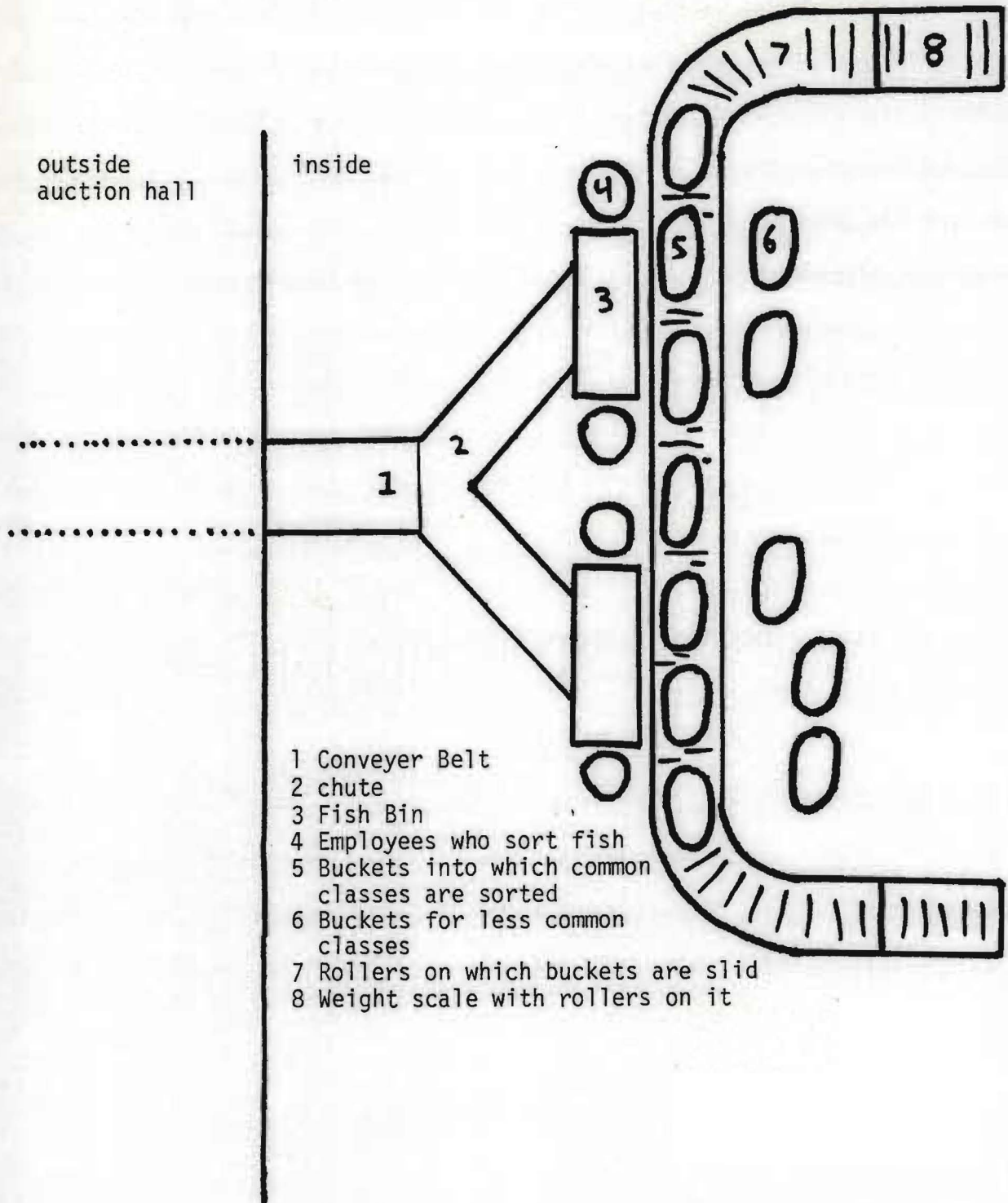


figure 2.
Sorting and Weighing Arrangement
Esbjerg, Denmark



requires that one walk on box edges to get to the middle, Danish boxes are stacked five high in rows two deep. This uses less hall space and puts ice above all but the top fish. Buyers may remove the top boxes to make sure that the stacks are uniform throughout, and are still only required to buy one box at the minimum. Whereas German auctions employ extra workers who run about the boxes dropping company slips into purchased boxes, buyers have easy access to boxes in Denmark and do it themselves. Most importantly, the stacking of boxes speeds the transportation of boxes within the hall. Forklifts can carry two stacks, or ten boxes, at a time whether they are palletized, as in Hvide Sande, or not, as in Esbjerg. Forklifts speed the fish from the scales to the auction floor for bidding, and then right onto buyer trucks. It is common, at Danish auctions, to see bidding in progress in one portion of the hall, and simultaneously see fish being off-loaded in a second portion, while sold fish is already removed from the third.

V. CONCLUSION

This study attempted to determine whether fish auctions would improve the market position of commercial fishermen. Of particular interest was the effect of auctions on price and on fish quality.

The role of prices in modern economies was outlined, as well as the limitations of price systems. The specific rules and procedures at existing fish auctions were compiled, and their effects on price formation were discussed.

Auctions may be employed to break certain barriers to entry, but will not create new competition where there is no potential. They are dependent on buyer competition for price formation and require a minimum value of sales to carry overhead costs. The overhead costs can be decreased to almost nothing if the auction is held on the dock before the catch is unloaded. However, dividing the block into smaller lots and increasing the number of sales increases the chances of establishing prices at the theoretical equilibrium. Sorting the fish by species, size, and quality, into boxes of standard weight, increases market transparency and increases competition by allowing smaller buyers to participate. Therefore, the author suggests that the feasibility of displaying fish before sale at the New Bedford and Boston auctions be investigated.

Since crews are paid on a share basis, they may

want their catch to be sold at an auction to prevent dishonest dealings between their captain and fish buyers.

The use of auctions has often been justified solely on the grounds that they are fast and require little seller involvement. Fish is highly perishable and its value changes daily, according to the volumes landed. Since auctions are a useful value detecting device, and since they are fast, both buyers and sellers may benefit from the institution of additional auctions in New England. The primary limitation of New England fish auctions appears to be the collusive behavior of buyers. Studies must be conducted on a port-by-port basis, to determine which ports present sufficient potential competition among buyers, before the initiation of any further auctions would be recommended.

Both the English (ascending-bid) and the Dutch (descending-bid) systems work well at fish auctions. The Dutch system appears to be faster, and can easily be converted to electronic methods, but New England participants may feel more comfortable with the English system.

Minimum prices can be used by fishermen to protect themselves from low prices at auctions. However, these reserve prices have little meaning unless fishermen can store their fish or sell them for at least that price

on other markets. Where minimum prices are administered on a regional basis, they should include a system of equalization. Otherwise, when the market is glutted, vertically integrated firms, which wholesale fish as well as own boats, will have an advantage over others. These firms will be able to avoid fishmeal prices by buying their fish back and diverting it to other markets at less of a price loss.

The grading of fish is required for any regional system of price minimums that includes equalization. This is to prevent boats from being paid for fish that was improperly handled and that was never expected to be sold. Even where it is not required, the grading of fish is recommended as it will help educate fishermen to care for fish properly, and because it increases market transparency.

Fish quality may not be improved as much by auctions as Wilson (1979) suggested. First, quality premiums are only important for fresh fish; processors will only pay for fish that just passes their minimum requirements. Secondly, prices usually fluctuate more according to changes in the volume landed than according to differences in quality. As a result, fishermen may focus their attention on volumes and not quality.

Private individuals, cooperatives, and governmental agencies currently operate fish auctions.

It is important that both actual and perceived honesty be maintained.

Finally, rules and handling procedures were suggested. These may provide guidance for the improvement of New England's two existing fish auctions, and for the one being planned in Portland.

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