

PART II

**THE SPATIAL
DIMENSION OF
MARKET PRICE**

MARKET PRICE IN AN EXCHANGE ECONOMY

4.1 INTRODUCTION

Primitive societies are characterized by a large degree of self-sufficiency: families and regions produce most of the goods and services that they require and depend only in small measure on the exchange of goods with other families and other regions. In an advanced economy, on the other hand, specialization is highly developed, giving rise to increases in productivity and, hence, to higher standards of living. This specialization would be impossible, however, without the development of a marketing system that binds the specialized activities into an effective and integrated whole. This system provides services such as transportation, storage, and the transfer of ownership.

Although the direct function of marketing is to provide the services and ownership transfers involved in the movement of commodities from producer to consumer, an even more essential role in a modern economy is price formulation or price discovery. In such an economy, prices direct the concurrent flows of resources into alternative uses and of goods and services to ultimate consumers. In this unseen and largely automatic system, prices guide producers in their choice of enterprises and in their purchase of factors of production, while they also ration the available

supplies of goods and services among consumers. Only insofar as the prices established through the marketing system transmit demands back to producers and supply conditions forward to consumers with a minimum of lag, imperfection, and distortion can the economy achieve efficient allocation and economical use of its resources in satisfying wants.

The following chapters stress this interdependent nature of economic activity and the strategic role of marketing in the total economy. Our emphasis is on the system rather than on the individual firm and household. The first part of our discussion deals with markets in space, form, and time, and the later chapters elaborate this through the consideration of the theory of economic specialization and trade. Although the approach is from the viewpoint of marketing, the treatment necessarily involves important production economics problems such as the selection of enterprises and the allocation of basic resources among alternative uses. Our purpose is to provide the student with some of the analytical tools essential to an understanding of and research in marketing and in inter-regional competition.

4.2 CONCEPT OF THE MARKET

We have emphasized that marketing is primarily concerned with the creation of place, time, and ownership utilities (as a practical matter we may include aspects of form utility such as packaging and processing). The system involves the physical movement of goods (with the associated ownership transfers) from millions of producers, through thousands of middlemen or marketing agencies and, hence, eventually to many millions of final consumers.

We may classify these marketing activities as concentration, equalization, and dispersion. As the word implies, *concentration* refers to the collection or assembly of commodities from many producers and the channeling of these products into the wholesale markets. *Dispersion* is the reverse of concentration, taking goods from the wholesale markets and distributing them through retail outlets to final consumers. *Equalization* refers to the processes of adjusting the commodity flows in response to changing supply and demand conditions. The wholesale market may be thought of as a balancing reservoir, receiving fluctuating supplies from producers and releasing them as required to meet the changing needs and demands of consumers. In a capitalistic enterprise economy, like that of the United States, the process of equalization is accomplished more or less automatically through the marketing system.

A market may be loosely defined as an area or setting within which

producers and consumers are in communication with one another, where supply and demand conditions operate, and the title to goods is transferred. The actual movement of goods in space or time is usually but not necessarily involved. In this communication process, prices are established, and these prices move up and down in response to changes in the underlying supply and demand forces. If an unusually large quantity of a commodity appears on the market, prices drop, and this encourages consumers to buy more and producers to offer less. This means a decrease in the relative profitability of producing the commodity in question, and eventually it leads to shifts in production patterns.

In this way prices, through a complex system of interrelated commodity and factor markets, become the primary directors of economic activity. On the production side, commodity prices interact on factor prices and thus serve to allocate scarce resources among alternative employments. On the consumption side, factor prices are prime determinants of income and its distribution, and income plus commodity prices serve to ration the available goods and services among consumers.

4.3 INDIVIDUAL AND AGGREGATE DEMAND

The quantity of a commodity that a consumer purchases depends on a complex of factors including the individual's tastes and preferences, the price of the commodity in question, the prices of other commodities, and his income. General observation suggests that, with income and other prices constant, an individual will usually buy less of a given commodity as its price increases and more when its price decreases. When expressed in quantitative terms, this inverse or negative relationship is called a demand schedule. From the above, it is clear that the individual consumer's demand schedule will shift or change with changes in his income, with changes in the prices of alternative products, and with changes (through time) in the consumer's tastes. Since different consumers characteristically have different tastes and incomes, it is also true that each individual has his own particular demand schedule for a given commodity. Some individuals will greatly adjust their purchases in response to price changes, but others will change their purchases very little. Some will buy relatively large quantities even at high prices, although others will purchase little or none even with the incentive of very low prices.

Such individual demand schedules are suggested graphically by the curves in the first section of Figure 4.1. These differ in shape, slope, and location. If consumers buy any of a commodity—and if the commodity has the ability to satisfy positive wants—then we shall expect the quantity

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purchased to increase at least slightly as price decreases. The same holds true for the sum or aggregate of consumers in a market. The aggregate or market demand schedule represents the sum of the quantities that will be purchased by all consumers at each level of prices. At very high prices, only a few consumers will buy, and they will buy relatively small amounts. As the price is lowered, these consumers will increase their purchases, and new consumers will begin to buy. With many consumers in the market, the aggregate can be expected to form a regular and continuous schedule like the one suggested by the aggregate demand curve in the second section of Figure 4.1.

Each commodity will have its characteristic demand schedule or curve in a particular market, and these market demand curves will vary in

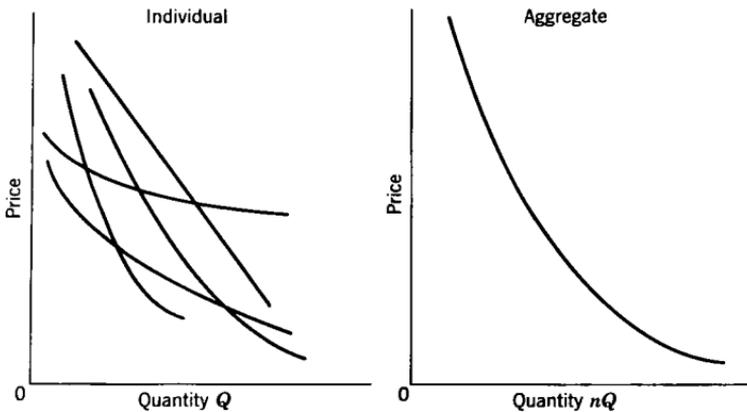


FIGURE 4.1 Individual and aggregate demand curves.

shape, slope, and location. Although we define the demand for any commodity as the price-quantity relation with incomes and other prices held constant, we have observed that the particular demand schedule for any commodity is dependent on the prices of other commodities. Consequently, to some degree, the demand schedules for all commodities in a market are interdependent and interrelated.

4.4 INDIVIDUAL AND AGGREGATE SUPPLY

A brief resume of production and supply theory is provided at this point. This theory parallels consumption and demand theory with a few important exceptions. The role of the consumer's indifference map is played by

the isoquant map showing the technology of factor substitution in the production of output. Unlike utility, output is readily measured in objective terms so isoquants have cardinal as well as ordinal values. Within the limits imposed by this technology, the production problem may be thought of as twofold: first, with given factor prices, to select the combinations of factors that will minimize costs for any level of output; second, with given product prices, to select the level of output that will maximize the positive difference between gross income (output \times product price) and total cost (factor inputs \times factor prices). Under competitive market conditions, the final adjustment for the firm is conveniently summarized in terms of the marginal cost curve with profit-maximizing output found where marginal cost equals product price.

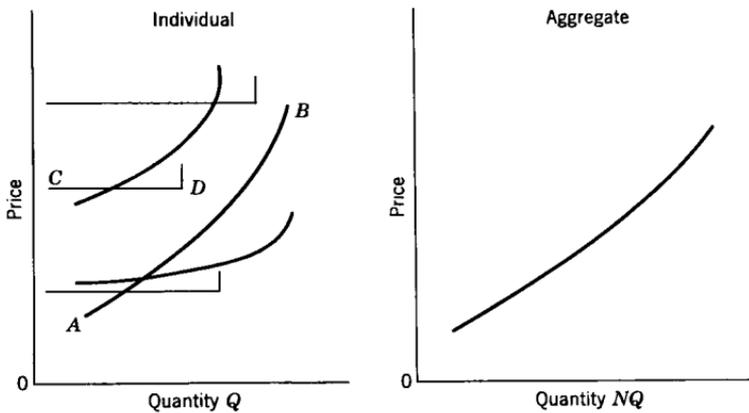


FIGURE 4.2 Individual and aggregate supply curves.

Marginal cost curves for a number of firms producing a given product for a given market are suggested by the first diagram in Figure 4.2. Here, we show a variety of curves differing with respect to both shape and position. In general, we expect that marginal costs will increase with increases in output because of intensification on fixed factors and the principle of diminishing marginal productivity. But this tendency for marginal costs to rise may be largely, if not entirely, offset through plant segmentation and by increasing the hours of plant operation. For this reason, the diagram illustrates some marginal cost curves that increase more or less regularly and others that are horizontal over a considerable range and then turn upward abruptly as output nears plant capacity.

In all cases, however, these marginal cost curves indicate the output response of individual firms to changes in product prices in the short run.

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In the case of a firm with a marginal cost curve such as AB , output will be increased gradually as price increases. A plant with a curve similar to CD , however, will not enter the market if price is less than OC , although with prices of OC or greater, it will produce at capacity output D . If we start with a very low market price and increase gradually, it is possible to sum together the outputs of all firms and, hence, to obtain the aggregate market supply curve. This will be positively inclined—higher total output associated with higher price—for two reasons: (1) in the short run, higher prices will bring greater output from firms with positively inclined marginal cost curves and (2), in the long run, higher prices will bring new firms into the industry, attracting resources from other employments.

The aggregate supply curve shown in Figure 4.2 shows output increasing at a decreasing rate, but it should be recognized that this will not necessarily be true. Price increases may attract many new resources and firms to the industry and quite possibly may result in output that increases with price at an increasing rate. The only generalization that is possible is that the supply curve will be positively inclined. The exact shape will depend on factors such as the particular technology available, the nature of the resources involved, factor prices, prices of alternative products, and the net earnings in other industries.

4.5 PRICE EQUILIBRIUM

In a market for a particular commodity, equilibrium is achieved when a price is established at which the quantities offered for sale exactly equal the quantities demanded by purchasers. This is illustrated in Figure 4.3

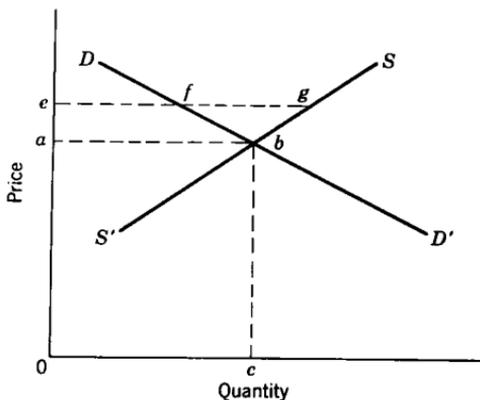


FIGURE 4.3 The equilibrium of demand and supply to determine market price.

where DD' represents a negatively inclined demand curve and SS' a positively inclined supply curve. They intersect at point b with price oa and with the quantity offered equal to the quantity demanded, oc . If the price in the market were higher than this level, say at oe , the quantity offered would exceed the quantity taken by some amount, such as fg . Competition among sellers would make this an unstable situation and force price down to the oa level. In a similar way, prices below the equilibrium level will be unstable and will be forced up by the bidding of prospective buyers.

This discussion has been based on the assumption that economic adjustments are made instantaneously, without time lags and frictions. But this is not true in real economic life. Consumers may take time to learn about and to adjust to changing quantity and price situations. Lags are even more important on the supply side. Here, we may identify three interrelated situations: (1) the *market* situation, with given supplies and no change in production possible, (2) the *short-run* situation, where producers may change output by moving along present marginal cost curves, and (3) the *long-run* situation, where producers (and resources) may enter or leave the industry and where existing producers can modify their productive facilities and so change their marginal cost curves.

Although these definitions are related to time lags, the actual calendar time involved is not the essential feature. Instead, they refer to the types of economic adjustments that are possible. In the first case, the product has been produced and is now available; the market supply curve, therefore, might be represented as a vertical line, perfectly inelastic, with the entire quantity placed on the market regardless of price. This is virtually true for perishable commodities, but with nonperishables the sellers have the option of placing their supplies on the market or of storing them in anticipation of better prices at a later date. Even with perishable products, producers may elect at very low prices to retain more of their crop for home consumption rather than to sell. In any event, it is clear that market supply curves will be relatively inelastic (Figure 4.4).

In the short run, present producers may increase or decrease the available quantities by moving up or down their marginal cost curves in response to price changes. These adjustments will result in short-run supply curves considerably more elastic than market-period curves.

Finally, the long run permits basic changes in resource allocation, with firms moving into the industry if prices and net returns are attractive or moving out if net returns are below normal. Since most industries use resources not particularly specialized to their production and account for only a small part of total resources, we can expect that long-run supply curves will be very elastic (Figure 4.4). This merely means that, given

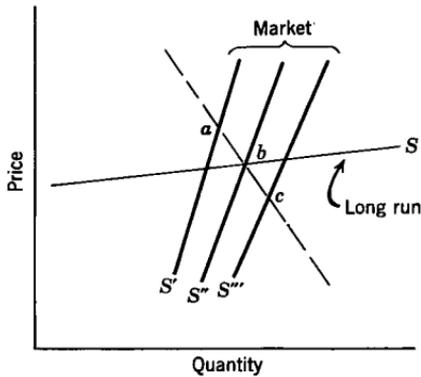


FIGURE 4.4 Market and long-run supply curves and market and "normal" equilibrium prices.

time for economic adjustments, most industries can expand output by increasing the number of firms and that, with new firms essentially similar to the old, this will require no large increase in price. If an industry depends on a highly specialized resource available in a limited supply (for instance, a small mineral deposit or a particular quality of soil) the long-run supply curve may be quite elastic up to the limit imposed by this resource but quite inelastic beyond that point. In these cases, the size of the industry relative to the resource in question may also have a pronounced effect on the resource price, and this bidding on the factor market can be expected to make the long-run supply for the commodity less elastic.

Differences between market and long-run supply situations explain much of the time-to-time fluctuation in commodity prices. To illustrate this, we compare a demand curve (assumed unchanging) with market and long-run supply curves in Figure 4.4. The several market supply curves — S' , S'' , and S''' — represent situations in different market periods, fluctuating or shifting in response to some factor, such as crop yields. As a consequence, market price may sometimes be high (a) and sometimes low (c). The relatively elastic curve S represents the long-run supply curve, and its intersection with the demand curve results in the "normal" equilibrium price (b). This is called the normal or long-run price because it represents a level of returns to resources employed in this industry that is in usual or normal relation to returns in other employments and, also, because it represents the equilibrium level around which market prices will fluctuate. Of course, the normal price will itself change in a dynamic economy as a result of fundamental shifts in demand or of technological changes in production.

4.6 JOINT DEMAND FOR GOODS AND SERVICES

In the paragraphs above, we have dealt with producers' supply and consumers' demand responses, indicating that market price results from the equilibrium of supply and demand. It is apparent that this would be correct only in very simple and primitive markets where original producers and final consumers do, in fact, come face-to-face in the marketplace. In most markets, however, producers and consumers are separated by many intermediate marketing and processing agencies; and original production and final sale may be separated both in space and in time. Consequently, producers do not face directly the demands of consumers, nor do consumers come into direct contact with basic supply forces. Instead, these forces are transmitted through the marketing system.

Suppose we lump together all marketing functions and consider the simple case where producers and consumers are brought into contact through a single marketing group. As in the previous example, there will be a market demand function for the product in question, reflecting consumer responses to price changes. This is represented by the negatively inclined demand curve D_r in Figure 4.5, and it refers to the exchange of the commodity at the retail level as consumers make purchases from the marketing agents. On the other hand, producers' reactions are represented by the "at the farm" supply curve S_f .

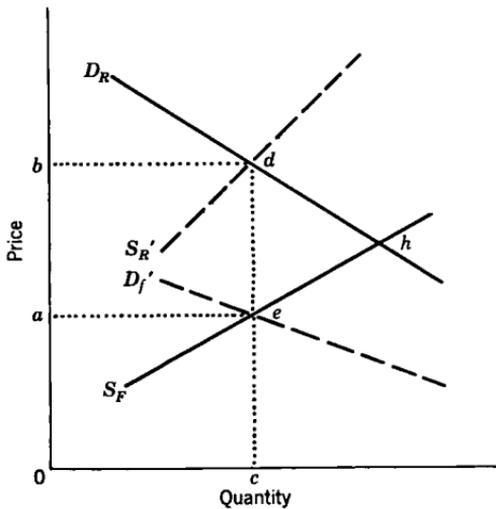


FIGURE 4.5 The original and derived demand and supply curves and price formation at two stages in the marketing channel.

Now, it should be quite clear that the intersection of these two curves at point h has no real significance. At this point the retail price and the farm price would be equal, and marketing agents would be buying, selling, storing, packaging, transporting, and financing the distribution of the commodity at zero return. The performance of these functions requires inputs of resources and the bearing of risks; this will be true even if the services are performed by producers and consumers. In fact, if it were not more economical to have these functions performed by specialized marketing agencies, we would expect that the marketing process would bypass the marketers and connect producers directly with consumers.

The truth of the matter is that the consumer's demand function is not a demand for the product in question but a joint demand for the good plus the associated marketing services. There is no demand in Buffalo for wheat offered in Kansas City but instead a demand for wheat delivered to Buffalo when wanted and in the desired form. We can express this retail demand in terms of prices at the farm, however, by subtracting marketing price margins from the retail prices. Such a *derived* demand function is suggested by line D'_f in the diagram. In a similar way, the at-farm supply function can be projected to the retail level as line S'_r .

With these derived curves we can trace out the equilibrium of supply and demand and the determination of price. Apparently, this market is in equilibrium with the production and sale of quantity oc of the *product plus the associated marketing services*; this equilibrium involves a farm price of oa , a retail price to the consumer of ob , and a price margin to marketing agents equal to the difference, or ab . In any real market, of course, there may be several stages and alternative marketing channels with derived demand and supply curves and prices at every stage. Thus, we might define markets and observe prices at the point of communication between the farmer and the assembler, the assembler and the wholesaler, the wholesaler and the jobber, the jobber and the retailer, and finally between the retailer and the consumer.

We have referred to the derived demand and supply curves as differing from the basic demand and supply curves by the addition or the subtraction of marketing price margins. But we have also emphasized that the performance of marketing functions requires the committing of resources and the taking of risks, as does any economic production activity. Primary producers use resources to create a commodity; secondary or manufacturing industries use resources to modify the form of the commodity; marketing agencies use resources to produce services associated with commodities and necessary to their distribution—the creation of place, time, and ownership utilities. Now, if the returns from the sale of these services are very low, few agencies will offer to create them but, if the

returns are high, many agencies will be willing to risk resources in such ventures. Consumers will also react; if marketing services are expensive, consumers will curtail their purchases and vice versa.

The essence of this is that there are demands for and supplies of marketing services just as there are for goods. Consumer demand, as has been indicated, is a joint demand for goods and services, and the supply curve *expressed at the retail level* is a joint supply of goods and services. The price spread between the retail and farm level, or any other stages in the marketing channel, is not a constant but varies as we would anticipate for demand and supply functions. This is indicated in Figure 4.6 where the differences between the original and derived functions from Figure 4.5 are shown as supply and demand functions for marketing services. With quantity oc , the derived demand for and supply of marketing services are in equilibrium at point k with price spread oj , which is equal to the amount ab in Figure 4.5.

Market equilibrium requires the simultaneous equating of the supply of and demand for goods *plus* services. In some cases this is evident from the fact that services are priced separately from the product itself and the consumer is given the option of taking or rejecting the service. In most situations, however, goods and services are completely intermingled, as in Figure 4.5, and the established prices refer to this goods-service composite.

4.7 MULTIPLE PRICE MARKETS

A market was defined earlier as an area or sphere of activity within which buyers and sellers are in intimate contact and where, with perfect knowledge, a single price will hold for a given commodity. We now are aware

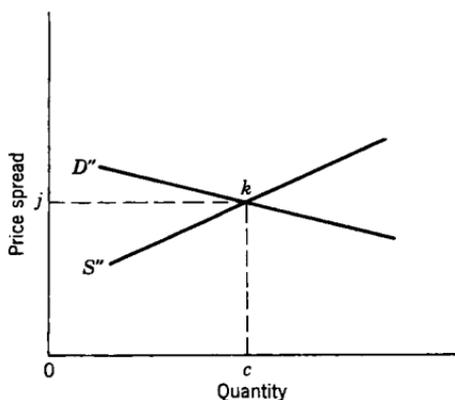


FIGURE 4.6 The derived demand for and supply of marketing services.

that a market may have multiple prices, all interdependent and simultaneously determined at various stages in the marketing channel from producer to consumer. We might consider the product at each stage or with each alternative combination of services as belonging to a separate market characterized by its unique price. However, the important concept to be grasped is that all of these stages and prices are interdependent and determined simultaneously in a single-market context—a single market with multiple prices.

The above illustration of multiple prices refers to the sequence of levels or stages in the marketing channel as a product moves from producer to consumer. In addition, there are multiple prices at any stage along dimensions corresponding to the traditional space, form, and time utilities. In a single market, all of these price structures are interrelated and simultaneously determined through transfer costs, processing costs, and storage costs. Thus, there is not a single price for a particular commodity at the farm level but a complex structure of prices reflecting geographic differences, form differences, and time differences.

Systematic relationships among these prices in isolated and in competing markets will be examined in detail in the following chapters. At this point it is important to recognize that every market has a space, form, and time dimension and that the operation of the market brings into equilibrium the whole complex of supply-demand relationships for goods and services. In a narrow sense, this concept refers directly to a particular commodity or to a family of commodities. When broadly conceived, however, it encompasses regional specialization, interregional trade and competition, the allocation of resources among alternative uses, the determination of product prices and factor prices and, therefore, approaches the concept of general interdependence and general equilibrium for the whole economy.

4.8 THE PERFECT MARKET CONCEPT

In most of the material that follows, we discuss “perfect” markets—markets characterized throughout by the conditions of perfect competition. The general nature of these market structures is familiar—perfect knowledge, no lags or frictions, large numbers of firms, standardized or homogeneous products, and no exercise of monopolistic power. Actually, the requirements for a perfect market are somewhat less restrictive. The essential conditions are: (1) perfect knowledge by all buyers and sellers, (2) each buyer and seller acts in an economically “rational” way, disregarding any influence of his actions on price, and (3) free entry in all directions.

Of course, all markets in real life operate with some degree of imperfect knowledge and with lags and frictions, and some have important elements of monopoly. In spite of this, the concept of the perfect market is an important tool for the economist. Its abstraction permits us to focus attention on and to understand the general nature of many market forces. It is a fair approximation to reality in some markets and, perhaps, especially for many agricultural markets. It has some "normative" values associated with the concept of economic efficiency and so may be useful in economic planning. Finally, it provides an essential background for the study of imperfect markets. Some modifications of this type will be discussed.

We conclude this chapter by pointing out that the basic ideas of specialization and trade grow out of the concept of the market in space, form, and time dimensions. The essential question is whether, given a number of points in space-form-time, they constitute a single, multiple-price market or a number of separate and competing markets.

As a preliminary definition that will be made more explicit later, we state that if such points are interconnected by trade, then they constitute a single market. The form and nature of these interconnections and the generalization of systematic relationships in the form of economic principles are the subject of later chapters.

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