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5 *Demand Distinctions*

Demand analysis must be designed for specific purposes. Conceptual distinctions help formulate both the purposes and the methods of empirical analysis and educated guesses. Certain important demand distinctions are:

1. Producers' goods and consumers' goods.
2. Durable goods and non-durable goods.
3. Derived demand and autonomous demand.
4. Industry demand and company demand.
5. Short-run demand and long-run demand.
6. Short-term demand fluctuations and long-term trends.
7. Total market and market segment.

PRODUCERS' GOODS AND CONSUMERS' GOODS

Producers' goods are those which are used for the production of other goods—either consumer goods or producr goods themselves. Examples of such goods are machines, looms, tools and implements, locomotives, ships, etc.

Consumers' goods can be defined as those which are used for final consumption. They satisfy the consumers' wants directly. Examples of consumers' goods can be ready-made clothes, prepared food, residential houses, etc. Consumer goods may be further sub-divided into durable and non-durable goods. The non-durable consumer goods are those which cannot be consumed more than once; for example, sweets, bread, milk, a bottle of Campa-Cola, photoflash bulb, etc.[1] They are also called 'single use goods'. On the other hand, durable consumer goods are those which go on being used over a period of time, *e.g.*, a car, a refrigerator, a ready-made shirt, an umbrella and an electric bulb. Of course, the lengths of time for which they can go on being used vary a good deal. A shirt may last a year or two. A car or a refrigerator may provide fairly useful service for 10 to 15 years. Old furniture can go on being used almost indefinitely so long as it is properly looked after. Durable goods are necessarily durable but not all non-durable goods are perishable. For example, coal can be stored indefinitely.

Some of the distinctive characteristics of durable consumers' goods are given below:

1. Certain durable consumer goods require the existence of special facilities for their use, *e.g.*, the use of cars and trucks requires the existence of petrol pump stations and the use of television sets requires the prior establishment of telecasting stations. This characteristic, therefore, makes the demand for these goods dependent upon the existence of these facilities. For example, television sets can be sold in India in the vicinity of telecasting centres only, and not in places far removed from these centres.
2. Consumer durables are often consumed by more than one person. For example, several members of a family can use a car, radio or refrigerator. The significance of this distinctive feature lies in that the demand for these products also depends upon family needs and characteristics like size, age, distribution, etc.
3. While purchases of most non-durable consumer goods are made at fairly regular intervals, purchases of durable consumer goods are made at irregular intervals.

[1] A particular medicine may save a man's life so that its effects remain as long as he lives. Yet the medicine is a non-durable good. So also, you always remember your stay in a particular hotel, yet the service provided by the hotel is non-durable.

Producers' goods can also be classified into two categories: consumable and durable. The examples of the former are: coal, oil, etc., whereas examples of the latter are machines and equipment.

For consumer's goods, buyer's income is the factor most nearly universal, since it determines the amount of cash in the buyer's hands and strongly affects their expectations of future income. The relation of demand to price, advertising, competition and speculation hinges more on the nature of the product. Again, factors that are dominant for some products may be quite irrelevant or unimportant for others.

The measurable determinants of demand for producers' goods usually differ from those of consumers' goods. They also vary considerably among products. Typically, personal income is displaced by business profits or by business activity. For example, there is a close relation between construction activity and the demand for cement.

Generally speaking, the reason for expecting distinctive demand behaviour for producers' goods are three:

1. Buyers are professionals and hence more discriminating price-wise, quality-wise and sensitive to substitutes.
2. Their motives are more purely economic; products are bought not for their own sake but for their profit prospects. As such, their purchase are less susceptible to "pressure advertising" but more sensitive to small price differences.
3. Demand, being derived from consumption or from production, fluctuates differently and generally more violently.

Though this distinction between producers' and consumers' goods serves a useful purpose, it is purely arbitrary. Whether a particular commodity is a producer good or consumer good depends upon who buys and why and hence the distinction is bound to be indistinct. For example, sugar in the case of a confectioner is a producer good, whereas in the case of a householder, it is a consumer good. However, not every purchase is made on grounds of economics alone. For example, while purchasing a table and a chair for the top executive, the question of prestige becomes more important than that of cost. Similarly, many consumers' goods such as cars, refrigerators, air-conditioners, etc., have many of the important characteristics of producers' goods in that they are durable and technically complex.

DURABLE GOODS AND NON-DURABLE GOODS

Durable products present more complicated problems of demand analysis than products of non-durable nature. Sales of non-durables are made largely to meet current demand which depends on current conditions. Sales of durables, on the other hand, add to the stock of existing goods that are still serviceable and are subject to repetitive use. Thus it is a common practice to segregate current demand for durables in terms of replacement of old products and expansion of total stock.

Demand analysis for durable goods is not simple. Both replacement and expansion have manifold sets of demand determinants. When expansion demand spurts, the value of used equipment goes up; and replacement demand falls. If the expansion demand falls, scrappage rate is higher than the level of new production. The most important determinant for replacement is obsolescence due to technological developments. Physical deterioration is less important in cases where there is a race for modernization.

For consumer products, and to a certain extent for producer goods too, style, convenience and income play a dominant role in demand. For major innovations, demand depends upon financial exigencies and rivalry of alternative investments.

While purchasing a durable good, besides current prices and incomes, the consumer thinks of maintenance and operating costs in relation to his future income and his other demands along with expectation about improved product designs. This is why price concessions are offered to clear out stocks likely to become obsolete and unsaleable when faced with new models. For example, in the U.S.A., old models of cars are sold at heavy discounts.

One characterstic of the demand for durables is a volatile relation to business conditions; since current output of a durable product provides only a small fraction of the total current services demanded of that kind of product, sales are hyper-sensitive to small changes in the demand for the service. If we assume, for example, that normal automobile production is used (1) to replace 10 per cent of the existing stock of cars, and (2) to expand car population by 5 per cent, then a 3 per cent increase in the demand for motor transportation will raise the new car demand by about 20 per cent.[1] This phenomenon is known as the Acceleration Principle.

Besides durable consumers' goods, the acceleration principle is also applicable to durable producers' goods.

Producers' Goods. Suppose the demand for consumer goods expands. Then there will be a need to expand the production of capital goods in order to produce the consumer goods. Thus, if more bicycles are demanded, more machinery will be required to produce bicycles.

Now, suppose that in a certain year there exist 10 lakh cycles with an average life of twenty years. This means 50,000 cycles will be produced in that year for replacement. If the demand for cycles goes up to 11 lakhs in the next year, 50,000 cycles will be produced for replacement *plus* 1 lakh to meet the increase in demand. Thus a10 per cent increase in demand for cycles (from 10 lakhs to 11 lakhs) leads to a 200 per cent increase in the demand for machinery required for cycle manufacture.

DERIVED DEMAND AND AUTONOMOUS DEMAND

When the demand for a product is tied to the purchase of some parent product, its demand is called 'derived'. For example, the demand for cement is derived demand, being directly related to building activity. Demand for all producers' goods, raw materials and components is derived. So also, the demand for packaging material is a derived demand. However, it is hard to find a product in modern civilization whose demand is wholly independent of all others. Hence this distinction is one of degree only. Derived demand is generally supposed to have less price elasticity than autonomous demand. This is because of dilution by other components whose prices are sticky. A 10 per cent cut in the price of steel would cause only about 1 per cent cut in the price of car, other costs remaining the same (assuming that steel accounts for 10 per cent of the cost of the car). Further, the less costly the component is in relation to the total cost of the final goods, the lower is the price elasticity likely to be in the case of the component with derived demand. To illustrate, the demand for glue used for book binding is perhaps quite inelastic as a big change in the price of glue will have only insignificant effect on the total binding cost. Some products are *so closely tied* to others in their use that they have *no distinctive demand determinants* of their own. For example, antennas are exclusively used with TVs and that too in the proportion of one to one. As such there are no distinctive determinants of the demand for antennas.

Derived demand facilitates forecasting when proportions of the two products are fairly fixed. Yet, in some cases, derived demand may not provide a very reliable basis. For example, capital goods (plant and equipment) have a derived demand, but variations in the actual (expected) intensities of use are so wide that analysis in terms of finished product demand is either too broad or too approximate to be of much help. For example, the demand for looms in the cotton textile industry would normally be determined by the demand for cotton textiles. Yet it may not give the correct indicator as the looms may be used in double or triple shifts and the number of looms required may be reduced roughly to half or one-third. The recession in motor car industry forced tyre manufacturers to cut production and reduce stocks[2].

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[1]To explain, suppose that the existing number of cars in use is 10,000. The replacement demand at the rate of 10 per cent would be 1,000. Further, the expansion in demand for cars at the rate of 5 per cent would amount to 500 cars. Thus the existing total production of cars would be 1,500. Now if there is an extra 3 per cent rise in the demand for cars, the additional demand for cars would amount to 300 cars, *i.e.*, 20 per cent of the existing production of 1,500 cars.

[2]*The Economist*, January 10, 1981.

In cases where the proportion between the parent and the dependent goods is not fixed, it is more difficult to determine the derived demand for the dependent goods on the basis of the demand for parent goods. So also, if the number of uses to which a particular product can be put fluctuates, it is difficult to estimate the derived demand on the basis of the demand for parent product. Electric motors and sulphuric acid provide good examples as they can be used in a number of industries.

INDUSTRY DEMAND AND COMPANY DEMAND

The term industry demand is used to denote the total demand for the products of a particular industry, *e.g.*, the total demand for steel in the country. On the other hand, the term company demand denotes the demand for the products of a particular company, *e.g.*, demand for steel produced by TISCO.

It may be noted here that within an industry, the products of one manufacturer can be substituted by products of another manufacturer even though the products themselves might be differentiated by brand names. Thus an industry covers all the firms producing similar products which are close substitutes to each other irrespective of differences in trade names, *e.g.*, Dalda, Rath, Panghat and No.1. Obviously, firms producing distant substitutes would be excluded from the purview of the industry. Ghee and groundnut oil, being used as cooking media, can be substituted for vanaspati, yet they are only distant substitutes and will be excluded from vanaspati industry as such.

An industry demand schedule represents the relation of the price of the product to the quantity that will be bought from all the firms. It has a clear meaning when the products of the various firms are close substitutes. It becomes vague when there is considerable product differentiation within the industry.

Industry demand can be classified customer group-wise; for example, steel demand by construction and manufacture, airline tickets by business or pleasure and geographic areas by States and districts.

From the managerial point of view, mere industry demand is not enough. What is more important is the company's share in the total industry demand and the relationship between the two, as also the relationship between the company's share of the demand and that of the competing firms. However, projection of the industry demand is the first step in forecasting company's sales.

The industry demand schedule is a useful guide for studying the demand for a company's products. The relation of the individual company's sales to its price should be determined by the industry demand schedule. The degree of relationship will depend upon the competitive structure of the industry.

(i) *In a single firm monopoly*, the company demand curve would be the same as the industry demand curve. However, anything resembling a single firm monopoly is hard to find in modern industry.

(ii) *In homogeneous oligopoly*, when sellers are few and their products are standardized, business is highly transferable among rivals, *e.g.*, aluminium, steel and cement producers. The company's own *demand curve could be uncertain*, depending upon what its rivals do. What usually happens is that the sellers charge the same price to stay in the market. However, it must be noted that though there are many industries where a few large sellers dominate, very often their products are not uniform enough.

(iii) *In differentiated oligopoly where there are a few sellers with differentiated products* (*e.g.*, radios, refrigerators and cars), the demand for an individual company's product is less closely related to the industry demand, and it has got more leeway in manipulating its price differentials. The company may have an independent demand function which reflects the impact of variation in price-spreads, product superiority and/or relative efficiency or the amount of promotional outlay on the company's share of the market.

(iv) *In pure competition*, the industry demand curve is *completely divorced* from that of the individual seller. He has no choice but to follow the market price

of the rivals. Hence *his demand curve would be a horizontal straight line at the level of the market price.*

(v) *In monopolistic competition* (which includes all competitive situations except pure competition), where there are many sellers with differentiated products, *the industry demand curve has little meaning.* When the degree of product differentiation is large, the individual seller's demand function is like that of a single-firm monopolist (he does not worry about the effect of the prices his rivals charge upon his price). It differs from the monopolist in that the demand for any single seller may be affected by the number of rivals, their products and prices. Thus the demand curve for a firm in such a cometitive situation has more price elasticity than the industry demand curve. An important example would be that of drycleaners.

MARKET SHARE CONCEPT OF DEMAND

The company demand may also be expressed as a percentage of the industry demand. The percentage so arrived at would denote the company's market share for the product. The company demand expresses the quantity demanded in absolute terms while market share expresses it in relative terms. Suppose that at a given price, the demand for petrol in the country is 5 million litres, and Indian Oil supplies 2 million litres, *i.e.*, 40 per cent of the total demand for petrol. The industry demand at that price is 5 million litres, the company demand is 2 million litres and market share of the company is 40 per cent. M/s Harbans Lal Malhotra controlled 81 per cent of the razor blade market.[1] The concept of market share becomes important because the industry demand being the result of vast impersonal economic forces, is usually beyond the control of the individual company, but the market share enjoyed by it is subject to manipulation.[2] Market share information can also be helpful in persuading people to buy a company's shares.

This concept of demand is most usable in mature, well-defined industries with relatively homogeneous products, *e.g.*, steel and cement. The objective of any firm is to improve the market share of the company or at least to maintain it. The first step is to forecast industry sales. The next step is to plan a market strategy to improve or at least maintain the market share. This is largely done by keeping abreast of competitive developments, *e.g.*, overtaking product innovators, meeting price-cutters and countering aggressive advertising.

Factors Determining Market Share

The factors which determine the market share are:

1. Price-spread or Price Differential. It means the differences between the price charged by one company and the prices charged by other companies. If a company's price is lower than the prices charged by other companies, it would to able to capture a greater market share of the industry demand. Therefore, the higher the price differential, the greater the market share.

It may, however, be noted that the responsiveness of the market share to price differential will be insignificant up to a point due to the stickness of the buyers to a certain extent. But as the price differential increases, there will be a tendency for the market share to increase. And the responsiveness of the market share rises sharply when the price differential increases beyond a critical point. The critical point varies with areas and possibly also with the buyers' affluence. Responsiveness of the market share also depends upon how well publicised and easily available the lower price is.

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[1] *India Today*, March 1–15, 1980.

[2] In developed countries, monthly market share of leading producers of important products is widely reported in the Press. For example, the market share of different car producers in the British market in February 1977 was reported to be as follows: British Leyland—27.7 per cent, Ford—25.5 per cent, Vauxhall—10.6 per cent, and Chrysler—6.1 per cent. *Daily Telegraph*, March 5, 1977.

2. *Promotional Expenditure.* It denotes the amount spent for the promotion of sales by a particular company. As we have already seen, there is a tendency for the sales to increase with an increase in promotional outlays. As a result, the market share is likely to go up with an increase in promotional outlays.

Very often a particular industry may undertake collective advertisement to promote the sales of the industry as a whole, *e.g.*, advertisement on behalf of the cigarette industry. To maintain its market share, a particular producer will undertake an individual advertisement in addition to the aggregate advertisement.

3. *Product Improvement.* It may also be adopted to increase the market share. The improvement may be real or illusory. Sometimes, the improvement may take the form of more attractive packaging though the real contents may be the same.

Asian Paints made a consistent endeavour to increase its market share not only by continuous product innovation but by undertaking higher promotional campaigns. It spent Rs. 37 lakhs in 1977 as against Rs. 20 lakhs in 1973[1]. Chemicals and Fibres of India tried to retain its market share by concentrating its attention on improvement of the fibre and on textile technology.[2]

SHORT-RUN DEMAND AND LONG-RUN DEMAND

Short-run demand refers to the demand with its immediate reaction to price changes, income fluctuations, etc. Long-run demand is that which will ultimately exist as a result of the changes in pricing, promotion or product improvement, after enough time has been allowed to let the market adjust itself to the new situation. For example, if electricity rates are reduced, in the short run *existing users* of electrical appliances will make greater use of these appliances but in the long-run, *more* and *more people* might be induced to use these appliances ultimately leading to a still greater demand for electricity. The distinction is important in a competitive situation. In the short-run, the question is whether competitors will follow suit; while in the long-run, entry of potential competitors, exploration of substitutes, and other complex and unforeseeable effects may follow.

The factors responsible for causing differences between short-run demand and long-run demand fall in *two* categories:

1. *Time-lags in Information and Experience.* There may be delay in knowing about relative changes in the prices of substitutes. There may also be delayed action on the part of the purchasers in response to the price-changes, because, in practice, consumers' use-patterns are sticky and sometimes additional research and alteration in the product becomes necessary before advantage of new prices can be taken. These lags are greater in cases where the products whose prices have changed are new. Hindi telegrams are cheaper than the telegrams in English. Yet most people still continue to send telegrams in English partly because of their ignorance of the fact that it is economical to send a telegram in Hindi and partly because of sheer habit of sending telegrams in English.

2. *Capital Investments Required on the Part of Consumers to Change their Consumption Patterns.* Quite often, to take advantage of a price change, investment has to be made in acquiring additional equipment or installation which is a prerequisite for the use of the commodity. Frozen fruits and vegetables may be cheaper and more convenient than tinned ones. But to take advantage of the lower price of frozen food, one has to invest money in purchasing a refrigerator with freezer compartments.

Thus, it can be seen that long-run growth is not wholly dependent on price-cuts. Yet price-cuts can accelerate the rate of demand considerably.

SHORT-TERM DEMAND FLUCTUATIONS AND LONG-TERM TRENDS

From managerial viewpoint, it becomes useful to analyse time series of demand into two parts, *viz.*, trend and demand fluctuations.

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[1] *The Economic Times*, November 15,1978.

[2] *The Economic Times*, August 28,1979.

Factors affecting the two types of changes are different. In short-term or year-to-year fluctuations, much of the setting stays constant, *e.g.*, competitive structure, market position, quality and sometimes even prices (relative to substitutes and competitors, if not absolutely). The problem can then be narrowed down to the relation between changes in sales and a few strategic variables, such as income, business activity and competitive price differentials. For the long-term trend, in contrast, everything is fluid, and the effects of year-to-year determinants are buried by basic changes in the framework, *e.g.*, shifts in tastes, technology and way of life.

Forecasts of year-to-year swings provide the basis for planning the firm's operations, *i.e.*, production, purchasing, manpower, inventory, cash, etc. Projections of long-range demand trends are useful primarily for planning investments and other long-term commitments, *e.g.*, the decision to expand capacity. It requires the estimation of future growth. Though the margins of uncertainty are wide and are accentuated by unknown expansion plans of rivals and by risks of obsolescence of products and methods, the decision hinges on the projection of a growth trend through extrapolating the past into the future.

TOTAL MARKET AND MARKET SEGMENT

Demand for a certain product has to be studied not only in its totality but also by breaking it into different segments, *viz.*, geographical areas, sub-products, uses of the product, sensitivity to price, distribution channels, size of the customers, etc. This division of demand into different segments gives rise to the concept of market segment as distinguished from the total market. Thus 'total market' refers to the total demand for a product whereas 'market segment' signifies a part of it.

Some problems, such as sales forecasting, call for an analysis of the total market. Other problems, notably those of pricing, promotion and distribution, call for analysis of separate market segments that have homogeneous demand characteristics. Each of these market segments may differ significantly in respect of delivered prices, net profit margins, substitutes, competition, seasonal patterns and cyclical sensitivity. For manipulating prices, promotion, product or distribution channels in order to meet or exercise sales competition, a segment concept of demand is often more appropriate than the 'total market' concept that has greater coverage.

DISTINCTIVE TYPES OF ELASTICITY

From the managerial viewpoint, it is considered ... sub-types of the elasticity of each d... industry elasticity