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tent group of properly trained investigators. It would have to be sponsored by a large and accredited research organization, although some phases, such as the price characteristics of substitute products, could be handled by smaller research agencies.

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OUTLINE OF PRICE RESEARCH PROBLEMS

THE two preceding chapters have dealt with selected research projects believed to be feasible with materials at present available to research workers. In this chapter an attempt is made to present a somewhat more comprehensive program of price research in this industry. This program, although not complete,¹ will nevertheless suggest in orderly form certain important research projects. It is hoped that such an outline will serve as a general guide to price research in iron and steel, and will indicate the nature of the difficulties that confront research workers in this field.

Both the general program for research and the separate problems into which it logically divides have been formulated without regard to the immediate practicability of an attempt to carry out the program suggested. In certain instances the requisite data simply do not exist; in more instances the data are to be found only in company files, where they are recorded in such form that enormous labor would be required to summarize them in terms suitable for research problems. The great variety of products, conditions of sale, etc., moreover, will make it necessary to scale down many of the problems by restricting them to a few important product classes, territories, etc. The likelihood of obtaining such information from steel company executives

¹ W. L. Thorp suggests that price research should be focused upon three fundamental issues: (1) the factors that determine price, (2) the characteristics of the resulting price, (3) the impact of such prices on other elements of the economic system. To apply this threefold objective exhaustively to any broad economic problem associated with prices in the iron and steel industry would entail an analysis of virtually every phase of production and distribution of iron and steel, if not of the economic system as a whole.

must be carefully appraised by the individuals or institutions that elect to attempt research of this type.

GENERAL PATTERNS

Prices have been classified according to the pattern of their behavior into flexible and inflexible. Although the class in which any given commodity is placed depends upon the position of an arbitrarily drawn dividing line, and upon the methods employed to measure flexibility, the criterion of classification is clear: namely, the frequency and magnitude of temporal changes in price. The prices of certain steel products are frequently cited as examples of relatively inflexible prices. Further study of the methods of measuring flexibility and the extent of variation in flexibility among various iron and steel products seems a promising field.

Prices may be classified also according to another behavior characteristic, the degree of monopoly control over the sale of the product. Here again the criterion is clear: namely substitutability among products and the number of sellers in a given market. There is practical absence of substitutes and a single seller at the monopoly pole, product homogeneity and a number of sellers so great that each has a negligible effect upon the total supply function at the competitive pole.² Between these two extremes lies the no-man's land of imperfect or monopolistic competition. And it is one of the problems of price research in the steel industry to determine the position, in this uncertain area, of each steel product. This position probably varies not only with the product but also with the customer type, geographic region, phase of the cycle, etc. These two classifications are often confused. The distinction should be kept sharp between classification on the basis of the frequency and magnitude of price change and on the basis of the degree of monopoly control. The strength and nature of the relation between inflexible and administered prices should not be merely assumed; it should rather be made the subject of price research.

² A classification may also be set upon the basis of the number and independence of buyers, that is, the degree of monopoly control over purchasing.

SOME CHARACTERISTICS OF THE PRICE STRUCTURE IN THE
IRON AND STEEL INDUSTRY

Behavior of prices as reflected in price relations and patterns

The general character of price behavior of the various iron and steel products at each producing point as indicated by the following considerations:

Definition of the price of steel

Methods of price quotations (e.g., delivered vs. mill, with extras vs. without extras)

Relation of actual to quoted prices (i.e., what prices actually are or have been)

Magnitude and frequency of change over time

Degree of imperfection of competition

Price relations as indicated by the price differentiation among:

Products (i.e., blast furnace products, tonnage steels)

Producing points

Consuming territories

Marketing agencies

Consumers

Cost and pricing

What are the relations between assembly costs and price differentials among regions and products?

What is the effect of relatively heavy overhead cost upon pricing policies?

How are overhead costs allocated in deciding prices for jointly produced commodities?

How do economies of large scale production influence the price structure?

What is the effect of technological improvements on prices, e.g., the revolutionary reduction of cost accomplished by a continuous strip mill?

What is the effect of distribution cost-price relationships?

How have economies in standardization affected prices?

How are uniform extras related to costs?

Characteristics of the industry structure that affect prices

What effects of integration in production and sales are discernible in prices?

What effects of geographic and corporate concentration of production are evident in prices?

What are the effects upon pricing policy of ease of price-quality comparisons and great importance of material price savings to most buyers?

What is the expected behavior of prices, given assumed conditions of demand and cost, under competitive and monopoly conditions?

What repercussions on the price structure are traceable to concentration of demand both corporate (e.g., large automobile producers) and geographic (e.g., Chicago consumption area)?

What effects has the type of marketing organization upon prices?

What are the price effects of large buyers such as automobile companies who are in a position to impose monopoly conditions?

Procedure in determining pricing policy

What executives within the company are most influential in formulating its pricing policy?

What kinds of investigation are pertinent for setting prices?

What sorts of studies are actually made for price setting purposes:

Demand analyses?

Cost analyses?

Appraisal of competitive situation?

PROBLEMS OF THE INDUSTRY INVOLVING PRICE RELATIONSHIPS CONSIDERED WITH REFERENCE TO THE BUSINESS INTERESTS OF THE INDUSTRY

Relation of price to quantity sold (i.e., the elasticity of demand by products)

What change in the quantity of a steel product sold by a given producer can be expected from a given reduction in its price?

What is the resulting relationship between marginal receipts and rate of output?

To what extent will an increase in quantity sold represent penetration of competitors' markets?

How responsive are buyers to price differences among

sellers (i.e., how great is the incentive to price competition)?

Could the advantage be gained more effectively and kept longer through secret concessions than by announced price cuts?

How long could such a competitive advantage be expected to last?

To what extent will an increase in quantity sold represent encroachment upon the demand for substitutes as a (1) producers' good, (2) consumers' good?

To what extent will the increase in quantity sold represent a net increase in consumer demand?

Is the finished steel product a consumers' or a producers' good?

What is the elasticity of demand for the finished product in the production of which steel is a raw material?

What is the ratio of the cost of steel to the price of those finished products for which steel is a raw material?

What is the degree of price flexibility of cost items other than steel that enter into production of goods for which steel is a raw material?

Relation of price to variations in cost

How does the cost of producing a steel product vary with the rate of output?

Which items of cost are relatively constant and which are relatively variable as a function of output?

What are the effects of relatively large and relatively small changes in output rate upon the degree of variability of the several cost constituents?

What are the differential costs of production at various rates of output?

What is the relation of prices and profits to the rate of output for plants, for companies, and for the industry as a whole?

To what extent do the costs of producing a given product vary among mills?

What is the reported variation in various kinds of cost and cost components?

To what extent are cost differences among mills attributable to differences in accounting procedures?

To what extent do they represent differences in evaluating differential advantages (i.e., ore deposits, plants, managerial skills, etc.)?

To what extent are they caused by variation in technological obsolescence?

To what extent does cost variation correspond to price differences in uniform extras (e.g., quantity, size, width)?

What is the range of differences for each characteristic reported among mills?

Is there a central tendency (average differences) pronounced enough to be significant? Is it related to the corresponding extra?

What factors explain variation from the average differential?

Relation of price structure to production capacity and utilization

What effect will the recent change in price structure have upon the relative competitive advantage of existing mill locations?

Will these effects tend to initiate or preclude changes in installed capacity or cause changes in the rate of utilization?

What repercussions will such changes in capacity or utilization have upon the price structure itself?

Relation of price structure to technological changes

What effect will a given price structure have upon the incentive for technological research and the exploitation of technical advances?

What effects have technological changes upon the levels of steel prices and the price differentials among products, areas, and customers?

Effect of marketing mechanisms on prices

What are the effects upon the price structure of variation in market functions such as:

Credit facilities

Transportation media

Storage (e.g., warehousing vs. non-warehousing middlemen)

What are the effects upon the price structure of variation in

the degree of producer control over distribution (e.g., mill-controlled outlets, consignments, agency relationships)?

What effects have efforts to preserve the existing price structure had upon distribution organization and market practices?

Effect of production organization on prices

What effects has price leadership had upon the competitive methods of smaller independents?

To what extent have they been led to emphasize product differentiation, service, friendship, etc.?

To what extent do they have compensating advantages in flexibility, lower ratio of fixed costs, etc.?

What effects upon the price structure grow out of the complex competitive relationship between non-integrated producers of finished products and their supplier-competitors and between subsidiaries of steel companies and independents in consuming industries such as the construction steel fabricating industry?

ECONOMIC PROBLEMS OF GENERAL SOCIAL INTEREST ARISING
OUT OF THE PRICE STRUCTURE OF THE IRON AND
STEEL INDUSTRY

Relation of price stability to cyclical fluctuations in business

What is the elasticity of demand for various steel products under existing marketing and pricing conditions? How does it vary with the phase of the business cycle?

What effect, if any, would an attempt to maintain steel prices during various stages in the cycle be expected to have upon employment, production, wages, and purchasing power in the steel industry and in other industries? (This question involves not only elasticity of demand but also the potential effect of the influence of the steel industry on the price policies of other industries.)

Effect of the interaction of stabilized steel prices and other more variable prices through the medium of composite demand on general price relationships (e.g., possible price dislocation)

To what extent are the prices of goods and services for which the demand, with steel, is joint or composite, cyclically flexible?

What is the effect of the example of cyclically stable prices in a great and basic industry upon the pricing policies of other industries? To what extent does this contribute to cumulative price dislocation?

To what extent are the prices of products for which steel is a raw material flexible over business cycles?

To what extent are the prices of goods and services of joint or derived demand determined competitively?

To what extent are these price fluctuations dependent upon those of the associated steel products?

Effect of discrimination in the steel price structure under the basing point practice, upon relative competitive advantages of consumers and regional economic development

What is the relation of the quoted base price to the mill-net for sales within various markets? (This question involves the difference between transport charges added in the delivered price and transport charges actually paid corrected by inter-basing point price differentials.)

To what extent do variations in the mill-net, under the basing point practice, represent special concessions to given customers or consuming areas?

What has been the extent of market interpenetration through true cross-shipments under a basing point system?

By how much do the transportation charges that are included in the delivered price exceed transport costs for alternative routes or media for the same quantity?

To what extent does access to all sources of steel supply compensate the consumer for any disadvantage arising from price discrimination? Does increased accessibility to alternative sources of supply actually intensify competition among sellers?

To what extent do relative mill-nets under a given basing point system offset or augment the natural relative advantages of location of both steel mills and consumers' plants?

Effect of price structure on preservation and expansion of un-economic capacity for production of steel products

To what extent does the basing point system have the effect of protecting existing investment and obstructing the development of new plant in more economical locations? What changes in location of production equipment were caused by

the price changes of the summer of 1938? To what extent does the concentration of steel production capacity reflect discriminations in the freight-rate structure; e.g., interregional freight discrimination in favor of 'Official Territory' as opposed to southern or western territories? What shifts in location of facilities would result from another pricing system? What would be the costs of these shifts?

Effect of the price structure on efficiency of marketing

To what extent does the basing point system tend to effect: (1) duplication in sales organization; (2) true cross-shipments of identical steel products; (3) rigidity in distribution channels and methods without regard to requirements of consumers and independent distributors and the economics of marketing? What changes occurred in cross-shipments and in marketing channels, methods, and organization as a consequence of the recent changes in basing point differentials?

