1955

An Economic Analysis of Selected Factors in Industrial Pricing Techniques.

Billy Jean Hinton
Louisiana State University and Agricultural & Mechanical College

Follow this and additional works at: https://digitalcommons.lsu.edu/gradschool_disstheses

Recommended Citation
https://digitalcommons.lsu.edu/gradschool_disstheses/123

This Dissertation is brought to you for free and open access by the Graduate School at LSU Digital Commons. It has been accepted for inclusion in LSU Historical Dissertations and Theses by an authorized administrator of LSU Digital Commons. For more information, please contact gradetd@lsu.edu.
AN ECONOMIC ANALYSIS OF SELECTED FACTORS IN INDUSTRIAL PRICING TECHNIQUES

A Dissertation

Submitted to the Graduate Faculty of the Louisiana State University and Agricultural and Mechanical College in partial fulfillment of the requirements for the degree of Doctor of Philosophy in The Department of Economics

by

Billy Jean Hinton
B. A., Baylor University, 1946
M. A., Baylor University, 1947
August, 1955
Hinton--ECONOMIC ANALYSIS OF INDUSTRIAL PRICING
ACKNOWLEDGMENT

The writer wishes to express sincere appreciation to Dr. H. L. McCracken, Head, Department of Economics, and Dr. W. D. Ross, Professor of Economics, Louisiana State University, for their valuable assistance and guidance in the preparation of this dissertation.

The writer also wishes to acknowledge the helpful suggestions made by Dean J. B. Trent, College of Commerce, Dr. S. W. Preston, Professor of Business Administration, and Dr. L. C. Megginson, Associate Professor of Business Administration, for improving the original manuscript.

A full acknowledgment is accorded my wife, Mary, for her patience and understanding while this work was being processed.
TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Table/Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF TABLES</td>
<td>v</td>
</tr>
<tr>
<td>LIST OF PLATES</td>
<td>vi</td>
</tr>
<tr>
<td>Chapter</td>
<td></td>
</tr>
<tr>
<td>I. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>Purpose and Method</td>
<td></td>
</tr>
<tr>
<td>II. PRICE: CURRENT STATUS FROM AN ECONOMIC STANDPOINT</td>
<td>10</td>
</tr>
<tr>
<td>The Importance of Price in the Economy</td>
<td></td>
</tr>
<tr>
<td>Marshallian Equilibrium</td>
<td></td>
</tr>
<tr>
<td>Pure Competition</td>
<td></td>
</tr>
<tr>
<td>Monopoly</td>
<td></td>
</tr>
<tr>
<td>Post-Marshallian Analysis</td>
<td></td>
</tr>
<tr>
<td>Sraffa</td>
<td></td>
</tr>
<tr>
<td>Duopoly and Oligopoly</td>
<td></td>
</tr>
<tr>
<td>Monopolistic Competition</td>
<td></td>
</tr>
<tr>
<td>Walrasian School and Triffin</td>
<td></td>
</tr>
<tr>
<td>Robert Triffin</td>
<td></td>
</tr>
<tr>
<td>Some General Market Situations in the Economy</td>
<td></td>
</tr>
<tr>
<td>Marginal Cost and Average Cost Pricing</td>
<td></td>
</tr>
<tr>
<td>III. PRICE AND PRICING POLICY</td>
<td>110</td>
</tr>
<tr>
<td>Price-Maker</td>
<td></td>
</tr>
<tr>
<td>Factors in Pricing</td>
<td></td>
</tr>
<tr>
<td>Price Policy</td>
<td></td>
</tr>
<tr>
<td>Price Stability</td>
<td></td>
</tr>
<tr>
<td>Agreements, Monopoly, and Leadership</td>
<td></td>
</tr>
<tr>
<td>Taxation</td>
<td></td>
</tr>
<tr>
<td>Discrimination</td>
<td></td>
</tr>
<tr>
<td>Cost and Price Policy</td>
<td></td>
</tr>
<tr>
<td>Operational Capacity</td>
<td></td>
</tr>
<tr>
<td>Method of Cost Determination</td>
<td></td>
</tr>
<tr>
<td>Marginal Costs</td>
<td></td>
</tr>
<tr>
<td>Cost Period</td>
<td></td>
</tr>
<tr>
<td>Appendix: Questionnaire and Results</td>
<td></td>
</tr>
<tr>
<td>IV. OBSERVATIONS AND CONCLUSIONS</td>
<td>244</td>
</tr>
<tr>
<td>BIBLIOGRAPHY</td>
<td>259</td>
</tr>
</tbody>
</table>

iv
### LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Number of Employees</td>
<td>116</td>
</tr>
<tr>
<td>II. Market Distribution of Products</td>
<td>117</td>
</tr>
<tr>
<td>Plate</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>1.</td>
<td>Classification of Firms by Size in the Industry</td>
</tr>
<tr>
<td>2.</td>
<td>Classification of Firms by Competitive Position</td>
</tr>
<tr>
<td>3.</td>
<td>Classification of Firms by Fear of Competition</td>
</tr>
<tr>
<td>4.</td>
<td>Belief in Collusion of Pricing by a Few Big Sellers</td>
</tr>
<tr>
<td>5.</td>
<td>Factors More Important Than Price in Marketing Strategy</td>
</tr>
<tr>
<td>6.</td>
<td>Methods by Which Firms Set Prices</td>
</tr>
<tr>
<td>7.</td>
<td>Training of Price Makers</td>
</tr>
<tr>
<td>8.</td>
<td>Price Makers Attention Focused On</td>
</tr>
<tr>
<td>9.</td>
<td>Pricing Policies</td>
</tr>
<tr>
<td>10.</td>
<td>Firms Attempting Some Degree of Monopoly</td>
</tr>
<tr>
<td>11.</td>
<td>Price Stability</td>
</tr>
<tr>
<td>12.</td>
<td>Bases of Price Policy</td>
</tr>
<tr>
<td>13.</td>
<td>Firms That Would Alter Policy in Time of Depression</td>
</tr>
<tr>
<td>15.</td>
<td>Firms Charging Different Prices to Different Customers</td>
</tr>
<tr>
<td>16.</td>
<td>Firms Able to Calculate Output and Revenue</td>
</tr>
<tr>
<td>17.</td>
<td>Firms Selecting Maximum Revenue at All Times</td>
</tr>
<tr>
<td>18.</td>
<td>Methods of Establishing the Most Effective Scale of Plant Operations</td>
</tr>
<tr>
<td>Plate</td>
<td>Page</td>
</tr>
<tr>
<td>-------</td>
<td>------</td>
</tr>
<tr>
<td>19. Degree of Attention Paid to Unit Costs</td>
<td>237</td>
</tr>
<tr>
<td>20. Degree of Attention Paid to Cost Accountants' Figures</td>
<td>238</td>
</tr>
<tr>
<td>21. Importance of Costs in Price Determination</td>
<td>239</td>
</tr>
<tr>
<td>22. Importance of Marginal Costs to Rock-Bottom Pricing</td>
<td>240</td>
</tr>
<tr>
<td>23. Firms That Feel Marketers Charge Highest Prices Possible</td>
<td>241</td>
</tr>
<tr>
<td>24. Firms Operated Under Excess Capacity</td>
<td>242</td>
</tr>
<tr>
<td>25. Effect of Increase in Output on Unit Cost</td>
<td>243</td>
</tr>
<tr>
<td>A. Price-Profit Graphs</td>
<td>72</td>
</tr>
</tbody>
</table>
ABSTRACT

Economic price theory has been criticized with relative consistency since the late 1920's. Critics contend that price theory needs an orientation toward the practical pricing activities of the businessman. Even with the reorientation of Neo-classical price analysis made by Professor Edward Chamberlin and Mrs. Joan Robinson, the attack upon price theory has continued.

The purpose of this work has been to analyze the application of economic theory to business price practices. The problem is one of finding whether the economist is right or wrong, or whether there is only an element of divergence between economic and business concepts.

The method of approach has been to present current price theory in a brief survey and to follow this with an analysis of certain business practices. One hundred business firms form the basis for the empirical data used. The sample covered such fields as the price-maker, factors involved in price determination, price policy concepts, and cost-price relationships.
These observations were derived from empirical data:

1. Business experience is the most important training of most business price-makers. The primary factors considered in pricing are competitive conditions, cost analysis, and a reasonable return. There is a tendency for the entrepreneur to use a price which will cover his "full cost." Ninety percent of the business firms examined were interested in pricing to survive in the long run. Competition is not too important to the manufacturer, and oligopoly is apparently common among manufacturing firms.

2. Businessmen think that stable prices are desirable. Many of the firms examined indicated that they would hold to basic prices and price policy even in times of depression. The concept of a kinked demand curve was fairly well established by the results of this investigation to provide a very reasonable explanation for rigid prices.

3. Price leadership apparently is generally prevalent in manufacturing industry; however, it is difficult to find any particular firm that will admit to being a price leader.

4. Businessmen consider taxes to be an important factor in price-making, yet they are very reluctant to discuss how taxes influence their prices.
5. Price discrimination is generally practiced by manufacturers; however, the average businessman denies that his practices are those which he would term as discriminatory. Businessmen consider price concessions to be a part of routine business operations.

6. Manufacturers normally establish a level of output below that level which they consider to be capacity output. This indicates that manufacturers are impressed by long-run welfare considerations and that they compete in oligopolistic markets.

7. Sixty percent of the firms in this study were able to figure output and revenue to maximize profits; however, most of them made little attempt to equate marginal-revenue and marginal-cost knowingly. Large firms can establish output and revenue to maximize profits much better than medium and small firms.

8. Conventional marginal price analysis is applicable to the production and price situations of manufacturing firms. Theory must be regarded as only a general application, however, in that it can be applied only in a broad and not in a precise sense.

9. Many business firms find their control over price and output more limited than Chamberlin and Robinson suggest. Many producers are unaware of how many competitors they actually have. As a result they practice a conservative type of pricing by following a price-leader.
CHAPTER I
INTRODUCTION

The gulf that exists between economic theory and the practices of the businessman has broadened in the last half century.\(^1\) There arises today a question as to the validity of economic theory as a basis for describing the productive and consumptive activities of man in his social group. Probably nowhere in the area of economic investigation is the gap so wide as it is in that field which has long been considered the heart of neo-classical economic analysis, the formation of price. Much work has been done in many phases of economic endeavor in an attempt to reconcile the theoretical with the practical, and yet price analysis has been one field that has witnessed until only recently a condition wherein there was little attempt to harmonize practice with hypothesis.\(^2\)


Economic theory worked for years on the assumption that pure competition and monopoly were the only conditions under which an industry could operate; as of a relatively recent date this analysis was revised to include imperfect and monopolistic competition. These latter analyses with their modifications to fill the void between pure competition and monopoly have given academic economists materials which they can use effectively in courses in the principles of economics. A sloping demand curve and its implications, the assumptions of enough competition to allow price change without unduly influencing other producers in the field, and a formula whereby the firm can maximize profits or minimize losses, provides most college instructors with a versatile theory. The tenets of this theory they teach with vehemence enough to convince most uninitiated listeners that their conventional concept is universally accepted.

Innovations and research are being increased by both theoreticians and businessmen today. It is evident that features have arisen to challenge the validity of monopolistic competition theory. The concentration of production in the present industrial pattern has led to price leadership patterns. Conditions
wherein price activities affect the other producers in the market is being stressed by economists and businessmen. There can be little doubt that with respect to most market situations the competitive assumption of neo-classical thought involves distortion of a serious nature. Economists themselves have been engaging in a heated controversy regarding the validity of marginal analysis, and for several years attempts have been made to reformulate the doctrine of imperfect competition.

Emphasizing that the individual firm is the proper unit from which to study the formation of prices, economists nonetheless have often been lax in the application of their analytical price tools even in this definably limited area. At the same time there has been a tendency to push theoretical speculation on the reactions of the firm to assumed variations in cost and demand conditions far beyond the possibility of testing through investigation. Most

---


work dealing with practical applications to the price field has dealt primarily with general price level analysis on the one hand, and with broad demand studies on the other. Case studies in particular fields have been made and some business research groups are entering into a study of the problems that plague the economist. There remains a gap today, however, between the explanations of the theorist and the conditions as they exist with regard to price determination.

It was recognized at the turn of the last century that additional knowledge is a requisite to successful business. This fact ushered into popularity business education to inform the businessman. Time and motion studies were very popular in this period; business, industrial, and market research was introduced; the government began conducting business surveys; and many other sources of information arose to allow the businessman to see for the first time the mass of demand, supply, and price data available. Trade associations grew to aid the individual producer.

---

5 The National Association of Manufacturers and the United States Chamber of Commerce have led in this work.
in learning about costs of rival producers and the extent of market demand; he began to use this information as a source for making more money. Sales volume, plant capacities and utilization, production, inventories, costs of production, and similar data were available for the industry and for its individual members. Later such information as national wealth and income, consumption and standard of living data, purchasing power, wages, employment, wholesale and retail price indexes, industrial productivity, car loadings, and many other indices that could be utilized by the progressive producer were added.

This change caused industry to move closer to cost analysis as a tool in determining prices. Today it is common practice to attempt to reduce price variability and also to equate supply to the demand for the product. Whether right or wrong, cost analysis is considered fundamental to the price and marketing problems of the individual producer.

Many economists bemoan increasing price rigidities. These rigidities probably give evidence of the increasing role played by cost analysis in price determination. It is reasonable to believe that in the future cost analysis will play an even
more important role in price determination than it does today.\textsuperscript{6}

Fundamental to the problem at hand is the assumption generally made that the individual firm produces only one product. This assumption is highly unrealistic; actually, most manufacturing firms are multiple-product producers. It was recently stated that

There is an interesting parallel between the competitive assumptions price theory adhered to for more than a century and the assumptions that it still makes regarding cost allocation among products. Today, by far the greater part of price theory deals only with the two extreme cases, the single-product firm and the pure case of joint costs, just as, for so many years, it ignored the real world existing between the extremes of perfect competition and pure monopoly.\textsuperscript{7}

\textbf{PURPOSE AND METHOD}

The purpose of this work is to determine the validity of the criticisms directed at economic theory as it applies to business practice. Both businessmen and economists are adding to their knowledge of price


\textsuperscript{7}Gordon, \textit{op. cit.}, p. 273.
and output policies; however, some economists are convinced that theory is not oriented properly to explain business activities. In order to analyze the problem, an analysis of current price theory will be necessary. Also, it is essential to present empirical business data to explain the businessman's position. An analysis of the similarity and dissimilarity between economic theory and business practice will then be possible.\(^3\)

The first section to follow deals with price and price theory from an economic standpoint. The importance of price in the economy is analyzed, followed by an analysis of Marshallian equilibrium which includes pure competition and pure monopoly analysis. A post-Marshallian analysis introduces the trend which broke with the two extreme pricing concepts of pure competition and pure monopoly. Sraffa and his predecessors and adherents, Cournot and Edgeworth, with their duopoly and oligopoly theory are introduced here along with Pigou and Shove. This leads

\(^3\)The entire field of price theory will be impossible to analyze in a work of this nature; hence, only factors selected by the writer will be used as a basis for comparison and analysis.
to a discussion of Robinson's and Chamberlin's work dealing with monopolistic competition. The critics of the post-Marshallian School will be analyzed very briefly considering the Walrasian School and Triffin. Some general market situations in today's economy are presented with an analysis of marginal cost and average cost pricing. This is followed by some current empirical concepts, primarily based upon the kinky demand curve as analyzed by Hall and Hitch.

The next part of this work is taken completely from the returns of a questionnaire and several interviews. The empirical data is used to portray the manner in which pricing concepts are used by the manufacturing concerns surveyed. The price-maker is studied in his business environment. The accountant, engineer, and the economist are shown as they affect the pricing picture. Factors used in price determination and price policy concepts are presented as interpreted from the empirical data. Short- and long-run period pricing policies are discussed. This is followed by a discussion of taxation and its impact upon

---

9. An analysis of the questionnaire method and its results is given in Chapter 3.
price policy. Discrimination in pricing is examined, and pricing on the basis of standard, average, and marginal costs is analyzed. This section also presents variations in the pricing concepts of small, medium, and large producers, and some generalizations on the price-makers' knowledge of the economic concepts of pricing.

The conclusions and observations constitute Chapter 4. This chapter is the heart of the study showing where certain areas of economic theory and business practice tend to coincide and where they possibly do not coincide.
CHAPTER II

PRICE: CURRENT STATUS FROM AN ECONOMIC STANDPOINT

Economics as a science is concerned primarily with the distribution and use of scarce resources. The use of these resources to fit the unlimited wants of man creates a setting in which value and price play a dominant role. Since the scarce resources are matched against the insatiable wants of man, these wants can be only partially fulfilled. The problem of the economist then is to insure the full utilization of resources in order to gain a maximum of human satisfaction, since partial or incomplete utilization leads to an overall loss of human satisfaction. One writer has stated that

1The material in this section is designed to give a somewhat less than complete survey of theoretical economic pricing. Intensive studies along this line are very numerous. Texts dealing with specialized phases of the material contained here give varied treatments, and it is deemed unwise to attempt a complete survey of value and price in this work. Sources such as Stigler's The Theory of Price, Pettengill's Price Economics, Oxenfeldt's Industrial Pricing and Market Practices, Chamberlin's Theory of Monopolist Competition, Triffin's Monopolistic Competition and General Equilibrium Theory and many others will be listed in footnotes and in detail when citations are needed.
economics is "The science that treats phenomena from the standpoint of price;--therefore mostly, industry and business."² The pricing mechanism in the economic society is assumed to provide the proper distribution and utilization needed to give man an optimum life.

THE IMPORTANCE OF PRICE IN THE ECONOMY

Price in a pecuniary economy stands dominant in the minds of the entrepreneurial genius which directs the system. The capitalistic free enterprise economy places much faith in the pricing mechanism to guide its market operations. An example of this can be found when Davenport very aptly says:³

It is, in fact the value problem--or more specifically and more accurately for present society,--the problem of market price, that is the central and unifying problem of present-day economics. Price, then, must attend and characterize all things that are economic; and all things so attended are so far economic in character. And more things than those which accurately are material must fall within the scope of price. Price extends its sway to the utmost limits of whatever is property, tangible or intangible,--whether material or immaterial. Property covers--and therefore price covers--debts,

good will, franchises,—everything that is bought or sold. Price includes also many non-property facts—human services, such as the goods for which payment is made to the actor, preacher, teacher, or singer. And, by the way, all efforts or processes are economically productive for which a price is so paid or which, directly or indirectly, enhance the price.

With this statement to indicate the importance of price in our society, it is proper at this point to examine briefly the basic functions of price in the economic process.

The allocation of resources to the most productive employment is one function of price; it helps to determine what goods will be produced, by whom they will be produced, and in what quantity they will be produced. High prices as compared with cost are profit creating and they induce entry into the productive field so as to increase facilities and output. Low prices relative to cost have a discouraging effect upon business endeavor. These assumptions are established in formal economic theory. Modifications are necessary insofar as perfect allocation of resources through the pricing mechanisms is concerned. Other market influences are known to affect resource allocation along with price, and mention of high price and low price relative to cost also moves into the realm of
elasticity theory. This last concept can definitely modify resource allocation through the volume of sales which will accompany higher or lower prices. There is little information available to explain which price changes actually exert the greatest influence on allocation of resources. Traditional theory tends to stand unaltered in this case since it is generally conceded that prices do have an important effect upon the direction of production.

A second function of price in a free enterprise economy is that of distributing income in the system. This distribution among the factors of production is very complex and must of necessity consider productivity of the various factors, relative scarcity and utility of the factors to both buyers and sellers, and the effect of low prices upon both producers and consumers. Most buyers and many sellers indicate that low prices are to be preferred to high prices. The absolute effect of low prices upon income distribution, however, can hardly be ascertained. Again, the condition whereby price distributes income is further complicated when the level of prices in general is low as compared with the case when the price of one particular product is low. Changing prices will without doubt create a change in the
distribution of income among the factors of production, but exact measurement of these fluctuations is hard to define.

Prices also exert a definite influence on total national output. As in the case of distribution of income, the precise effect is very difficult to determine. Assuming a given level of national income, lower prices would cause more goods to be purchased than high prices. But low prices that would cause producers to lose money would also curtail investment. This would tend to lower national output if we assume price is low enough to make business unprofitable.

If prices are low and they still allow profitable operations, sales could possibly expand to the point of requiring new investment for an expansion in output. In the light of this particular situation, it would appear that the lowest relative price consistent with the maintenance of investment incentives would be the best price to contribute toward national output. Price variations very definitely have an effect upon the amount of sales and thereby upon production. Lower prices tend to increase sales and reduce savings. It would be very difficult to determine the effect of any particular price change upon total national output; however, it is
definitely known that prices do influence output and in this manner serve an important function in the capitalist system.

The influence of price extends beyond that of determining the type of output, the personal income distribution and the total national output. Public policy dealing with economic activities is focused to a large degree upon prices and pricing practices. Governmental agencies, except on very rare occasions, do not regulate such activities as sales promotion, personnel selection, research, technical improvements, quality control, and the like. Instead, policy is primarily centered on prices with seeming assumption that "If business organization or practice is bad, the ill effects are seen in prices."4 An interesting factor to note at this point is that while the government and economists emphasize prices as the major element in the economy, Oxenfeldt says that businessmen are likely to consider other aspects of business operation just as important.5

---


Without any great quarrel current price theory can be given a date with Alfred Marshall's ascension to the head of the Cambridge School of Economics. Alfred Marshall was probably the greatest economist that England had in the period following Mill. His greatest work was to take English classical economics and interpret and modify it so as to regain some respect for it in the economic world. He brought together the classical cost concepts and the Austrian utility analysis and showed how each was important in value and price analysis. He showed how both supply and demand were important and were mutually determinant. He gave his general rule of price, which is still looked upon by many as a valid explanation of price today.

Alfred Marshall covered many phases and fields of economics, but the one of immediate concern here is his equilibrium concept; his pricing analysis will be analyzed as briefly as possible in the following material.

Marshall's industrial analysis distinguished two classes of industry, competitive and monopolistic. The basic distinction along this line was whether or not a business could produce a product with the same
technical specifications as the product of any particular firm and whether or not it could offer it for sale to that firm's customers. The example of a monopoly as given by Marshall was that of a public utility with statutory privileges. Such a monopoly exists when technical, legal, or some other condition makes it impossible for other businesses to offer the same type of commodity or service to a customer. A business of this nature will have a determinant demand curve of its own, and the monopolist will be expected to have one motive and that will be to obtain a maximum net profit. When demand is high, price is high; and if cost is high, then price is high. There will be no necessary connection between the price which the monopolist will establish and the average cost of the output which he will sell at that price, according to Marshallian monopoly theory.

Marshall used as a line of distinction between purely competitive and monopolistically controlled industries the principle of entry into the industry. As long as entry was possible, then the market would tend to be competitive. In such competitive industries, he thought the possibility of entry of other producers would insure that long-run price would be equal to the normal average cost of production. Marshall would have each
industry characterized by homogeneous products, a law of one price, and each seller providing so small a part of the total supply that he could be presumed to meet a perfectly elastic demand.

Marshall's theory of equilibrium dealt briefly with a normal demand and supply condition wherein the demand price and the supply price were equal. Assuming that the forces of demand and supply had free play in a market characterized by free competition, there would be only one price in that market at one and the same time. Even though the producers in the industry had knowledge of what other producers in the industry were doing, it was supposed that this knowledge in itself would prevent each from paying more or taking a lower price than other producers. The demand price for each commodity was governed by circumstances which varied according to the character of the problem, but in every case the more of a product offered for sale by the industry, the lower the price would become, or the demand price for any given commodity would tend to diminish with every increase in the amount offered. The normal supply price he regarded as the expense of production including gross earnings of management of a "representative" firm. The price was one which would just suffice to keep the
aggregate amount of production of the industry balanced
with some firms increasing their output and others
decreasing theirs with the aggregate production remain-
ing unchanged.

Equilibrium occurred when the demand price was
equal to the supply price with the amount produced having
no tendency either to be increased or decreased, accord-
ing to Marshall. With demand and supply in equilibrium,
the amount of the commodity being produced in a particu-
lar unit of time was called the equilibrium amount and
the price at which this quantity was sold was called the
equilibrium price. Such an equilibrium Marshall assumed
to be stable. If displaced a little from this price,
the market would tend to return as a pendulum tends to
swing about its lowest point.

The material to follow dealing with pure compe-
tition and pure monopoly, will be presented primarily to
show the Marshallian technique of approach to these two
subjects. While the material will not be purely as that
presented by Alfred Marshall, it will entail basically
the Marshallian tradition and will be used as an ampli-
fication of what Marshallian economics had been inter-
preted to show.
Pure Competition. Pure competition is an explanation of price from an equilibrium standpoint. Pure competition is somewhat more simple and not nearly so inclusive as perfect competition. Perfect competition would involve timeless and costless mobility of all factors of production, equal access to the market on the part of both buyers and sellers, instantaneous and overall price change, an immediate and a constant equating of demand and supply, full knowledge of the market on the part of both buyers and sellers, no collusion nor cooperation in the market place so as to influence price, and several similar limiting assumptions. Pure competition on the other hand can be taken to assume only that the number of sellers is so large that none has significance in the market, that goods are identical in a given market, and that there is a large number of impartial buyers in the market. With these assumptions, pure competition attempts to determine what price will be in a static market for an individual producer who has no control over the prevailing or market price and whose produce is homogeneous with all others in the market place. Each buyer and each seller takes the price as he finds it and realizes that he must establish his policies accordingly. The conditions also indicate that for the
individual producer, perfectly elastic demand and supply curves are always present. Most textbooks indicate this situation with a graph which gives a perfectly elastic firm demand curve tangent to a "U" shape average cost curve which has the marginal cost curve rising and passing through both the average revenue curve (this is also the marginal revenue curve when the average revenue is perfectly elastic) and the average total cost curve at their point of intersection. This is the long run equilibrium adjustment.

The two conditions in which marginal cost equals average revenue and average cost equals marginal revenue satisfies two conditions in the assumptions of pure competition. In the first instance, MC = AR indicates that consumer exploitation is absent and that the optimum combination of all the factors of production is being exercised. In the second instance, AC = MR indicates that the cost of each factor of production is just covered by the marginal contribution of that factor and that the overall volume of the factors of production employed is the maximum; there is no exploitation of

---

labor or other factors. Any divergence between marginal cost and price when emphasizing either the buying or selling side gives automatic proof that competition is not pure.\(^7\)

It is possible that in some cases the demand curve will lie above the lowest point on the average cost curve and that production will be set at the point where marginal cost equals price. This is a short run condition, however, and entry into the field will soon either bid up the cost of the factors of production or reduce the individual demand in such manner as to establish the situation where \(MC = AR = AC\). The opposite situation in which the demand curve will lie below the lowest point on the average cost curve will indicate one of two conditions. The individual producer either will operate only in the short run until he can equate his average cost to the average revenue, or in the long run he will become bankrupt and will be forced out of the market.

The firm in its price and cost relationship must not necessarily make a profit in excess of full cost.

---

nor must it necessarily break even to induce it to continue operations for the short period. So long as the price remains above average variable costs, it can continue operations and still make some elements of its fixed cost. Theoretically, it is possible that the firm will continue operations until price is equal to average variable costs. If the price should go below average variable costs, then of necessity the firm should cease operations; however, it is possible that very short period operations would continue when variable costs were not being covered. Whatever the case might be, the output will always be set in these cases at the point where marginal costs for the individual firm intersects the price line; this marginal cost curve in effect is the supply curve for the firm.

Each firm must calculate the extent to which it can allow price to drop below its full cost before closing production. This largely hinges on the question of which costs are considered to be fixed in the period under consideration. This again is largely a technical matter which depends upon raw material and labor costs as compared with equipment costs and upon the short period as calculated by a firm. The longer the short
period considered, the fewer of its costs will be considered as fixed.

Long run operations for the firm must of necessity cover the average of all costs incurred in production. The firm is able in the long period to vary its output by varying the rate of operations in its existing plant and also by varying the size of plant facilities. In the short run, the firm must adjust its rate of output to the existing or to the expected level of market price. In the light of the variations mentioned above, however, the firm can be presumed to adapt its long period average and marginal costs to the expected long period level of market price and, in doing so, to choose the combination of plant size and rate of use which is believed to afford the greatest long run net return.  

Characterizing the period or time concept along the lines above, Marshall introduced his general rule of price which has been accepted by many theorists as a model for validity in price generalizations. Marshall stated that "... as a general rule, the shorter the period which we are considering, the greater must be the

---

share of our attention which is given to the influence of demand on value; and the longer the period, the more important will be the influence of cost of production on value."

In establishing industry price and output ranges under pure competition it is necessary to aggregate the total of the output of all of the individual firms. The industry demand when compared with this total of all unit marginal cost functions should establish a market price. The industry demand will not be perfectly elastic. The slope of the curve will depend upon the amounts of the product which buyers as a whole are prepared to take at each market price. For short-run industry supply then, we find that the curve is, in effect, the sum of the short-run marginal cost curves of all firms. The price which will be set as market price will be one in which "the aggregate amount buyers are willing to take just equals the aggregate amount sellers are willing to supply." 

---


The price established here must be an equilibrium price to fulfill the conditions of pure competition. This condition will be found to be true where the short-run industry supply curve intersects the industry demand curve if the aggregate amounts that sellers are willing to produce equals exactly the amount buyers are willing to take and if each seller is in his individual short period equilibrium wherein margin cost equals market price. These conditions will tend to maintain price because price will not be departed from so long as the conditions of demand and supply remain unchanged and the latter condition automatically establishes an equilibrium price.

Industry price under pure competition in the long run will be tempered by variables introduced when entry or exit of firms occurs in response to profits or losses for the industry. If we assume that under pure competition all of the firms will adjust their average costs to a certain minimum which will be common to all, then we can ascertain the effect which entry and exit will have upon the supply for the industry in the long run. If price is above this minimum average cost of all firms, the excess profits available in the field will lead to entry, thereby increasing the supply
tending to lower price to the cost line. If price, on the other hand, is below this average cost for all firms, the exit of firms will reduce the supply, tending to push the price back up to average costs of production. When this is true, it is evident that in the long run unrestricted entry and exit of new firms will cause the firms in the industry and the scale of operations in the industry to produce an overall output at which price equals the minimum average costs of production of all firms. This is an assumed prerequisite when we consider the assumptions of pure competition.

**Monopoly.** Pure monopoly is a relatively rare condition in our economy today. It is a situation which is characterized by one seller and many buyers; the buyers individually have no influence over price. The seller under monopoly is assumed to have control over price; however, this seller will find that his ability to dispose of his commodity at any particular price is limited. It is an inevitable consequence that the quantity which can be sold at a price under monopoly will be limited while the seller in pure competition, even though he is unable to affect the market price, can sell as much as he desires at the market price.
An analysis of monopoly price requires that a distinction be made between market price and normal price as seen from a pure competition standpoint on one hand and a monopoly viewpoint on the other. Of importance here is the fact that no sharp distinction is to be made between market price and normal price levels from the standpoint of monopoly. Market price and the short run normal level are many times identical. The output is adjusted continuously in order to match current and anticipated sales. Cost elements are taken into consideration in setting prices. If a monopoly company is the only supplier in some market at the moment, new discoveries and inventions or even its own prices may be preparing rival sources of supply. A firm has a complete and perfect long run monopoly when it is the only seller of a specific good in the present, when it controls all rival supply in the market, and when there is no obvious threat to the continuance of the monopoly condition as it exists.

Monopoly price is that price which yields the largest net return. The setting of such a price may involve many different things: the adoption of the price of a suspected competitor, the application of a standard mark-up, the careful calculation of cost and
sales schedules and many other factors. Whatever the case, the producer places a price of his own choosing upon the product and in doing so he simultaneously determines his volume of output. The monopolist must of necessity equate marginal revenue and marginal cost as did the producer under pure competition. The demand for the monopolist product varies from that under pure competition, however, in that the monopolist is faced with the total demand curve since he controls the entire supply of an economic good.

In equating marginal cost and marginal revenue, the monopolist is normally faced with a negatively inclined demand schedule. This schedule is in contrast to the pure competition situation in which the same market price is received whether one unit or an entire output is sold. The monopolist in not being faced with an infinitely elastic demand must concern himself with marginal revenue adjustments that are obtained when the price is lowered and thereby a larger quantity is sold. The monopolist's sloping demand curve is significant for the actual price and output levels and also for reactions of price and output to demand and cost changes. In complete monopoly the sales schedule for the monopoly commodity will be
determined solely by the forces controlling the elasticity of demand for the product. This last situation exists since buyers can obtain the product from only one firm, the monopoly firm.

The monopolist in setting a price is faced with possibly three different cost or price periods. These are the short run pricing period, or the period in which both variable and fixed costs are present. The second is a market pricing period in which all costs are fixed and none are variable. A third is the long run adjustment that might face the monopolist.

Short run pricing for the monopolist is a case in which he attempts to maximize profits while considering four distinct cost relationships: marginal costs, average variable costs, average fixed costs, and average total costs. He will equate marginal costs and marginal revenue so as to establish a quantity output and a price based upon this quantity level. Since the marginal revenue curve will be inclined more than the average revenue curve, the marginal cost curve will intersect the marginal revenue curve at a point short of the intersection of the average revenue and the average total cost curves and also at a point short of that in which the marginal cost equates average revenue as found in pure
competition. The situation in which output is established at a point where marginal cost equals marginal revenue will give the maximum net return.

The monopolist is faced with approximately the same operating conditions insofar as covering average total costs and average variable costs as the competitor when competition is pure. In the long run, the monopolist must cover all of his costs. In the short run, he will continue to operate while he can cover his average variable costs and some element of his fixed costs. He might possibly operate in the very short run so long as he is not covering variable costs but this situation calls for a draining of money from the pockets of the owners. It is a temporary situation in which there is abundant hope that market conditions will soon improve.

There are alternative possibilities open to the monopolist in establishing a short period price but there alternatives generally are not adopted.\(^{11}\) The monopolist does not charge the highest possible price since theoretically he would sell but one unit and in doing so he would cover only a very small part of his

overhead; his losses would be enormous. He does not produce and sell the output in which his average total costs are lowest; this output exceeds the point where marginal cost is equal to marginal revenue and it is at such an extended level that his marginal revenue might even be negative, tending to add more to his costs than to his receipts. The monopolist does not seek to produce and sell an output that yields the greatest unit profit. He is seeking total profit and not unit profit. Marginal revenue will exceed marginal cost at the output in which unit profits will be at a maximum. Still another point of interest when dealing with the monopolist is that there is no individual supply schedule. No one curve is available from which can be read the quantities that will be supposedly supplied. The reason here is that a monopolist unlike a purely competitive supplier does not adjust his marginal cost to price. This point has its controversial aspects when social welfare is concerned, a matter which needs no discussion at this point.

Market period pricing for the monopolist is a very unusual case in which marginal cost and average variable costs are assumed to be zero and average fixed costs and average total costs held an identical relationship to output. This is a situation in which the
monopolist will determine price without reference to cost. The seller has misjudged his sales schedule for an article which cannot be stored and he finds himself with an accumulation of goods on hand which cannot be sold at the price which would be established on a marginal cost-marginal revenue basis. Since the seller can recover his investment only by selling the goods, he will find it most profitable to ignore costs and set the price at a level which will maximize total revenue before the goods spoil. The question arises with the monopolist in this case as to whether or not greater profits will be realized if he withholds part of the supply and allows it to go to waste. A price is deliberately chosen which renders marginal revenue equal zero. Marginal cost is also zero since there are no variable costs in this unusual market period. The price is lowered to the level at which marginal revenue is zero since each additional unit sold up to this point will add to total revenue. The remaining units, if any are available, which cannot be sold at this price will be allowed to spoil. If the surplus is disposed of the firm will readjust price so that marginal revenue and marginal cost are again equal.
Monopoly in the market period does not invariably require that some of the available supply be thrown away or allowed to spoil. If the total supply brought to the market for sale were less than the quantity needed to bring marginal revenue to zero, all produced units would be sold and the output sale point might not equate marginal revenue and marginal cost. It is evident that if the supply is too great to be sold at the optimum price, then the monopolist has incorrectly estimated to his own loss.

Long run monopoly price adjustments require that the condition of monopoly remain complete. In this case, long run price and output adjustments will be nothing more than readjustments by the firm to bring about equality of long run marginal cost and marginal revenue.¹² Monopoly firms tend to operate in the short run; however, they must make long run adjustments from the standpoint of price and output levels. Generally they are interested in short run marginal costs with the existing plant. In the long run, however, the firm will seek to equate the long run marginal cost with marginal revenue by

adjusting plant size. When the long run marginal adjustments are complete, marginal revenue will equal both long run marginal costs and short run marginal costs with the plant at its particular output level. If marginal revenue and long run marginal costs are not equal, the plant adjustments have not been completed in such a manner as to maximize profits. Failure to equate short run marginal costs and marginal revenue indicates failure to operate at the most profitable level of output with the existing plant capacity. Once all long run adjustments have taken place, no further adjustments will be made by the monopolist since continued complete monopoly is assumed in which no new firms enter the industry.

Monopoly in itself is no guarantee of profits in excess of those under competition. If demand is inadequate, the complete absence of competition is of little benefit to the seller. While the monopolist is favored with the complete market demand, he might have some difficulty in ascertaining the exact elasticity of his sales schedule. A monopolist might have sufficient potential sales to earn only a normal return, or he might have such a limited sales volume that he might not be in a position to earn this normal amount. He would eventually have to liquidate his business.
The scale of operations of a monopolist’s plant will also affect an important consideration here. The monopolist is not an all-wise businessman, and he cannot always begin production at a capacity level to fit his actual demand; he must make adjustments of output in which he can be reasonably sure of assessing unit costs. He will also know roughly for what he can sell a little more with an increase in plant output and how much he needs to flex his price downward to increase his sales. Through a series of adjustments he should be able to get marginal cost equal to marginal revenue. If through ignorance the monopolist stops his experiments to achieve maximum net returns and is satisfied with just making a profit, then he will be lower or higher at any given time than his optimum scale of operations. If the scale is lower than the optimum scale to achieve maximum net returns, both the monopolist and the general public lose; the monopolist is not making the largest net return and the public is not getting as many goods and is paying a relatively high price for those it gets. A price too low and scale of operations too high allows the public to benefit at the expense of the monopolist.

In summary, monopoly price will normally result in a higher price and a smaller volume of output than
would occur under purely competitive conditions. Both monopoly price and purely competitive price must face the same basic requirements for continued plant operations in the long run and the short run. Both monopoly and pure competition attempt to adjust price and output to that point in which marginal cost equals marginal revenue. The monopolist can almost always earn a profit in excess of that under competition by restricting output and raising price. The higher profits and the difference between monopoly price and a purely competitive price depend primarily upon the elasticity of demand. In general, the more inelastic the demand, the greater will be the excess of monopoly price over a purely competitive price. If the demand is extremely elastic, the monopolist would not be able to raise prices significantly.

Pure competition and pure monopoly are the extremes upon which pricemakers might conceivably find themselves basing their current prices. Both of these cases are relatively simple, and from the academic standpoint they are easily understood. Shading between pure competition and pure monopoly are the many situations from monopolistic competition into oligopoly and
duopoly. The partial monopoly and limited competition concepts are very broad and have many ramifications.

Pure competition and monopoly have become the standards by which are judged many varying and complicated cases of buying and selling. Pure competition is the extreme situation which can be used to analyze very few market situations, and as such, its principles are somewhat limited or useless as a basis for analysis of manufactured-goods markets today. Pure monopoly, on the other hand, is characterized in most cases by technological requirements which are such that the number of firms must of necessity be limited to a minimum if costs are to be reasonably low. This situation is recognized as a monopoly and in many cases it is regulated and protected by government.

POST MARSHALLIAN ANALYSIS

Imperfect competition and monopolistic competition have become a part of economic study since the 1930's. Most discussions of price theory dealt with only two extreme cases of monopoly and perfect or pure competition prior to the 1930's. In a period of some thirty to forty years the economy of the United States underwent a relatively radical change. The system of
private enterprise remained dominant; however, the size of firms increased while the number of firms in the same fields tended to decrease. Improved transportation and communications facilities tended to extend the market area in which each of the larger firms operated. Mass production techniques were made applicable in many cases and increasing returns could be enjoyed as the scale of operations tended to expand and grow. While the size of firms tended to increase along with an increase in market areas and at the same time a decrease occurred in the number of competitors, there is no substantial evidence of a decline in competition. The character of competition has apparently changed within industry with decreased numbers of sellers, particularly where a few powerful firms are dominant; however, the intensity of internecine competition in many cases has tended to increase with fewer sellers in the market.

Changed conditions created a problem wherein it was found that monopoly and pure competition concepts could not explain price theory fully. The usual market situation became one of imperfect competition. Imperfect competition consists of a case in which there is more than one seller of a particular product but each firm exercises some control over price; competition is
not perfect but neither does pure monopoly exist. Somewhere between the two extremes of monopoly and pure competition, there lies the area of imperfect competition. This is the price situation that exists in most industries.

Alfred Marshall dealt almost completely with industrial analysis. He made very little reference to firm analysis and used only his "representative firm" as an attempt to get to an equilibrium of the firm rather than using his industry equilibrium of a partial nature. The handling of pure competition and pure monopoly theory with some of the heroic assumptions which had to be used left many writers with a feeling of guilt or incompleteness when dealing with price theory. The disturbance in the minds of the economists lasted for several years after Marshall's Principles was published.

Sraffa. Piero Sraffa's "The Laws of Returns Under Competitive Conditions," in the Economic Journal in 1926 can be cited as the first attempt to solve this mental disturbance. Sraffa in his article realized that the area of increasing returns for a firm had been left more or less unanalyzed. The original laws of returns did not describe in sufficient manner the
connection between cost and quantity of production. The thinking behind such words as distribution, production, exchange value, and the law of non-proportional returns called forth the idea of a law of supply to be used with the law of demand upon which to base a theory of value. In modifying the two laws for what was considered more effective use, diminishing returns had to be changed from the "land" idea to any factor-of-production case in which the factor was available only in a constant or limited amount. Increasing returns had to be changed more radically because of their earlier role of importance in the division of labor. More emphasis was needed in the external divisions as opposed to the internal divisions, thus, whether an industry would be classified as one of increasing or decreasing returns would depend upon its relative size. Most small individual firms would tend to be increasing return firms, while the whole industry could be classified as one of decreasing returns.

Sraffa pointed out that the supply of an individual firm could be considered separately from the demand of the industry for purposes of analysis. If changes in the equilibrium picture of the individual firm were reflected in equilibrium changes for the
industry, however, then the isolated analysis of single commodity competition would tend to be invalid. Particular equilibrium conditions would be upset in such a case. Small variations in quantities produced would not call forth external economies according to Sraffa and therefore variable costs would tend to be constant. He analyzed further that in reality as opposed to previous theory the intermediate points at which an individual firm might stand between monopoly and pure competition were not necessarily close to one or the other. He cited product differentiation, consumer preference, and marketing costs as factors in competitive value. "Every firm has two classes of marginal customers: those who are at the margin only from its own standpoint and fix a limit for the excess of its prices over the prices generally ruling, and those who are at the margin from the standpoint of the general market and fix a limit for the general increase in price of the product."

Sraffa is cited by most writers as having made the first break with Marshallian analysis by stating

---

that something better was needed; he even went so far as to state at one time that Marshall's theory should be abandoned. Earlier attempts to bridge the gap between pure competition and monopoly had been made by Cournot, Edgeworth, and others. These authors were

14 Joan Robinson directly supports Sraffa as opposed to the diminishing returns approach of Marshall. Marshall's views were too generalized and always assumed full employment of resources; if this were true, any increase in the use of one or more factors in one or more concerns would have to result in a decline in the use of the factors in one or more concerns. Actually, increased demand can call forth increased production through increased use of one or more of its factors without materially affecting other firms because full use of resources is seldom being made. The tendency to rising supply price depends upon a markedly unaverage selection of productive factors, a low elasticity of substitution, degree of specialization, and the degree to which factor supply is fixed. Again, Robinson gets close to the observations of Sraffa when she says that "where falling supply price occurs, it will work more strongly the larger is the industry; for, the bigger the industry, the greater the effect of a given proportionate increase in its output in altering the supplies of factors favourably to its own requirements." Taken from Joan Robinson's "Rising Supply Price," Economica, 1941, as found in K. E. Boulding and G. J. Stigler's Readings in Price Theory, Vol. VI, (Chicago: Richard D. Irwin, Inc., 1952), Chap. 11.


interested primarily in duopolistic and oligopolistic pricing *per se* and were not criticizing Marshall; they even went so far in most cases as to limit their analyses with about the same assumptions that Marshall surely would have made.

**Duopoly and Oligopoly.** When the number of sellers is small and the control over price is considerable, we have a condition of partial monopoly. The control over price on the part of individual sellers is usually a reluctant control because the seller is afraid of retaliation from his few competitors. This situation would be more or less typical of duopoly, with two sellers, or oligopoly, with several sellers. When a firm makes a product that differs slightly from that made by other firms and when there are a relatively large number of sellers in the market we have a situation which approximates monopolistic competition. Each firm serving the market will fill the same general need of the consuming public; however, the degree of competition between the firms is lessened somewhat because of product differentiation.

Duopoly and oligopoly exist when a single commodity is being produced by two firms or by only a few firms. The rival firms offer identical products or they
offer goods which are differentiated in some degree from one another; however, the goods serve the same need of the consumer. The sellers actively compete if there is no collusion nor agreement in the group. The reaction of all producers must be considered by each seller in planning his production and price policies. Each of the competitors can affect prices and sales in the oligopolistic market.

Professor Edward Chamberlin ably surveyed duopoly and oligopoly theory to serve his purpose in attempting to find a solution to value and price in the middle ground between competition and monopoly. He worked in an area in which the number of sellers was relatively small; two sellers gave duopoly and several gave a condition of oligopoly and in every case the number was so limited that the presence of any one of the sellers was always known through his influence on price. Such an emphasis upon numbers allowed him to let pure competition be assumed otherwise: a standardized product and complete knowledge of the market on the part of both buyers and sellers.

\[17\] Chamberlin, op. cit., Chapter III.
Chamberlin also has complete independence of the sellers in order to avoid their combining to form a monopoly. This independence, of necessity, has to be closely defined since with only a few sellers in the market each has to consider the policy of the others in setting his own policies. To define this, Chamberlin said, "There can be no actual, or tacit, agreement—that is all." Further considerations along this line are introduced from the viewpoint of duopoly since the essential principles that will give a solution to value and price with a few sellers (whether only two or several more up to the point where the individual sellers no longer influence price) is to be studied. Chamberlin then conditions his duopoly concept with the direct effect one seller will have upon price acting independently as though he has no effect upon his rivals; then follows the indirect effect one seller will have upon his net return by considering any policy adopted in the light of what the competitor will do; and finally he studies the duopoly situation with regard to what a seller will do if his rivals policies remain fixed.

---

18 Ibid., p. 31.
These conditions are considered while studying the ideas of Cournot and Edgeworth.

Cournot and Edgeworth were both seeking an answer to the question of equilibrium price and maximum net return under conditions of duopoly and oligopoly, working from a condition of duopoly to one approaching competition. They both worked with identical products on the part of rival producers and both showed that as the number of competitors approached the purely competitive number that the price had a tendency to be lower and nearer the competitive price. The two men differed somewhat, however, as to the conditions under which the rivals operated, and they also held completely different concepts as to the nature of price when a condition of monopolistic competition prevailed. Cournot worked on the assumption that one producer acted independently of a rival and assumed the rival's supply to be constant. He said that price was determinate for any number of sellers that might be in the market. Edgeworth, on the other hand, assumed that the rivals acted independently of one another, each assuming his rival's price to be constant. He also maintained that the price was indeterminate and would tend to oscillate between a monopoly price and one slightly above the competitive
price. Edgeworth differed slightly from Cournot, too, when he said that the duopolist would gain by raising his price when his rival was selling all of his supply, thereby giving the former a monopoly in his limited market. Cournot would have the price steadily lower as the number of competitors came into the market. Edgeworth held that the rival producers merged the market for a price drop but that they acted independently for a price increase. Both of the writers used sloping straight line demand curves and both figured that the producers adjusted the price and that competitive bidding had nothing to do with it, the buyer merely taking the consequences of price change should it be upward as Edgeworth predicted.

Cournot conceived a situation in which two competitors had mineral springs and each completely disregarded changes in the output and price of his rival. To simplify the matter as much as possible, Cournot used zero cost curves and a straight line demand curve and assumed that when the total output of the rivals was placed on the market that the commodity would become a free good. If one producer had monopoly control of the market, he would set a price that would give him the maximum net return and would create a demand equal to
the total of his output. A lone competitor with an equal capability of output creates a problem. The rival is aware, by the assumptions above, that the price will go to zero if he introduces his capacity to the market. The result is that the second producer places half of his output into the market, which would maximize his return, and the market price tends to drop.

The original producer will soon see that he can increase his profit by cutting his output and at the same time the rival producer will add to the market supply in order to gain the maximum net return. This latter move undercuts the original producer, and he cuts his output to the most profitable level. At the same time his rival finds it profitable to add to the supply, and this procedure continues until both of the rival producers are sharing the market equally between them. Cournot held that the price was perfectly determinate and that as the number of sellers increased from one to infinity that the price became gradually lower and approached the purely competitive price. Price can always be determined for any condition of monopolistic competition if a straight line demand curve is present.

Edgeworth attempted to show that price would be indeterminate where each producer assumed his rival's
price to be constant.\textsuperscript{19} If only one competitor had complete control of the supply, he would set a monopoly price, however, with a rival producer in the market they both cannot do this and still get all the goods sold. The obvious move is for one of the sellers to lower the price slightly (assuming his competitor to hold his price constant) in which case the lower price will get rid of all of the first sellers goods. Loss of sales leads the competitor to cut his price to that of his competitor and possibly slightly lower in order to sell all of his product. This continuous undercutting leads to the inevitable low price forged by cutthroat competition, and the price now becomes a competitive one and both sellers are able to rid themselves of all the goods they have, yet neither is well off.

Edgeworth maintains that at a point slightly above the competitive price one of the sellers will wise-up and realize that with his rival's supply limited and all being sold, he is left with a monopoly condition prevailing in the area in which he exists. This causes the price to bounce back up to the monopoly price. With the competitor making big profits, naturally the rival is

\textsuperscript{19}\textit{Ibid.}, Chapter III.
going to raise his price, and the markets will unconsciously be merged and price will start down again through the cutthroat competition route. Edgeworth showed that a merging of the markets led to a price fall whereas when the sellers were able to separate the markets that each would receive a monopoly price. Edgeworth came to the conclusion that price was indeterminate under conditions of monopolistic competition; and it would oscillate and vibrate irregularly for an indefinite length of time. Chamberlin criticizes Edgeworth by saying that price oscillates not because sellers oscillate but, rather, because Edgeworth oscillates between duopoly and monopoly.

Chamberlin, after reviewing the concepts presented above, makes his own conclusion differ from that of both of these writers. Chamberlin holds that sellers will hold to the monopoly price as long as possible and that the break toward competitive price comes when the number of sellers becomes so large that the individual seller's influence on price is insignificant. When this point is reached, then the price drops abruptly to the competitive price. There will be no gradual descent as Cournot predicted, but a sharp dip from the monopoly price to the competitive price occurs.
Reviewing duopoly and oligopoly theory more fully, we can develop similar though somewhat more speculative and possibly more practical aspects of this same analysis. If the sellers realize the destructive implications of cutthroat pricing, each will hesitate to initiate a price reduction. The problem of securing the largest possible profit without a price war is paramount in this case; price to maximize profits for both is probably the answer. In this case, each rival will attempt to hold an established price. There is a general tendency for price under duopoly to be stable and to approach the price that would be charged by a monopolist. The case of monopoly is very similar to the situation in duopoly wherein the monopolist is attempting to maximize his profit over the long run and the prices charged will be relatively low if this seems the best from the standpoint of maximizing long run profits. Although each of the competitors in duopoly is willing to charge a maximizing price in regard to profits, both of the duopolists cannot do so without an agreement. An agreement would allow the duopolists to have a price very close to that of a monopoly price. The duopoly price can only approach monopoly price, however, since price control and output control is not absolute on the part of either of the
duopolistic sellers. The monopolist has a complete survey of his market and he can regulate the output for the entire industry. Probably price under duopoly will tend somewhat lower than that under monopoly because the duopolist will fear loss of sales to his competitor if his price is increased in an effort to maximize his profit.

The trend of thought presented in the immediate preceding pages has been based on that formulated by individuals who preceded Sraffa and, in the case of Chamberlin, one who followed Sraffa but who predicated his ideas upon the analysis which he made of both Cournot and Edgeworth. Two men who were writing about the same time as Sraffa, and who can be considered as adherents of this astute individual are A. C. Pigou and G. F. Shove. These two men wrote in the realm of monopolistic, duopolistic, and oligopolistic markets and in doing so gave credence to Sraffa's ideas dealing with the middle ground between pure competition and monopoly. Pigou wrote much along the lines of welfare economics and general economics; in the process he discussed the gains from monopolization and the impact of demand analysis upon the producer.  

---

20 The material dealing with Pigou and Shove will be taken from Pigou's *Economics and Welfare*, (Macmillan
Edgeworth was right when he indicated that the quantity of resources devoted to production is indeterminate in monopolistic competition. The quantity of each duopolist depends on his judgment of the policy he expects the other to follow. The range of the indeterminantness lies somewhere between nothing and some ascertainable quantity. It is likely to be less than the quantity which should have been offered by the two jointly under simple competition. Pigou also thought that price warfare would be engaged in by the duopolist by selling at a loss to inflict injury on a rival. This condition exists when the sales price of any amount of a good is below the short period supply price of that quantity. The quantity of investment would no longer be determinable; it would likely exceed the amount which would have been invested in simple monopoly.

Pigou thought normal supply price to be that which would just suffice to bring forth a regular flow of quantity when no monopoly condition existed. A falling average cost to the firm would lead to a falling supply price

---

for the commodity. He says that if a price is fixed between monopoly and competitive price, the output will probably be greater than monopoly output. If monopoly output is decreased when a competitive price exists, then for a certain range of prices higher than this it would also be reduced. Those conditions are rare, however. In simple monopoly, actual output is less than ideal output in industries subject to decreasing supply price, equal to ideal output in industries of constant supply price, and greater than ideal output in industries of increasing supply price. Some industries with temporarily low prices may find that they lead to new demands. The supply price of an industry can fall, remain stationary, or rise as the output increases. In doing so it is obeying the laws of decreasing, constant, and increasing supply price.

Pigou assumes that in one-firm industries an equilibrium firm will not exist if average cost is greater than supply price and the industry is selling at the supply price. He also explained that no equilibrium will exist if marginal cost is greater than supply price and the industry is selling at supply price. In both of these cases a tendency to contract production will be present. Equilibrium does not necessarily
forbid average cost to be less than supply price. Where average cost is equal to the supply price, marginal costs less than supply price, and the industry is selling at the supply price, there is no tendency for output to expand since any expansion would necessarily involve a loss. Hence, equilibrium would not be compatible with such an arrangement.

Pigou said that in a one firm industry, the supply price of any given amount of output is equal to the average cost or the marginal costs, according to which is greater. The industry is free to conform to decreasing, constant, or increasing costs. If it conforms to decreasing supply price, the supply curve is coincident with the average cost curve; if it conforms to increasing supply price, it coincides with the curve of marginal cost; if it conforms with both, it coincides with both curves. If it conforms with increasing supply price with some levels of output and with decreasing supply price with others, the supply curve lies along the curve of average costs where this is higher and along the curve of marginal costs where it is the higher of the two.

Shove in 1930 was writing about differentiated products which would be found in oligopolistic industries
like the automobile industry. He said that in cases similar to the automobile industry average or marginal cost might be lowered if a firm increased its output and left that of its rivals intact thus increasing aggregate output. These costs might be raised (or left constant) if the firm increased its output by invading the market of its competitors (aggregate output remaining the same). Enlargement of existing firms or internal economies might cause increasing returns or diminishing supply price. Shove in writing of the representative firm and increasing returns was adding fuel to the fire which had been prepared by Sraffa in condemning Marshallian equilibrium economics. Shove's approach to oligopolist markets was one which was very useful in the economy of his day and that of today.

Many American industries are typified by an oligopolistic market. Such a market exists when there are more than two and yet relatively few sellers of a similar product. These sellers are so small in number that no one of them will act independently of the others in establishing his output and price policies. Only when the seller is willing to accept the full risks of retaliation from his rival sellers will he act independently. Each seller can influence the market price
under oligopoly by changing the price at which he sells his commodity. It is difficult to predict, however, exactly how each competitor will react to a price change under oligopoly. The oligopolist is aware that a price reduction will probably lead to a forced reduction among his rivals in order to avoid the loss of customers. The degree of retaliation with even a small decrease in price is the question that immediately arises.

The increasing or decreasing of price in an attempt to maximize profit under oligopoly is a slow process. All competitors hesitate to act. Price is very likely to be highly inflexible because of this reluctance to begin price changes. While market price might not maximize profits for any one of the competing firms, it is entirely possible that the prevailing oligopolistic price might be a compromise which best fits the immediate circumstances of the market. Price inflexibility is a common characteristic of oligopoly, duopoly, and monopoly. The monopolist has the ability to establish and keep a price so as not to spoil or ruin his market; the duopolist and oligopolist are afraid to act to break price, and they tend to hold to an established, stable price.
Price is determined in an oligopolistic industry through the forces of demand for the product and the supply of the product that a relatively few sellers are willing to bring into the market at the various possible prices. Price differentials can occur between the products of different sellers with a premium being paid for those of superior quality or those in which the quality is thought to be superior. The stability that characterizes the oligopolistic market, however, will tend to hold even on established price differentials when different manufacturers offer products that are differentiated.

Oligopolistic price determination is likely to be complicated because of the effect upon the other competitors which a change in output or in price by one seller might have. The sellers under oligopoly have a sloping demand curve and the demand for each individual supplier or seller represents only a portion of the demand curve for the product of the industry as a whole. Because the demand curve for each seller is only a part of the total industry demand curve, the quantity or price change which one firm initiates will be felt immediately by all others. Where the loss of sales to a pricecutting competitor may be consequential because of the few
competitors in the industry, we find that stable prices and inflexible prices will probably be the long-run result.

Oligopolistic markets in many cases are associated with kinked demand curves.\(^{21}\) This explains the relatively stable and inflexible prices. The kinked curve indicates that there is an abrupt change in elasticity at a particular price. The kinked demand curve also will give a corresponding marginal revenue curve which is discontinuous or which has a break. If a competitor in the oligopolistic market attempts to increase sales by reducing price, his competitors will probably meet the reduction and perhaps undercut in an effort to gain back any expected loss of sales. If this is the case, the firm initiating the price cut would probably increase its sales very moderately after the price reduction. Hence, the demand for the particular seller who would first cut price tends to be inelastic at a point below the established price. If the competitor hopes to increase his profits and gain through an inelastic demand curve, he will be faced with the fact

---

that his competitors might not follow, since by definition the oligopolist has a product which is the same or very similar to that of his competitors. Since competitors will likely not follow suit by increasing price unless the initiator is the price leader or unless general price and cost level is increasing, we find that the sales of the initiator will decline rapidly after his increase. This rapid decrease in sales with an increase in price tends to give an elastic demand above the established price.

The kinked demand curve which gives a corresponding discontinuous marginal revenue curve leads to a full gap in the marginal revenue-marginal cost relationship. With a discontinuous marginal revenue at a given level of output it is entirely possible that marginal cost can rise or fall appreciably and this will not affect the output of the firm since marginal cost will be equal to the discontinuous marginal revenue at all times.

Many oligopolists in a given industry might be dissatisfied with the stable and prevailing market price because their particular marginal cost and marginal revenue are not equal. Very little is done to initiate a change in output and price, however, since the price
might possibly be the best compromise in view of the conflicting market interests of the several sellers. Dissatisfaction with a particular price tends to create price collusion or agreement. When one particular firm is dominant in an oligopolistic market, it often assumes the role of a price leader, and in doing so, it might attempt to satisfy the smaller sellers as well as itself when setting prices.

Price in an oligopolistic industry is likely to be one which satisfies no particular producer. The demand for the product is a basic price factor in that the few oligopolists in the market set a price which will tend to get the best profit maximization for the group rather than for any particular individual. Production costs will differ, and if each of the sellers could act on his own he would establish a different price more than likely. The fear of further pricecutting causes each seller to avoid antagonizing his fellow competitors and he tends to stick with the established price. The compromise does not necessarily mean collusion or agreement; it is a situation which comes about when the sellers are afraid of the consequences of moving from a prevailing price.
Monopoly, duopoly, and oligopoly all have a social aspect which gets attention in policy making from a political standpoint. When demand declines in periods of slow and low economic activity, the firms which have monopoly or partial monopoly are likely to flex output rather than flex price. These industries tend to have a stable price throughout varying periods of economic activity; however, the employment and output fluctuations vary widely with the business cycle. This variance is in direct contrast to the situation wherein the large number of sellers are in the market. Price changes are made when competition is among numerous sellers and the variations in output and employment tend to be much smaller than those in the cases of monopoly, duopoly, and oligopoly.

Monopolistic Competition. Monopolistic competition is a type of imperfect competition which has gained much attention in the last two decades. It has easily defined characteristics and the one outstanding characteristic is that of product differentiation. As distinguished from monopoly, duopoly, and oligopoly, monopolistic competition has a relatively large number of sellers whose products are slightly different from others in the market although all of the products tend to serve
the same general need from the consuming public's standpoint. Product differentiation as such is achieved in many ways. Variations in the specifications of a product, or the use of different ingredients or raw materials in preparing the product, or the use of varying types of selling efforts, advertising, goodwill, courteous and efficient service, brands and trade-marks all tend to lend to product differentiation as it is explained in a monopolistically competitive market.

If a firm is able to differentiate its product, it can attain a limited degree of monopoly. This differentiation will allow the firm to achieve higher prices than would normally be obtained, and it can also have a higher price without loss of volume if the superiority of its product can be established and retained. The differentiation of an individual firm product is very desirable when the market place contains a large number of sellers. Product differentiation reduces the hazards of loss of sales through pricecutting by competitors in this same light.

The monopolistic competitor has a demand curve which slopes downward and to the right as in cases with monopoly and partial monopoly mentioned heretofore. The power to control price, however, is limited in that
similar products are offered by competitors and increases in price will tend to drive some customers to competitors. Lowering and increasing prices can be done within a small range without undue fear of retaliation when a product is fully differentiated.

The demand curve for the firm under monopolistic competition tends to be quite elastic because of the ease of substitution between the products of the sellers in the market place. The firms under monopolistic competition attempt to set price and output at a point in which marginal cost and marginal revenue are equal. The ability to do this hinges on the fact that each seller shares a relatively small part of the industry demand, the danger of retaliation is slight when price changes are minor. The interrelationship between prices of the various sellers, however, is assured by the fact that the products can be substituted for one another. While differentiation of product allows each firm to establish output and price at the point where marginal cost and marginal revenue are equated, it does not give them complete independence in any case.

Advertising and selling activities are very important in the case of monopolistic competition. The situation is very different from that under pure competition
or under monopoly when the seller either has no control over price and his product is identical with all others, or in the latter case when he can control price and output since he has the entire demand for the product. If the product of a seller is differentiated and can be fully identified by the buyer, the loss of sales through a price increase is limited. Also, this recognition by buyers of a particular seller will allow him to gain a share of the market with a price drop. The loyalty of customers is developed through advertising and selling techniques; this maintains customers and will eliminate, to a limited degree, the transfer of patronage to competitors when prices are changed.

The advertising and selling which is initiated to introduce and maintain a market on the part of a monopolistic competitor also increases costs. The firm's average cost curves and marginal costs tend to shift upward. The advertising and sales expense at the same time tends to increase the demand; the shift also moves the marginal revenue curve outward. The selling program, if it is successful, will allow the firm to sell more and possibly at a higher price than could be attained otherwise. A larger profit is possible if the firm is able to reckon and accurately determine selling
and advertising costs in the light of increased demand. Selling outlays are like all costs, however, in that they are subject to the principle of diminishing returns.

Monopolistic competition as seen by Chamberlin gave several stages of equilibrium. One was equilibrium of the firm, another was equilibrium of the industry with a closed group, and another consisted of a group in which there was freedom of entry. The situation wherein there would be firm equilibrium was found with output related to costs and revenue so that marginal revenue was equal to marginal costs. This was Chamberlin's necessary condition for the equilibrium of the individual firm. For equilibrium within the industry, the matter of freedom of entry was solved when Chamberlin assumed that additional firms might enter the industry so long as profits were above those necessary to attract unspecialized capital and unspecialized business ability into the field. The matter of exit was taken care of when actual losses would drive firms out of the industry. A stability would be reached in the field when total costs were equal to total revenue for all the firms in the group. The matter of closed entry, but with freedom of exit, was handled by Professor
Chamberlin when he allowed firms to exit the industry when profits were insufficient to maintain business profits. The matter of a closed entry meant that the group would acquire equilibrium when the firms in the group made at least enough money to cover their costs, which meant that their revenue could exceed or be equal to their costs.22

Chamberlin probably gives the best theoretical explanation of price now available in Chapter 5 of The Theory of Monopolistic Competition. In this chapter he states his equilibrium analysis. His work here dealing with large and small group analysis is probably the most constructive present theory.

Individual firm equilibrium is introduced by Chamberlin prior to his explanations of firm action in either large or small groups. He states in general (page 80) that the manufacturer will not necessarily take the lowest cost product nor that one which has the greatest demand. Furthermore, he points out that the firm's output bears no relationship to the point of most efficient production. Competitive pressures tend to reduce extra profit because the competitors can push

22Triffin, op. cit., pp. 20-23.
prices down, increase individual firm costs, or create recession in the demand for the individual competitor's product.

Chamberlin introduced his large and small group analysis based upon some rather heroic assumptions. He assumed that the cost curve for all firms would be invariable throughout the industry tending to limit his problems to those of demand and competition in the market. Secondly, he assumed that there was an absolute similarity between the firms in a group and this established in any single firm the image of every one of them under all circumstances regarding outputs and entry. This implies all markets to be of equal size and both cost and demand curves for all of the competing products to be uniform. These assumptions place Chamberlin in a position very close to the assumptions of Marshall's "representative firm."

The large group is one in which a firm finds itself with so many competitors that it cannot appreciably influence the prices of other firms by its actions. Chamberlin had equilibrium for this group established when the individual firm had marginal cost and marginal revenue equal; and group stability occurred when average total costs and average revenue were equal for all firms.
Chamberlin based his small group analysis upon his basic assumptions that each firm would attempt to maximize profit and that firm sales and cost curves were invariable with respect to time. Chamberlin's treatment here dealt with the case where a firm operated within a group small enough that it could have some effect upon other firms through its price and output policies. Chamberlin considered two cases with the small group, one in which a monopoly-like solution was reached wherein the level of output would be the same as that if all firms were united under a single profit-seeking entrepreneur. The second case was one in which Chamberlin analyzed a condition wherein the sellers would consider the reactions of their own moves upon their rivals' condition. In one case herein, he established a condition wherein rivals would maintain prices and have their sales drop as a result of some firm's price cut. This would lead to an oligopolistic price-cutting scheme wherein all prices would fall to the point of tangency between individual firm's demand curves and the cost curve; these curves he assumed to be the same for the whole group. Chamberlin foresaw the possibility of oscillating prices similar to those described by Edgeworth in cases where some firms would be able to raise
price because a competitor was at the point of maximum output.

The next situation pictured by Chamberlin was one in which the supply of a product offered by rival firms would be held constant. This situation would involve a change in price when one seller moved, affecting his rival's situation. Chamberlin assumed that in this case adjustments would take place to end in a determinate position somewhere between the monopoly solution and the tangency solutions described earlier.

If one were to imagine the small group analysis stripped of its rigid cost and demand assumptions, he might picture a somewhat more realistic price idea. Triffin points out that sellers often engage in cut-throat competition in the hope of driving rivals from the market entirely, that they many times fear business retaliation, and sometimes business ethics are involved. All of these things lead the sellers to a policy of inertia or one of "live and let live." Building further on this idea, it is possible to imagine that Chamberlin's small group analysis would probably fit many large group firms that might find themselves competing in a local area on a small group basis.

23 Ibid., p. 28.
<table>
<thead>
<tr>
<th>RELATIONSHIP BETWEEN FIRMS</th>
<th>LOSS</th>
<th>EXCESS PROFITS</th>
<th>NORMAL EQUILIBRIUM</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOBILITY OR FRICTION</td>
<td>BLOCKED EXIT IN SHORT RUN (OVERDEVELOPMENT &amp; LOSSES)</td>
<td>BLOCKED ENTRY (TOO FEW FIRMS &amp; EXCESS PROFITS)</td>
<td>FREE ENTRY AND EXIT (EQUILIBRIUM NUMBER OF FIRMS AND NORMAL PROFITS)</td>
</tr>
<tr>
<td>PURE COMPETITION</td>
<td><img src="image1.png" alt="Graph" /></td>
<td><img src="image2.png" alt="Graph" /></td>
<td><img src="image3.png" alt="Graph" /></td>
</tr>
<tr>
<td>MONOPOLISTIC COMPETITION</td>
<td><img src="image4.png" alt="Graph" /></td>
<td><img src="image5.png" alt="Graph" /></td>
<td><img src="image6.png" alt="Graph" /></td>
</tr>
<tr>
<td>(LARGE GROUP)</td>
<td><img src="image7.png" alt="Graph" /></td>
<td><img src="image8.png" alt="Graph" /></td>
<td><img src="image9.png" alt="Graph" /></td>
</tr>
<tr>
<td>(CHAMBERLIN, PP. 81-94)</td>
<td><img src="image10.png" alt="Graph" /></td>
<td><img src="image11.png" alt="Graph" /></td>
<td><img src="image12.png" alt="Graph" /></td>
</tr>
<tr>
<td>MONOPOLISTIC COMPETITION</td>
<td><img src="image13.png" alt="Graph" /></td>
<td><img src="image14.png" alt="Graph" /></td>
<td><img src="image15.png" alt="Graph" /></td>
</tr>
<tr>
<td>(SMALL GROUP)</td>
<td><img src="image16.png" alt="Graph" /></td>
<td><img src="image17.png" alt="Graph" /></td>
<td><img src="image18.png" alt="Graph" /></td>
</tr>
<tr>
<td>(CHAMBERLIN, PP. 100-109)</td>
<td><img src="image19.png" alt="Graph" /></td>
<td><img src="image20.png" alt="Graph" /></td>
<td><img src="image21.png" alt="Graph" /></td>
</tr>
<tr>
<td>MONOPOLY</td>
<td><img src="image22.png" alt="Graph" /></td>
<td><img src="image23.png" alt="Graph" /></td>
<td><img src="image24.png" alt="Graph" /></td>
</tr>
</tbody>
</table>
Plate A on the preceding page shows the price-profit possibilities in the three general cases of pure competition, monopolistic competition, and monopoly. In order to better summarize for monopolistic competition, which is under consideration here, both "large group" and "small group" analyses are presented.  

WALRASIAN SCHOOL AND TRIFFIN

Nineteenth century Europe witnessed the rise of a group of deductive economists who believed that through the use of algebraic formulas and other mathematical notations they could measure the satisfaction yield of economic goods. This mathematical school included such men as Antoine Cournot (1801-1877), once a professor of mathematics at Lyons; Hermann Gossen (1810-1858), who was actually the first of the group; William Stanley Jevons (1835-1882), an economist and a statistician; Leon Walras (1834-1910); and Vilfredo Pareto (1848-1923). The latter two individuals were engineers before entering the field of economics. Most of these economists had a good background in mathematics, and from this background it can be assumed that they would tend to use

24For a systematic appraisal, evaluation and criticism of monopolistic competition theories see Triffin, op. cit., Chapter II.
deductive reasoning and would also use algebraic formulas to support their theories. This school attempted to show that all exchanges have their relationship between goods exchanged and in turn this gives a relationship to the mathematical law of function.

The mathematical school, while using algebraic equations to represent abstract quantities, used very few numbers in their equations. They assumed perfect competition and that the law of supply and demand would work to give only one price for a given good in any particular market. Alfred Marshall, sometimes placed in this group, worked on a long-run, short-run theory of prices saying that in the long run the price tended to the marginal cost which is the cost of the most expensive addition to the product obtained when utilizing inefficient factors of production or working other factors more intensively and at a greater cost. Permanent profits which could not be resolved into wages, interest, or rent could not be fitted into Marshall's system. Walras, along with the other neoclassisists emphasized that abnormal profits would tend to disappear in the long run. Marshall insisted in analyzing their presence in the short run and then he classified them as a form of rent, called "quasi-rent," which was price determined but not price determining.
The mathematical school showed the influence of hedonism in that they thought that at the price established in the market place maximum satisfaction was given to a maximum number of buyers and sellers. The final objective of the school was that they were to explain an economic regime and not necessarily to justify it. Through the approach of these economists, the mathematical principles and assumptions of a utility concept were pretty well established. The ideas established by the school, though a bit unorthodox and neglected, were hardly new.

Despite the lack of freshness in their ideas, the mathematical economists established validity for truths that had not been completely accepted previously. They emphasized the unhampered operation of supply and demand, diminishing utility, and maximum utility at the point of satiety. Alfred Marshall was skilled in the use of mathematics and one of the chief points of divergence between Marshall and the other mathematicians was the emphasis on utility. Marshall could be numbered technically in the mathematical school since he also used algebraic formulas but he was careful in his use of mathematics when he wrote:
The most useful applications of mathematics to economics are those which are short and simple and which employ few symbols; and which aim at throwing a bright light on some small part of the great economic movement rather than at presenting its endless complexities.25

Leon Walras was the first to establish firmly the mathematical method in economics with his book in 1874 entitled *Elements d'Economic Politique Pure*. Like Stanley Jevons, he was influenced by the pleasure - pain philosophy of hedonism. Walras' father was an economist who proposed the term "rarete" later used extensively by his son. The term which is subjective in its implications "stresses the concept that value is commensurate with the measure of the least important satisfaction yielded by any unit of supply."26 Actually, "rarete" is the same as marginal utility or the final degree of utility, the latter being the term used by Jevons.

Marshall and Jevons represented demand and supply of a single commodity; Walras visioned an equilibrium that included all commodities and all productive factors.27 To Walras, the demand for coffee is affected

---


26Ibid., p. 352.

not only by its price, but also by the price of the cream and sugar which are added to the coffee; or, the demand for coffee may be reduced not by a shifting of price but by a shifting of consumer desires to cocoa. Walras was the first economist to face with complete frankness the fact that in a given market goods are being bought and sold continuously, that every price depends upon every other price, and that the price for any given article cannot be explained until the price of everything else has been explained.

H. W. Spiegel says that the modern reader is struck by the similarity between Walras and Marshall.²⁸ On much economic theory they agree, and when their writings do separate, it is a difference of interests that separate them—not technique. This difference in interests is shown by Walras' looking for general principles which underlie the workings of an exchange economy while Marshall sought an analytical instrument capable of easier application to particular problems of history or experience. Spiegel further points out the influence that Cournot had on both, showing that the two systems

have tended to grow back together as the years pass. Walras said that he owed "the economic definitions which are the basis of my system to my father, and to Cournot the mathematical language which is most apt for formulating this system."29

Though Walras is now known as one of the greatest of all the contributors to pure analysis, he was also a passionate social reformer. Along this line, T. W. Hutchinson says:30

Though he was a thorough-going disciple of neither, there are obvious traces of some of the leading ideas of both Comte and St. Simon in Walras's writings on the principles of policy. But J. S. Mill's highly unreconciled combination of socialistic aspirations and individualistic maxims seems to have been at least an equally important influence. Walras was certainly, in the older sense of the term, a 'socialist', that is one who believed in the large-scale rational reform of society, rather than in the beneficence of its 'natural', traditional, and spontaneous harmonies.

Walras' great contribution was in showing that the problem of the mutual determination of the prices of any number of commodities at a single time can be

30 Ibid., pp. 200-201.
regarded as a determinate problem. He showed that the problem of prices at a given time is determined by proving that there can be established, on the basis of data which economists ordinarily employ for their price discussions, a number of equations which is just equal to the number of the prices to be ascertained. From the mathematical point of view, whenever there is set up a number of simultaneous equations equal to the number of unknowns, there is a determinate problem. Determinate equilibrium thus results since it gives determinate supply and demand functions and a number of equations equal to the unknowns. This view has been criticized because it abandons the causal-genetic problem.

Walras attempted to apply his general equilibrium analysis to the problem of the pricing of factors in his theory of production. The problem of production fell into two parts for Walras, "one relating to the pricing of factors of production, which are only used in combination with one another; the other relating to the role of time in production - the theory of capital."31 The idea of a general equilibrium in which all values in

31 Spiegel, op. cit., p. 586.
an economic system mutually determine one another had been expressed by both Turgot and Cournot.

Though Marshall later wrote more comprehensively of the importance of utility, Jevons expressed the idea first in his *Theory of Political Economy*. Jevons could not accept the proposition that labor or cost of production determined exchange value. Instead he stated, "Value in exchange is defined by terminal utility." This marked an innovation in economic thought for Jevons and his followers.

Jevons, with others of the mathematical school, showed the influence of hedonism. In this aspect, Marshall broke sharply with the mathematical school, for while he took over their methods and many of their conclusions, he discarded the psychological ideas which lay behind them. "He [Marshall] never admitted such conceptions as pleasure and pain into the prominent position in economic thought assigned to them by Jevons. Not pleasures as psychological reactions but factual demands were what mattered to Marshall." 

---


33 Ibid.
Also influencing Jevons was his training as a statistician. He believed that the ultimate laws of economics were of so general a nature that they should be compared to the physical sciences. Economics had to be as mathematical in character as the physical sciences. Jevons wrote the following: "To me it seems that our science must be mathematical, simply because it deals with quantities. Where ever the things treated are capable of being greater or less, there the laws and relations must be mathematical in nature. Economists can not alter their nature by denying them the name."34

The difference between a static and a social economy was pointed up with great clarity by the mathematical economists. Cournot and Gossen were the real pioneers of the school, and they worked without benefit of theories prepared by earlier economists. The others who followed these two worked independently of each other but they were aware of the theories and methods of the pioneers.

It was Cournot who made the first important use of mathematics in economic procedure by presenting

---

deductions in concise, accurate form from materials of slight variation. He demonstrated mathematically the relationship between supply, demand, and price.

Gossen declared that successive portions of a good possess a diminishing measure of utility or decreasing power in satisfying a want. The measure of the utility of the last portion of the good in the series is that of the marginal unit.

The emphasis of Stanley Jevons was on wants and their satisfaction; hence, consumption is of great importance in his approach. He pointed out that utility is not an inherent quality in a good but that it is relative to wants and too much of it brings disutility. He and Gossen arrived at the same conclusion that in consumption, the tendency is to equalize the final, or marginal utilities.

Leon Walras constructed a more complete system of mathematical analysis of economic data than Jevons. Assuming perfect competition, Walras worked out a mathematical theory of exchange, and he thought that the exchanging persons react so as to get the greatest possible satisfaction out of their desires, the exchange values being proportional to their "rarete." Pareto, whose theories greatly resemble those of Walras, accepted
the classical doctrine and later developed the theory of marginal utility.

Robert Triffin. A brilliant economist, contemporary with Chamberlin, Robert Triffin has followed closely in the line of the mathematical economists. He has been instrumental in presenting a good criticism and analysis of both Chamberlin and Robinson. He further has presented in his book, Monopolistic Competition and General Equilibrium Theory (1940), a noteworthy mathematical approach to add to the Walrasian School's analysis.35

Triffin's primary criticisms of monopolistic competition theories are as follows:

1) In monopolistic competition the same sales curve is interpreted as representing identically both the expectations of the seller and the happenings of the market.36 The whole analysis is conducted as if the subjective sales curve embodied the actual

---

35 It is beyond the scope and extension of a work of this nature to thoroughly analyze a theoretical structure such as that presented by Triffin. His criticisms and evaluation of monopolistic competition theory, his basic assumptions for his theoretical analysis, and his primary conclusions will be considered only.

36 Triffin, op. cit., p. 63.
reactions of the market. Such is not always true because the entrepreneur is uncertain about many factors which affect his individual curve, therefore he is not able to adjust it to the general sales curve as assumed.

2) Monopolistic competition confines its discussion to competitive interrelationships between individual firms in a group or industry, not considering interrelationships between the groups.37

3) Although monopolistic competition denounced the concept of product identity for competition analysis, it kept the concept of firms and product grouping. In the opinion of Triffin, the interdependence of firms is much more general than within a certain group of substitutable goods only;

In kind the competition between two differentiated brands of cars is the same as the competition between cars and, for instance, tailoring. Indeed, the competition may be keener between Ford and Rogers-Peet than between Ford and Rolls-Royce. The theoretical

37Ibid., p. 67.
problem is the competition between goods.\footnote{Ibid., p. 88.} All that may be involved is a question of degree; every firm competes with all the other firms in the economy, but with different degrees of closeness.\footnote{Ibid.} When the study of competition is freed from the narrowing assumptions of pure competition, only two terms remain essential for the analysis: the individual firm on the one hand; the whole collectivity of competitors on the other.\footnote{Ibid., p. 89.}

Triffin moved away from the previously presented concepts of groups and commodities; and to facilitate his own analysis, he presented definitions to establish these units.\footnote{Briefly defined, Triffin's new terminology can be explained roughly as: Pure Monopsony is monopoly on the buyer's side; product differentiation induces either heterogeneous competition (on the seller's side), or heteropsony (on the buyer's side); these latter in turn may be circular or atomistic, depending upon the presence or non-presence of oligopolistic factors. If the products are homogeneous (perfectly substitutable), a condition of homogeneous competition (on the seller's side) or homeopsony (on the buyer's side) exists. These also may be classified into circular or atomistic depending upon the existence of oligopolistic factors.} The firm he defined as an economic unit acting independently so as to maximize its net revenue as calculated in monetary units; commodities or factors are identified within each firm as units of goods which...
individual entrepreneurs must differentiate.\textsuperscript{42}

In explaining his theory, Triffin used a concept of external interdependence. He introduced such ideas as interdependence of selling, interdependence of buying, interdependence and the problem of entry, and interdependence between buyers and sellers. Triffin showed how conditions of pure oligopoly or pure competition could exist. He indicated graphically and mathematically that there could be different kinds of competition between firms at different levels of prices. The number of competitors in the market he assumed would depend upon the level of prices since each seller has a price below which he will refuse to sell, dependent upon his cost conditions.

Discussing the interdependence between buyers and sellers, a case referred to as bilateral monopoly, Triffin said: "When a commodity is sold, sellers and buyers are linked in an immediate way since the price received by the first is disbursed by the latter."\textsuperscript{43} He thought that wherever both sides of the market, conscious of their influence on prices, direct their policy

\textsuperscript{42}Triffin, op. cit., p. 94.

\textsuperscript{43}Ibid., p. 124.
to influence price in their favor, it is a case of oligopolistic indeterminacy. This problem cannot be theoretically analyzed; hence, the particular characteristics of each case must be observed.

Before presenting Triffin's conclusions, a note on competition and the shape of the cost curve is deemed worthy of presentation. Under conditions of monopoly or monopolistic competition, the following is characteristic of the thinking of Triffin:

If the output equating marginal revenue and marginal cost is to correspond to the maximization, and not to the minimization, of profit, the marginal cost curve must cut the marginal revenue curve from below. In other words, expansion of output will increase profit as long as it increases total revenue more than it increases total cost.44 ... The assumption of monopoly or monopolistic competition is compatible with either increasing, constant, or even decreasing marginal cost.45

Under pure competition, apart from the condition mentioned above: "equilibrium ... is ... incompatible with decreasing marginal costs" and "the average cost curve can only be tangent to the horizontal average revenue curve [sales curve] from above."46

---

44 Ibid., p. 148.
45 Ibid., p. 149.
46 Ibid.
Illustrative of his thinking and general opinion of the theoretical analysis of competition is his "Conclusion" to *Monopolistic Competition and General Equilibrium Theory*. Because of the summary nature and excellent wording and presentation, it is deemed worthwhile to conclude the discussion of the mathematical theorists with a literal transcription:

Born and reared in a Marshallian environment, monopolistic competition has been, unto this day, encumbered by the fetters of particular equilibrium methodology. The grouping of firms into industries, and the discussion of value theory within the walls of one isolated industry are perfectly valid and adequate procedures under purely competitive assumptions. They are, however, antiquated and entirely out of place in so far as monopolistic competition is concerned. Product differentiation robs the concept of industry of both its definiteness and its serviceability. Outside of the limiting cases of pure monopoly and pure competition, the substitutability between any two products, the competitiveness between two firms varies only in degree. The grouping of firms into industries cannot be based on any clearcut criterion, nor can it be of any help in a general statement of value theory.

With the industry, also goes overboard the treatment of profits in terms of closed and free entry (or, in the old Paretian terminology, monopoly and free competition). Whether or not the creation of new firms can affect the demand curves and profit opportunities of the firms in business is a factual matter, to be ascertained in each individual case. Between the limiting cases of Pareitian monopoly (complete protection of profits), and free competition (levelling down of profits to a competitive level), there exist all kinds of concrete situations, irreducible to any standard pattern or simple assumption.

The substitutability between any two products, the vulnerability of any firm to incursions from new rivals, are problems outside the reach of theoretical deduction. It is only within the framework provided by factual, descriptive answers to these questions, that pure theory can display its usefulness. The attempts of each individual at maximizing his income (of each firm at maximizing its profits) take place within the range provided by this institutional environment. When all elements of oligopoly can be excluded, the range is easily narrowed down to determinate equilibrium points. When oligopolistic influences are at play, the solution becomes dependent of a larger number of circumstances, outside the compass of traditional pure theory.

Classical analysis was able to reach a high degree of simplicity and definiteness, owing to the use of a number of very drastic and limited assumptions: identity of each firm with an individual owner, purely competitive markets, perfectly free entry. As these assumptions are relaxed one after another, the theory gains in generality, loses in definiteness. Monopolistic competition is larger but vaguer than pure competition; the consideration of oligopolistic types of behavior, of separation between control and ownership, open additional degrees of freedom. The present stage of pure theory appears undoubtedly very formal, lacking in concrete content and practical significance. As compared with the social philosophy of Smithian economics, the ethical neutrality and barrenness of our conclusions may well be appalling.

Disencumbered, however, of all the limitations and taboos implied in the classical assumptions, the way is now open for the building up of a different type of economics. Instead of drawing its substance from arbitrary assumptions, chosen for their simplicity and unduly extended to the whole field of economic activity, our theory may turn to more pedestrian, but more fruitful methods. It will recognize the richness and variety of all concrete cases, and tackle each problem with due respect for its individual aspects. More advantage will be taken of all relevant information, and less reliance will be placed on a mere resort to the passkey of general theoretical assumptions.

We are rightly dissatisfied with the distorted picture of economic life which classical theory has bequeathed us. Subconsciously, however, we keep hoping for some other grand formula that would unravel as simply and elegantly the infinite complexity of our modern world.
For economics to progress, it must give up its youthful quest for a philosopher's stone.

SOME GENERAL MARKET SITUATIONS IN THE ECONOMY

The generalizations made previously dealing with pure competition, pure monopoly, and other price analyses can be compared with counterparts in existing price situations in American markets. Some firms find themselves in a position which very nearly approaches pure or perfect competition; for example, if a good is sold on a stock exchange or a commodity market the prices which are announced periodically show the seller the unit price he can expect to receive. In some cases he is able to dispose of his total output at the existing price; however, in some cases the quoted price will be one in which he will meet some competition in that he will have to compete with other sellers in order to dispose of his output. It is the striving for orders among different producers which furnishes competition in many near-perfect competitive markets. These markets in which commodities and securities are sold approach pure or perfect competition.

Many market situations in the United States find firms or groups of firms fixing prices. There is no system of automatic regulation of supply and demand in these cases as is the case in a security exchange or a
Entry for one or more firms in an industry of this nature poses a problem in that adjustments must be made to the market in which prices are fixed. Trade associations sometimes attempt to eliminate or limit competition; to accomplish this they can draw attention to the reduction of the price of a particular firm's product or to certain standards of quality, design, or style which might be established. Monopolistic competition theory explains situations such as these.

The methods of price fixing adopted by some associations is to set their prices for a market or season period. The ability to do this is one which will allow a limitation of competition and it is a situation which will result when an oligopolistic or similar situation is found. In many cases where the standards of quality or the standards of grade are used in price fixing, the selling price is composed of some kind of average cost of the various agreeing members plus a markup or agreed percentage of the profit. This is part of a live and let live situation.

Textbooks in many cases generalize about informal systems in which producers get together and establish prices through consultation. The once famous "Gary dinners" in which a strong firm was able to consult with
its closest competitors about price changes is often associated with heavy or broad industry pricing. When several firms are able to control most of the output of the industry, there is a possibility that the conference technique might be very beneficial for these producers. Very little has been written or found about industry pricing of this nature. It is known, however, that even in the absence of the production leaders' conferences, there is, in many cases, a close contact between the salesmen and the sales agents of the firms.

The policy of any one firm in an industry in which several large firms might be dominant is quickly known to the others and it may influence their decisions about price changes. The reluctance of manufacturers to undercut their competitors' price is generally known and they many times tend to hold a price. Some consideration must be given, however, to the fact that introductory offers and large orders are given special prices; it is not a closely held secret that discrimination might be practiced by large firms in some cases. Self interest and secret agreements can lead to individual contract profits.

---

as well as group action and one industry price. Government regulation of trusts and monopoly elements in the economy have limited this activity to a certain extent. Once established, however, there is no possibility for court action against a firm for breaking an agreement of this nature. This tends to hold the informal agreement proposition to a limited use. If the economic world in which the industry is operating suddenly falls, the weaker firms are likely to push out and attempt to keep output up by reducing price.

It is entirely possible that a many-firm industry will get together in an informal agreement in cases in which there is no leader to bind the members together. This agreement can be the result of a natural urge to survive when it is recognized that competition between firms of almost equal productive and price status might be destructive. Price changes would be possible with the beginning of a new production season with prices established upon some mutually-agreed basis in these latter cases. Economic theory characterizes this area in large group analysis.

Price leadership is another situation found in American markets. It has long been recognized that some large firms are able to control current and potential
market output to the extent that they are able to lead in establishing price. The price movements on the part of these firms are watched very closely by the other firms in the industry that do not have output control to any significant extent. The price leadership can be found in many industries and the methods used by the firms in establishing prices are those which are basic to a study of this nature. The establishment of a price demands wide knowledge and a thorough examination of records on the part of the price setting firm. The firms which set price must of necessity have a greater overall interest in the price and its establishment through its own production and demand records than would firms content to adopt the existing price or set price on the basis of one long established.

A situation which is the reciprocal of that of price leadership is that of price following. The price followers in an industry are normally too small to control price with their own output or to affect output and price to any great extent when they combine with some of their own smaller members. The small follower usually accepts the price of the price leader, or if he has a differentiated product, it is possible that he will set his own price either a little above or a little below
that of the price leader. As a general rule these small firms will try to set their price a little above the leader's price in order to gain a little additional profit while depending on the loyalty of the customers that they have. If they are unable to do this, they are likely to lower the price slightly below the leader's price hoping to gain sales that they can possibly take away from the price leader. If the price is set very much below the leader's price, the small firm will be losing profits that it might make otherwise. Whatever the case, the prices set by the small producers, if they differ at all from those set by the price leader, will differ but very slightly.

Many industries in the U. S. are faced with an established price which the public has been led to believe is a right or fair price. This conventional or long-run price is one which is a very popular price to the consumer. The manufacturer is compelled to sell his product at a particular price and he must decide upon the profit levels which the wholesaler and the retailer will gain in order to come out at the popular market price. If costs fluctuate, the producer must either adjust quality or sacrifice in some manner so as to keep the price at the same level. The ability to adjust cost to meet price in
this situation can lead to stringencies not felt by many producers. The attention which consumers pay to products in many cases such as this are not directed to price at all. The consumer will be led by competition based upon style, upon quality, or upon some unusual or outstanding feature, which gives greater utility than could be gained by using the product of a competitor. Advertising and selling costs are important and tend to be expanded under these conditions in order to gain sales at a given price.

MARGINAL COST AND AVERAGE COST PRICING

Textbook analysis normally states that the producer will attempt to equate marginal costs and marginal revenue so as to establish his output at the best point from a profit standpoint. This effort holds true for pure competition when the marginal cost is brought up to the price line; since the demand is perfectly elastic, it also constitutes the marginal revenue for the firm. Under monopoly, duopoly, oligopoly, and monopolistic competition the marginal cost-marginal revenue formula works just as well. The ability of the producer to make adjustments so as to get marginal cost and marginal revenue equated have long been discussed. It cannot be expected that every producer will know enough about
economic concepts of equilibrium or have cost data necessary to come out with a computation as precise as it is in textbook theory. Whatever the case might be, it is probably true that, in general, when the actual conduct and the computations of cost and revenue are examined, the producer will have found the most favorable and profitable output for his concern under given market conditions. If this is true, then theory will fit the existing practice.

Generally, producers are assumed to set their prices in the immediate period and to change them as their costs and demand conditions change. This situation is not so in many cases since producers tend to establish catalogue and production period prices which might run from weeks to months, or perhaps to a year or longer. Producers are reluctant to change prices since it might create an unnecessary difficulty for wholesalers and retailers that handle their product. The ability to hold existing contracts and to establish prices based upon actual costs might be very difficult if the existing theory were followed. The actual costs of production can be ascertained only after the production has started. Many contracts are quoted on a futures basis. The producer must base his price and
spread his costs upon his expectations for some future period which he might have under consideration.

To the extent that marginal cost can be accurately determined, to the extent that marginal revenue can be ascertained, and to the extent that accurate cost price measurements can be made, it is entirely possible that marginal cost will bear a very important relationship to price. In the absence of accurate measurements in all the lines mentioned above, it is possible that the marginal cost concept of pricing will have to be tempered somewhat from the proposals established in text theory.

Many producers probably never produce to the extent of optimum output within the light of their existing capacity. If this is the case, they operate continuously in a short-run period, and in doing such they might never be able to figure accurately their current marginal cost and marginal revenue. They find themselves in a relatively static situation in which they are able to expand output by giving contracts at a reduced cost or in which they are able to introduce new products and
gain additional sales and output. These producers possibly price on the basis of an overall average of all their costs. This average cost concept probably bears some close relationship to price in today's world. Average cost pricing is now generally taken to be one of the growing concepts for price theory in the United States.49

The analyses of price from the standpoint of pure competition, pure monopoly, duopoly, oligopoly, and monopolistic competition, have all been based upon a one-product firm. Such a condition seldom exists in the American economy since most firms produce more than one product. The assumptions upon which the earlier generalizations were based were primarily used for simplification and they do not by any means destroy the usefulness of the analysis. There are many adherents to an average cost type of pricing, however, who believe that the marginal cost approach has become relatively

obsolesce. With more than one product being produced by a firm, there will be costs which are common and which cannot be separated on an item basis. This condition creates a hazard in which marginal costs will have to be assigned arbitrarily in some cases; if this is true, marginal cost analysis will be weakened.

The costs of a multiple-product firm will fall into categories: those which are common to the products, and those which are separable to particular products. The fact that common costs are present does not ruin the marginal cost analysis in cases where we have monopolist competition, provided the costs can be separable to a certain extent. If a case should exist in which the marginal cost of each product is determinable, the marginal cost-marginal revenue rule will be applied. If a joint cost situation arises and it is possible to gain some variable proportions of the products, then marginal cost might be equally as well assigned.

If a proportionate increase in each of the products occurs with variations in output, then the sum of the prices must cover the sum of the costs. Whenever marginal costs cannot be determined, the usual marginal cost-marginal revenue rule will not work for the producer and he cannot apply the rule to any of his products. With common costs, whether of a joint or a non-joint nature, there is no definite average cost figure for each particular product produced. The firm must have a total revenue from all products which will cover all costs over the long run. If the average of these costs is computed too high and the price is set too high, then entry into the field will raise the average costs of all of the producers and eventually there will be the proper average cost price.

Lorie Tarshis comments on the matter of average cost pricing as follows:

Because marginal and average variable costs are likely to be very nearly the same, it is possible to formulate a simple rule for determining the most profitable price. This rule of thumb is that the price should equal variable cost plus a certain percentage which is fixed except at times when demand is very high—then it should be increased. Business firms frequently claim to employ such a method of price determination ...
provided that the percentage to be added is carefully chosen, the price thus set would be very close to the most profitable one.\textsuperscript{51}

In the public utilities field, E. W. Clemens says that average cost pricing is used with considerable justification:

Cost and accounting records are frequently not set up so that marginal costs can be readily determined. In many instances a firm has no way of estimating expected marginal costs except on the basis of existing average costs. There is some prejudice among business firms against pricing on a marginal cost basis where it results in lower than average prices. A low price offered to one customer group creates dissatisfaction... Customers taken on at marginal cost today will be using equipment needed to supply average cost of service tomorrow. It then becomes difficult to withdraw service from or raise the rates of these marginal-cost customers. Compulsion is added to wisdom to lead a utility to make its rates on the basis of long-run added costs which include not only the out of pocket costs but also the long-run fixed costs.\textsuperscript{52}

The matter of common costs has greater significance for price-making in practice than it does for the theory of price determination. If a firm

\textsuperscript{51}Tarshis, \textit{op. cit.}, pp. 201-02.

is producing a great many different items, the problems involved in determining marginal costs become very numerous and very serious. The problems can be serious even when the proportions of the various products can be varied and the marginal cost of each product is determinate. If some costs are common to all of the items being produced, then the determination of marginal costs and marginal revenue would be entirely useless from the standpoint of the time and expense involved. With multiple products and common costs it is necessary that the businessman adopt some short-cut approach to pricing. Price-making short cuts are very dangerous and such an approach might not succeed in always maximizing profits. As a result, the business entrepreneur can be expected to take the easier way out and price on the basis of the average of all of his costs.

Oligopoly elements in the market present an extreme difficulty to the type of pricing described immediately above. Common costs tend to increase the uncertainty of the producer about the reaction of sales to price changes. This uncertainty makes
the revenue schedules almost indeterminate. In a case such as this, firms in the oligopolistic market must distribute common costs among the various products in some standard fashion; otherwise, they will establish different prices on the various lines.

The assumed competition in the oligopolistic market will tend to make the prices on each product gravitate to the lowest figure set by any firm. If this does happen, as assumed, then the firms will be unable to cover common costs. In this case, if marginal costs are used to cut price, a marginal cost price will be very low because most of the costs are common in nature and they will continue whether any particular product is produced or not. If all producers are faced with such a condition, it can easily be seen that average cost pricing would definitely be the best method of price determination where common costs are characteristic in an oligopolistic market.

In conclusion, it might be wise to point out that while the average cost approach to pricing

---

has had significant effects upon the pricing situation, these effects should not be exaggerated. A businessman must always consider his marginal position if he is to succeed in maximizing profit. If average cost is used and considerations of demand and other market situations are considered, then the price will probably fall in line with a figure that would be set with the use of the marginal approach.

There is definitely a place in the present pricing system in our economy for both marginal and average cost pricing techniques. The businessman is probably more aware of the average cost technique because it seemingly fits rules of thumb which he has heard all of his life and which will fit his business knowledge. Since many businessmen might not be aware of formal definitions of marginal costs and marginal revenue, they will accept pricing from an average cost standpoint. The end result in both cases will probably be one which will allow the firm to get a maximum profit and which will allow it to live and let live in the long run.

Price theory and value determination have long been the very heart of economic thought. The
Classical theorists simplified their price analysis and concentrated on an equilibrium analysis of a more or less static nature. Their aim was probably one of finding the determinants of value, price, income distribution, and resource allocation in a stationary economic system. Price was the necessary variable in their scheme and it received much attention.

The Austrian school changed the approach to price from one of cost, wherein supply received most emphasis, to one of utility and marginal utility in which demand received more emphasis. From these two concepts, the Neo-classical approach to value and price was introduced. Alfred Marshall made a useful combination of both cost and utility in explaining value. His price analysis is still taught in many areas with all of its precise equilibrium concepts of an industrial nature. Finally, monopolistic competition has received much attention since the late 1930's. Chamberlin adhered fairly close to Marshallian preciseness in explaining equilibrium of the firm from a price and output standpoint. His small group analysis is probably the most accepted theory of price determination.
today. Notwithstanding the fine work of Chamberlin and Marshall, these latter two analyses have been alternately attacked and defended up to the present time, and some controversy still continues.

Economic textbooks have been criticized because of the manner in which they approach value and price from a theoretical standpoint. Broad income and monetary demand studies are analyzed, and price movements based on income statistics are presented. Textbooks generally follow these analyses with another approach to price in which supply and demand form the basis for price. Price change is then introduced on the basis of demand and supply concepts. The economic definitions of price presented in both of these analyses have been found to be nebulous and loose by the businessman in many cases.

The importance of price in the American economy cannot be over-emphasized. Price has been said to characterize all things that are economic. It is price's job in our American system to allocate resources to their most productive employment, to distribute income, to temper total national
output, and to create public policy dealing with prices and price control.

The American industrial scene has each of the theoretical economic approaches to price analysis contained in its overall system. For example, markets can be found that are purely competitive, others wherein pure monopoly operates, and still others wherein duopoly, oligopoly, and monopolistic competition seem to dominate. Also elements of price leadership, price following, customary prices and similar patterns tend to emphasize the importance of economic theory in explaining the practical side of our economic picture.

Marginal cost pricing has been emphasized by the economist as probably the most important type of pricing done by a business concern. The method that many economists recognize, however, is that of average cost pricing. Average cost has come in for much economic analysis in the past several years; it is contended that businessmen seem to hold fairly well to some type of price-making based upon an average of all of their costs. Economists recognize that too much emphasis upon this particular type of pricing, however, can possibly lead to
a type of generalization which will work to the disadvantage of a businessman. This is true particularly if he is unaware of what price fluctuations or price adjustments can do to enhance his volume of sales.
CHAPTER III

PRICE AND PRICING POLICY

The validity of an economic theory depends upon constant testing through the use of empirical data. Chapter 2 of this work presents theoretical thought concerning price and price policy. Chapter 3 is designed to present empirical data to test certain areas of the theoretical analysis in the foregoing chapter.

Empirical data secured by the writer from one hundred business firms is analyzed and interpreted in this chapter. The purpose of this work and the method of approach to the problem were briefly discussed in Chapter 1. In order to more fully define the method, an analysis of the questionnaire approach is given below.

The empirical material used herein has been gleaned from questionnaires mailed to manufacturers selected from the University of Texas Bureau of Business Research's Directory of Texas Manufacturers. The firms were selected in a stratified sample. An inverted-bell distribution was used; this distribution
was based on the number of employees with from less than 8 to over 5000 forming the base limits. The samples selected from each stratum were random. From the 221 questionnaires, 94 were returned with a percentage of return of 42.5%. Six additional personal interviews made by the writer were added to round out 100 returns. By the admission of those answering the questionnaires, 30 were "small" in their industry, 50 were "medium," and 20 were "large." The purpose of adding 6 additional to the 94 was for convenience entirely and was not designed to load or limit the answers in any way.

The questions in the material sent to manufacturers were established for businessmen to answer. A rather popular business vernacular was used as much as possible since it is assumed that businessmen are able to plot their answers more effectively when questioned in their own terms. Of necessity such things as marginal cost and marginal revenue had to be used, but these were limited as much as possible; the usefulness of these terms was found when a cross analysis of answers was being attempted.

The questions for the businessmen are grouped under headings which lead to answers that can be used
to advantage by the writer in his analysis. Several of the questions are analyzed more than once since they bear generally upon more than one topic. This repetition leads to the best results finally. Repetition will seem to be present throughout this chapter because of the necessary method of analyzing the numbers and percentages in manufacturing-firm answers.

Recognition is made of the fact that the lay reader might become lost in the quick interchange of question analysis; yet, it is hoped that this can be partially offset with explanations given within the body of the topic matter. Since the questions and the groupings are organized along topic lines to fit businessmen, it is necessary that the material must be analyzed in this way. The correlation between the theoretical and the empirical data will be evident to the economist from his knowledge of price theory, its elements and ramifications.

The nature of some questions required overlapping answers. For example, to a question dealing with the classification of the type of product produced, firms gave 110 tabulated answers and 2 firms did not answer. An analysis of the answers to this question show that 37 firms produced consumer goods,
24 produced builder supplies, 22 were capital-goods firms, 6 produced retail goods, 3 were in the textile business, and 5 created intermediate products. Comments made by the manufacturers show that some firms produce more than the indicated goods; they produce "others, meat products;" "consumer goods sold through 'retail' outlets, others sold for use by industrial concerns and railroads." This is an example of the type comment that could be made to each question by the firms examined.

Results of the questionnaire, comments made by the questionees, and a series of bar charts compiled from the questionnaires are included at the end of this chapter. This material is appended in order to allow the reader to interpret more readily the questionnaire and its answers. The questionnaire gives a statement of the questions as presented to the different business firms. The results and comments are those just as collected from the

---

1 For an analysis of the classification of product type by firms, consult the tabulation of answers to the questionnaire at the end of this chapter, p. 208.

2 See pages 202-43.
questionnaire based upon (a) overall answers to each question and (b) answers on the basis of small, medium, and large concerns. No breakdown is included on the comments since they will be used primarily in a general analysis. The bar charts are designed to give a "quick" evaluation of how the small, medium, and large concerns answered various questions.

This chapter covers the various selected pricing and price policy factors that were deemed of importance at the time this survey was made. The price-maker is analyzed and his importance as well as education and experience-rating are discussed. Factors to be considered in price-making such as price, costs, sales and demand, inventories, net operating income, and formula are discussed as they bear importance to the answering firms.

Price policy is discussed next and in this section such subjects as the nature of price policy, the period of price policy, price changes, and leadership will be analyzed. Taxation and discrimination will also be considered as they affect price policy. Costs are analyzed from a series of questions which it is hoped will give some bearing on the use of average costs, marginal costs, and
standard costs in the pricing structure. Woven throughout this particular section, a relatively brief analysis is devoted to the variations in the price concepts of small, medium, and large producers.

It is not intended that this chapter bear any necessary relationship to the preceding chapter which dealt with price theory. It must be recognized that since the questionnaire was designed to give more or less specific answers, a direct parallel between the material in Chapters 2 and 3 is impossible.\(^3\) The material in this chapter is correlated with the preceding work and applied in a topical approach in the concluding chapter.

In order to acquaint the reader with the nature of the sample selected, two tables follow. These tables give a comparison of the size of the sample from each stratum of the population and a comparison between strata.

\(^3\)Some sections of the following material will be based primarily upon the 6 interviews which were added to the 94 questionnaire returns. This material will be used to supplement and extend demand, cost, competition, etc., concepts that an interview would reveal wherein a closely defined questionnaire would not allow an expanded answer.
<table>
<thead>
<tr>
<th>Number of Employees</th>
<th>Sample</th>
<th>Percentage</th>
<th>Size of Stratum</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 8</td>
<td>3</td>
<td>1.3%</td>
<td>1661</td>
<td>40.2%</td>
</tr>
<tr>
<td>8-24</td>
<td>13</td>
<td>5.9%</td>
<td>1025</td>
<td>24.8%</td>
</tr>
<tr>
<td>25-49</td>
<td>32</td>
<td>14.5%</td>
<td>675</td>
<td>16.4%</td>
</tr>
<tr>
<td>50-99</td>
<td>48</td>
<td>21.7%</td>
<td>349</td>
<td>8.4%</td>
</tr>
<tr>
<td>100-249</td>
<td>59</td>
<td>26.7%</td>
<td>274</td>
<td>6.6%</td>
</tr>
<tr>
<td>250-499</td>
<td>40</td>
<td>18.1%</td>
<td>94</td>
<td>2.3%</td>
</tr>
<tr>
<td>500-999</td>
<td>17</td>
<td>7.7%</td>
<td>37</td>
<td>.8%</td>
</tr>
<tr>
<td>1,000-4,999</td>
<td>6</td>
<td>2.7%</td>
<td>15</td>
<td>.4%</td>
</tr>
<tr>
<td>5,000 &amp; over</td>
<td>3</td>
<td>1.4%</td>
<td>4</td>
<td>.1%</td>
</tr>
<tr>
<td>Total</td>
<td>221</td>
<td>100.0%</td>
<td>4134</td>
<td>100.0%</td>
</tr>
<tr>
<td>Market Distribution of Products</td>
<td>Sample</td>
<td>Percentage</td>
<td>Size of Stratum</td>
<td>Percentage</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>--------</td>
<td>------------</td>
<td>-----------------</td>
<td>------------</td>
</tr>
<tr>
<td>Local</td>
<td>2</td>
<td>.9%</td>
<td>790</td>
<td>19.1%</td>
</tr>
<tr>
<td>County</td>
<td>1</td>
<td>.5%</td>
<td>310</td>
<td>7.5%</td>
</tr>
<tr>
<td>District (Several counties)</td>
<td>15</td>
<td>6.8%</td>
<td>710</td>
<td>17.2%</td>
</tr>
<tr>
<td>State</td>
<td>17</td>
<td>7.7%</td>
<td>596</td>
<td>14.4%</td>
</tr>
<tr>
<td>Regional (More than one state)</td>
<td>55</td>
<td>24.9%</td>
<td>758</td>
<td>18.3%</td>
</tr>
<tr>
<td>National</td>
<td>73</td>
<td>33.0%</td>
<td>622</td>
<td>15.1%</td>
</tr>
<tr>
<td>International</td>
<td>53</td>
<td>26.2%</td>
<td>348</td>
<td>6.4%</td>
</tr>
<tr>
<td>Total</td>
<td>221</td>
<td>100.0%</td>
<td>4134</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
THE PRICE-MAKER

The "invisible hand" of Adam Smith probably does not adjust through supply and demand to automatically set prices today. The businessman's idea that competition sets price is a little bit nebulous, too. Somebody must establish every price, since prices do not just happen. In some markets "bid" and "ask" prices are quite common, and these are fairly well established by individuals. Since a person establishes a price, we must assume that his prices will be influenced by his own personal characteristics, by the market information at his disposal, and by the motivation that impels him.

In analyzing the methods by which firms set prices, it was found that in about 50% of the cases committee action was used. The chief executive was responsible for establishing prices in 26 of a possible 98 cases; the sales manager was indicated as the price-maker in 12 of the cases; in 2 cases the accounting department was given responsibility for pricing. Various other price setting methods were suggested such as prices being governed by governmental agencies (OPS), competition setting prices based upon those quoted in the Wall Street Journal, and, in another case, the price was determined by the ability of a vending machine to receive certain coins.
The most popular of the answers, that of committee action given in 47 of 98 cases, was fairly consistent in naming the accounting department, the sales manager, the chief executive, the office manager, and production department heads to the price committee. The chief executive along with the sales manager was named in most instances, with approval by the board of directors being emphasized from time to time. For example, one interview revealed that a firm's committee was "composed of sales manager, chief executive, and office manager. They see what margin of profit is needed and consider what the traffic will bear. The sales manager indicates the mode of the market. The office manager knows the cost of production and the chief executive sets the overall price policy." It was found on a breakdown of the firms by size that committee action was used by 11 of the large firms, 24 of the middle-size firms, and 12 of the small firms.

The chief executive can be expected to set prices where committee action is not used. In many cases he is chairman of the board and as such will be the policy making head. Of course, the chief executive consults with others such as sales agents, the cost department, and the general manager. Questionnaire returns indicated
that large firms had the chief executive setting prices in 2 cases; 17 medium-size firms and 7 small firms followed this pattern.

The sales manager seemingly is very important in setting prices, and he, like the chief executive, usually bases his acts upon consultation with department heads. The sales manager of necessity would be controlled somewhat by the chief executive and the board of directors, but where he is the responsible individual for handling overall sales, it is felt that he had an almost unlimited hand. On the basis of large, medium, and small firms, the returns indicated that in the 12 of 98 cases where the sales manager set prices, they ran 3-6-3.

The nature of the firms answering established that engineers and engineering departments in many cases were instrumental in helping to establish prices. The production control department, time study staff, cost accountant, and published market figures were all listed as methods other than those of committee, chief executive, sales manager, and accounting department which could be used in firm price-setting.

A percentage analysis of these methods of price establishment shows that large firms use committee action in 55\% of the cases while small and medium firms follow,
using it in 40\% and 43\% of the cases, respectively. The chief executive was not as important as the committee action, especially for the large concerns; this top office set prices in 10\%, 34\%, and 23\% of the cases when arranged on a basis of large, medium, and small firms. The sales manager was used to set prices with a relative consistency running from 10\% of the small firms to 15\% of the large firms. Small firms indicated in 20\% of the cases that some other method than a committee, the president, or the sales manager was used; later statistics will prove that these firms tend to follow the market and price on journal quotations.

Business experience rather than formal training in economics, accounting, finance, or engineering is the type of background needed to determine prices in today's manufacturing economy. Many top executives have had both business experience and some formal college training in the fields mentioned; however, some of them set prices from business experience only. Questionnaire results indicate that 39 firms out of 94 answering emphasized that business experience only was the type training which typified their price-makers. Approximately 44\% of the firms answering indicated that both business experience and some type of formal training in economics, finance,
accounting, or engineering were present. It was quite evident that medium size firms made the greatest use of price-makers who had a formal education since 9 of the 11 answers fell in the medium size field; 3\% of the small and 5\% of the large firms had formally educated price-makers while 18\% of the medium firms had a school trained price-maker. Insofar as business experience only was concerned, of the 39 total answers, 8 were for large concerns, 21 for medium firms, and 15 for small firms; percentage distribution in this same series ran 40\%, 42\%, and 50\%. The distribution of firms which indicated that both business experience and formal training formed a basis for price-making was 50\%, 40\%, and 37\% on the basis of large, medium, and small firms.

The typical price-maker, as interpreted from questionnaire results, is one who basically uses his business experience as a basis for pricing. He probably does not rely entirely upon his own background and training, however, and seeks assistance from others such as accountants, research and economic analysts, and salesmen. The price-makers in small firms probably depend more upon their own background and business experience since they are not in a position to receive as much broad market information as the price-setter in the
large firm. The small firm price-setter generally will not have special information designed specifically for price-making purposes. Medium size firms seem to emphasize education a little more than do the large and small firms. From the questionnaire, it would be noticed that about 60% of the price-makers in these medium size firms had both formal economic, finance, accounting, or engineering training to go along with their business experience. It might be assumed that many of these medium size firms witnessed their growth from the late 1930's or early 1940's and as such are more cognizant of what formal college training could do in price-making. Middle size firms in many cases, too, might be more progressive than either large or small firms, and if such were the case, they might tend to swing more to scientific practice in pricing.

FACTORS IN PRICING

The factors involved in pricing are those which will be considered by the price-makers, based upon the training of price-makers and the methods by which firms set prices as described in the immediately preceding material. With this background it may be possible to ascertain reasons why the questionees would answer price factor questions as they do.
The price-makers' attention tends to be focused chiefly upon costs, net operating income, sales, and price, if tabulated returns are to be accepted. Fifty-four firms of 95 answering indicated that costs were of most importance to their price-makers. The method of using these costs were in many cases tempered by such things as sales, net operating income, and existing price; in some cases they were adjusted according to agreement within the industry.

The importance of committee type pricing indicates that the accountants and engineers have a relatively important place in estimating and analyzing costs. In nearly every case where costs were announced to be of most importance, some type of formula was found to be in use. For example, one firm said that on speciality goods they had a 100% markup on cost on all items; on stock merchandise they had a 33 1/3% markup; and on a sideline item (furniture) they had a 100% markup on cost, less a 15% discount. A flexible type of formula was also suggested wherein there was no set markup on the line of merchandise overall but that a variable markup was figured on standard cost with higher markups in some lines. This particular interviewee suggested that a shrewd analysis of price possibilities was undertaken
and then cost plus desired markup was made in the light of sales. This in reality gives a very broad answer and shows that while basic attention is possibly on costs, sales and net operating income must surely be considered.

The 54 firms indicating costs to be of chief importance to their price-makers were broken down on the basis of 16 small firms, 27 medium firms, and 11 large firms. This further emphasizes the point previously made wherein it was assumed that medium size firms probably laid more emphasis on formal education and business experience rather than on business experience alone.4

Net operating income was the most important pricing item indicated by 16 of the firms replying; 4 small, 9 medium, and 3 large firms compose this figure. Again it can be noticed that the accounting office and the sales

---

4Question 7a dealing with the importance of costs as a price determining factor of increasing or decreasing importance would lead one to believe that most businessmen had some fear of increasing importance of costs in the long run. Of 92 firms answering the question of this nature, 90 of them believed that costs were increasing in importance. Comments along this line were such that pricing authorities believed that they were increasing in importance in the entire field, that they were increasing over a period of years, and for the entire field this would mean that they were neither of decreasing or increasing importance. This question will be analyzed more fully in the cost analysis section of this chapter.
force probably had some impact here since between 13% and 14% of the total answers fell in this category. The net operating income would possibly tend to be of most importance to firms operating near the margin.

Sales were of most importance in 10 cases with the answers on the basis of small, medium, and large firms falling 1-7-2. A percentage answer on the basis of importance in each of these categories would be 3%-14%-10%. Sales would give some indication of knowledge of demand when taken into consideration with price. Price was relatively more important than net operating income and sales to the small firms; 16% of the small firms indicated price to be the item of most importance. Only 8% of the medium firms and 5% of the large firms indicated that price was of very much importance.

Placing sales and price together should give an indication of both demand and competition knowledge on the part of the businessman. Businessmen seemingly know little of the marginal concept so far as their revenue is concerned. They are aware of demand, to be sure, but they are uncertain as to what elasticity means. An analysis of questions 2a and 2b dealing with competitive position and fear of competition indicates that businessmen
are uncertain as to how many competitors they might have and how the demand for their product might be split up. Sixty-seven per cent of the firms indicated that they were very competitive, 30% indicated about average competition, and 3% indicated very little competition. By contrast, of 97 answers on fear of competition, 29 firms had very much fear, 45 indicated not very much fear, and 23 indicated that they were not at all afraid of competition. To give a very unusual analysis it might be noticed that 85% of the large firms indicated that they were very competitive and yet 50% of them said that they held no fear of competition. Approximately 95% of both the small and medium firms indicated that they were "very competitive" to "about average" in competitiveness, and they answered that they were "very fearful" to "not very much afraid" of competition in from 70% to 85% of the cases.

Question 2c dealing with belief in collusion in pricing by a few big sellers gives another indication of the competitive nature of business. Sixty-five per cent of the large firms said that this was absolutely false, while 30% said it was possibly true; 65% of the medium size firms thought it was false, while 30% indicated that it was possibly true, and 6% thought that it was
definitely true. Small firms were not quite so sure that there was a lack of collusion in pricing since only 33% believed that there was no collusion; 36% indicated that there possibly was collusion and 13% indicated that there definitely was collusion.5

The three questions analyzed above would indicate that large firms were the most competitive, that they feared this competition the least, and that they believed that there was no collusion in pricing. Medium size firms were about average to competitive; they had a moderate fear of competition, and they thought it might possibly be true, but probably was not, that collusion in pricing was practiced by a few big sellers. Small firms were about as competitive as medium size firms, and their fear of competition was about the same as their medium-sized cohorts, while in most cases they believed that it was true, or possibly true, that collusion in pricing was practiced by the bigger sellers.

The importance of price in marketing strategy must be considered while analyzing the price-makers' knowledge of competition and demand. There was only one

5Where percentages run less than 100 in the cases throughout this chapter, it is because firms failed to answer specific questions.
factor believed to be more important than price in marketing strategy by all firms and that was quality.
Another unusual result obtained along this line was the fact that large firms answered both quality, service, and price as being of relatively equal importance in this case. Of 113 answers given by 100 questionees, 70 indicated that quality was more important than price, 11 indicated that service, and 11 indicated that style were more important. Twenty firms indicated that no factor was more important. Percentages in this analysis are rather warped since the large firms gave almost 50% too many answers. It was unusual that small and medium firms paralleled in nearly every case, being never more than 4% apart on any answer. They believed that quality was the most important factor in 66% of the cases while style was important in about 9% of the cases; both believe that service was a more important factor in 6% of the cases. Price was the most important factor for 16% of the small firms and 20% of the medium size firms. The large firms indicated that quality was of more importance than price in 50% of the cases while service and style were more important in 20% and 12% respectively. Price was assumed to be of most importance in 16%
of the cases. On this basis, large firms would tend to play down quality and emphasize style a little more while placing much greater emphasis on service when compared with small and medium firms. This is one good check of common knowledge when everyday observations indicate that large firms do cater to style and service while allowing quality possibly to slip because of mass production techniques.

An analysis of quality, style, beauty, and price all indicate that the businessman is aware of demand. His knowledge of its importance cannot be denied; however, it is doubtful if he is aware of what the economist thinks of when considering demand. The matter of elasticity and competition leads businessmen to think of their business as being monopolistically competitive. The concept of a sloping demand curve, however, is more

---

6One important variation between questionnaire answers and those received from the 7 interviewees included in the statistical calculations is that, of the 7 interviewees, 4 indicated that price was of most importance in their overall pricing strategy while quality ranked in three cases. One of those cases indicated that specifications had to be met on some of their products; this would assume a quality answer. This might lead one to accept the fact that different answers could have been received had 100 interviews been used rather than 7 interviews and 95 questionnaires.
or less unknown. Businessmen of necessity must know demand, but their ability to erect a schedule of quantities at various prices is almost impossible. The ability to shift and adjust prices is almost beyond their imagination except as a discount might be involved in competing for one particular contract or sale. The matter of figuring demand will hinge upon salesmen, expectations, weather calculations, economists' estimates, and several other factors. To move a price, however, and have a whole series of prices either in one day, one week, or even one year, or possibly over 5 or 10 years is beyond the realm of comprehension for the average businessman. They are aware that they must know demand, but as to what constitutes a thorough knowledge of demand they are uncertain. To them demand is reflected in sales at a given price, and the increases and decreases in demand are of more importance than the elasticity of demand for their particular product.

Most businessmen through their fear of price competition of a cutthroat nature probably hope to impart the idea to competitors that the overall demand for each one of them will be highly inelastic. This condition comes about because they are unable to adjust prices constantly upward and downward so as to choose a price that
will give immediate best returns. Price increases and decreases up to 5% might have very little effect upon sales; however, from 5% to 10% variations in price might lead to long run adjustments wherein sales would definitely be affected. The businessman has to consider the knowledge of his buyers, and most manufacturers are fairly sure that their buyers will have a relatively good knowledge of the market. It must be remembered that the impact of a small price decline might not be effected immediately since other producers might follow. As a result, the firm initiating the lower price might end with the same share of the market but with a lower price which would tend to cut his profit. An increase in price might lead to an almost immediate reduction in sales; and if the competitors held to their original price, which would be lower than the initiating firm's price, then the original firm would tend to suffer a loss. This is the explanation given for the kinked demand curve when monopolistic competition and oligopoly are discussed. Hall and Hitch in their article, "Price Theory and Business Behavior," which was printed in the *Oxford Economic Papers*, give a good explanation (based on an empirical analysis) of the kinked demand curve which will face most manufacturers in today's markets.
The businessman, since he is probably unaware of the exact nature of his own demand curve, is not responsive to a discussion of a kinked demand curve. He is interested in sales, and usually these sales come over a catalogue period which might be 6 months or a year in length. If this is the case, he is not interested in short-run demand analysis but more in what occurs in his production period. This concern, of course, will lead to study before price changes are made and these studies probably will take into consideration many non-price factors as well as the price factor itself.

Demand fluctuations do affect many manufacturers, particularly capital goods producers, because they have a derived demand, and when the demand for consumer goods falls it tends to reflect in a magnified manner upon capital goods. The more or less drastic demand fluctuations of this nature are probably better known to the businessman than is the elasticity of his demand.

It is probable that many business firms do run some simple type of test of elasticity and that they are aware of greater or less sales with price changes in immediate and long-run periods. Most businessmen seem to believe that price stability is best, however. An examination of question 4c dealing with price stability
and of Plate 11 (page 229) indicates that over 65% of small firms consider price stability to be good; 82% of the middle size firms and 60% of the large firms consider this stability to be best. The matter of a belief in price stability being best is probably an indication that businessmen are slightly afraid of their lack of knowledge of immediate demand concepts.

Characteristic of the market in American industry since World War II has been the constant seeking of new and better products. This tinge of differentiated products and keener competition has led many manufacturers into an aggressiveness which was not found in our earlier pricing. The matter of style and design to fit consumer needs creates much attention today among manufacturers. This leads to more attention and a keener assessment of demand. With competition as keen as indicated by question 2a and Plate 2 (page 220), it is only natural that businessmen will give more and greater attention to demand in the future. Market research and analysis along the line of demand will probably become more important than they are now.

The impact of a lack of knowledge of demand among businessmen is gaining much attention even down to the small business. The matter of rival products creates
much interest. While most manufacturers make note of and seek information about rival producers' products, they seemingly know very little of the effect which a rival product will have upon their own sales. One manufacturer interviewed stated that he takes rival products as a trade-in and junkes them. He hopes to hold his market with a better machine and superior service in the future. Another manufacturer stated that competition sometimes hurt for a few years but that it soon died out because he was aware of what his rivals were doing. Another stated that he feared competition and its impact upon his demand 15 years ago, but that there was not much fear at this time. He intimated that he had built up customers and a line of goods which was almost competition free and he assumed the demand to be relatively constant. This type of answer indicates that these individuals hope to capture a market from competitors and then they assume that they will create replacement demand in the long run.

Demand conditions are important to those who sell in imperfect markets. Since it is safe to conclude that most manufacturers deal in an imperfect market, businessmen must calculate the overall effect of changes in output upon prices and revenue. Most manufacturers appreciate that pricecutting might bring reprisals, and unless
the demand for the product which they sell is great enough overall, and is likely to increase, they will realize no appreciable net gain. The time taken for buyers to respond to price changes and the market adjustments necessary in the long run lead to many uncertainties as to elasticity of demand. This leads businessmen to want a stable price. The very nature of price stability and catalogue pricing over production periods almost precludes the economist's concept of measurements of demand elasticity as of one time.

While the businessman is probably a little hazy as to marginal concepts about his revenue and about the overall average revenue which he can expect from changing prices and judging sales in the short run, it is found that most of them assume that they know what the demand for their particular products will be. Several businessmen were asked if as price-makers they attempted to minimize insecurity even at a sacrifice of profit, because they were aware that they knew little about the conditions of demand at any given time. In some cases they answered with a flat no. In most cases they answered that they know the condition of demand or that their agents worried about demand. Most of them felt that they were in touch with demand and that they knew enough to go ahead and
"gamble and take what he thinks is right." Most of them assumed that they could judge very well their sales in certain lines on the basis of past experience; in contacts which they had with the market they were able to know approximately if prices should be pushed up or down and what the demand would be in either case. One manufacturer stated that demand was no problem, that his real problem was in getting his product produced. This would be a characteristic of a producer in an expanding market and in a growing economy. Other producers might not be quite as fortunate and might have to worry about pricing for sales volume.

There are doubtless other factors which enter into pricing beyond those of cost, net operating income, price, sales, demand, and competition; however, they are usually reflections of these broad classifications. For example, inventories at times will influence pricing, and this can be discussed more easily under price policy. Unfilled orders, the climate of opinion in the market place, formula pricing, and other concepts are probably used in a limited number of cases. As mentioned earlier, where costs are of most importance as a factor in pricing, businessmen usually work upon some system of overhead markups to derive a price. The many factors such as
consumer variations in desire, utility, habit, and friendship, along with numerous other existing relationships, in many cases can have a greater influence on pricing than does the impact of price, cost, net income, or several of the other factors analyzed. The manufacturers who consider these elements usually have some inborn or acquired technique which they use as a pricing factor that can be used above those earlier mentioned and which will be supplemented by them rather than being used to supplement them.

**PRICE POLICY**

Price policies are general market strategies whereby prices are used in some predetermined manner to attain set goals pursued by a firm. These policies are usually adapted for the life of the firm; however, they might be shifted temporarily because of general economic conditions or because of some specific economic condition which faces the individual firm. As a general rule, however, the strategies that are to be used will be adhered to throughout the existence of a particular firm. Specifically, firms can adopt any one of a number of strategies or a combination of several different strategies to make their one particular goal available.
For example, a firm might adopt a system of maximizing profits for a whole product line. Again, they may seek a large volume of sales at a relatively low price. They may adopt a price which is below that charged by most other competing firms. Still again, they might adopt a high quality and high price combination in order to serve a particular type of market. They can charge the same prices charged by other producers and hold fairly well to a given and, perhaps, static marketing strategy. If the occasion requires, they can adopt a number of those types of marketing situations.

Firms answering the questionnaire on a direct question, "What is your pricing policy?" answered in about 50% of the cases that their basic policy was to promote the long-run welfare of the firm. In 35 of 110 answers given, the answer was to adapt price to fit the individual competitive situation. In 16 cases flexible prices to meet changes in economic conditions were named, and in 10 cases a set and systematic method of pricing new products was given as the answer for pricing policies. The answers showed that 60% of the large firms attempted to promote the long-run welfare of the firm. This compared with 30% and 50% respectively for small and medium size firms. Again it will be noted
that using a price to fit the individual competitive situation was given in about 30%, 35%, and 40% of the cases for small, medium, and large producers. The middle size firms were fairly strong (roughly 20% of the cases) in answering that a flexible price to meet changes in economic conditions was their basic method of setting prices.

The 7 interviews which were used to supplement this study probably give a better overall picture of what was meant when firms answered as they did on pricing policies. For example, in most cases, while answering that they attempted to promote the long-run welfare of the firm, they assumed that this meant survival of their firm. When given a question dealing with pricing objectives, survival was given as the definite pricing objective in all but one of the 7 cases. In the other case the answer was to keep key men on the payroll. Both of these answers would tend to point up long-run welfare of the firm. However, one of the firms that answered that survival was a pricing objective gave as the pricing policy the maximization of profits for the whole product line above that of promoting long-run welfare. This same firm indicated that it never attempted to discourage competition, and that if competition did
enter that it would price to fit the individual competitive situation encountered by different products.

Most answers to the questionnaire and to the interviews indicated that the businessmen, in getting a straight question about price policy, had to consider what they intended to do. The questionnaire answers doubtlessly gave them some idea as to what should be expected from a pricing policy, and they used these insofar as they would fit their particular firms. In no case was any pricing policy listed other than those suggested in the questionnaire.

The matter of pricing policy and pricing objectives is perhaps flavored somewhat by the date at which the questionnaire and interviews were made. The general economic picture was very bright and most businessmen were looking for growth in their particular line; this probably placed the matter of long-run welfare and survival pretty well in their mind. The fact, too, that many of the concerns answering were middle-sized-to-small, in their own estimation, would show that the company either had to decide whether it wanted to continue to grow or maintain their present size and turn away some business. Without a doubt pricing objectives are basically designed to make money for the firm; however, the
ability to hold a share of the market and to meet existing competition probably leaves an indelible mark upon the mind of most business pricing executives.

The questionnaire results on pricing policy are somewhat limited because of the nature of keeping questionnaires relatively limited in length. When discussing price policy in interviews, however, the writer found that businessmen, once they adjust to price policy ideas, usually are willing to volunteer why they might maintain their existing policy. An overall look at the 7 interviews might be worth while. In 6 of the 7 cases, self-preservation was given as the reason for maintaining price policy; in the 7th case, the answer was that it was a trade practice to hold the line for a season and in that particular business the year was 9 months, as they did not sell much in July, August, and September. Following this basic reason for maintaining price policy, the overall answer was that in most cases competition tended to keep the price from going up and that their buyers were fairly well informed. Price changes would also create a nuisance to agents and salesmen and if their prices were to go up it would lead to loss of orders. They intimated, too, that selling below cost did not pay because it was a good way to create enemies
and lose friends in most cases. It was generally agreed that they needed to protect the margins of their retailers and that this had some slight effect upon maintaining price policy. Also, it was felt that the maintenance of a price policy might discourage other entries into the market. Basically they believed that pricecutting competition should be avoided since in most cases it would only create trouble in the long run.

Remembering the impact that cost of production had upon the price-maker, and that the long-run welfare of the firm and prices to fit individual competitive situations were salient features of pricing policy, it would only be natural that price policy would be based on competitive conditions and cost analysis. This proved true in 56 answers out of 117 given on the 100 questionnaire returns and interviews. In 41 of the 117 cases a "reasonable return" was given as the base for price policy; "cost analysis" led "contract" by 16 to 4. Of the 56 firms indicating that competitive conditions and cost analysis were most important, it was found that roughly 63% of the small firms and between 50% and 55% of the medium and large firms believed in this particular type of base. Further, it was noted that on the basis of "reasonable return," the firms answered from 25% to
50% dependent upon small size to large size. These figures ran roughly 25%-45%-50% on the basis of small, medium, and large firms. In the matter of cost analysis alone, the answers were about the same, running roughly 15% in all three cases. The small and medium size firms indicated that in a few cases contract pricing was their base. Large firms overall were most interested in competitive conditions and cost analysis and a reasonable return.

The matter of trade associations has to be considered in many lines and particularly in lines wherein middle size firms are important. The trade association probably shoots at a reasonable return, allowing the individual firms to do some contract and agreement pricing in special cases. One firm indicated that it used a pricing formula as a base for its price policy and this formula was quoted this way: "Labor and material costs plus 150% overhead plus 25% gross profit." This particular firm indicated too that it used this formula and did not bother to price on a price leader; however, it was influenced by its trade association to base primarily on a reasonable return. The matter of cost analysis was indicated to be a "full cost" just as the formula above would indicate a full cost; "full cost" and "average" cost" connote about the same to a businessman.
It is interesting to note that one of the firms commented, when answering the question dealing with the basis for its price policy, that it priced on the basis of the price which customers wanted and were willing to pay. This is probably in the back of every price-maker's mind; however, they might possibly look at the price the buyer is willing to pay in a little different light from that which the buyer has in his mind.

In the matter of altering a price because of a depression it was found that the firms were fairly consistent in saying that they would not alter their prices. An answer of "no" was given in 60 cases with 35 firms indicating that they would alter their price policy in a depression. Five firms, 2 of the middle size and 3 large, did not answer this question. Of the 60 firms answering no, it was found that 73% of the small firms indicated that they would not change their policy while 52% of the middle size firms followed suit and over 65% of the large firms indicated this answer. This leads one to believe that middle size firms might be a little more competitive than either small or large firms since they tend to believe in lowering their price more readily because of lowered cost and lowered demand conditions.
The matter of changing policy, of course, ran more or less the opposite of the percentages listed in the paragraph above. For example, 8 small firms, 22 middle size firms, and 5 large firms indicated that they would definitely change their price policy. The comments following this question were quite numerous and varied. For example, one firm indicated that its price was based primarily on operating and merchandise costs and that a depression would bring price down all along the line. In most cases, because of the downward trend in overall costs, it was felt that the price change would be downward and that their basic policy might be to swing to a little closer margin. The matter of a price alteration to increase the volume to avoid having unused capacity would be almost compulsory in some lines. One firm indicated that a net return that would permit continued employment of personnel and operations would be necessary and this would probably lead to a basic price policy change. The matter of competition brought on by others lowering price was felt to be a compulsory action toward basic changes along this line.

Reviewing the facts briefly, one finds that firms generally base their policies upon competitive conditions, cost analysis, and a reasonable return; and
in about two-thirds of the cases, they will not alter their basic policy in a depression. In the light of these conditions it is probably worth while to examine what the interviewed firms believed about profit standards for particular products and the position of the balance sheet in pricing. Interviewees were asked if they had a profit standard by which products had to be measured. It was noted that in only 2 of 5 cases was the answer yes. In 5 of these cases it was indicated that the products did not have to meet any particular profit standard, such as, a total dollar income over the life of the product minus the total expenditure for the product. Further, in answer to a question dealing with the balance sheet position and its importance in relationship to the pricing policy, it was found in nearly every case that the balance sheet probably did not have any effect. There was a clear indication that there was not any particular desired quantity of all the various items in the balance sheet; neither were there any disturbances in the structure that would tend to set in motion forces that would be hoped to restore any disequilibrium in the status-quo.

Price policy, its base, and the reasons for holding to it, led many of the interviewees to be rather
talkative. Notes taken during interviews indicate that many of them mentioned that most of their goods were "bread and butter goods" and that they seldom bothered with what would be considered line completers. Because of the bread and butter nature of the goods, this probably meant that they would attempt to hold on to any basic price policy that they might have. The matter of low profit leaders, however, caused several of them to indicate that they might reduce their price from 8% to 10% so that it might look good on the price list. Where they had several competing goods, the manufacturers indicated that they might use one or two for a low profit leader. In the matter of price policy, too, it was found that some of them had a policy for selling old products. In no case did they indicate that they would make a tie-in sale apply in these cases. In some cases where custom work was done, there were no discounts allowed unless it might be to appease a displeased customer. Manufacturers indicated that with scrap and old products they either disposed of them as junk or sold them in bulk so as to move them in a hurry; this latter case was more or less a giveaway price.

Because of the bread and butter nature of their goods, most of the interviewed firms indicated that they
did not use speculative new commodities. Of interest along this line, however, was the fact that one of the firms indicated that all of its new commodities were speculative since the firm did not know how farmers might react to any innovation. In considering product additions, the policy was determined generally by the sales staff, with two of the firms indicating that customers entered into this picture along with the sales staff. The matter of research was given secondary importance behind the sales staff by one firm. Before adding new products, most of the firms indicated that they would make use of the company's know how before increasing their existing product line. The matter of knowing demand characteristics and whether or not the thing would sell was of some importance, while the possibility of supplementing existing lines, being able to distribute through common channels with those existing, and the ability to use common raw materials with those already being used, were of extreme importance. Insofar as adding new products was concerned, the overall policy of the firms interviewed seemed to be that they believed that there was a commitment to stay with a new venture until it had a fair trial and possibly longer. Two of the firms indicated that they might possibly stay with
the new additions too long because their experience had been pretty risky in being able to forecast the success of new products. Some of the firms flatly indicated that they had no intention of adding any new products to their line and that their success along this line had been nil. The highest percentage given on forecasting success of new products was 80%. The matter of unsuccessfulness was highest when one firm indicated that in not over 10% of the cases were they successful. It was possible that in some areas the pilot run would test successfully and yet in the entire territory, once they were tried, they would only be about 10% successful. This human equation indicates that sometimes sampling can be very weak. Where new products did not sell the failure was in most cases due to what was considered poor market research. Secondarily along this line was the matter of poor design, and next came low manufacturing quality.

**Price Stability.** Business firms, as a whole, like for prices to be stable. A free competitive price which would tend to bounce around would not be liked by about 75% of the manufacturing concerns in our economy if questionnaire and interview returns are any indication of what the average businessman desires. When
asked to give an opinion on price stability as to whether it was good, bad, or of little consequence, it was found that 74 of 97 firms answering indicated that it was good. Eleven firms indicated that price stability was bad and 12 firms, 6 of which were large firms, indicated that it was of little consequence.

Medium and small size firms were fairly well convinced that it was better to have stable prices in 82% and 70% of the cases, respectively. Sixty per cent of the large firms believed in stable prices. Insofar as price stability being bad, 5% of the large firms thought this way while 10% and 16% of the medium and small firms, respectively, considered price stability to be bad. Medium size firms were very skeptical of price stability being of little significance since only 6% of them gave this answer. Ten per cent of the small firms assumed that price stability made very little difference while 30% of the large firms expressed a similar belief.

An overall analysis of these percentages would show that about 75% of the firms believed that price stability is good; about 10% of them consider it to be bad and about 6% to 10% of the small and medium size firms consider it to be of little consequence while 30% of the large firms fell into this category. Comments
which were added to the questionnaire and which were gained from interviews shed more light on this matter. One firm stated that price stability was of little consequence as long as gross margins were sufficient since their industry was geared to price change. One firm flatly stated that the meaning of price stability was not known. Another producer in the construction industry indicated that published prices on many manufactured commodities should be relatively stable, at least for short periods of time, in order that planning might proceed based upon relatively stable prices issued by manufacturers. One interviewee indicated that his firm had to hold prices for one year since their catalogues were issued on an annual basis. One textile manufacturer indicated that price stability would indeed be very good since it would allow him to price in the fall and let that price run through the year. He indicated, however, that unsettled world conditions caused cotton prices and cotton acreages to go up and down so that one could never be sure of how long he could hold one price.

Interviewees were able to expand more fully upon the matter of price stability and to go so far as to discuss the advantages and disadvantages of stable prices. Their explanations also indicated when firms
tended to change price, whether or not these changes would be met promptly by competitors, whether or not they could reverse price changes, why they would change prices up or down, and how soon any price change might be effective. In the matter of advantages and disadvantages of a stable price, the outstanding advantage seemed to be in price list printings and advertising expenditure matters. Price stability was a matter of profit and loss to one concern. The price-maker explained that he had to place orders for steel about six months ahead of time and if market changes occurred, he stood to lose money. A stable market to this firm was the difference between profit and loss. One firm explained that its customers could expect prices to hold unless there was a great change in the cotton market, labor contract, or freight costs. Other firms listed such things as more liberal credit terms, longer discount periods, extra service, more free repairs, and the ability to improve design as advantages of a stable price.

Disadvantages of a stable price are rather hard to find insofar as many price-makers are concerned. One firm stated that "competition can get out from under you." Another firm that used salesmen extensively
indicated that the salesman would be at a disadvantage if he could not compete on a price basis. Another firm indicated that labor and raw material costs have tended to increase steadily over the past few years and this was one disadvantage of a stable price. These few answers tend to prove that the vast majority of the firms find very little disadvantage to a stable price.

Interviewees consistently stated that they changed their price both upward and downward when they considered that they were in the middle of the price change, or after all others had either increased or decreased and they were forced to follow suit. Five of the 7 firms interviewed indicated that their price cuts were likely to be met promptly while two of the firms indicated that competitors were slow about increasing and decreasing their prices. One firm indicated that as soon as it put out a price list the other two concerns that were its nearest competitors came out immediately with the same prices and sometimes they priced a little lower.

Firms were just about evenly split insofar as their ability to reverse price reductions. Three of the firms indicated that they could easily reverse price reductions, and one of these indicated that a lack of
repeat sales would be one reason for reversing a price reduction. Another of these firms indicated that the price-maker could reverse a price reduction based on his own knowledge of costs remaining relatively stable. One relatively large firm indicated that it could not reverse price reductions. Another firm hedged a little bit in saying that it could reverse price reductions but it was not easy to do so.

Price changes infer immediately that prices must be either increasing or decreasing and different circumstances, of course, would be reflected in either of the two cases. For example, the biggest reasons given for increasing prices were those of making additional profits, first, and increasing them because costs increased, second. One firm stated that it increased prices whenever the government would allow it to do so. Another firm indicated that it made price adjustments only when changes in the base price of its chief raw material changed, tending to never depart from its price policy except in raw material cost increasing situations. Price reductions are in general based upon cost reductions which to several of the firms indicated a depression condition. A secondary reason for price reductions given in nearly every case was that of following a
competitive price or of attempting to gain additional markets. One firm indicated that it reduced prices in order to stimulate seasonal sales and that on one of its competitive lines it made cyclical price adjustments. Another price-maker indicated that price reductions are sometimes made in order to get sales for planned efficiency utilization. A contractor indicated that he sometimes reduced prices in order to obtain large contracts. Another firm reduced prices to clear old stock. Many other reasons could probably be cited for reducing prices but basic to all price reductions seemingly is the matter of depression or cost reduction price drops along with attempts to obtain more sales either to give planned efficiency, stimulate sales, or dispose of surplus products.

The effect on volume produced by changing price would normally depend upon the time allowed for buyers to readjust their habits and for competitors to react to the changed situation in which they find themselves. It was found while interviewing several businessmen that their estimates of how long this period might be for their particular business ran all the way from immediate-effect to a 90-day period in order to get the market adjusted. One businessman said that there was a very
rapid adjustment to price change by both customers and competitors and he assumed that two to three days would mark the length of time. Another businessman indicated that three days to a week would allow the necessary adjustment while one businessman indicated that it would take at least 90 days in order for the effect upon volume to be completely worked out. One price-maker indicated that his firm was a price follower and that he attempted to meet competitors' prices so as to hold his own business; he was not worried with adjusting volume because he managed to maintain about the same part of the market with his price following tactics. The overall effect on volume then seems to depend more upon the nature of the business and the manner of distribution than anything else and will run from two or three days to as much as three months before all of the market ramifications are felt as they affect volume.

The economist usually assumes that a lower price will expand total sales and that so long as firms are operating at something less than capacity output, the increased volume will decrease unit costs. When businessmen look at the matter of a lowered price they normally think first in terms of the reduction in unit revenue that will occur. It was interesting to note
that two of the interviewed firms stated that frequently the total increase in sales would not offset the reduction in unit revenue. Another firm indicated that a lower price would not expand total sales; still another firm indicated that it would not lower price to get more sales but would merely do so only to meet competition and to hold its own market. Still another firm indicated that it was possible that a lowered price could lead to expansion to the point of offsetting reduced unit revenue but that care should always be given in considering whether or not the firm should expand to any great extent. This resolved itself in actuality to a case of determining what share of the market the firm wanted to handle. Two of the firms interviewed were fairly stable in their production and marketing outputs and there was no tendency to interrupt the status quo.

A comparison of the considerations immediately above dealing with price stability and price change when compared to an earlier question dealing with the competitive position of firms would lead one to believe that a stable price would always be desired. Most firms assume that they are fairly competitive which probably means something on the order of monopolistic or oligopolistic competition. Overall, firms believe that a price
reduction will not add much to sales since this reduction will probably be met fairly fast. A price increase might not be followed quite as readily and it is possible that a loss of sales might occur. Price increases, too, come only when businessmen have increased costs or when they believe that there is an expanding market in which they can make an additional profit. Interviewed firms indicated that they changed price in the middle; this would indicate that they wanted to be sure of an overall increase or decrease in the industry before they committed themselves. If all of these things hold true, then it is entirely possible that the businessman assumes that his sales would fall off relatively fast if he increased price because his competitors would not follow suit; he feels that a price reduction would be quickly followed and that he would not gain an appreciable advantage in the market. This view would lead to the belief that the demand for a particular product would tend to be relatively elastic above the existing price level and relatively inelastic below that existing price. Such tends to verify or give credence to a kinked demand curve concept.

Agreements, Monopoly, and Leadership. Businessmen when questioned about pricing agreements, monopoly
pricing, and price leadership are normally slow to admit any of these things. Basically, they amount to the same pricing relationship. In the matter of agreements it is pretty well known that trade associations exist. Monopoly probably exists in many local areas with franchise relationships and by agreements within an industry. Large producers are probably able to determine whether prices will go up or down. Determining the extent to which businessmen are influenced by these factors in setting prices is a difficult task.

While questioning individual businessmen about agreements and trade association relationships within their industries, it was found that 3 of the price-makers interviewed indicated that their price policy was based upon trade associations. These associations might not establish the exact price which would be charged but they were instrumental in suggesting a "good" base price. The trade association gave a reasonable-return price in most cases which would be something on the order of a live and let-live price for both the large and small producers.

Agreements within the industry were established by two price-makers as being a major factor in their price policy. The agreement within the industry was in one case attempted only as a matter of necessity. The
manufacturer was large enough apparently to have some influence and his competitive area was firmly enough established that he did not worry except in unusual cases. Pricing on a price leader was given by two price-makers as a key to their basic price policy. In both cases these firms were relatively small and, as would be expected, they tended to follow the larger manufacturers. One entrepreneur even went so far as to say that if he did not follow the "big 5" manufacturers that he would class himself out of the market; hence, he had to follow their leadership. Another businessman reported that he was a relatively small producer and that he had to follow the leader. If he happened to get above the leaders, he would lose sales; and if he got below, he would tend to make sales but his cost was so well aligned with the leaders that it would tend to narrow his profits too much.

Businessmen are reluctant to admit that they attempt to establish any degree of monopoly in their price policy. Questionnaire returns on this matter showed that large business concerns were very positive in 90% of the cases that they never attempted monopoly; the other 10% of these firms indicated that they seldom attempted monopoly in their price policy. This compares
with 76\% of the small firms and 60\% of the medium firms that indicated they never attempted to establish monopoly through a price policy, and 24\% of the medium firms and 2\% of the small firms that indicated they seldom attempted such pricing. Both small and medium firms answered that they "generally" would attempt some monopoly in 6\% of the cases and "occasionally" was indicated by 6\% of the small firms and 10\% of the medium size firms. These figures wherein firms attempted to establish some degree of monopoly was answered "never" by 71 of the firms. Fifteen firms indicated that they "seldom" attempted to establish monopoly. If "never" and "seldom" can be interpreted to mean that concerns generally are not interested in establishing monopoly, then this situation will hold true in 86\% of the cases overall.

A related question asking businessmen if they believed there might be collusion in pricing by a few big sellers led to the following percentages: 65\% of large firms and 64\% of medium size firms said that this was not true; 30\% of these two classes said that it might possibly be true; and 6\% of the medium size firms said that it was definitely true. These figures tended to correlate very closely. Small firms were somewhat different with 47\% of the firms indicating that it was
possibly true that collusion in pricing did take place by a few big sellers. Thirteen of the firms indicated that it was definitely true, while only 33% indicated that it was false. Three firms did not answer this question, 2 small firms and 1 large firm.

The questionnaire returns on collusion and monopoly show that businessmen tend to adhere fairly well to their disbelief in these subjects generally. When interviewees were asked if they believed that there was some veiled or subtle type of collusive price, in all but one case they answered that it was not true. However, there might be some divergence in public opinion and entrepreneurs' ideas on the matter of collusive pricing and monopoly. A statement contained in "Cold Facts," published by the National Association of Refrigerator Warehouses, reported a survey to show that 60% of the farmers think corporations meet together to fix prices and 39% of these same farmers think that business profits are too high.

Monopoly price and collusive pricing are many times assumed to lead to some type of agreement wherein the customer can be charged the highest possible price. When asked if they believed that in the long run marketers in a free economy very probably charge the
customer the highest price that in their opinions they could afford to ask, 95 firms answering said "yes" in 50 cases and "no" in 45 cases. When broken down between small, medium, and large firms, it was definitely established that small firms were fairly sure that this was true; the percentages dropped from medium to large firms. Sixty per cent of the large firms, 58% of the medium size, and 47% of the small firms thought that it was not true. An equal number of small firms, 47%, thought that it was definitely true that the highest possible price would be charged, while 38% and 35% of the medium and large firms, respectively, considered this to be true. From these percentages it can be concluded for all classes of business firms participating in this survey, from 35% to 45% consider that businessmen charge the highest price that they think they can get from the customer; 50% to 60% think that this is not true.

From a comparison of the "collusive pricing" question and the "highest possible price from the consumer" question, it will be found that small, medium, and large firms, while widespread in their opinion, tend to hold basically to their given ideas. Small firms seem to believe that there is some subtle collusive pricing and that businessmen attempt this to get the
most possible from their customers; medium and large firms generally consider this to be untrue.

**Taxation.** Businessmen, as a general rule, are reluctant to admit that taxation has any important bearing on their pricing or on their price policy. They might readily admit that it is of importance; however, they will never discuss the matter from a cost standpoint since the government requires that taxes be considered a share of profit rather than a cost of business.

Economic tax theory assumes that taxes in most cases can be shifted and that a businessman will do so whenever it is possible. It is recognized further that the income tax is one of the most difficult to shift; however, it is possible that a manufacturer could consider last year's tax as a cost and adjust his prices accordingly, or he could estimate his current taxes and adjust his price on this basis. Businessmen interviewed would not admit that either of these was the case, however. All businessmen seemingly worry about taxes and realize their importance, yet it is very difficult to get a definite statement as to how important taxes are in actual pricing.

The importance of taxes can readily be seen when it is considered that a firm which makes 5% on sales,
before taxes, with $10 million gross sales will realize a pre-tax profit of $500,000. At current corporate income tax rates, assuming no tax credits for dividends and other items, this would mean that the corporation would feel a tax impact of approximately $254,500 from its pre-tax profit of $500,000. In spite of government attempts to classify the tax as a share of profit, there is no common-sense reason to believe that the businessman would not consider it as a cost; normally anything that subtracts from net income must certainly be a disutility connected with the operation of a business. Surely, any business firm would welcome a salesman who could guarantee $10 million in new business. Justly so, the hiring of a tax expert who could reclassify and resummarize certain expense items, capital items, and depreciation items so as to save part of the $254,000 tax load should be equally welcome. Many firms make more than 5% and some make less. Whatever the percentage of income, however, taxes place a tremendous drain on the businessman and most of them probably consider the tax as a cost of doing business.

Questionnaire results show taxes to be of most importance to medium size firms. Eighty-eight per cent of these firms said that taxes were of primary importance
or that they were one of many factors included in their pricing policy. The remaining 12% of these firms indicated that taxes were of not very much importance. The small and large firms indicated that taxes were of primary importance or one of many factors in 66% and 70% of the cases, respectively. To show the impact of greatest importance, it can be noted that 23%, 36%, and 20% were the returns gained from small, medium, and large concerns, respectively, when considering the primary importance of tax impact on price policy. The small firms in 17% of the cases said that taxes were not very important and it can be noted that none of the large firms were included in this category. Of interest, too, is the fact that a similar 17% of the small firms and 15% of the large firms indicated that taxes were not considered at all in their pricing, while the middle size firms would not participate in this category at all, assuming that taxes were of some importance in every pricing situation. Of interest, too, is the fact that 15% of the large firms gave no answer.

The total results of tax impact upon pricing policy is indicated when it is noticed that 29 firms said its taxes were of very great importance. Roughly half of the answering firms considered taxes to be one
of many factors involved in pricing and 11 of the firms assumed that taxes were not very important in this respect. Eight of the firms did not consider taxes at all in regard to pricing and 3 of the large firms did not bother to answer the question.

In analyzing the answers and the procedure for answering questions above, it is noted that medium size firms tend to be more aware of the tax problem than do small or large firms. Large firms generally consider taxes but they do not attach too much importance to them insofar as pricing is concerned. Small firms generally are impressed by taxes but apparently they are not always in a position to do much about shifting them since they probably are somewhat dominated in their pricing objectives. In the case of the 7 firms interviewed, the entrepreneurs would not expand beyond the fact that taxes were important in their pricing. The interviewees attempted to shrug off any question on manner in which taxes might be applied in pricing; they either did not say or just did not know how they could safely consider taxes as a cost instead of a part of their profit which the government shared. Considering the fact that over 65% of all firms assume that prices were affected appreciably by taxes, it is unusual to
find that the 7 interviewed firms could not explain just how prices were affected.

**Discrimination.** Price discrimination has been thoroughly analyzed by economic theorists and by businessmen in the past 75 years. The government has attempted to limit discrimination and to see that prices are maintained so as to give retailers an even break through resale price maintains laws or through curbs to check monopoly and unfair competition. It was felt, in discussing discrimination with the businessmen, that the use of the term discrimination might cause them to color their answers; hence, the businessmen were approached in a questionnaire with a concept of charging different prices to different customers, or places, under certain conditions. The conditions listed for them were quantity discounts, annual discounts, financial terms, off-peak business, method of sale, any other reasons, and no different prices charged.

One hundred thirty-three answers were received from the one hundred questionees. Doubtlessly there had to be some overlapping since some firms would consider two or possibly more different methods of charging different prices to customers or locations. Quantity discounts led as a basis for giving a price differential;
this was followed by the method of sale, as to whether it was to a distributor, wholesaler, retailer, etc. Following quantity discounts and method of sale it was noticed that roughly 20% of the firms did not make price differentials in any case.

Quantity discounts were used by 55 of the firms answering and this constituted 56% of the small firms, 50% of the medium firms, and 65% of the large firms. One of the small firms allowed annual discounts; financial terms were allowed in approximately 3% in all cases. The method of sale was used as a basis for price differentials in some 30% to 32% of the cases and 6% of the small firms and 10% of the medium firms used off-peak business conditions as a basis for price differentials. Fifteen firms listed other reasons which will be discussed shortly.

Firms that held their prices without making a differential in any case were limited more to small and medium size firms than to large firms. Between 22% and 23% of the small and medium firms held to their price line while only 10% of the large firms accepted one price line.

Some of the reasons given for allowing different prices to different customers or places were those based
upon cost of transportation and delivery distance, trade-in allowances for used equipment, a reduced price to meet competition; several of the firms listed specific types of differentials based on costs, customer classification, and dating. Basically, the comments which were attached to this question were hinged upon quantity discounts and the method of sale as to whether it went to a jobber, chain, department store, etc., or to painters, dealers, industry, retail, etc. One interviewed firm which dealt with Mexican businessmen indicated that it would give the foreign firms an opportunity to get pesos favorable to the American dollar by allowing 6 months credit terms. Specific types of discounts were used from time to time such as allowing salesmen to make special concessions or giving better service or terms to a good customer that had been trading with the producer for a long period.

More use is made of discounts by small firms than by either the medium size or large firms. The large firms are generally interested in quantity discounts and the method of sale only; 95% of the differentials allowed by large firms can be traced to these two categories. This is basically true for both small and medium size firms; however, the medium size firms give a relative
advantage to method of sale when compared to small and large firms in quantity discount pricing. Small and medium size firms both participate in giving financial terms and also in closing out stock through differentials when business is off-peak. One businessman commented that his firm did reduce price to particular buyers when business was off; however, he emphasized that not too much of this was done by his firm and that actually it had happened only once in 6 years.

The broad picture of discrimination in prices shows that large firms give more different-prices based on quantity and method of sale than do small or medium size firms and yet the small and medium firms allow more different types of differentials than do the large firms. Many small firms and medium size firms find themselves in a position wherein they cannot allow differences in their prices to various customers or places.

COST AND PRICE POLICY

Cost of production to the economist serves as one of the requisites for price since cost is associated with supply. Cost of production to the businessman shows a disutility associated with production; it will determine his net income when compared to the price which he receives for goods being produced.
The businessman, when production starts, must consider such things as the product or products which he will produce, the period in which he will produce them, the output which he can expect from his existing capacity, and the manner in which he will go about estimating his costs for a future production period. These items will be considered in an overall analysis of output in the light of whatever demand the businessman can expect.

The matter of estimating cost is one which calls for some method of cost determination on a uniform basis and it must consist of either a pre-cost analysis or a post-cost analysis.

Most producers have a definite idea as to the type, style, design, and packaging of their product or products. Any ideas of new additions to the product line or to changes in the existing style, design, or packaging will likely lead to an analysis for the coming production period in which cost will be estimated. The matter of a production period lends some credence to the fact that the businessman must fully analyze his product line and the desires of the consumer before beginning any output for his future market.

**Operational Capacity.** An analysis of output on the part of businessmen shows that most of them operate
in what they consider to be a normal output range. This would probably lie at about 65% to 85% of capacity. For example, one businessman, when interviewed, indicated that his plant could produce 67,000 units within its capacity. He realized that profits increased rapidly above a given point of production. The point of maximum efficiency as he considered it was normally around 50,000 units. This was the point at which he realized the greatest profit. Thirty-five thousand units gave 10% less profit than that at peak efficiency while above 50,000 units he realized almost 15% profit. He considered this 15% to be better than he should receive on the basis of his calculations up to that point. He indicated that from 50,000 units up to around 60,000 units that his overhead and taxes did not increase.

Capacity to the businessman probably means something on the order of what he has experienced in the past as a high norm of production. It is entirely possible that this will not be the perfect maximum that could be achieved if all conditions were proper and in align so as to give perfect output. The matter of operating at less than capacity and estimating costs can probably be found to lie in the fact that many firms must keep some reserve of plant facilities available to meet emergencies.
Those emergencies might be such things as increases in orders for some expected reason, temporary breakdowns, readjustments, repairs, renewals, or the fact that certain types of machinery or product processes are susceptible to breakdowns.

It is entirely possible to generalize and assume that any producer who has power over price, and who intends to fix his price with reference to his cost of production and his own estimate of demand, will base his estimates of cost in a production period upon some assumption of a normal or standard output. This has been found to be somewhat less than the full maximum output of the plant. It was found that 28% of the firms questioned "generally" operated at something less than capacity while 53% of them said that they "occasionally" operated under excess capacity. This compared with 15% that indicated they "seldom" operated at less than capacity and 3% that indicated they "never" operated under excess capacity. One firm commented that "our steel casting department is usually operated at capacity; our rolling mill (steel bars) is always operated at less than capacity."

The firm analysis on the basis of size indicated that 17% of the small firms, 16% of the medium firms, and
only 10% of the large firms indicated that they "seldom," if ever, operated at anything less than capacity. Six per cent of the medium firms indicated they never operated at anything other than capacity output and the remainder of all size firms, other than the percentages mentioned immediately above, indicated that they were "generally" or "occasionally" operated at something less than capacity output. This answer is based upon the assumed or normal output which the businessman has somehow fixed in his mind. It probably differs from that estimate which the engineer who installed his machinery considered to be capacity output. Actually, this difference is many times very great. It will depend upon the type of machinery, the industry, the nature of the market for the product, and possibly the experience of the particular businessman.

Businessmen seem to be convinced that through certain areas of output, marginal costs tend to remain fairly constant. They are sure, too, that with an expansion of output up to capacity, overall costs will tend to decrease on a unit basis. This is indicated when between 73% and 85% of the firms grading from small to large indicated that an increase in output with their
existing capacity would cause their costs to decrease.\textsuperscript{7} Twenty per cent of the small firms, 22\% of the medium firms, and only 5\% of the large firms indicated that such an increase in output would cause their costs to remain about the same. A further indication that businessmen were operating at something less than capacity output and that their costs would not increase with an increase in output is indicated when only 5\% of the firms overall indicated that their cost would increase with an increase in output.

Perhaps it is mere prudence that keeps most businessmen operating at something less than what they consider to be the absolute maximum of capacity of output for their plants. A great deal of difference in average costs can be found when there is a consideration of maximum output in the plant and a normal or usually expected output in the plant. This matter is of increasing importance in many productive lines when demand is high or when an element of price competition is present in the market.

\textbf{Method of Cost Determination.} The capitalistic producer is faced with production for a future market

\textsuperscript{7}See Plate 25, p. 243.
and as such his pricing must be based upon estimates of costs which are prepared prior to actual production. Many businessmen probably use what they would consider an "educated guess" of what cost is likely to be while many firms will have a thorough and complete standard cost and budgetary control system.\(^8\) From an economic standpoint the matter will be about the same; the price at which the greater part of the output of goods is sold is not the actual cost of production but is based more or less upon the estimates of cost which enter into the entrepreneur's expectations when he is making decisions about the amount of output and the selling price to be fixed for it.

Little can be gained by analyzing the cost accountant's figures which would enter into the businessman's expectations of cost when an "educated guess" is used. It is almost impossible to stabilize any particular rules when it is considered that many estimates of cost will be based upon past years' production figures with adjustments for expected changes in the prices of raw materials and wages which will enter into the finished product. Such simple estimates are very

---

\(^8\)See Plates 16, 18, 20.
common in American industry. If the business firm is relatively small, or tends to be middle-sized, and there are few technical changes in the industry, it is possible that these results will be sufficient and will give about the same figures as could be gained from a detailed cost accounting analysis.

Many large firms find that there is but one way to achieve success in pricing and that is to have a budgetary plan and adopt some system of standard costing.\(^9\) This can be interpreted from two questions considered by the firms returning answers to the questionnaire. The first question asked if the firms were able to calculate accurately under varying circumstances their output and revenue that would maximize profits. The second question concerned the amount of attention given to cost figures prepared by cost accountants in setting plant scale. To the first question about calculating output for maximum profits, it was found that the firms answered "yes" according to size from small to large, 37%, 54%, and 60%. This compared with a "no" answer in 53% of the cases for small firms, 38% for medium firms, and 30% for large firms. While considering

\(^9\)See Plates 16 and 20.
the cost accountant's importance, it was found that large firms paid "very much attention" to these figures in 50% of the cases while medium concerns and small concerns followed suit in 44% and 33%, respectively. To the answer "about average," medium size firms exactly matched with 44% those which had answered "very much" while small firms used "about average" as an answer in 37% of the cases; large firms used this answer in 20% of the cases. "Very little" attention was paid to cost accountants in 23%, 10%, and 20% of the cases when graded from small to medium to large.

Modern business, with its large-size business unit which will fix prices for a long period and have these prices stable, finds that average costs over a period cannot be determined exactly. It is necessary, therefore, for these units to have some method of forecasting costs with a reasonable degree of accuracy. From the answers to the two questions given above and from Plates 16 and 20 it can be seen that large producers pay more attention to cost accountants and at the same time they are able to accurately calculate their output and revenue to maximize profits.

Budgetary controls and standard costs establish a model cost and force the businessman to analyze his
operations at every stage in the manufacture of his products and to calculate accurately the cost at each stage. That this is true can be found when it is noted that 66% of the firms questioned said that they used a rational plan to establish the most effective scale of plant operations. On a size breakdown, this was found to be 63%, 65%, and 68% for small, large, and medium size producers. Twenty-seven per cent of the small firms indicated that they used trial and error to establish the most effective scale of plant operations; only 18% and 20% of the medium and large firms indicated this answer. The fact that approximately two-thirds of all firms use a rational plan indicates that budgetary controls and standard costs have evidently had some impact upon the businessman. This is much better than using a post-cost system wherein it is possible that unusual expenditures might have been lumped into the overall costs and in which the firm has departments wherein costs lumped together will fail to show inefficiencies.

Firms operating where competition is keen must know immediately of inefficiencies of organization and of idleness anywhere in the plant and these items must be brought forcibly and quickly to the attention of
production managers. It is assumed in economics that extreme competition will force the businessman to use his knowledge of marginal costs to set prices. While answering a question as to the degree of importance of a knowledge of marginal costs to rock bottom pricing, it was found that 80% of the firms overall thought this knowledge very important. Seventy-three per cent of the small firms, 82% of the medium firms, and 85% of the large firms were found to be in this bracket. Only 12% of the firms overall considered this knowledge of marginal cost to be of only moderate importance; 8 firms—5 small, 2 medium, and 1 large—gave no answer to this question. Failure to note cost discrepancies can lead to loss of sales when prices are fixed upon the basis of too-high costs due to inefficiencies in any one section or department. The purpose of standard costing is to allow a close estimate of the cost of producing an item over a certain period of production and to allow this cost to serve as the basis for establishing price. Since prices will be fixed for a catalogue period or some seasonal period, the firm must maintain a close cost control so as to keep actual cost as near as possible to the ideal which has been established by the accountant. Basically, all methods of
standardized costing and budgetary analysis for fixing prices in a long period are set up to show standards of expected performance wherein conditions of normal operation of plant and equipment can be expected to result over the pricing period.

It is impossible to determine the extent to which "educated guesses" and standard costing can achieve equal results or in which either will achieve better results. The process of using past cost as a basis for pricing in a future period and the method of using accounting controls are both adaptable to particular situations and conditions in industry. The businessman will be all controlling in this matter and whether he uses a method of past cost or future costing on a standard basis will in many cases determine his future profits. In either case past experience and current thought in the trade will probably guide or be the determinant.

The expense involved in using a system which requires a thorough analysis of productive operations might be too great for many small businessmen. This is indicated when 60% of the small business firms indicated that they either paid "very little" attention to cost accountants' figures or that they assumed they were
"about average" in considering what the cost accountant prepared; only 33% paid a great degree of attention to the cost accountant. Again, if a decision must be made at a crucial time, then it is possible that the use of expected cost of production in a forthcoming period will be more efficient and beneficial to the company than the time required to run a later detailed estimate. It is found that frequent changes in some industries call for a system of standard costing so as to allow for rapid calculations where design or style change in the product is imminent. Whatever the case, the complexity of the product and the nature of the industry, as well as the experience of the businessman, will determine the nature of cost analysis for production for a future market.

**Marginal Costs.** One necessary requisite for the businessman under the conventional analysis of equilibrium for the firm, as expressed by Chamberlin and Robinson, is that the businessman must operate at the point where marginal cost is equal to marginal revenue. Of particular interest here is whether or not the businessman can know definitely and explicitly whether his price is based on such a precise concept. Many economists accept as fact that in the American industrial scene very few producers have a knowledge of the
economic concept of marginal cost. Many large firms, no doubt, do employ economists and accountants who understand the term and can apply it properly. In the case of some small and medium size business concerns, however, it is doubtful if marginal costs are accurately applied.

All producers are aware that in the total cost of production there will always be some elements of cost which do not vary proportionately with output. This is the basis for marginal cost when marginal cost is defined as the rate at which additions are made to total cost with an increase in the volume of production. Since the average cost per unit tends to vary with changes in the volume of output, this gives the producer a basis for computing actual marginal costs even though he might not know exactly what the term means. In many cases where mass production is being used, it is possible that batch units or large blocks of output must be given some type of average for variations in unit costs. Where a small firm is using variations in output but where little attention is given to cost control and the budgetary plans of cost accountants, it is possible that these costs will be ignored. For example, 17% of the small firms as compared with 4% and 5% of the medium and large firms failed to answer a direct question dealing with
the importance of a knowledge of marginal costs. Since
17% of them failed to answer this question, it might be
assumed they would not be in a position to realize
either the importance of marginal costs or of cost con-
trols and budgetary plans of cost accountants. In
larger enterprises definite calculations can be made in
some cases by increasing output beyond certain estab-
lished levels purely as a check upon the fixed and
variable elements in costs as established by past
records and by cost accountants.

Business price-makers are reluctant to discuss
marginal costs from the standpoint of entrepreneurs.
Businessmen seem to believe that the term is somewhat
useless and many of them refuse to even guess what it
might mean. Interviews with local businessmen indicate
that many fail to grasp the importance of a marginal
cost question and yet later they answer questions deal-
ing with variation in unit cost with variation in output.

Businessmen are able to distinguish between
fixed and variable costs and they use this knowledge in
order to gain a knowledge of how unit costs tend to vary
with variations in output. It is the variable costs
primarily that create elements to give changes in mar-
ginal cost and most businessmen are able to explain that
they realize certain characteristic changes will occur here if this is defined as marginal cost. These costs tend to follow a somewhat regular pattern with variations in output. For example, most businessmen will explain that unit costs will fall from zero output until a certain output has been reached. Economies in buying and in the proper distribution and division of labor among the various processes of production create a possibility for outputs which will give a fairly predictable decreasing unit cost variation. There will be a range of outputs starting somewhere around 10% to 15% below the normally expected output in which marginal costs will become fairly constant. The minimum at which these costs become constant gives a point below which, if output should be lowered, marginal costs would tend to rise. If the output is continued beyond this point, the same labor force and the overall normal output range could be regarded as a comfortable maximum output without much stress or strain upon the plant. Beyond a certain point, perhaps 85% of absolute capacity on an average for all firms, marginal costs are known to rise as volume expands. Once the output reaches beyond the comfortable maximum working capacity of the plant and stresses are put upon labor and
equipment, the costs will start increasing fairly fast. This can be inferred from an earlier statement made by one interviewee when he indicated that with a 67,000 unit capacity he could operate profitably anywhere from 35,000 to 67,000 units. He preferred to operate around 50,000 units, yet he could go to 60,000 units and still not have any increase in overhead and taxes between 50,000 and 60,000 units.

It is known that businessmen probably attempt to get the best cost possible when producing for a competitive market. Two-thirds of the firms overall, when questioned, indicated that they used a rational plan for establishing the most effective scale for plant operations, and 48% of them indicated that they paid a great deal of attention to unit costs in setting the scale of operation for the plant.

It would be impossible to analyze the trends in marginal cost over the flow which was mentioned above, that is, decreasing, constant, and then increasing marginal costs. The matter of tracing fully a long smooth curve for marginal cost is almost an impossibility. The entrepreneur normally chooses an output and he will vary only slightly around this level of production. He considers the basic equipment and the possibilities for
altering by adding or subtracting from output when he begins his operations. Since he works about a small point of output, it would hardly be possible to trace back and forth over all of his ranges of output to ascertain exactly how his particular marginal costs vary. Adjustments within narrow limits, then, are possible over the period of production but to move forward and backward over wide ranges of output could not be achieved along a smooth curve. In some industries it is fairly well defined that kinks will occur in the marginal cost curve and that these probably occur just below and at a point somewhere above that point which the businessman considers to be his best normal rate of output.

The constant marginal cost concept is probably a logical one when we consider that most producers probably operate in a range somewhat below the output for their plant and equipment. They operate at a range which we can assume will run somewhere between 65% and 85% of capacity. In their own minds this is 100% output; however, if we consider the manner in which much industrial price-making is done, we will find that the wholesaler or the retailer, in ordering, normally can vary his quantities and still receive the same basic
price. This means that the output of the manufacturer must be fairly flexible since in one period he might sell one million units of an item and in the next period sell only 750,000 units of the same item. If the demand tends to vary and yet the manufacturer holds a catalogue price which is steady, then he must recognize that there is some flexibility in his output which will give the same marginal unit cost throughout. Somewhere in his production he has reached a condition wherein his raw material costs become proportionate from a unit standpoint as he increases output. His labor costs have achieved approximately the same unit proportionality with output because now he is able to expand and contract within certain limits and still have the same basic unit marginal cost.

It is possible that a constant marginal cost condition might not be true for every industry; however, from an industrial standpoint, many manufacturers probably have some range in which their marginal costs are fairly constant. The constant part of the marginal cost curve is not the whole curve; it constitutes only a well-defined section of that curve. This fits the practical aspect probably better than some of the theoretical aspects wherein the marginal cost curve can be
defined as fairly flat or as one long smooth U shape curve depending upon the theoretician.

The businessman no doubt has a certain amount of feel in his business; he might know for sure about the constant marginal cost feature in his output range while the theoretical economist might have trouble defining the exact limits just as the businessman does. Somewhere in the range of production, raw material and labor cost more than likely will become fairly proportionate with output. It is obviously true that bulk buying prices vary as the quantity increases because of the savings on distribution costs for the manufacturer. Manufacturers will make big price cuts for bulk orders and in some cases will cut into their profits greatly in order to sell more goods. If twice the normal amount is ordered or if half of the normal order should be made, the scale of output for manufacturers would be changed and the prices would tend to be different at every stage of production. Normally, though, manufacturers do not vary their prices with increases or decreases in normally expected consumer orders and

---

10 One manufacturer said that he purposely put a 25% gross mark-up item in his price-making formula to allow big reductions at times.
their prices remain fairly stable, indicating that there must be some consistency to the constant marginal cost concept over fairly limited levels of output.

Increasing marginal costs come about when output is pushed beyond the amount which is normally produced within the existing plant and with existing equipment. The producer usually will budget an output which will give a fairly steady flow of goods considering his overall production. He will consider a smooth working pace for his labor and will attempt to see that his machines and his raw material resources are not strained. In budgeting, he is aware that he cannot drive machines, men, and materials at full capacity from an ideal standpoint year in and year out and day in and day out. If it were possible to run a plant at full speed and never have to worry about reserves for overhauling or for breakdowns, then the production budget would definitely give a greater output than it does under normal circumstances. If this perfect budget were prepared, assuming effortless and frictionless mobility of all resources, then the employer would have a much greater output figured than he does basically. However, since it is possible for a machine to break down when it is pushed beyond its normal operating speeds and where there are
no machines held in reserve, then without a doubt a bottleneck could appear in some department. This, of course, would create a serious stoppage, possibly over the whole flow of production. The matter of having increases in spoilage because of pressure on machines and men must be considered in this same line. Attempting to increase efforts rapidly in many cases leads to inefficiencies that cannot be ironed out quickly.

Increased labor costs because of overtime and night shift work, where a continuous manufacturing process is not used, will cause these costs to more or less double up. An unusual thing about increasing marginal costs, however, is that labor and raw materials are not the only items which cause these costs to go up rapidly. In some manufacturing lines it is evident that there is an abrupt break in the increase in unit marginal cost once the normal operating range is broken from and output is expanded. The additional units which are being produced cost more because the fixed costs of the plant are also being stressed to a certain extent. The marginal cost defined as the addition to total costs that are incurred by production of additional units makes it clear that it is total of all costs and not just raw material and labor costs which figure into marginal
cost; this becomes important when a plant is pushed for additional units of output above the normally expected range of output.

While labor and raw materials are normally assumed to be the basis for marginal costs, when increasing marginal costs are considered, it is necessary to place the fixed costs of the plant as well as the two variable items mentioned into the realm of thought. Raw materials can be figured for very little addition to unit costs unless there is an extreme shortage in the raw materials being used. If the quantity of a raw material which is normally used is short and its demand is inelastic, raw materials might create an increase in cost. The basic point to be considered, however, is the fact that labor costs increase and that the breakdowns in the fixed cost field within the business operations normally go together to push marginal costs up once normal operating capacity is passed.

Many industries probably constantly shift their operating arrangements and make continual plant and process studies so as to make known the area of output in which their marginal costs tend to be fairly constant. This range will vary depending upon economic circumstances and can vary 5% to 10% below normal output.
and it is possible that it might increase above normal by just as much. With this shifting in the output range of the constant unit marginal costs, studies to show the exact or approximately the exact point at which costs will increase are necessary. When production falls below the normally expected minimum output, costs will tend to go up, and when output is pushed beyond the resilient range of output, the cost will tend to go up. This marginal cost feature, without a doubt, is essential in the operation of a business and is basic to pricing when competition is keen.  

Cost Period. The determination of a business-man's period of production arises in connection with the analysis of short and long run effects in business operations. It is impossible to determine the length of time involved in either the short or the long run except to state that the long run is any length of time necessary to make a fundamental change in supply while the short run is any length time shorter than the long run. Again, we assume that the short run is supposed to be the length of time wherein technical equipment is fixed and the maximum output cannot be altered. The

---

11See Plate 22.
long run is one in which almost any and every change in the level of output can be made. As to whether these particular definitions fit the business scene or not is questionable. There is less rigidity in technical equipment and working conditions overall than in other elements in the production plan, such as those imposed on the producer by the nature of his product in a monopolistically competitive market, or those imposed upon a businessman who fixes his price for a long period of time and is afraid of unstable prices.

The period of production which we shall define as the short run is the production period of an individual firm in its normal operations. There is no set time for this period in that it may be one month, twelve months, eighteen months, or possibly even longer. Each individual firm will vary its production period somewhat and each can have a different production period. The length of time covered by a period of production generally is twelve months insofar as planning and budgeting is concerned. Some firms have two or three "seasons" which may overlap in the different fiscal periods.

Production period analysis is being adapted more and more into price period analysis and the two are being meshed. For example, if a businessman has to
establish fixed prices in a catalogue for a period of six months, then he more than likely will plan his output for a six-months period and have two of these production periods in one year. In cases where several products are being produced, it is possible that even though these products might be complementary or supplementary products, the production periods will tend to overlap.

The short-run period is recognized as one in which prices will be more or less steady; and, unless the product is sold in a market or exchange where prices are quoted daily, demand can have little effect upon price and output. In considering the long period of production, however, the businessmen will definitely consider the changes that might occur in demand or the changes that have occurred in demand in the past short-run period. In considering a production budget for the coming period, he can change his output and his production process to such an extent as to create a fundamental change in supply to meet demand conditions.

There is no set period which we can define as the short run nor a set period which we can define as the long run. Firms vary in their production policies and their production periods; products, seasons, and
business advisors can all change the length of these periods. The economist can use a theoretical definition and it will be very close to that which the businessman uses in practice.

The impact of cost upon price and the extent to which cost serves as a price-determining factor are probably tempered somewhat by the nature of the pricing market. During a period of expanding markets and expanding production, cost would definitely have a different pricing effect than during a period in which markets are decreasing and inventories are high.

During the period of research included in this thesis, firms felt that costs as a price-determining factor were very important and were increasing in importance. Ninety per cent of the firms overall believed that costs were definitely increasing in importance as a price-determining factor and only 2% of the firms felt that they were decreasing in importance. On the basis of small, medium, and large firms, the breakdown for "increasing in importance" was 90%, 94%, and 80%, respectively. Ten per cent of the small firms did not answer this question, and it is noteworthy that not one small firm thought that costs were decreasing in importance as a price-determining factor. Fifteen per cent
of the large firms did not answer the question and 5% thought that costs were decreasing in importance. Only 2% of the medium size firms thought that costs were decreasing in importance while 4% of these firms did not answer. Some of the comments relative to cost as a price-determining factor are these: "They are increasing in importance in the entire field;" "They are staying rather stationary;" and "Over a period of years costs are a determinant of prices and therefore can neither be increasing nor decreasing in importance."

The attention paid to cost as it affects price in this chapter is thought to be justified on the basis of theoretical economics and on the basis of importance to the businessmen. Since cost must be considered as the basic supply-determining factor, of necessity any paper dealing with price would have to include cost analysis and cost policy.

The material contained in this chapter has not been intended to be all inclusive of price, price factors, price policy, and cost of production. The analysis of the modern day price-maker and the factors which he considers in pricing are those which the writer considers of most importance. In dealing with price policy, as such, there are many ramifications that cannot be brought
out in a questionnaire method of research. It is necessary in every case to select only those things which are assumed to be rather generally accepted insofar as price policy is concerned. Such things as price stability, agreements, monopoly, leadership, taxation, and discrimination certainly are only a few of the things which would temper price policy. These items, however, probably need more analysis than others which have been more fully explored.

In the section dealing with cost, it must be recognized that cost of production is such a broad term that it includes much that both the economist and the accountant talk about. It is constantly on the mind of the businessman, and to the economist, it serves as a basis for supply and as such it becomes essential in price determination, income analysis, and related fields. Many cost concepts of both the economist and management have been omitted in this analysis since it has been assumed that these will probably be known. For example, an emphasis upon such economic ideas as fixed costs, variable costs, marginal costs, average costs, total costs, and other cost concepts has been restrained purposely. Justly so, management concepts of fixed costs, both recurrent and allocable, semi-fixed
costs, directly variable costs, total cost, marginal cost, standard cost, and other cost ideas have been generally omitted, too. Such things as technicality and process changes and their effects upon prices, and the matter of flexibility of output and cost changes have not been treated fully.

The purpose of this chapter has been to present selected factors which enter into price-making and price policy. These factors, when considered in the light of current economic thought as presented in Chapter 2, should give some basis for analyzing both economic analyses and business practice. This will be undertaken in the following chapter.
APPENDIX

QUESTIONNAIRE AND QUESTIONNAIRE RESULTS
Please note: In cases where several answers might apply, please indicate relative importance with 1, 2, 3, etc.

1. A. How would you classify the type of product produced by your firm?
   ___ Consumer goods
   ___ Capital goods
   ___ Textiles
   ___ Retail goods
   ___ Intermediate products
   ___ Builders supplies
   ___ Others (Specify) _________________________

B. How would you classify your concern as to its size in the industry?
   ___ Small
   ___ Medium
   ___ Large

2. A. How would you classify your concern in so far as its competitive situation is concerned?
   ___ Very competitive
   ___ About average
   ___ Very little competition

B. How much do you fear competition?
   ___ Very much
   ___ Not very much
   ___ Not at all

C. Some economists believe that most markets are characterized by a few big sellers and that there is generally a behind-the-scenes element of collusion in pricing. Do you think that this is True
   ___ Possibly true
   ___ False

D. Is there any factor more important than price in your marketing strategy?
   ___ Style
   ___ Quality
   ___ Beauty
   ___ Specify other _________________________
3. A. Who sets the prices for your concern?
   ______ A committee (chief executive, sales manager, etc.)
   ______ The chief executive
   ______ The accounting department
   ______ The sales manager
   ______ Others (Specify) _______________________________

   B. Are your price makers trained and experienced in:
      ______ Business experience only
      ______ Formal economics, finance, accounting, or engineering
      ______ Both

   C. Is your price maker's attention focused chiefly upon:
      ______ Price
      ______ Costs
      ______ Sales
      ______ Inventories
      ______ Net operating income
      ______ Unfilled orders
      ______ Climate of opinion
      ______ Formula
      ______ Other (Specify) _______________________________

4. A. What is your pricing policy?
   ______ Maximize profits for the whole product line
   ______ Promote the long-run welfare of the firm
   ______ Discourage competition from entering the field
   ______ Adapt price to fit the individual competitive situation encountered by different products
   ______ A set and systematic method of pricing new products
   ______ Flexible price so as to meet changes in economic conditions
   ______ Other (Specify) _______________________________

   B. Do you attempt to establish some degree of monopoly in your pricing policy?
      ______ Generally
      ______ Occasionally
      ______ Seldom
      ______ Never
C. In your opinion is price stability
   ______ Good
   ______ Bad
   ______ Of little consequence

D. On what would you say your price policy is based?
   ______ Reasonable return
   ______ Trade associations
   ______ Cost analysis
   ______ Agreement (within the industry)
   ______ Price consumers want
   ______ Competitive conditions and cost analysis
   ______ On price leader
   ______ By contract
   ______ What the market will bear
   ______ Other (Specify)______________________________

E. Have you ever altered, or would you be likely to alter, your basic price policy in case of a depression in your industry?
   ______ Yes
   ______ No
   If answer is yes, please specify:

F. How important is the matter of taxation in its impact upon your price policy?
   ______ Of primary importance
   ______ One of many factors affecting policy
   ______ Not very important
   ______ Not considered at all

5. Does your firm ever charge different prices to different customers or places in cases such as these:
   ______ Quantity discounts
   ______ Annual discounts (to preserve a market territory, etc.)
   ______ Financial terms (F.O.B. factory, etc.)
   ______ Method of sale (distributors, salesmen, retail outlets, etc.)
   ______ Off peak business
   ______ Others (Specify)______________________________
6. A. Are you able to calculate accurately under varying circumstances your output and revenue that maximize profits?
   ____ Yes
   ____ No

B. Do you select the maximum revenue at all times?
   ____ Yes
   ____ No

C. In establishing the most effective scale of plant operations, do you
   ____ Have a rational plan
   ____ Use trial and error

D. How much attention is paid to unit costs in setting the scale of operations for the plant?
   ____ Very much
   ____ About average
   ____ Very little

E. How much attention is paid to cost figures prepared by cost accountants in setting plant scale?
   ____ Very much
   ____ About average
   ____ Very little

7. A. Do you think that costs as a price determining factor are
   ____ Increasing in importance
   ____ Decreasing in importance

B. How important is a knowledge of marginal costs to pricing, particularly rock bottom pricing?
   ____ Very important
   ____ Of moderate importance
   ____ Not important

8. Do you believe that in the long run "marketers in a free economy very probably charge the customer the highest price that in their opinions they can afford to ask"?
   ____ Yes
   ____ No
9. A. Is your plant operated with excess capacity?
   Generally
   Occasionally
   Seldom
   Never

B. In the light of your existing capacity will an increase in output cause your unit cost to
   Increase
   Decrease
   Remain about the same
Number before title indicates total answers; numbers following title indicate small, medium, and large concern answers, respectively. Where total answers are more or less than 100, either two or more answers were permissible or the answers were explanations that could not be adapted. Where comments were made by the answering firms, they are included immediately below the summaries of firm answers.

1. A. Classification of firms by type of product

<table>
<thead>
<tr>
<th>Type of Product</th>
<th>Total</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer goods</td>
<td>37</td>
<td>10</td>
<td>18</td>
<td>9</td>
</tr>
<tr>
<td>Capital goods</td>
<td>22</td>
<td>3</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>Textiles</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Retail goods</td>
<td>6</td>
<td>4</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Intermediate products</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Builders supplies</td>
<td>24</td>
<td>7</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Other products</td>
<td>13</td>
<td>5</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>(Firms, no answer)</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Comments: Others—meat products; Consumer goods sold through "retail" outlets, others are sold for use by industrial concerns and railroads.

B. Classification of firms by size in the industry

<table>
<thead>
<tr>
<th>Size</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>30</td>
</tr>
<tr>
<td>Medium</td>
<td>50</td>
</tr>
<tr>
<td>Large</td>
<td>20</td>
</tr>
</tbody>
</table>

2. A. Classification of firms by competitive position

<table>
<thead>
<tr>
<th>Competitive Position</th>
<th>Total</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very competitive</td>
<td>67</td>
<td>19</td>
<td>31</td>
<td>17</td>
</tr>
<tr>
<td>About average</td>
<td>30</td>
<td>9</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>Very little competition</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>

Comments: About average; Becoming more competitive all the time (consumer goods—medium); Not at all, but respect it highly (builders supplies—large).

B. Classification of firms by fear of competition

<table>
<thead>
<tr>
<th>Fear of Competition</th>
<th>Total</th>
<th>Small</th>
<th>Medium</th>
<th>Large</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very much fear</td>
<td>30</td>
<td>10</td>
<td>17</td>
<td>3</td>
</tr>
<tr>
<td>Not very much</td>
<td>45</td>
<td>12</td>
<td>26</td>
<td>7</td>
</tr>
<tr>
<td>Not at all</td>
<td>23</td>
<td>7</td>
<td>6</td>
<td>10</td>
</tr>
<tr>
<td>(Firms, no answer)</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
Comments: Our industry is over expanded probably 100%; Fear competition very much; A moderate amount.

C. Classification of firms by their belief in collusion of pricing by a few big sellers

<table>
<thead>
<tr>
<th>7 True</th>
<th>4-3-0</th>
</tr>
</thead>
<tbody>
<tr>
<td>35 Possibly true</td>
<td>14-15-6</td>
</tr>
<tr>
<td>55 False</td>
<td>10-32-13</td>
</tr>
<tr>
<td>3 (Firms, no answer)</td>
<td>2-0-1</td>
</tr>
</tbody>
</table>

Comments: False. This does not occur in our industry (capital goods—medium); False in our line; Could possibly have been true in the past; I doubt it today. I think they follow cost leader, however.

D. Factors believed to be more important than price in marketing strategy

<table>
<thead>
<tr>
<th>11 Style</th>
<th>3-4-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 Quality</td>
<td>20-34-16</td>
</tr>
<tr>
<td>1 Beauty</td>
<td>0-0-1</td>
</tr>
<tr>
<td>11 Service</td>
<td>2-3-6</td>
</tr>
<tr>
<td>20 No factor more important</td>
<td>5-10-5</td>
</tr>
</tbody>
</table>

Comments: Total costs; Availability of material as well as price; All factors are equally important; Design features; Quality with certain products only; Price is above all, quality is second; Price and quality; Demand; Not particularly although all three (style, quality, beauty) sometimes affect sale; Price; Quality is equally important with price; Need (new developments); Price and freight cost; General design for application; Style and price are equally important; Economy of operation; Quality, service, and price; Not more important—price is primary, quality is secondary; Productivity is first, quality is second; Combination of these factors, service resulting from products; Quality—but you have to be competitive price wise; Service to customer; All four factors listed equally important with
price, engineering design is also important; Quality of product is essential to continuing success; No, beauty, second, quality, third.

3. A. Methods by which firms set prices

<table>
<thead>
<tr>
<th>Method</th>
<th>Frequency</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>A committee</td>
<td>47</td>
<td>12-24-11</td>
</tr>
<tr>
<td>The chief executive</td>
<td>26</td>
<td>7-17-2</td>
</tr>
<tr>
<td>The accounting department</td>
<td>2</td>
<td>2-0-0</td>
</tr>
<tr>
<td>The sales manager</td>
<td>12</td>
<td>3-6-3</td>
</tr>
<tr>
<td>Other methods</td>
<td>11</td>
<td>6-2-3</td>
</tr>
</tbody>
</table>

Comments: A committee, the accounting department, C.P.A. also; The government agencies--OPS, the chief executive; The chief executive in consultation with others; A committee after figures from cost department; Competition, of course, we must meet prices largely based on Wall Street Journal quotations; The sales manager with definite help from accounting department; Production and chief executive; Sales manager and department heads; Based on engineering department cost estimates; Based on estimates by estimating department; Construction contracts by competitive bidding; Follow published market; The sales manager, aided by his staff, in consultation with production control department, time study staff, cost accountant, etc.; Merchandise department; Ability of the vending machine to receive certain coins; Cost, also engineering department; General manager and president.

B. Price makers are trained as follows:

<table>
<thead>
<tr>
<th>Training</th>
<th>Frequency</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business experience only</td>
<td>49</td>
<td>15-21-13</td>
</tr>
<tr>
<td>Formal economics, finance,</td>
<td>11</td>
<td>1-9-1</td>
</tr>
<tr>
<td>accounting, or engineering</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Both</td>
<td>41</td>
<td>11-20-10</td>
</tr>
<tr>
<td>(Firms, no answer)</td>
<td>3</td>
<td>2-0-1</td>
</tr>
</tbody>
</table>

Comments: Both but business experience primarily.
C. Price makers attention is focused on
54 Costs  16-27-11
16 Net operating income 4- 9- 3
11 Sales  2- 7- 2
10 Price  5- 4- 1
 5 (Firms, no answer)  2- 1- 2

Comments: Competitive price and costs; Competition is main thing price maker's attention is on; Inapplicable (as plant must be kept operating 24 hours per day and within narrow limits, close to capacity, and with storage limited to "normal," the product must constantly flow to purchaser. Cost, therefore, operates only in the long-run and determines whether you stay in business. We must refine close to capacity to keep our crude oil sources. Otherwise, they would be lost permanently. You might make a comparison of petroleum to farm products on perishability); Competition actually determines price, sales must be maintained to balance inventory; Competitive prices; Competition; All above and supply and demand; All of these plus judgment; Combination of the factors listed on the questionnaire and other factors; Competitors prices on comparable quality.

4. A. Pricing policies
49 Promote the long-run welfare of the firm  11-25-13
35 Adapt price to fit the individual competitive situation  10-17- 8
16 Flexible price to meet changes in economic conditions  4-11- 1
10 A set and systematic method of pricing new products  4- 6- 0
 2 (Firms, no answer)  2- 0- 0

Comments: Set system required under OPS; We price to return a fair profit--otherwise, we don't sell it.
B. Firms that attempt to establish some degree of monopoly

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Generally</td>
<td>2-3-0</td>
<td>Encourage our dealers to avoid price cutting; Never attempt to establish monopoly in pricing policy, but do try to establish patent monopolies; Never, your question represents an impossibility.</td>
</tr>
<tr>
<td>7 Occasionally</td>
<td>2-5-0</td>
<td></td>
</tr>
<tr>
<td>15 Seldom</td>
<td>1-12-2</td>
<td></td>
</tr>
<tr>
<td>71 Never</td>
<td>23-30-18</td>
<td></td>
</tr>
<tr>
<td>2 (Firms, no answer)</td>
<td>2-0-0</td>
<td></td>
</tr>
</tbody>
</table>

C. Firms consider price stability to be

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>74 Good</td>
<td>21-41-12</td>
<td>Of little consequence as long as gross margin is sufficient—industry is geared to price change; Extremely necessary; I do not know what you mean by price stability. Published prices on many manufactured commodities should be relatively stable, at least for short periods of time, in the building industry. Construction planning could not proceed were builders unable to determine costs based upon prices issued by manufacturers.</td>
</tr>
<tr>
<td>11 Bad</td>
<td>5-5-1</td>
<td></td>
</tr>
<tr>
<td>12 Of little consequence</td>
<td>3-3-6</td>
<td></td>
</tr>
<tr>
<td>3 (Firms, no answer)</td>
<td>1-1-1</td>
<td></td>
</tr>
</tbody>
</table>

D. Firms base their price policies on

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Percentage</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>56 Competitive condition and cost analysis</td>
<td>19-26-11</td>
<td>Supply and demand (except when under controls); Price customers want and are willing to pay.</td>
</tr>
<tr>
<td>41 Reasonable return</td>
<td>8-23-10</td>
<td></td>
</tr>
<tr>
<td>16 Cost analysis</td>
<td>4-9-3</td>
<td></td>
</tr>
<tr>
<td>4 Contract</td>
<td>1-3-0</td>
<td></td>
</tr>
<tr>
<td>2 (Firms, no answer)</td>
<td>1-0-1</td>
<td></td>
</tr>
</tbody>
</table>
E. Firms that would alter their basic price policy in a depression

35 Yes 8-22-5
60 No 22-26-12
5 (Firms, no answer) 0-2-3

Comments: Yes, our price is based primarily on operative and merchandise costs. A depression would bring price down all along the line; Downward; Change sales methods to reduce costs; Take less profit; Could probably operate on closer margin during depression; Yes, if price alteration would increase volume to avoid operative excess, there would be no alternative; To determine a net return that would permit continued employment of personnel and operations, yes; Yes, we would reduce costs and prices; Yes, to meet competition, reduce loss, etc.; Competitive conditions and cost analysis; Probably downward to meet competition; Conditions would govern actions; Have altered prices but not basic price policy; Yes, down to meet competition. (Of the 14 listed above, 5 were small, 8 medium, and 1 large).

F. The importance of taxation in its impact upon price policy

29 Of primary importance 7-18-4
49 One of many factors 13-26-10
11 Not very important 5-6-0
8 Not considered at all 5-0-3
3 (Firms, no answer) 0-0-3

5. Firms charging different prices to different customers or places

55 Quantity discounts 17-25-13
1 Annual discounts 1-0-0
4 Financial terms 1-2-1
32 Method of sale (Distributors, etc.) 10-16-6
6 Off peak business 2-4-0
15 Other reasons 2-10-3
20 No different prices 7-11-2
Comments: Cost of transportation; Kind of material used and delivery distance; Trade-in allowances for used equipment, vary; 2%, 10 days is standard other than our distributors; Dating; Jobber, chain, department store; No set pattern; For discontinued numbers; Quantity discounts, a published plan known to all; Trade discounts; Quantity discounts on some products; May reduce a price to meet competition; Outside sales are chiefly custom equipment on special order; Different classified customers take a different price (painters, dealers, industry, retail); Basic policy is firm, different prices charged only within framework of policy; Quantity differential based on costs.

6. A. Firms that are able to calculate accurately under varying circumstances their output and revenue that maximize profits

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>50</td>
</tr>
<tr>
<td>No</td>
<td>41</td>
</tr>
<tr>
<td>(Firms, no answer)</td>
<td>7</td>
</tr>
<tr>
<td>Firms, yes and no</td>
<td>2</td>
</tr>
</tbody>
</table>

Comments: Make sales forecasts, and from these, budget plant operations.

B. Firms selecting the maximum revenue at all times

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>22</td>
</tr>
<tr>
<td>No</td>
<td>70</td>
</tr>
<tr>
<td>(Firms, no answer)</td>
<td>8</td>
</tr>
</tbody>
</table>

Comments: No, at times we sell merchandise at a loss because it would be good public policy and consequently good company policy to withdraw from a general market; Charge what traffic will bear in some instances.

C. Methods of establishing the most effective scale of plant operations

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have a rational plan</td>
<td>66</td>
</tr>
<tr>
<td>Use trial and error</td>
<td>21</td>
</tr>
<tr>
<td>(Firms, no answer)</td>
<td>10</td>
</tr>
<tr>
<td>Firms, both methods</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>19-34-13</td>
<td>1</td>
</tr>
<tr>
<td>8-9-4</td>
<td>3</td>
</tr>
<tr>
<td>3-4-3</td>
<td>0</td>
</tr>
<tr>
<td>0-3-0</td>
<td>0</td>
</tr>
</tbody>
</table>
Comments: Build mostly for orders (capital goods); Governed by market conditions; Business based on many items fabricated to specifications, cannot establish uniform operation.

D. Degree of attention paid to unit costs in setting the scale of operations for the plant

<table>
<thead>
<tr>
<th>Level of Attention</th>
<th>Number of Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very much</td>
<td>48</td>
</tr>
<tr>
<td>About average</td>
<td>33</td>
</tr>
<tr>
<td>Very little</td>
<td>11</td>
</tr>
<tr>
<td>No answer</td>
<td>8</td>
</tr>
</tbody>
</table>

Comments: Level of sales determines level of plant operations, unit costs observed in determining whether to increase or decrease inventory.

E. Degree of attention paid to cost figures prepared by cost accountants in setting plant scale

<table>
<thead>
<tr>
<th>Level of Attention</th>
<th>Number of Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very much</td>
<td>42</td>
</tr>
<tr>
<td>About average</td>
<td>37</td>
</tr>
<tr>
<td>Very little</td>
<td>16</td>
</tr>
<tr>
<td>No answer</td>
<td>5</td>
</tr>
</tbody>
</table>

7. A. Firms feel that costs as a price determining factor are:

<table>
<thead>
<tr>
<th>Level of Importance</th>
<th>Number of Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increasing</td>
<td>90</td>
</tr>
<tr>
<td>Decreasing</td>
<td>2</td>
</tr>
<tr>
<td>No answer</td>
<td>8</td>
</tr>
</tbody>
</table>

Comments: Increasing in importance in the entire field; They are staying rather stationary; Over a period of years costs are a determinant of prices, and, therefore, can neither be increasing nor decreasing in importance.

B. Degree of importance of knowledge of marginal costs to rock bottom pricing

<table>
<thead>
<tr>
<th>Level of Importance</th>
<th>Number of Firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very important</td>
<td>80</td>
</tr>
<tr>
<td>Of moderate importance</td>
<td>12</td>
</tr>
<tr>
<td>No answer</td>
<td>8</td>
</tr>
</tbody>
</table>

8. Firms that feel that marketers in a free economy charge the customer the highest price that they can afford to ask

<table>
<thead>
<tr>
<th></th>
<th>Yes</th>
<th>14-19-7</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No</td>
<td>14-29-12</td>
</tr>
<tr>
<td>3</td>
<td>Firms, no answer</td>
<td>1-1-1</td>
</tr>
<tr>
<td>2</td>
<td>Firms qualified answers</td>
<td>1-1-0</td>
</tr>
</tbody>
</table>

Comments: Maybe (small); Yes, but the customer benefits in the long run, because service and quality are better; Yes, if you consider its effect on volume; Competition won't permit excessive prices in our industry; No, at least a concern which expects to build and maintain good will would say no; No, in the long run marketers in a free economy very probably charge the customer the lowest price that in their opinion they can afford to ask (large).

9. A. Firms operated under excess capacity

<table>
<thead>
<tr>
<th></th>
<th>Generally</th>
<th>10-15-3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Occasionally</td>
<td>15-24-14</td>
</tr>
<tr>
<td></td>
<td>Seldom</td>
<td>5-8-2</td>
</tr>
<tr>
<td>3</td>
<td>Never</td>
<td>0-3-0</td>
</tr>
<tr>
<td>1</td>
<td>Firm, no answer</td>
<td>0-0-1</td>
</tr>
</tbody>
</table>

Comments: Our steel castings department is usually operated at capacity; our rolling mill (steel bars) is always operated at less than capacity.

B. With existing capacity an increase in output will cause unit cost to:

<table>
<thead>
<tr>
<th></th>
<th>Increase</th>
<th>2-2-1</th>
</tr>
</thead>
<tbody>
<tr>
<td>76</td>
<td>Decrease</td>
<td>22-37-17</td>
</tr>
<tr>
<td>18</td>
<td>Remain about the same</td>
<td>6-11-1</td>
</tr>
<tr>
<td>1</td>
<td>Firm, no answer</td>
<td>0-0-1</td>
</tr>
</tbody>
</table>
AN ANALYSIS OF THE PRICING POLICIES OF BUSINESS FIRMS

List of Plates

1. CLASSIFICATION OF FIRMS BY SIZE IN THE INDUSTRY
2. CLASSIFICATION OF FIRMS BY COMPETITIVE POSITION
3. CLASSIFICATION OF FIRMS BY FEAR OF COMPETITION
4. BELIEF IN COLLUSION OF PRICING BY A FEW BIG SELLERS
5. FACTORS MORE IMPORTANT THAN PRICE IN MARKETING STRATEGY
6. METHODS BY WHICH FIRMS SET PRICES
7. TRAINING OF PRICE MAKERS
8. PRICE MAKERS ATTENTION FOCUSED ON:
9. PRICING POLICIES
10. FIRMS ATTEMPTING SOME DEGREE OF MONOPOLY
11. PRICE STABILITY
12. BASES OF PRICE POLICY
13. FIRMS THAT WOULD ALTER POLICY IN TIME OF DEPRESSION
14. IMPORTANCE OF TAXATION IN PRICE POLICY
15. FIRMS CHARGING DIFFERENT PRICES TO DIFFERENT CUSTOMERS
16. FIRMS ABLE TO CALCULATE OUTPUT AND REVENUE
17. FIRMS SELECTING MAXIMUM REVENUE AT ALL TIMES
18. METHODS OF ESTABLISHING THE MOST EFFECTIVE SCALE OF PLANT OPERATIONS
19. DEGREE OF ATTENTION PAID TO UNIT COSTS
20. DEGREE OF ATTENTION PAID TO COST ACCOUNTANTS' FIGURES
21. IMPORTANCE OF COSTS IN PRICE DETERMINATION
22. IMPORTANCE OF MARGINAL COSTS TO ROCK-BOTTOM PRICING
23. FIRMS THAT FEEL MARKETERS CHARGE HIGHEST PRICES POSSIBLE
24. FIRMS OPERATED UNDER EXCESS CAPACITY
25. EFFECT OF INCREASE IN OUTPUT ON UNIT COST
CLASSIFICATION OF FIRMS BY SIZE IN INDUSTRY

SMALL  MEDIUM  LARGE

30      50      20
PERCENT CLASSIFICATION OF FIRMS BY COMPETITIVE POSITION

VERY COMPETITIVE

ABOUT AVERAGE

VERY LITTLE
CLASSIFICATION OF FIRMS BY FEAR OF COMPETITION

PERCENT

100

80

60

40

20

VERY MUCH FEAR

NOT VERY MUCH

NONE

PLATE 3
CLASSIFICATION BY BELIEF IN COLLUSION OF PRICING BY FEW BIG SELLERS

PERCENT

PLATE A

TRUE POSSESSED TRUE FALSE
FACTORS BELIEVED MORE IMPORTANT THAN PRICE IN MARKETING STRATEGY
METHODS BY WHICH FIRMS SET PRICES

PERCENT

PLATE 6

COMMITTEE

CHIEF EXECUTIVE

ACCT'G DEPT

SALES MANAGER

OTHER
Price makers trained as follows:

- Business experience only: 40%
- Formal economics, finance, acct'g, eng'ng: 20%
- Both: 60%

Plate 7
PRICE MAKERS ATTENTION FOCUSED ON:

PERCENT

SALES  COSTS  PRICE  NET OPERATING INCOME

PLATE 8
Pricing Policies

Percent

Promote the Longrun Welfare of the Firm

Adapt Price to Fit Individual Competitive Situation

Flexible Price to Meet Changing Eco. Conditions

A Set & Systematic Method of Pricing New Products
Firms attempting some degree of monopoly

PERCENT

Generally Occasionally Seldom Never

Plate 10
PERCENT FIRMS CONSIDER PRICE STABILITY TO BE:

- Good: 80%
- Bad: 20%
- Of little consequence: 0%
Firms base their price policy on:

- Competitive Conditions & Cost Analysis: 60%
- Reasonable Return: 40%
- Cost Analysis: 20%
- Contract: 10%
FIRMS THAT WOULD ALTER BASIC PRICE POLICY IN A DEPRESSION$
IMPORTANCE OF IMPACT OF TAXATION UPON PRICING POLICY'S.
FIRMS CHARGING DIFFERENT PRICES TO DIFFERENT CUSTOMERS OR PLACES

<table>
<thead>
<tr>
<th>Reason</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity Discounts</td>
<td>60%</td>
</tr>
<tr>
<td>Annual Discounts</td>
<td>40%</td>
</tr>
<tr>
<td>Financial Terms</td>
<td>20%</td>
</tr>
<tr>
<td>Off Peak Business</td>
<td>10%</td>
</tr>
<tr>
<td>Other Reasons</td>
<td>5%</td>
</tr>
<tr>
<td>No Different Prices</td>
<td>3%</td>
</tr>
<tr>
<td>Method of Sale</td>
<td>2%</td>
</tr>
</tbody>
</table>
Firms able to calculate accurately under varying circumstances their output & revenue that maximize profit.
FIRMS SELECTING MAXIMUM REVENUE AT ALL TIMES

PERCENT

YES

NO
METHODS OF ESTABLISHING MOST EFFECTIVE
SCALE OF PLANT OPERATIONS

PERCENT

RATIONAL PLAN

TRIAL AND ERROR

PLATE 18
DEGREE OF ATTENTION PAID TO UNIT COSTS IN SETTING SCALE OF OPERATIONS FOR THE PLANT
Degree of attention paid to cost figures prepared by cost accountants in setting plant scale.
Firms feel that costs as a price determining factor are:

Percent of firms:

- Increasing in importance: 100%
- Decreasing: 20%

Plates 21
IMPORTANCE OF KNOWLEDGE OF MARGINAL COSTS TO ROCK BOTTOM PRICING
Firms feel that marketers in free economy charge as much as they can.
Firms operated under excess capacity

Percentage of firms operated under excess capacity:

- Generally: 20%
- Occasionally: 70%
- Seldom: 10%
- Never: 0%
WITH EXISTING CAPACITY AN INCREASE IN OUTPUT WILL CAUSE UNIT COST TO:

PERCENT

INCREASE DECREASE REMAIN ABOUT SAME
CHAPTER IV

OBSERVATIONS AND CONCLUSIONS

Economic price theory has been criticized by individuals who believe that theory does not characterize business practice. These attacks have continued with relative consistency since the late 1920's. Such economists as Professors Piero Sraffa, Howard Hotelling, and R. A. Gordon have contended that price theory needs an orientation toward price policies, sales promotion, and special buyer conveniences. These economists have pointed to a problem wherein marginal economic analysis of the firm is weak and does not fit the businessman's practical price and output problems.

Economists of equal stature with the critics have defended the application of price theory to business practice. Professors Fritz Machlup and P. W. S. Andrews have been instrumental in the defense of economic theory. Professor Edward Chamberlin and Mrs. Joan Robinson helped to reorient the neo-classical analysis of price. Recently, their theoretical approach has been criticized as not characterizing practical business activities.
The controversy over the application of economic price theory to business price practices has been the basis for this research. The problem involved is one of finding whether the economist is right or wrong, or whether there is only an element of divergence between the economist's concepts and those of the businessman.

The method of approach to this problem has been to present current price theory and an analysis of business practices as seen by the business entrepreneur. The empirical data dealing with business practice was tabulated from a questionnaire submitted to manufacturing firms in the southwestern United States. This sample covered such selected fields as the price-maker, the factors involved in price determination, price policy concepts, and cost-price relationships. The two areas, theoretical and practical business, form the basis for the observations and conclusions which follow.

PRICE-MAKER

The price-maker in manufacturing concerns, as indicated by empirical data, is usually a committee or the chief executive of the business. Committee action is normally dominated by the chief executive and as a result he probably sets more prices than any other individual or group.
It is naive to believe that the business world uses all of the symbols and terms of the economist. It is almost as artless to believe that all prices are automatically adjusted by the producer to fit every change in cost and demand characteristics within the market. The American price-maker finds himself at a loss in many cases to give a concrete definition of such terms as marginal cost and marginal revenue; yet, he grasps these concepts readily when they are explained to him. The manufacturer's knowledge of demand and cost conditions is fundamental; however, his familiarity with elasticity of demand is weak, and he many times limits his sources of cost data because of the expense involved. Prices in many cases are dependent upon individual background and experience and as such bear some necessary relationship to the history of the firm and the industry.

FACTORS IN PRICING

The primary factors in pricing are competitive conditions, cost analysis, and a reasonable return. Businessmen, through their reliance on past experience as their basis for setting prices, generally and perhaps unknowingly follow the economist's concepts; this is a case wherein cost or supply price fixes the lower price
limit and demand and competition factors set the upper price limit. There is a tendency for the businessman to use some type of price which will give him his "full cost." This bears a close relationship to the economist's cost of production concept wherein a "normal profit" is included in cost. Many businessmen use some rule of thumb method for pricing to cover this full cost, and this rule will normally be some formula arrangement with a percentage markup on overhead after figuring direct costs.

The results of the empirical analysis contained in this work lead one to believe that most firms are interested in long-run welfare; however, this position is not consistent with answers received wherein only approximately 60% of the firms indicated long-run welfare to be important. About 70% of the firms indicated that they did not select maximum revenue at all times; only about 40% of the firms felt that producers charged as much as they could. Both of these figures would indicate that long-run welfare was important. If 40% of American producers in general are not interested in long-run welfare, then apparently many businessmen operate on a very short-sighted basis. The empirical data can be interpreted to cover this lack of business foresight if we
assume that "adapting to fit the individual competitive situation" is about the same thing as promoting the long-run welfare of the firm. If this holds true, approximately 90% of all business firms examined are interested in pricing in such a manner as to survive in the long run.

Empirical data indicates that competition is not too important as a factor in pricing. Oligopoly apparently is extremely common in manufactured markets. Interviews reveal that the businessman knows little actually of his competitors insofar as number is concerned. For example, it is unusual that 85% of the large firms examined contend that they are very competitive and yet 85% of these firms indicate that they have practically no fear of competition. Manufacturing firms in 69% of all cases indicate that they do not fear competition.

No business firm can separate itself and its business activities from the impact of general economic fluctuations. Probably very few firms will ever be able to produce and sell in such a manner that continued existence as a profit-making concern will be assured over long periods of time. However, because of the contractual arrangements for raw materials, wages, selling
prices, and similar factors which are evident from the current analysis, a firm can partially insulate itself as an economic unit from many "market" adjustments.

PRICE STABILITY

Many prices for manufactured goods are very stable over considerable lengths of time. The length of this stable price period is usually determined by the production period under consideration or the catalogue-price period. Seventy-five per cent of all firms examined indicated that stable prices were desirable. Interviewed firms indicated that prices are fixed for a production period and that they usually based production upon a fiscal year. Businessmen have found that by fixing a uniform price over a period of time they are able to create some stability in the demand for their product. In any case, rigid prices are more or less forced upon the businessman by the very nature of productive processes and the length of the production period in modern industry. Empirical results show that firms are committed to holding to their price policy in times of depression. It is difficult to believe that 73% of the small firms, 52% of the medium firms, and 65% of the large firms would not adjust their prices with cost changes in depression. This points up one of the difficulties in a questionnaire
approach to gaining empirical data as compared with a direct interview method. The matter of misunderstanding a question and the interpretation of price stability and price policy perhaps leads to an unintended answer in this case.

The concept of a kinked demand curve is fairly well borne out from the results of this investigation. This concept provides a very reasonable explanation for rigid prices. It allows for a discontinuity in the marginal revenue curve and while a businessman might not know about marginal revenue he is aware that he can carry out an adjustment in cost and still maintain an overall profit at a given price and output level. This concept, if true, strikes at monopolistic competition theory since the theory depends upon a precise and refined theoretical situation wherein marginal cost always equals marginal revenue.

AGREEMENTS, MONOPOLY, AND LEADERSHIP

Agreements of a pricing nature in American industry are very hard to ascertain. Agreements in pricing are assumed to hinge primarily on collusion. There is no way to determine whether or not collusive pricing takes place in the market for the manufacturer's goods. Several firms indicated that government contract prices, which
would be bid upon, were predetermined and this would indicate that in this one field there was some collusion. It is very unusual, too, that 60% of the small firms involved in this study thought that it was true or possibly true that there was collusion in pricing. Large firms and medium firms in general deny that such pricing relationships exist.

Empirical data shows that about 90% of manufacturing firms are not interested in establishing monopoly. A basic inconsistency arises at this point between questionnaire and interview answers. All firms interviewed indicated that they would establish monopoly if at all possible; questionnaire results indicated that hardly any firm attempted monopoly. It is possible that the interpretation of the term monopoly might present a problem at this point. It is safe to assume that many firms surely attempt some monopoly elements. The problem breaks down to the fact that if they could, they would. Interviews showed, however, that private monopolies are not as ruthless and exacting in setting prices as many people seem to believe. Monopolists frequently refrain from short-run profits from fear of long-run repercussions. Most monopolists are known, and to a large extent their monopoly condition is dependent upon their own
behavior. The monopolist knows that his behavior can upset his current monopoly situation. The monopolist must exercise enough restraint to keep hostile government regulation away, and he must be careful in setting prices so high as to support rival concerns or to make it profitable to import from distant markets.

Price leadership apparently is very prevalent in manufacturing industry; yet, in many cases it is difficult to find any one particular firm that will admit to being the price leader. Much of the leadership comes about through the interaction of the decisions of a number of firms within the competing group. Normally one firm will be dominant to a limited extent; however, over a period of time the position of price leader probably shifts to other firms because of changes in the scale of output of the several competing firms. One result of the analysis presented in this work may help to solve the problem of duopoly and oligopoly when price leadership is considered. It has always been difficult to determine the extent to which a firm had knowledge of the reactions of other firms to its price policy and the impact of their price policy upon its own pricing. All firms interviewed tended to change prices "in the middle;" the use of this term
indicates that they all follow other firms in adjusting price. If this is true, they look to leadership from some source other than their immediate competitive area.

TAXATION

Taxes are an important factor in price-making, according to 78% of the firms analyzed. The term tax used here includes all taxes. Businessmen are reluctant to discuss exactly how taxes influence their prices. As a result, there is no way to gauge the use of or the importance of tax impact from a pricing standpoint. Medium firms are very impressed by the importance of taxation as it affects prices; eighty-eight per cent of these firms indicated that taxes influenced price policy. Medium firms were like all others examined, however, in stating generally that some taxes are shifted as addition to cost while other taxes are the government's share in their profit. Because of the questionnaire approach used in this survey, it is easily understood why firms would not comment fully on how they use taxes in price determination. This is one area in which there is a need for additional research.

DISCRIMINATION

Empirical results indicate that price discrimination is generally practiced by manufacturers. The
type of discrimination varies somewhat from large to small and medium concerns. The average businessman will deny that his practices are necessarily those which would be termed as discriminatory; he considers price concessions as a routine part of business operations. Such things as price differentials based upon quantity and method of sale are generally practiced by large business concerns. Small and medium firms allow many different types of differentials based upon time, person, and place and these differentials are very varied and variable.

OPERATIONAL CAPACITY

Businessmen normally establish a level of output which is somewhat below that level which they would consider to be capacity output for their business. They knowingly operate at less than capacity, and they realize that added output would reduce costs. In one sense this is illogical since most firms think that costs are of very great importance; yet even though they might reduce costs with an increase in output, they do not do so. Two considerations enter at this point. Perhaps the matter of survival and the ability to maintain the long-run well being of the firm are considered in establishing plant scale. Long-run welfare will include the safety
factor necessary to care for breakdowns and increased orders. Secondarily, this situation gives other evidence that most markets are oligopolistic by nature. It is unusual from an economic standpoint that firms would deliberately establish something less than capacity output when over 60% of all firms indicated they had a rational plan to determine the most effective scale of operations. Basically, this points up the fact that many manufacturing concerns operate in the realm of monopolistic competition wherein output will be somewhat short of that which would be achieved under pure competition.

COST ANALYSIS

Cost of production is of continuing and growing importance to the businessmen who contributed to the empirical data herein. The timing of the questionnaire had something to do with this answer. Prices have been generally stable over the past three years and yet costs have tended to increase slightly for the businessman. Naturally, he would be impressed with the growing importance of cost insofar as it affects his price and price policy.

Generally, it can be assumed that over half of the firms covered in this survey are able to figure
output and revenue that maximize profits; however, the firms examined make little or no attempt to equate marginal revenue and marginal cost knowingly. They realize that marginal cost is important to rock-bottom pricing near the margin, and they emphasize that cost accounting is growing in importance insofar as plant scale is concerned; these facts are borne out by empirical results. These considerations are interpreted to mean that monopolistic competition theory is gaining added relevance over a period of time. Large firms normally are able to establish output and revenue to maximize profits much better than medium and small firms. It is unusual that smaller firms, wherein costs should be easily computed, accurately measured this profit maximization point in only 27\% of the cases studied.

The manufacturing firms examined apparently do not know the purpose of the accountant as he is pictured by the economist. In general, businessmen said that there was no particular balance sheet position that needed attention in their firms. This is unusual when it is considered that the action of accountants should be to place the business in a better position. All businessmen constantly attempt to better the balance sheet of their business if they consider the long-run welfare
of their firm as the basis for pricing. This particular condition can be found only in the statements prepared by the accountants as of some particular time.

GENERAL CONCLUSIONS

Conventional marginal analysis with some necessary amendments can be assumed to be applicable to the productive and pricing situations of those firms which fix the price for their products. However, the marginal analysis must be regarded only as a general application in a broad and not in a precise sense. The necessary amendments are based primarily upon the fact that businessmen implement their decisions upon forecasts based upon past experience and this in reality is in most cases only an informed guess.

The average manufacturer examined in this work does not have the control over output and price which is assumed by the conventional analysis of monopolistic competition. A differentiated product will not allow all firms to fix the price of their product in the sense that they have monopolistic powers. Instead, even with differentiated products, manufacturers find that they must hold their prices and products in alignment with those in the market. Prices will not necessarily be
uniform and neither will the products be absolutely homogeneous. The differences will not be great enough, however, to allow the control which Chamberlin and Robinson foresee. This is evident from the fact that many firms follow price movements initiated by known or unknown price leaders; these price-following firms have no specific price policy of their own necessarily.

These observations and conclusions are those which are seemingly self-evident from the materials contained in Chapters 2 and 3. No attempt has been made to establish models which require abstract and unrealistic assumptions for their general acceptance. The fact that marginal analysis has had some doubts cast upon it does not destroy its overall validity; it is hoped that this work has shown how marginal analysis can be interpreted to apply to business practice in a general if not in a specific and precise manner.
SeleCteD BIBLIOGRAPHY

BOOKS


Thompson, A. J. The Relation of Production, Consumption, and Buying Power to Demand and Supply. Cleveland: Brooks Co., 1930.


PAMPHLETS AND REPORTS


ARTICLES


VITA

Billy Jean Hinton, son of Lem and Gertrude Hinton, was born on the twenty-first day of March, 1923, in Fort Worth, Texas.

He attended schools in Fort Worth and Longview, Texas, graduating from White Oak High School (Longview) in May, 1940. He entered Baylor University, Waco, Texas, in September, 1940. In February, 1943, he was called into the Army Air Force and was discharged as a fighter pilot in July, 1945. Upon returning to Baylor University he completed a Bachelor of Arts degree in 1946 and a Master of Arts degree in 1947. He entered Louisiana State University in September, 1947, for one semester, returning to Baylor University as an Assistant Professor in February, 1948. He taught at Baylor for one and one-half years and returned to Louisiana State University on a leave of absence from September, 1949, through August, 1951, to complete the academic requirements for the Doctor of Philosophy degree.

At the present time he is an Associate Professor of Economics at Baylor University and a candidate for the degree of Doctor of Philosophy at Louisiana State University.
EXAMINATION AND THESIS REPORT

Candidate: Billy J. Hinton

Major Field: Economics

Title of Thesis: An Economic Analysis of Selected Factors in Industrial Pricing Techniques

Approved:

Major Professor and Chairman

Dean of the Graduate School

EXAMINING COMMITTEE:

Date of Examination: July 22, 1955