

THE DEVELOPMENT OF THE THEORY OF MONOPOLY PRICE:  
FROM CARL MENGER TO VERNON MUND

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*Menger's logical analysis of monopoly trade was an original piece of work. Therefore, economists had always made a distinction between the fundamental nature of monopoly price and competition price. Menger found, however, that all prices are determined by subjective valuation, and that the effect of competition is only to call forth a different supply or a different set of prices. . . . This new and unified analysis of monopoly and competition made Menger's work a signal contribution to economic theory. (Mund 1933, p. 76)*

## 1. INTRODUCTION

There are a variety of reasons for surveying the theory of monopoly price as it evolved in Austrian economics prior to Ludwig von Mises's revival and restatement of it in *Human Action* in 1949 (Mises 1998a, pp. 354-76). First there has been a number of articles written elaborating and comparing Rothbard's and Mises's theories (Armentano 1976; Armentano 1988; Block 1977; O'Driscoll 1982; and Young 1992), but almost nothing written on the monopoly theories of earlier Austrians. Second, the Austrian literature on monopoly has tended to focus on a few salient differences between Mises's and Rothbard's theories while neglecting their many similarities. As a result of these two facts, the Mengerian roots and doctrinal continuity of the development of the theory of monopoly between Mises and Rothbard have been lost sight of by Austrians while the differences between the two in this important area have been exaggerated. In fact, both Mises and Rothbard perceived the similitude between their theories. Rothbard (p. 909, n. 40), for example, justified the significant amount of space he devoted to the "analysis of monopoly-price theory and its consequences" in *Man, Economy and State*, noting "the

theory, though invalid on the free market, will prove very useful in analyzing the consequences of monopoly grants by government.” Mises, for his part, apparently either completely accepted Rothbard’s emendation of the theory or at least thought that Rothbard’s reformulation was extremely important. Thus Margit von Mises (1984, p.160) recounted an incident at the 1965 Mont Pelerin Society meeting in Stresa in which the translator of *Human Action* into Spanish, Joaquin Reig, asked Mises his opinion of Rothbard’s disagreement with his treatment of monopoly theory in *Man, Economy, and State*. According to Mrs. Mises, Mises replied: “Whatever Rothbard has written in this work is of the greatest importance.” However, the Spanish economist Jesús Huerta de Soto (1997, p. 1) reports that when Reig himself used to retell this incident he would quote Mises’s reply as: “I agree with every word Professor Rothbard has written on the subject.” In either case, Mises surely recognized the close affinity between his own and Rothbard’s version of monopoly theory.

Another important reason for investigating the development of the theory of monopoly price is the fact that it was integral to the vision of the competitive pricing process first delineated by Menger and later elaborated further by his followers including some of the most eminent price theorists of the late-nineteenth and early-twentieth centuries, such as Eugen von Böhm-Bawerk, J.B. Clark, Philip Wicksteed, Frank A. Fetter, and Herbert J. Davenport. Moreover, this theory, although it had not yet been perfected, yielded a multitude of fruitful insights into the phenomena of monopoly and competition, yet suddenly sank without a trace in the rapidly rising tide of the Monopolistic/Imperfect Competition Revolution (henceforth referred to simply as the

“Monopolistic Competition Revolution”) of the early 1930’s.<sup>1</sup> Given its venerable origins in the Marginalist Revolution and the fact that it constituted the premier “neoclassical”—in this case including Austrian—approach to monopoly for nearly the first six decades of the development of modern economics, the theory and its doctrinal evolution deserve to be brought to the attention of the contemporary economics profession. But there is a second reason, aside from curiosity about the intellectual roots of modern monopoly theory, to recommend the theory to the attention of modern economists. The theory of monopoly price has much to say by way of critique about the current neoclassical analytical apparatus, including the elasticity of demand curves facing individual producers under competition, the time perspectives that are most relevant in analyzing the pricing process, the proper role of long-run equilibrium in this analysis, and the misapplication of the marginal revenue and marginal cost concepts.

Section 2 provides an in-depth discussion of Menger’s treatment of monopoly and competition because he was the originator of the theory of monopoly price and his original articulation of the theory contains most of the elements found in later statements of it. Section 3 deals with the treatment of monopoly by Menger’s immediate followers Böhm-Bawerk and Wieser. While the former gave only a compact presentation of the theory, Wieser advanced it in some important respects. John Bates Clark, who added a crucial element to the theory, is dealt with in Section 4, while Section 5 reviews the work of other Anglo-American followers of Menger, who integrated monopoly price theory into the exposition of general price theory in influential treatises published around the

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<sup>1</sup> The initial failure of this tradition, was partly attributable to the fact noted by Rothbard (1993, p. 593) that the conception of monopoly central to it “has never been explicitly set forth, but it has been implicit, in the most worthwhile of the neoclassical writings on this subject.” Rothbard (1993, p. 908, fn. 36) also recognized some of the important contributors to this tradition before Mises, including Menger, Wieser, Fetter and Harry Gunnison Brown.

inception of the First World War. The authors of these treatises were Wicksteed, Fetter, and Davenport. In Section 6, the contribution of a now obscure economist, Vernon Mund is reviewed. Mund was a graduate student of Frank Fetter's who wrote a now forgotten but important monograph on monopoly theory published in 1933 that contained the most sophisticated exposition of the theory of monopoly price before Mises's reformulation in *Human Action*. This section draws out the critical implications of Mund's formulation of the theory for the current neoclassical orthodoxy in general price theory. The concluding section of the paper suggests reasons why the theory, despite its many merits and its impeccable doctrinal pedigree, was swept aside in the 1930's with virtually no resistance from its most prominent exponents.

## 2. CARL MENGER

In the Preface to his *Principles of Economics*, Menger (1976, p. 49) declared his intention “of establishing a price theory based upon reality and placing all price phenomena (including interest, wages, ground rent, etc.) together under one unified point of view.” In other words Menger's central project was to formulate a realistic and integrated analysis of how actual prices of consumer goods and factors of production were determined.<sup>2</sup> Menger's concern to explain real prices is embedded in his definition of prices as “the quantities of goods actually exchanged” (Menger 1976, p. 191). This concern led Menger to eschew the long-run equilibrium analysis of the British classical school and direct his analytical focus to the dynamic, real-world pricing process and the series of exchanges that constituted it. To elucidate the causes and consequences of this process, Menger originated a method based on the insight that every causal process has

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<sup>2</sup> For the details of Menger's reconstruction of price theory, see Salerno 1999a.

both a beginning and an end. According to this method, therefore, any actual exchange process is fully explained by identifying both the conditions that initiate it and keep it in motion and the conditions that bring about its cessation.

For Menger an exchange occurs whenever two economic agents value given quantities of different goods in their possession in inverse order. The initiating cause of an act of exchange is thus the existence of conditions that offer the prospect of enhanced want satisfaction to the participants. The exchange proceeds until the marginal utility of an additional quantity of the good received in the transaction falls below the marginal utility of the quantity of the good parted with for at least one of the parties. Or, as Menger (1976, p. 187) put it, “The limit [to exchange] is reached when one of the two bargainers has no further quantity of goods which is of less value to him than a quantity of another good at the disposal of the second bargainer who, at the same time, evaluates the two quantities of goods inversely.” Hence, the exhaustion of mutual benefits is the condition that results in the cessation of an exchange, bringing about a momentary interruption or state of rest in the pricing process. Indeed, according to Menger (1976, pp. 191-192), realized prices, or “the quantities of goods actually exchanged,” are themselves indicative of the momentary exchange equilibria that continually punctuate the catallactic process: “Prices are only incidental manifestations of [economic] activities, symptoms of an economic equilibrium between the economies of individuals.” Finally, Menger clearly believed that his concept of exchange equilibrium described an integral, attainable, and real condition of the dynamic market process. Wrote Menger (1976, p. 188):

[T]he foundations of economic exchanges are constantly changing, and we therefore observe the phenomenon of a perpetual succession. . . . But even in this chain of transactions we can, by observing closely, find points of rest at particular times, for particular persons, and with particular kinds of goods. At these points of rest, no exchange of goods takes place because an economic limit to exchange has already been reached.

Menger viewed the explanation of the formation of prices under monopoly conditions as an integral component of his unified, causal-realistic theory of price. Accordingly, he analyzed “price formation under monopoly” immediately after “price formation under isolated exchange” between two people and *before* he treated the determination of prices under competitive conditions. In his analysis he defined the monopolist “in the widest sense” as the sole owner of a particular kind of good, whose minimum selling price for the good is exceeded by the maximum buying prices of two or more individuals who desire to possess the good. In the case in which the seller possessed only a single unit of the monopolized good, its price would be bid up by the competing buyers to the level at which all but the buyer with the highest maximum buying price—let us call him “the most capable buyer”—are excluded from acquiring it because they find the exchange at that price would require the sacrifice of a more valuable quantity of the good offered. The monopoly price would therefore come to rest within the limits defined by the maximum buying price of the most capable buyer at the upper end and the maximum buying price of the second most capable buyer at the lower end.

In the more usual case in which the monopolist possessed multiple units of the good, Menger (1976, p. 207) demonstrated that the price would be determined “between limits that are set by the equivalent of one unit of the monopolized good to the individual least eager and least able to compete who still participates in the exchange and the equivalent of one unit of the monopolized good to the individual most eager and best able to compete of the competitors who are economically excluded from the exchange.” Thus for example, if the monopolist possessed a stock of five units of the good, its price would settle in the range between the respective maximum buying prices of the fifth and sixth most capable buyers.

Menger (1976, p. 207) deduced the following principles from this analysis. First, units of the “monopolized good” would be distributed among buyers in such a way as to fully exhaust the gains from trade and thereby to precipitate a state of rest or non-exchange. This means that each buyer would purchase units of the monopolized good up to the point where an additional unit of the good would have a lower value than the quantity of the good that constituted its purchase price. Second, the larger the quantity of the monopolized good offered for sale the lower its price would be and thus the more fully provided would the more capable buyers be while fewer less capable buyers would be altogether excluded from obtaining units of the good.

Menger (1976, pp. 207-208) recognized, however, that monopolists seldom intend to sell the entire stock of the good they bring to market “under all circumstances” and “await the result of competition in determination of the price, as at an auction.” Rather, the “ordinary procedure” is for a monopolist to establish a reservation price and sell whatever portion of the stock buyers demand at that price. In this more typical case, the

following principles apply (Menger 1976, p. 210). The demanders who rank the quantity of the offer good representing the monopolist's reservation price above even one unit of the monopolized good are excluded from acquiring any of the monopolized good, while those demanders for whom the value of a unit of the monopolized good initially exceeds the reservation price will acquire units of the good up to the point at which the value of an additional unit ranks below that of the purchase price. Thus the higher the price set by the monopolist, the larger the group of extra-marginal demanders, the less purchased by the infra-marginal demanders and the lower the sales of the monopolist.

Menger (1976, p. 211) concluded that monopoly price formation was strictly governed by the general law of exchange: "Not only does the general principle of all economic exchanges of goods, according to which both parties must derive an economic advantage from an exchange, maintain its validity unimpaired in the case of monopoly, the monopolist is not completely unrestricted in influencing the course of economic events." The monopolist, according to Menger (1976, p. 211), cannot choose to sell a particular quantity of the good and then "fix the price at will"; nor can he fix the price and then determine the quantity of the good that will be sold on the market. What does give the monopolist "an exceptional position in economic life" is his ability to choose between setting a fixed price *and* selling a given quantity "without regard to other economizing individuals." This choice means that the monopolist possesses the power to increase his economic gain by restricting supply by either destroying some of the monopolized good already in existence or by destroying or leaving unutilized some of the productive resources under his control.

Menger (1976, p. 212) pointed out, however, that the incentive to utilize his power to restrict supply depended on the structure of the monopolist's demand schedule, noting that it is "entirely erroneous to assume that the price of a monopolized good always, or even usually, rises or falls in exactly inverse proportion to the quantities marketed by the monopolist." To illustrate his point Menger gave the example of a monopolist who can sell 1,000 units at a per-unit price of 6 florins, and 2,000 units at per-unit prices of either 2, 3, or 5 florins depending on whether this segment of his demand curve was inelastic, unitary elastic, or elastic, respectively (although Menger did not use these terms). It is in the monopolist's "economic interest" to restrict supply to 1000 units and reap gross receipts of 6,000 florins only if his demand is inelastic and selling 2,000 units at 2 florins apiece would yield him gross revenues of 4,000 florins. If his demand were elastic, then he would be able to earn gross revenue of 10,000 florins at a price of 5 florins per unit and would bring the full amount of the good to market. Should the demand schedule between 1,000 and 2,000 units display unitary elasticity, 2,000 units would clear the market at 3 florins per unit and generate total revenue of 6,000 florins. In this case the monopolist would be indifferent between restricting supply and selling his entire stock (assuming that he has the stock already in inventory and is therefore interested only in maximizing total revenue).

In sum, according to Menger (1976, pp. 213-14), assuming

that all monopolists are economizing individuals aware of their advantage, then their policy is directed naturally neither to fixing the lowest possible price, nor to selling the largest possible quantity of the monopolized good. . . . [The

monopolist's] economic policy is directed to making a maximum profit from the quantity of the monopolized good available to him. He does not, therefore, auction off the whole amount of the monopolized good at his disposal, but markets only such an amount as promises, at the expected price, to yield him the greatest profit. He does not fix the price at the precise level at which he can sell the whole quantity of the monopolized good at his command, but instead at the level likely to yield the maximum profit.

Menger took pains to emphasize that the formation of the monopoly price, no less than any other price phenomenon, resulted from the actions undertaken by economic agents guided by economic calculation and that this calculation resulted in the revelation of one and only one course of action that was optimal from the monopolist's point of view. Moreover this course of action was absolutely determined by the overall market situation, resisted arbitrary modification by the monopolist's will, and was strictly in accord with the laws of price. Concluded Menger (pp. 215-16):

Even the fact that it is in the power of the monopolist to choose either his price or the quantity sold does not . . . imply any indeterminacy of the economic phenomena resulting from his decision. Although the monopolist has the power to set higher or lower prices, or to market larger or smaller quantities of the monopolized good, there is only *one particular* price and only *one particular* quantity of the monopolized good brought to market that corresponds most exactly to his economic interest. . . . Each given economic situation sets definite

limits within which price formation and the distribution of goods must take place, and any other price and distribution of goods that is outside these limits is economically impossible. The phenomena of monopoly trade present us therefore with a picture of strict conformity, in every respect, to definite laws.

What differentiates monopoly from competition, in Menger's view, is not the structure of the market but either "different quantities of the good offered for sale" or "different prices." To illustrate this point Menger (1976, pp. 221-223) compared the case of a monopolist who controlled the entire 1,000-pound supply of a commodity to that of a duopoly in which an equal supply of the same good was evenly split between non-collusive duopolists who made their price (or quantity) decisions completely independently of one another. Menger (1976, p. 221) referred to the latter as "a case of real competition." Assuming that the monopolist faced a demand schedule in which the demand price for 1,000 units was 6 ounces of silver per pound and the demand price for 800 pounds was 9 silver ounces per pound, the monopolist would exploit the inelasticity in his demand schedule and restrict supply by 200 pounds thereby maximizing total revenue. However the duopoly would result in no restriction of supply and a price-quantity outcome of 1,000 pounds sold at 6 ounces a pound. The reason is that the demand curve facing a single duopolist is elastic above the "competitive" price consistent with the sale of the entire stock. Thus if duopolist A were to restrict his supply from 500 to 300 pounds, his total revenue would decline from 3,000 ounces of silver (= 6 oz./lb x 500 lbs.) to 2,700 ounces of silver (= 9 oz./lb. x 300 lbs), while his rival B would reap the

benefit with an increase in total revenue from 3,000 ounces of silver to 4,500 ounces (= 9 oz/lb. x 500 lbs).

“True competition” would thus avoid “the socially most injurious outgrowths of monopoly,” including the destruction of a portion of the available stock of a commodity and the destruction or non-utilization of a portion of the resources specific to its production, e.g., the burning of rubber trees or the idling of copper mines. Competition would also result in a lowering of per unit cost and a progressive expansion of the output of the commodity beyond the amount produced by the full utilization of the capacity available under monopoly and a corresponding decrease in the competitive price itself (Menger 1976, pp. 223-24). The reason for the latter result is “Competition leads ... to large-scale scale production with its tendency to make many small profits and with its high degree of economy, since the smaller the profit on each unit the more dangerous becomes every economic waste. . . .” (Menger 1976, p. 225). Finally, just as in the case of the monopolist, each competitor is guided by economic calculation to offer “his commodity at a set price, which he computes so as to yield him the largest possible proceeds.” The distinction between the behavior of a competitor and “that of a monopolist is that the latter will often . . . find it to his interest to fix his price so high that only a part of the quantity available to him reaches the consumers, while competition forces every competitor to fix his price with regard to the entire quantity in his own and in his competitors’ hands”( Menger 1976, p. 225).

It is important to note a few other salient elements in Menger’s theory of monopoly and competition. First, what Menger (1976, pp. 223, 224) called “true competition” does not require the existence of a multitude of competitors each of whom

confronts a perfectly elastic demand curve. All competitors, like the duopolistic rivals in Menger's example above, face negatively-sloped demand curves and possess the "market power" to increase price by restricting their own supply. However, they are precluded from such behavior by demand curves that are much more elastic for competitors than for the monopolist above the price that is consistent with the sale of the entire stock of the good available or the complete utilization of a specific factor necessary for the production of the good, as the case may be. Thus economic calculation reveals to monopolist and competitor alike the price that conforms to their maximum total revenue or profit.

Second, Menger (1976, p. 217) distinguishes between monopoly "as an actual condition" and "as a social restriction on free competition." In the case of the former type of monopoly, progress in the extension of the market for the product usually results in a situation in which "the need for competition itself calls forth competition, provided there are no social or other barriers in the way." Thus Menger suggests, if he does not explicitly identify, the importance of potential competition in precluding monopolistic pricing on the free market. Moreover, the two concrete historical examples of monopoly supply restriction provided by Menger (1976, pp. 214-15) are the Dutch East India Company and medieval guilds, both of which were founded on legal barriers to competition.

Most of the characteristics of modern Austrian monopoly theory as developed much later in Mises's and Rothbard's works can already be found in Menger's treatment of the subject. For Menger, monopoly is a strictly catallactic or exchange phenomenon and is manifested in the emergence of a monopoly price in an otherwise competitive market economy. All sellers in all markets always face demand curves that are less than

perfectly elastic and the fewness of sellers in a market does not affect its competitiveness. True competition and the absence of monopolistic restriction of supply may occur even in markets where there exist as few as two independent sellers. Moreover, in many cases, potential competition is actuated by a monopoly price and tends to undermine and erode the conditions upon which it is established. Finally, even in the case of a single seller unthreatened by potential rivals the elasticity of the overall market demand curve for the monopolist's good may render the achievement of a monopoly price impossible.

### **3. EUGEN VON BÖHM-BAWERK AND FRIEDRICH VON WIESER**

Böhm-Bawerk was the first to develop Menger's price theory into a complete theory of pricing of all orders of goods, including "higher-order goods" or factors of production, and thus to integrate the explanation of money costs of production into Austrian price theory.<sup>3</sup> Like Menger, Böhm-Bawerk focused on explaining real market prices and quantities using the analysis of exchange pioneered by his mentor. This analysis led him to the conclusion that all market prices are determined within the range defined by the "marginal pairs." The temporary cessation of exchange that ensued in every market after buyers and sellers had exhausted the gains from all mutually beneficial trades at the realized price, Böhm-Bawerk (1959a, p. 231) referred to as "a momentary equilibrium." Böhm-Bawerk's characterization of this analysis left no doubt that he believed that it was suited for explicating the formation of actual, and not long-run equilibrium, prices:

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<sup>3</sup> As Lewis H. Haney (1949, p. 615) noted: "He it was who first among the Austrians gave us a well-rounded attempt to bridge the gap between the subjective and the objective, and to develop a complete theory of objective exchange value and price." For a brief overview of Böhm-Bawerk's important role in the development of Mengerian causal-realistic price theory see Salerno 1999b, pp. 37-39.

We have here hit upon the simplest and most natural, and indeed the most productive manner of conceiving exchange and price. I refer to the pricing process as a resultant from all the valuations that are present in society. I do not advance this as a metaphorical analogy, but as living reality (Böhm-Bawerk 1959a, p. 229).

Despite the fact that he substantially advanced Mengerian price theory on a number of fronts, Böhm-Bawerk wrote surprisingly little on monopoly theory, but what he did write demonstrated that he completely accepted Menger's theory, which conceived monopoly as a catallactic phenomenon and a monopolist as one who was in a position to exact a monopoly price. In a small section in his famous article on "Control or Economic Law?" Böhm-Bawerk (1962, p. 155) characterized a monopolist as a seller who "can arbitrarily determine amount and intensity of supply he may wish to offer" because he enjoys exclusive control of the supply of a particular good. The monopolist, however, is constrained by the shape of his demand curve and the law of price determination because "he must always reckon with the restriction of the quantity that can be sold at the higher price" and he can "never escape the economic law according to which the price is fixed at the intersection of supply and demand." Nonetheless, his complete control over supply gives him the power "to select that point of intersection at a low or at a high point on the scale of possible prices." Böhm-Bawerk (1962, p. 156) thus recognized the importance of the elasticity of demand in monopolistic price setting, which aimed at "that price at

which the combination of profit for each article, and the number of articles to be sold at that price, are likely to promise the greatest possible profit.”

Wieser, although he developed a general-equilibrium approach to overall price theory that diverged sharply from Menger and Böhm-Bawerk’s approach, capably elaborated Menger’s theory of monopoly price and attempted to extend it, not particularly successfully, to “intermediate forms” or “monopoloid institutions” in which elements of monopoly and competition coexist.<sup>4</sup>

According to Wieser (1967, p. 211) monopoly is a catallactic phenomenon whose typical embodiment is the “supply-monopoly” which is the only type, “as a rule, known as monopoly pure and simple.” As such, monopoly is inescapably subject to the immutable laws of price theory. According to Wieser (1967, p. 211):

The monopoly of supply, precisely like the competitive supply, conforms to the fundamental law of the formation of prices. It does not enjoy any special advantage in this respect, for the supply-monopolist has anything but the power to dictate prices according to his discretion. He, no more than others, can overcome the weight of the decisive marginal bid. However, his controlling position in the market certainly gives him a number of opportunities to influence the market, so that the marginal-offer occurs at a higher figure.

In differentiating between monopoly price and competitive price, Wieser (1967, p. 216) emphasized the catallactic nature of monopoly, taking the “primary meaning” of

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<sup>4</sup> For an exchange of opposing views on whether Wieser could be considered a general-equilibrium theorist, see Caldwell 2002 and Salerno 2002.

the term as indicating “the position occupied by the sole vendor,” while allowing “a derivative use of the term to describe the position of the sole producer.” Thus Wieser followed Menger and Böhm-Bawerk in giving analytical priority to the actual market situation in which an existing supply was already in the hands of the seller(s) whose interest was to maximize “gross return” or total revenue. Under certain circumstances, the monopolistic vendor would be able to maximize his revenue by withholding a portion of his supply of goods from the market, “to allow them to perish, unused.” The condition that must obtain in order for the restriction of supply to benefit the monopolist is a demand curve for his wares that is inelastic above the price determined by the effective marginal bid for his entire stock. As Wieser (1967, p. 204) expressed it, monopolistic withholding “is likely to happen whenever their experience of the market leads vendors to infer that, owing to the consequent shrinkage of supply, prices must rise sufficiently to enable them to obtain for the rest of their stocks a larger gross return than they could have obtained by the sale of the undiminished stocks.”

In contrast, under competitive conditions, according to Wieser (1967, p. 204), no seller would withhold any part of his stock from sale on the market because each seller “knows that his competitors alone would reap the advantage of his withholding wares; for these competitors would surely take advantage of the higher price in order to throw as many of their wares as possible into the market.” In other words, the competitive seller faces a highly—although not perfectly—elastic demand curve above the unrestricted supply price and this fact creates a situation in which he maximizes his total revenue by offering his entire stock for sale. Thus for Wieser, as for Menger, the number of rival sellers in a particular market has no direct bearing on whether a competitive price will be

established. Indeed, Wieser (1967, p. 212) explicitly recognized that a competitive price might not infrequently emerge even in a market with one seller, given the appropriate configuration of the demand curve. Wrote Wieser: “It is by no means impossible that the monopolist’s advantage coincide with that of the demand; his total gains may be highest, when he sells the greatest quantity. Possibly this may be the rule.”

Wieser (1967. 212) also recognized that a monopolist could achieve a monopoly price either by deciding on the quantity to be offered for sale and permitting the monopoly price to emerge from the bids of the buyers or directly calculating and setting the price and allowing the buyers to decide on the quantities to be taken at that price. In the usual course of affairs, Wieser (1967. 212) maintained, “the second method is the one generally determined upon, the calculation being more transparent. His experience of the market will soon teach the monopolist on what quantities of sales he may count with a certain definitely settled price.”

Wieser went beyond Menger to contrast the production decisions and profit outcomes between competitive and monopolistic markets. In competitive markets what Wieser calls “the law of cost-price” holds sway. According to Wieser (1967, p. 205),

By the pressure of competition, manufacturers are compelled actually to produce the entire quantity of wares, which market conditions allow. Producers will not stop manufacturing, until the marginal bid, determined by the receptivity [i.e., elasticity] of the demand, coincides with the cost-price. . . . Not until this occurs, not while any products are being turned out whose sale prices leave higher

remuneration for the cost elements, will the pressure of competition cease to urge on an increase in the manufacture of these products.

This means that in the long run rivalrous, profit-seeking producers will expand supply to the point where the market price as determined by the “marginal bid” is equal to per-unit or average cost, or “cost-price” in Wieser’s terminology. Given the highly elastic demand curve facing a competitive producer, should he attempt to reduce production and thus increase the marginal bid, the profit will accrue to his competitors and will ultimately be eliminated by the expansion of the output of rival producers.

Wieser also pointed out that even where the market demand curve was highly inelastic at prices greatly exceeding the cost-price, as he believed was the case for certain luxury items and for food staples like bread or salt, the law of cost-price operates to expand supply and obliterate all profit above the “average wages of management” for competitive producers.<sup>5</sup> The only instances of competitive production where, according to Wieser (1967, pp. 206-207), the competitive price does not coincide with the cost-price in the long run involve those production processes that required a “specific” factor of production like diamond mines whose use in diamond production incurs no opportunity cost. In these cases, the competitive price of such “specific products” as gem-quality diamonds would remain above the average cost of the “nonspecific” factors of production, i.e., those that have an opportunity cost in alternative lines of production, thus leaving an unspecified margin of rent for the specific factor. Nonetheless, even in these

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<sup>5</sup> Wieser (1967, pp. 52-53, 100-102, 178-89), like Böhm-Bawerk (1959a, pp. 140, 215-35), employed discontinuous marginal utility scales and demand schedules in his analysis as a more realistic representation of real-world value and price phenomena. This is also true of modern Austrians such as Mises and Rothbard.

cases, competition will compel producers “to fully exploit the opportunity of specific production, in order to realize for the specific factor the highest price-utilization which is obtainable in view of the quantity of specific products that can be produced.” Any withholding of part of the capacity of a specific factor from production by a competitive producer will cause him to forfeit rents because of the highly elastic structure of his demand curve, while redounding to the benefit of his rivals who reap a higher rent margin for the specific factor at the increased price.

The monopolistic producer, unlike the competitive producer, is not “bound by the law of cost-price.” He operates similarly to the competitive producer of specific products, in that he “can sell [monopolized products] as specific products at a price exceeding the cost-price and leaving him a greater profit than the average wages of management” (Wieser 1962, p. 213). In order to realize this monopoly price for his product, the monopolistic producer of a good that requires only nonspecific inputs will reduce his output by hiring fewer inputs. The monopolistic producer of a “specific scarcity product” like diamonds will restrict production even beyond conditions dictated by the natural scarcity of the specific factor, which will enable him to expand its rent margin beyond what it would be under competitive conditions. In the case of a commodity like salt whose demand, Wieser (1962, p. 214) claimed, becomes almost perfectly inelastic below a price that is substantially in excess of the price corresponding to its average cost, the monopolist would be able to raise price without the necessity of restricting production “as he utilizes the differential between cost price and the higher appraisal of the demand.”

As mentioned above Wieser (1962, p. 220) also attempted to formulate a theory of “monopoloid institutions,” defined as the “numerous intermediary forms [that] occur in great variety between competition and monopoly.” Not only was this attempt at odds with his clear-cut analysis of monopoly price, it was a failure because as Mund (1933, p. 80) pointed out, Wieser “develops . . . no special body of theory for these midway forms.” Nevertheless, Wieser’s discussion of monopoloid institutions yielded several important insights for the further development of the theory of monopoly price.

In discussing cartels, Wieser (1967, p. 225) argued that a cartel is able to restrict supply and “determine the price like a monopolist.” However he also drew attention to the dynamic competitive forces that were operating internally and externally to destroy the cartel. The production quotas agreed to by cartel members restrict market supply but do not result in a full “production-monopoly.” Hence, according to Wieser (1967, p. 225):

A considerable latitude is left open to the functioning of competition. Here again we find an explanation of the fact that the kartel [sic] is never agreed upon, except for relatively short periods of time. The owners of works which are capable of higher development, hope to secure a more favorable quota on the renewal of the agreement; or they may possibly retire altogether from the deal, unless more favorable concessions are made to them. Under some circumstances the germ of competition, which still lies within the kartel [sic] may again be aroused to full strength. The dissolution of the combine may follow.

Competitive forces also undermine the cartel from the outside. According to Wieser (1967, p. 225), in a period of economic progress, of capital accumulation and technological improvement, “the impulse of competition will remain active even outside the kartell [sic]. The latter will never be able to prevent the formation of new enterprises sufficiently strong to carry on the conflict of competition, at least up to the time when they will have forced an entrance into the combine on favorable terms.” New entrepreneurs will also arise to challenge the cartel during “these periods of great capitalistic-technical advance.”

Wieser (1967, p. 225) also treated the trust, which he characterized as “much more firmly unified than the combine,” under the rubric of monopoloid institution. However in analyzing the trust characterized by complete vertical-integration, which he called the “total-enterprise,” Wieser argued that competitive pricing may well occur in markets with a dominant firm facing potential competition. Thus, according to Wieser (1967, p. 226), in some cases the total-enterprise was able to attain such a level of efficiency as a result of the economies of integration that it “renounces monopolization of production and market” and maximizes its profit by increasing supply and charging a competitive price. As Wieser (1967, p. 226) explained:

At a price, which barely covers the costs of competing enterprises, it earns an industrial rent, leaving a profit which could never be exceeded by an effective monopoly. A trust of this sort does not enforce monopoly prices; neither does it require them; the competitive price, determined by the law of highest costs, is favorable enough for the trust. A trust of this sort will exert extreme pressure on

competing enterprises; by the magnitude of its supply and the lowness of its costs, it will crush the competitors that work under the most unfavorable conditions, but who had hitherto still been admitted in their supply. The trust cannot set price quite so high, as it might have done monopolistically, even though the price is determined by the law of highest costs. None the less [sic], the market price will still leave a considerable surplus over and above trust costs. In a case of this sort there is no monopoly, possibly not even a monopoloid institution. . . .

In effect, Wieser was arguing that integrated firms that dominated markets as a result of efficiency operated to promote and not hinder competition and would be restrained from attaining a monopoly price by the extreme supply elasticity of its active and potential rivals at prices above the competitive price.

#### **4. JOHN BATES CLARK**

John Bates Clark, the acknowledged leader of the American wing of the Austrian school, hailed Menger, Böhm-Bawerk and Wieser as his forerunners in the work of reconstructing economic theory and was recognized by later native-born Austrians, including Mises and Hayek, as an important contributor to the Mengerian tradition.<sup>6</sup> Although Clark did not present a complete theory of monopoly price, he was the first to elaborate and emphasize the role of potential competition in preventing the attainment of a monopoly price.

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<sup>6</sup> For discussion of Clark's place in the Mengerian tradition see Salerno 1999, p. 54, fn. 36 and the sources cited therein.

Clark (1907, pp. 143-150) portrayed “perfect competition” or “perfectly free competition” as a static state in which perfect mobility and timeless adjustment ensured that all labor and capital always received their full marginal product. However, he characterized “active competition” under dynamic conditions as a process “which spurs on mechanical invention and causes a large profit to be realized in a particular [industry] ... calling labor and capital quickly to the point at which the profit appears” (Clark 1907, p. 198). Competition in this sense tends to completely eliminate profit and adjust wages and interest to their new “static standards.” Clark (1907, p. 373) clearly saw that the competitive adjustment process took time and that its temporal and, therefore, entrepreneurial aspects must be accounted for in economic theory:

The retarding influence is a fact that should be as fully recognized in a statement of the law of profit as any other. The existence of it is an element in the theory of *entrepreneur's* profit. Improvements which reduce the cost of goods enhance the product of labor, and this sets a higher standard for wages than the one that has thus far ruled; but a delay occurs before the pay of workmen rises to the new standard. Adjustments have to be made that require time, and these are obviously elements that must be incorporated into an economic theory as any with which it has to deal.

The essence of competition for Clark (1907, pp. 201-202) then was “the continuance of an active rivalry” in an industry, requiring as few as “five or six competitors” in order to “survive and be extremely effective.” Clark (1907, pp. 374, 375)

conceived monopoly as “the very antithesis of competition” and a “perverting influence” on the catallactic phenomena—the prices, interest and wage rates—that compose the dynamic and competitive adjustment process. Under monopoly, according to Clark (1907, p. 377):

Prices do not conform to the standards of costs, wages do not conform to the standard of final productivity of labor, and interest does not conform to the marginal product of capital. The system of industrial groups and subgroups [overall lines of production and the particular industries they comprise] is thrown out of balance by putting too much labor and capital at certain points and too little at others. Profits become not altogether a temporary premium for improvement,—the reward for giving to humanity a dynamic impulse—but, partly the spoils of men whose influence is hostile to progress.

Clark (1907, p. 380) identified two types of monopolies, the “true monopoly” and the “formal monopoly.” The former is endowed with or has somehow appropriated “the exclusive privilege of making and selling a product.” For a true monopoly to exist, therefore, it is not enough that “there is only one establishment which is actually creating the product,” it must also be the “only one that is able to do so.” In contrast, a formal monopoly exists where a business is the sole supplier to the market of a particular kind of good, yet refrains from selling at a price much above its average cost of production for fear that “a higher price would invite competition.” According to Clark (1907, pp. 380-81):

This is a monopoly in form but not in fact, for it is shorn of its injurious power; and the thing that holds it in check is *potential competition*. The fact that a rival *can* appear and *will* appear if the price goes above the reasonable level at which it stands, induces the corporation to produce goods enough to keep the price at that level. Under such a nearly ideal condition the public would still get the full benefit of the economy which very large production gives, notwithstanding that no actual competition would go on.

Clark's was the clearest statement yet that market structure was completely irrelevant to the theory of monopoly price. In fact, Clark (1918, p. 381) portrayed a regime of formal monopolies as the most optimal state imaginable, stating, "The most economical state conceivable is one in which, in many lines of business, a single great corporation should produce all the goods and sell them at a price so slightly above their cost as to afford no incentive to any other producer to come into the field." Thus the average cost incurred by the potential competitor establishes "the natural standard of price in the new régime of seeming monopoly." For Clark (1907, p. 381), moreover, potential competition was not merely an academic abstraction but a living and inescapable force in history for "Since the first trusts were formed the efficiency of potential competition has been so constantly displayed that there is no danger that this regulator of prices will ever be disregarded."

In spite of his belief that potential competition had always been such a potent and ubiquitous force in the economy and that its efficient functioning was in theory capable

of ensuring “a natural system” of competitive prices and adjustment processes in a world of formal monopolies, Clark (1907, p. 381) was ultimately a strong proponent of governmental anti-monopoly regulation. Clark argued that such a policy was necessary because the “consolidated company” had finally developed “dangerous weapons” that enabled it to effectively repress potential competition and transform itself into a true monopoly. These weapons included: the securing of special rebates from the railroads; the potential to engage in predatory pricing based on geographical price discrimination or product diversification; and making exclusive dealing agreements with merchants.

**5. FRANK A. FETTER, PHILIP WICKSTEED, AND HERBERT J. DAVENPORT**

The Mengerian approach to general price theory was given its most sophisticated formulation before Mises’s *Human Action* and reached the peak of its international influence with the publication of three English-language economic treatises around the outbreak of World War One.<sup>7</sup> These treatises by Philip Wicksteed (1967), Herbert J. Davenport (1968), and Frank A. Fetter (1915) were originally published in 1910, 1913, and 1915 respectively.

Although all three authors accepted the theory of monopoly price as a matter of course, Fetter gave the theory its most advanced and rigorous articulation up to that time. As a Mengerian heavily influenced by Clark, Fetter envisaged the market economy as a unified and inherently competitive process continually adjusting to changes in the

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<sup>7</sup> For an overview of the development of Mengerian price theory up to 1914, see Salerno 1999a, pp. 36-42.

economic data.<sup>8</sup> Thus Fetter (1910, p. 133) focused on the interrelated system of actual market prices that constituted the essence of the market process and was constantly adapting to change, arguing: “Any price, no matter how temporary and unstable, is one that for the moment brings into equilibrium the quantities bought and sold, produced and wanted at that price.” For Fetter (1915, p. 66, fn. 5), moreover, the actual market price at which an exchange is consummated may well be a “false” price: “Actual market-price is that price at which a trade is made, and this may vary on either side of the theoretical [perfect-market] price when . . . some one fail[s] to realize his possibilities.”

Fetter (1915, p. 74) defined competition as “but an expression for the situation where each trader is exercising his choice in a market without restraint from others of the same group.” Fetter (1915, p. 78) made it clear that competition does not imply either perfect mobility of factors or equal access to capital and thus “does not mean equal capacity or efficiency, but the legal freedom and the personal willingness to move a productive agent into the highest industrial place it is capable of holding.” Nor did competition require for Fetter (1915, p. 378) an infinitely large number of sellers, but merely “on each side of the market at least two truly competing traders.” This meant that competition was completely consistent with a negatively sloped—albeit, highly elastic—demand curve. Thus Fetter (1915, p. 380) wrote that, in a competitive market:

If any one of the sellers, whether formerly marginal or not, dropped out, and no one took his place, the price would rise. . . . He would lose more because of withholding these units (or ceasing to produce them) than he would gain by the

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<sup>8</sup> On the unity and dynamism of the price system and on the limited role for equilibrium in explaining this system, see especially Fetter 1937, pp. 495-96, 517-19.

*additional* profit he would make on the units he would continue to sell. . . . To put the same thing slightly differently: if he does not continue, other competitors stand ready to sell at the same price, or at a price so little higher that *he* will not profit on the whole by the change. His limitation of production yields a net gain to his competitors but a net loss to himself.

Fetter also emphatically rejected the characterization of competition as the static state that would later come to be named “perfect competition.” In criticizing the mathematical economist Maffeo Pantaleoni’s conception of “free competition,” Fetter (1910, pp. 134-35) argued:

Thus competition comes in [Pantaleoni’s] thought to mean a static society and interferences with it a dynamic society. Does he not reach the *reductio ad absurdum* when he concludes that free competition implies costless transportation and costless interchange of units of labor of different qualities, thus making monopoly synonymous with scarcity and with all values, and competition synonymous with costlessness and the absence of values?

For Fetter (1915, p. 77), then, monopoly was neither “merely scarcity” nor “merely superior economic power,” but a catallactic phenomenon, a condition directly affecting exchange on actual markets. Accordingly, “absolute monopoly” exists “whenever the entire group of traders having control of some kind of goods, on one side of the market, is united to act as one person,” whereas “The germs of monopoly are in

any device whatever, that is used to keep any trader from competitively bidding in accordance with his individual interest as he sees it” (Fetter 1915, pp. 79, 80).

In analyzing the formation of monopoly price, Fetter (1915, pp. 80-81) distinguished between “crude monopoly-price” which yields the monopolist “the maximum gross receipts” for an existing stock of goods and “monopoly-price” that maximizes “net gain over a considerable period in the sale of a continuous output of goods.” Like previous Mengerian theorists of monopoly price, Fetter placed the discussion of crude monopoly price in the forefront of his analysis. Fetter (1915, pp 81-84,382-86), however, was the first Mengerian price theorist to employ supply-and-demand diagrams rather than just numerical tables in illustrating the theory of monopoly price.<sup>9</sup>

Fetter (1915, pp. 82-83) deduced from his analysis several principles regarding the determination of the (crude) monopoly price. First, market price can only be raised by the monopolist above the competitive price, which occurs at the intersection of the market demand curve and the (vertical) unrestricted supply curve, “by artificially increasing scarcity, by limiting supply.” Second, the more inelastic the demand above a given competitive price, the more “narrowly” must the monopolist restrict supply in order to achieve the maximum additional revenue above the competitive level and the greater the divergence between the monopoly and the competitive price. Third, assuming a linear demand curve, if the vertical supply curve representing the total stock available in the market intersects the demand curve along its elastic segment, then the monopoly price will be identical with the competitive price. Finally, “The more elastic the [overall]

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<sup>9</sup> While Davenport (1968, pp. 48-50) and especially Wicksteed (1967, pp. 493-536) both employed diagrammatic analysis in their general price theory, neither used it in explicating the theory of monopoly price.

demand, the more nearly a monopolistic price approaches a competitive price with a given number of units of supply.”

Fetter (1915, p. 81) maintained that the type of situation depicted in his analysis of crude monopoly price “is of not infrequent occurrence,” mentioning perishable goods such as vegetable and fruits after they have come to market and vacant seats at opera houses and athletic events. The case of the “control of all seats at a single entertainment event” was described by Fetter (1915, pp. 81, 379) as “literally a monopoly.” Yet, notwithstanding the fact that “[t]he prices of the various seats are then fixed with a view of getting the maximum total receipts,” Fetter (1915, p. 379) did not believe that these situations constituted “a social problem of monopoly.” His reasoning was that “in a literal sense every man is the exclusive seller of the identical thing he has to sell and yet may have no monopoly power to raise price above a normal, competitive rate,” because “the power of substitution is practically absolute” in these cases (Fetter 1915, pp. 378, 379). In other words, *all* sellers in the real world confront negatively sloped demand curves and therefore possess “some measure of power to restrict supply,” but because these curves are highly elastic above the competitive price for the overwhelming majority of sellers it does not pay for them to exercise this power.

Fetter (1915, p. 381) repeatedly emphasized that the crucial test of monopoly was the seller’s ability to restrict supply and raise price in the absence of the power of substitution: “The essential condition that distinguishes monopoly from competition is the buyer’s lack of substitution of one seller for another.” Thus the structure of a given industry was irrelevant. If sufficiently close substitutes for a good were available, then the monopolist could not achieve a monopoly price. Thus Fetter (1915, p. 382) wrote:

“The control of an entire species of goods gives price-fixing power limited only by substitution of goods. Even tho [sic] one person controlled all the coal in any market, its price still would be limited by the substitution of wood, oil, etc.”

In analyzing monopoly price in relation to production decisions and costs, Fetter employed long-run comparative statics. The exogenous variables in this analysis were demand curves and average cost curves; the endogenous variables, price and quantity under competition and monopoly. As a pure time-preference theorist, Fetter assumed for simplicity that the long-run competitive price would always exceed per unit cost by a fixed dollar margin rather than by a fixed percentage, thus conceiving interest as a return to the “enterprise” and not a component of its costs as in the neoclassical theory of the firm. Operating with linear demand curves and constant average cost curves, Fetter (1915, pp. 383-385) drew three sets of identical demand curves: the first was “inelastic,” the second of “medium elasticity,” and the third even “more elastic” with respect to a given series of prices. He then supposed average costs to vary within each set of demand curves, assuming that the monopoly enterprise and competitive enterprises confronted precisely the same cost conditions.

Fetter’s analysis resulted in the following principles. First, assuming that the monopolist’s intent is to maximize profit, “that is, the largest difference between total price and total cost,” the monopoly price exceeds the crude monopoly price except where average cost is zero or in the case of extremely inelastic demand over a certain range of prices, in which two cases they coincide. Second, the monopoly price exceeds the competitive price given the same cost curves. Third, given costs, the more elastic the market demand for a good the less the difference between the competitive price and the

monopoly price. Fourth, given the demand curve, an increase in costs will generally cause a reduction in sales and increase in monopoly price. Fifth, the exception to the fourth principle involves a highly inelastic demand curve in which average cost represents an extremely small proportion of the monopoly price. In this case, small rises in average cost do not initially alter the monopoly price and quantity, while reducing monopoly profit. Finally, the greater the ratio of costs to the crude monopoly price, the lower is the range of monopoly power and the less is the difference between the competitive price and the monopoly price, which is compressed by the progressively more elastic upper regions of the demand curve.

Compared to Fetter, Wicksteed (1967, pp. 256-58) gave the theory of monopoly price cursory treatment in his two-volume *magnum opus*, *The Common Sense of Political Economy*, where his discussion extended only to seller's monopoly while ignoring producer's monopoly. Although this might seem a surprising oversight for a treatise as comprehensive and systematic as Wicksteed's, it reflects his Mengerian emphasis on the real-world market as an inherently competitive process ceaselessly functioning to establish an economy-wide exchange equilibrium for continually renewed, though quantitatively varying, stocks of final goods in the face of ever-changing consumer value scales and technical conditions of production. This function of the competitive market process was well described by Wicksteed (1967, pp. 143-44, 214) in the following passages:

In an exchanging community, therefore, there is a perpetual tendency to establish an equilibrium. And just so far as an equilibrium is established, the relative

marginal estimates formed by all individuals, of all exchangeable commodities of which they severally possess a store, are identical; and the estimate of any exchangeable commodity formed by any one who does not possess any of it is relatively lower than that formed by anyone who does possess it. . . . Of course this ideal state of equilibrium never exists; but a sense of mutual advantage is perpetually bringing about approximations to it, by prompting both of any two men whose scales of marginal significance do not coincide, directly or indirectly to effect exchanges or readjustments until they do. . . . An organised market is a machine for bringing people into relations with each other and so revealing and removing departures from a state of equilibrium. Its normal existence implies that there are facts and forces in action that either disturb equilibrium when it exists, or continuously initiate states and conditions of non-equilibrium that can be removed.

As his discussion of speculative errors and trading at “false” prices indicates, Wicksteed (1967, pp. 219-28) was clearly aware of the fact that even this restricted notion of fully arbitrated exchange equilibrium was an imaginary construct never completely realized in reality and that actual market prices diverged from the “ideal equilibrating prices” of this conception. Like all Mengerians, then, Wicksteed was primarily concerned with explaining the formation of actual prices, using equilibrium constructs as an auxiliary tool.

In his analysis of “monopolist markets,” Wicksteed gave a straightforward exposition of the theory of monopoly price. He pointed out that the theory of the

monopolist market “rests on the same broad principles” as the theory of the competitive market:

The price is determined by the relative scales of the consumers (or their speculative representatives), and the quantity of the commodity that enters the market. But the seller (or syndicate of sellers) is not confined to ascertaining the equilibrating price. He can himself modify it by determining the amount of the commodity offered for sale, or can directly determine it and thereby modify the total amount of sales.

Wicksteed (1967, pp. 256-57) recognized moreover that the monopolist’s price would diverge from the competitive equilibrating price only if the overall market demand curve for the commodity was inelastic above the competitive level, e.g., if the monopolist believed that “he could sell two-thirds of his stock at a price twice as high as that at which he could sell the whole” and thereby “realise four-thirds of the sum for which the whole stock would sell.” Such withholding or destruction of stock and increase of price could not be accomplished in an “open competitive market” despite the fact that each individual competitor faces a negatively sloped demand. The reason is that each seller perceives that his particular demand curve is elastic above the competitive price so that he “is afraid that the unsold third may include his stock, in other words that it may be he who withdraws his stock from sale and his rival that secures the higher price.”

Noting that the monopolist could fix either the price or the quantity but not both, Wicksteed (1967, p. 257) then made the interesting observation that in the real world “at

any given moment” the competitive market “conforms” to the monopolist market in that competitive sellers “speculatively fix a price and thereby determine the rate at which the commodity shall flow into the hands of the consumers.” The conformity between the practice of withholding stock and fixing price in the two markets is only apparent, however, because the “tentative estimates” in the competitive market “are based on the supposition that the whole amount of the commodity will be disposed of during the period over which the market extends” (Wicksteed 1967, pp. 257-58).

Davenport was a staunch defender of Mengerian value and price theory in its emphasis on actual, moment-to-moment market prices and its assumption that the stocks of various goods and productive factors are (momentarily) fixed. Against the Marshallian objection that the Austrian analysis ignored long-run cost factors, Davenport (1968, p. 76) responded: “In the study of the market process, the economist is interested in those forces at work tending to establish an equilibrium of price *under given conditions*. These conditions are made up of certain situation facts which the value theorist treats as fundamental.” This is as true of factor markets as it is of consumer good markets. In contrast to the Marshallian analysis of prices, which is mired in concern with historical costs, the Mengerian analysis treats the pricing process as radically forward looking. Thus for Davenport (1968, p. 112) factor prices are determined by the interaction between current factor stocks on the one hand and entrepreneurial demands that are conditioned by appraisements of future product prices on the other: “It is by entrepreneur bidding that the factors of production receive their prices and change their prices. This bidding is done and the prices are paid in view of the marketable product which is in prospect. Thus the expected product is at once the purpose of the bids, the

justification for them, and the limit upon them.” Davenport (1968, p. 113) thus envisaged the real-world pricing process as a “great moving equilibrium . . . all parts of which are related to all other parts, and are in close interdependence with them.”

Davenport (1968, p. 480) accordingly characterized “the theory of monopoly profits” as a straightforward “development from the theory of value.” Thus, “in the main competitive theory and monopoly theory do not diverge . . . supply and demand analysis applicable to competition applies without change to monopoly, and . . . monopoly differs from competition only in the fact that in monopoly the volume of supply is under centralized control, while in competition the limit of supply is found in marginal cost of production” (Davenport (1968, p. 482). In competitive markets, sellers “attempt to undersell one another, to find a profitable way of offering—or appearing to offer—more for less” (Davenport (1968, p. 477). However, since the monopolist (or monopolistic “combination”) does not face the threat of competitive underselling, he is free to “manipulate” price to appropriate a portion of the competitive “consumer’s surplus” by restricting supply and raising price. In order for the monopolist to succeed in his quest for a monopoly price, however, his demand curve must be so configured that, e.g., as so often occurs in fresh fruit markets, sale of half or even a quarter of the stock would yield greater total revenue than selling the entire stock. According to the “monopoly principle,” then, the seller’s “operations will be limited at the outside by the point at which his increase in profit, by reason of increased price, approaches an equality with his decrease in profit on account of diminished sales” (Davenport 1968, p. 480). To use Fetter’s terminology, this point occurs at the “crude monopoly price” where total revenue is maximized.

In dealing with production monopoly, Davenport reaffirmed the core “truth” of the Mengerian theory that the configuration of production costs does not have a direct bearing on the formation of monopoly price. As Davenport (1968, p. 463) summarized this position:

It is commonly said that the theory of monopoly price diverges from competitive theory by the very fact that, in monopoly production, cost is not appealed to as the explanation for the volume of supply,—that cost bears upon price only as it bears upon the supply side of the market equation,—that the peculiar advantage of monopoly is that it may fix the supply where it will, and that the monopoly control over price rests solely in the power of determining the supply.

Davenport (1968, p. 463) illustrated the determination of monopoly price when the monopolist must incur production costs to supply the good. He employed an arithmetic example in which the demand curve is linear as defined by the equation  $P = 101 - Q$  (where  $P$  represents price and  $Q$ , quantity demanded) and average costs are constant at 50 per unit over the range of output from 0 to 100 units. The monopolist would thus find that his profit is maximized at 625 by restricting production to 25 units and selling at a price of 75 per unit.<sup>10</sup> Davenport (1968, p. 464) proceeded to restate the

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<sup>10</sup> Davenport made a slight mathematical error here. After initially verbally defining the demand curve as  $P = 101 - Q$ —“assume the demand is such that one unit can be sold at 100, 2 at 99 and so on down”—he then proceeded with his calculations as if he had defined it as  $P = 100 - Q$ . Had he adhered to the original demand curve, and assuming that price can only take on the value of an integer, the maximum profit would have been 650 and would have occurred at either of the two monopoly prices of 75 and 76 per unit. Davenport also was obscure in formulating the average cost curve, stating, “a monopoly can afford to place upon the market anywhere from 50 to 100 units of product at an expense of 50 each.” Given that Davenport took the average cost associated with the monopoly quantity of 25 units as equal to 50, I

“monopoly principle” as applied to the case of deciding upon how much stock to produce for sale as follows: “On the credit side of the account is computed the increment of product at the new sale price which attends its production; to be charged against this total addition of selling price are (1) the extra outlays of production, and (2) the loss in price suffered by the earlier items of product through the addition of the new items. The point of the equation between the two sides of the account is the limit upon production.”

Although Davenport did not do so, we may express this equation algebraically as follows:

$$(P + \Delta P) \Delta Q = \Delta TC - (\Delta P \times Q)$$

Where P = the original price; Q = the original quantity of output;  $\Delta Q$  = the increment of output;  $\Delta P$  = the decline in price caused by the sale of this increment; and  $\Delta TC$  = change in total cost necessary to produce this increment.<sup>11</sup>

## 6. VERNON A. MUND

In 1933, Joan Robinson (1933) and Edward Chamberlain (1933) published their monographs on imperfect competition and on monopolistic competition, respectively. Although the two authors worked independently of each other—and Chamberlain was particularly vociferous in later years in differentiating his contribution from Robinson’s—their contributions had common roots in the so-called “cost controversy” precipitated by the famous article “On Empty Economic Boxes” published by J. H.

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interpreted this to mean that the monopolist’s per-unit costs are constant from one unit through the range of 50 to 100 units.

<sup>11</sup> If we transpose the second term on the right side to the left side of the equation and divide both sides by  $\Delta Q$ , we get the conventional neoclassical equilibrium condition,  $MR = MC$ .

Clapham (1952) in 1922.<sup>12</sup> There was a third book dealing with similar issues that was also published in 1933, *Monopoly: A History and Theory* by Vernon Mund. The book's analytical method and themes were emphatically not inspired by the Marshallian cost controversy, since Mund was a student of Fetter's at Princeton University, who also served as Mund's adviser on the dissertation upon which the book was based.

Unfortunately, despite its prestigious Princeton University Press imprint, the book was almost completely ignored, because it was explicitly rooted in the Mengerian approach to price theory. This approach was just then nearing the nadir of its influence among Anglo-American economists after its sharp decline from ascendancy on the eve of the First World War.

Unlike Chamberlain and especially Robinson,<sup>13</sup> in whose works technological and cost considerations loomed large, Mund explicitly conceived monopoly as exclusively a catallactic phenomenon. The only test of its existence, Mund believed, was the behavior of buyers and sellers on a real market. Mund (1933, pp. 95, 98, 108, 114) distilled the essence of the Mengerian theory of monopoly price in statements scattered throughout his monograph:

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<sup>12</sup> For an overview of the cost controversy and the revolution it led to as well as citations to the relevant literature, see Paul A. Samuelson (1975). It should be noted that some doctrinal scholars such as Robert B. Ekelund and Robert F. Hebert, Jr. (1983, pp. 472-96), as well as Chamberlain himself, have denied that Chamberlain's theoretical formulation was influenced by the cost controversy, instead locating its provenance in the Taussig-Pigou dispute over the explanation of multiform railway rates. In either case, the inspiration for the monopolistic/ imperfect competition revolution was undeniably Marshallian. Other more or less comprehensive surveys of the Monopolistic Competition Revolution include: Joe S. Bain (1971), Robert L. Bishop (1967), George Stigler (1967), Robert Triffin (1940), Roy Harrod (1969), and J.R. Hicks (1975).

<sup>13</sup> Even Paul Samuelson (1975, p. 361) could not resist a gibe at Robinson's book for its bewildering profusion of ponderous and unnecessary technical apparatus: "To a considerable extent her book is [primarily a book on monopoly], and we feel that the reviewer of it had a small point when he said that the time spent in reading her work might with better profit be spent on studying Irving Fisher's little book on the infinitesimal calculus. For it is true that simple monopoly theory consists of little other than elementary calculus, in which ordinary and partial derivatives are to be set equal to zero, whereas higher derivatives are required to be nonpositive."

The feature of monopoly, however, which has received attention throughout the ages is the rôle which it plays in the exchange of goods. . . . In retrospect it is evident, in fact, that the market aspect of monopoly is its fundamental aspect. Exclusive privileges, collusion, unity of action, etc., are only various methods of obtaining a particular market situation necessarily relative to time and place. . . . The nature of monopoly is inextricably tied with that of the market itself. . . . It is in the act of exchange that the phenomenon of monopoly makes its presence felt... In an economic sense monopoly does not exist until competition is restrained among actual traders. . . . A significant thing about monopoly is that it has meaning only when considered with regard to the market place—the center of economic activity.

The logic of Mund's approach therefore led him to deny that, strictly speaking, an enterprise qua producer could be characterized as a "monopoly," because a monopoly describes a specific state of supply and demand, that is, the state that results in the emergence of a monopoly price. Thus Mund (100, fn. 5) argued: "Monopoly in an economic sense is fundamentally a market situation and in strict accuracy a producer (with or without a franchise), or a group of producers, may only be said to *have* a monopoly or to *have* monopoly power." While Mund's distinction may be verbal hair-splitting, it does serve to highlight the immediate irrelevance of the costs of production to the theory of monopoly price.

Mund (1933, p. 99) defined competition in the Mengerian sense as “a state of rivalry—that is, as the presence of two or more persons offering to buy or to sell goods of a similar type, each endeavoring to outvie the other as to price or as to quality and price, and each acting with no outside restraint.” Mund enumerated four prerequisites for such rivalrous competition: 1. freedom of competition in trading; 2. the capability of more than one producer competing; 3. the willingness of producers to compete; and 4. demand sufficiently large to warrant more than one producer.

Mund’s conception of competition as a rivalrous process and its realistic preconditions underlay his rejection of the assumptions of pure competition. Mund (1933, p. 105) dismissed Chamberlain’s assertion that competition required a large number of buyers and sellers, arguing that it “misinterprets the working of economic processes.” In the Mengerian-Böhm-Bawerkian vision of the competitive pricing process, price is *always* determined within the range established by the marginal pairs of buyers and sellers and the number of infra-marginal and supra-marginal buyers and sellers is irrelevant. According to Mund (1933, p. 105), then, “Whether sellers are forty or two in number, competition among them will result in a market price being formed somewhere between the limits set by the valuation of the first excluded seller and that of the first excluded buyer.” Indeed, as Mund pointed out, the number of sellers in a particular market is generally determined by “the needs of the market and the size of the most efficient productive unit.” Moreover, he argued, even a duopoly, such as might characterize the retail meat market in a small town, could be fully consistent with rivalrous competition, especially given the possibility of potential competition. Even if one butcher shop controlled three-quarters of the trade, the situation “would not *ipso*

*facto* be monopoly.” Mund (1933, p. 106) concluded: “True rivalry requires only a market opportunity for two or more sellers, or buyers, and a freedom, willingness, and capability upon their part to compete.” Moreover, the notion of rivalrous competition or its potentiality does not necessitate that rival enterprises possess similar productive capacity, efficiency, and access to suppliers and buyers, for “The significant requisite of competition is not an equality of equipment, but an ability to enter a market and to offer goods and services similar to those of a rival” (Mund 1933, p. 100).

Mund also contended that real-world competition required neither that a seller ignore the consequences of his rival’s actions nor that the product offered be strictly homogeneous. Regarding the first point, Mund (1933, p. 99, fn. 4) argued, “This notion overlooks the fact that a competitive market implies common knowledge on available stocks, possible buyers, prices, etc. [and] that each seller must meet the price (and quality) of his rival or go out of business.” Mund (1933, p. 99, fn. 4) recognized that, in the competitive process, “the fact that buyers are certain to turn to the cheapest seller forces sellers to consider the actions of others.” In addressing the second point, Mund (1933, p. 134, fn. 12) expressly noted that there was a qualitative dimension to actual competition. Thus a seller can charge a higher price for his wares than his rivals “by convincing his buyers that they are getting a better quality for their money.” It is here that Mund (1933, p. 134, fn. 12) identified the important role played by advertising in promoting competition and increasing consumer welfare: “Market goods have a general sameness, and in order to influence choice sellers attempt by advertising to create an additional value, a halo, around their goods which will lead buyers to select them instead.”

Mund (1933, p. 100) defined monopoly as “the antithesis of competition,” i.e., a state of affairs in which rival producers lack either the freedom, willingness or capability—due to want of access to a necessary resource or to an insufficiency of market demand—to compete. Mund (1933, pp. 101-109) enumerated the various means by which monopoly power may be attained: 1. tacit or open collusion among existing producers; 2. single ownership of final goods such as rare wines, unique sculptures or coins, etc.; 3. cutthroat competition; 4. economic efficiency, including conditions which lead to natural monopoly; 5. exclusive or predominant control over a necessary factor of production; 6. political franchises; 7. private favors such as exclusive credit facilities or secret rebates on transportation; and 8. public favors in the form of tariffs, subsidies, patents, etc.

Mund (1933, p. 115) identified two types of monopoly, “true” and “formal.” Formal monopoly is “monopoly shorn of its power” by potential competition. According to Mund (1933, p. 116): “No monopolist can exercise monopoly power if the way is clear for others to enter the market whenever profits are tempting. The ever present possibility of potential competition has the same effect as actual competition, and the monopolist is effectively precluded from charging a price that yields more than ordinary returns.” Like actual competition, potential competition operates “to keep elasticity of demand for the single producer’s good extremely elastic” (Mund 1933, p. 122). Furthermore, not only is formal monopoly socially innocuous, it is socially beneficial in those cases where it combines the benefits of economies of scale with those of competition. Mund (1933, p. 116) maintained that occurrences of formal monopoly were

“widespread,” pointing to the example of a small town where there exist a single physician, drugstore, bakery, dairy farm, and bookseller.

True monopoly is one that possesses “genuine” monopoly power. A true monopolist is either endowed with “absolute” monopoly power, “when potential competition is effectively precluded,” or with “limited” monopoly power, “when the appearance of potential competition is impeded, but not precluded.” In the latter case the true monopolist is only able to exercise such power “within certain price limits,” determined, for instance by, the height of transportation costs or the substantial risk and expense incurred by the new entrant. Mund (1933, p. 115) identified monopoly with limited power as “the most prevalent type of true monopoly.”

For Mund (1933, p. 117), then, “the thing that identifies true monopoly is the exercise of monopoly power.” Monopoly power consists in the ability to regulate either market supply or market price so as to maximize profit. In most cases, according to Mund, the monopolist chooses the policy of manipulating price and then adjusting production according to his experience and judgment regarding what quantities of his product buyers will take at various prices. Mund (1933, p. 119) identified four factors that the monopolist considers in exercising monopoly power: elasticity of demand for his product; his costs of production; his interest in future business; and the attitude of the courts and public toward monopoly. In analyzing the effects of the first two factors on monopolistic price setting, Mund employed graphs featuring (discontinuous and nonlinear) demand curves and long run average cost curves of varied shapes.

Before briefly summarizing his analysis, it should be noted that Mund recognized the sharp distinction between his Mengerian approach to diagrammatic analysis of price

determination and the prevailing Marshallian approach. Wrote Mund (1933, p. 129, fn. 11):

Many economists, in plotting supply and demand ‘curves,’ fail to consider that a curve of buyers’ *valuations* cannot logically be plotted against a curve of sellers’ *monetary costs*. The two are in an entirely different plane. The process of market exchange is a subjective one in which buyers and sellers match and adjust their *respective* valuations. In this process monetary costs are one of several factors which influence a seller’s valuations; but, as such, they are distinctly an objective factor and logically lie outside of the subjective valuation.

Thus graphs that Mund constructed to illustrate monopolistic price setting included a “buyers’ reserve valuation” curve (the demand curve), a “normal cost” curve (long-run average cost curve) and a “monopolist’s valuation” curve. For example, in Figure 1 (Appendix), the demand curve is negatively-sloped and discontinuous, while the long-run average cost curve, E’P’ is horizontal. The monopolist’s valuation curve, EP, is not a Marshallian supply curve but rather a horizontal seller’s minimum reservation price curve that emanates from the price axis and intersects the demand curve at the point corresponding to the estimated monopoly price and quantity. This curve indicates that the monopolist values each of his 5 prospective units of output at 9 each, the monopoly price he expects to obtain from its sale given his forecast of the demand curve. Thus it is the subjective valuation curves of both the monopolist and the buyers that represent the active, determining forces in the monopolistic market. The average cost curve is drawn

in because it is considered by the monopolist *qua* producer in calculating the prospective price that maximizes his profit and thus the reservation price to be assigned to each unit of his planned product. In this case, the monopoly price AP and quantity XA yields the maximum profit rectangle E'EPO. The normal cost curve also coincides with the valuation curve of the various sellers in a competitive market and its intersection with the buyers' valuation curve yields the competitive market equilibrium—in this case, a price of 3 and quantity of 7.5 units.

In investigating the effects of varying elasticity of demand on the monopoly price, Mund (1933, pp. 119-21) compared a monopolist's demand curve that was highly inelastic over a range of prices above the competitive price, as represented by Figure 1, with a demand curve that was only slightly inelastic over the same range of prices, using the identical normal cost curve to establish the competitive price of 3 in both cases. Mund (1933, pp. 119-21) showed that with the more elastic demand curve the monopolist maximized his profit by setting “a price more nearly in accord with the competition price” and supplying a quantity that “will approach more closely to the supply which would exist under competitive conditions.” Confronted by the more elastic demand curve (which is not reproduced in Figure 1), the monopolist is only able to raise his price from 3 to 4 rather than to 9 and to restrict the quantity supplied by 9 percent, from 11 to 10 units, rather than by 33 percent, from 7.5 to 5 units. The general conclusion according to Mund (1933, p. 121) was: “An elastic demand precludes high prices; and the monopolist whether absolute or limited, must content himself with low prices and moderate monopoly revenue.”

Mund (1933, pp. 122-23) also distinguished between the elasticity of the market demand for a good and the elasticity of the demand for a particular producer's good. The two completely coincide for the absolute monopolist, but in the case of the limited monopolist above a certain price the demand curve he confronts is much more elastic than the overall market demand curve for the good. Hence while the elasticity of demand for a limited monopoly may be more or less inelastic within a certain range above the competitive price, it becomes "practically perfect" above the price at which potential rivals find it profitable to enter and compete.

In analyzing the effect of variations in costs of production on equilibrium in a monopoly market, Mund (1933, pp. 125-26) began with the case that had always been given precedence by Mengerian price theorists. This was the case in which the monopoly good is "a fixed stock, intermittently produced," as exemplified by various agricultural products and tickets for athletic games. In these instances, a considerable period of time generally elapses between the production decisions relating to the good and its offer on the market, during which "the expected demand may have entirely changed." As a result, Mund (1933, p. 125) argued: "The costs and past valuations are of little significance in the new situation, and the monopolist will find that his self-interest can best be promoted by charging a price that will yield the maximum gross revenue." As can be seen from Figure 2 (Appendix) the monopolist's valuation curve, EP, bears no relation whatever to his production costs. The monopoly price, AP, is chosen so as to attain the maximum total revenue rectangle, XEPA. Given that the total stock, XB, originally produced by the monopolist comprised 11 units, the competitive price, or the price at which the entire stock could be sold under current demand conditions, is BP' or 1, which yields a total

revenue of 11. However the monopolist is able to restrict supply from XB to XA by withholding or destroying 5 units of the existing stock, and in doing so realizes a monopoly price of 6 and total revenue of 36. The monopolist's valuation curve EP is determined by the revenue-maximizing price of 6, rather than by the quantity-maximizing price of 1 that would emerge under competitive conditions.

With Figure 3 (Appendix ), Mund (1933, p. 128) illustrated the case of monopoly price formation under the conditions of "continuous production," in which the monopolist is in the long-run position of planning for future demand and therefore considers his production costs in establishing his "selling valuation." In this situation, the monopolist's costs include his monetary expenditures on factors of production as well as the implicit costs of his own services and capital goods. Since the prospective per unit costs will vary with the quantity of planned output and since the monopolist exercises some control over the price of the product, "the monopolist will tend to adjust his production and the market price in such a way that profit above costs is a maximum." In contrast, the individual competitive producer in the same position lacks the power to influence price and therefore "is not concerned with varying cost adjustments, for there is but one price situation open to him—namely the market price." In other words the competitive producer will seek to produce the quantity that maximizes profit at the prospective market price, since his highly elastic demand curve will not permit him to profitably manipulate this price.

Returning to Figure 3, given that per unit costs are constant over a significant range of output leading up to the quantity that would be produced under competition, the market demand curve above the competitive price of 5 is not sufficiently elastic to

prevent the monopolist from increasing profit by raising price and restricting supply. Thus this monopolist would establish a valuation curve of E'P, because by charging a monopoly price of AP and reducing output from XB to XA, he is able to attain maximum profit as represented by the rectangle EE'PC. Using similar graphical constructs, Mund (1933, pp. 130-32) also analyzed the behavior of a monopolist under the conditions of decreasing and increasing costs. He demonstrated that in the case of decreasing costs, the monopolist would maximize profit by expanding output as long as the average cost curve decreased at a more rapid rate than the demand curve. His analysis of a monopoly confronting increasing costs led Mund (1933, pp. 131-32) to conclude, “a monopolist who approaches the stage of increasing costs, or even stationary costs, will tend to restrict production and maintain a high price policy.”

One might be inclined to criticize Mund's analysis of monopoly as technically backward and unsophisticated because it lacked the marginal revenue and marginal cost curves that adorned the diagrams in the books of Chamberlain and Robinson published in the same year. And indeed Robinson (1969, p. 6) declared: “Whilst many pieces of technical apparatus have no intrinsic merit, the use of marginal curves for the analysis of monopoly output contains within itself the heart of the whole matter.” Yet this view had already been refuted by other participants themselves in the immediate aftermath of the Monopolistic Competition Revolution. For example, Chamberlain (1950, p. 192), in a paper originally published in 1936, directly challenged Robinson's assertion, pointing out that there were two “intrinsic demerits” of the marginal analysis vis-à-vis “the fitting of areas between curves of average cost and average revenue.” The analysis in terms of marginal revenue and marginal cost failed, first, “to indicate the [monopoly] *price* at all”

and, second, did not “readily indicate” either the per unit or aggregate profit of the monopolist. Chamberlain (1950, p.192) concluded: “Instead of containing ‘the heart of the whole matter,’ the marginal curves would be quite subordinate. Even for the problem of equilibrium for the single firm, they are merely an alternative technique for reaching the same results as by the use of the average curves.”

F. Zeuthen, the Danish mathematical economist who published a pathbreaking work on monopoly, duopoly and oligopoly in 1930, also found the marginal method to be analytically inferior to total and average analysis.<sup>14</sup> The convenience with which the marginal analysis allows one to identify the point of monopoly equilibrium is only apparent, argued Zeuthen (1955, p. 230), because “in reality the trouble has only been shifted on to the construction of the marginal curves, which the theoretical descriptions generally take as a starting-point.” The marginal method is actually convenient merely “in such practical cases where only a certain minor change in the decisions is contemplated, and only the cost of the change itself is known.” In illustrating the calculations underlying the decision about, e.g., what size plant to be built, “the total method is employed rather than the marginal method,” while “the average method has the advantage that the effects of altered sales and altered price are seen clearly by themselves.”<sup>15</sup>

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<sup>14</sup> Hicks (1975, p. 188) writing in 1935 listed the book on monopoly by Zeuthen (1930) as one of “at least four important works specially devoted to this subject” that had been published in the preceding five or six years. He also included the books by Chamberlain and Robinson in this list.

<sup>15</sup> Mises (1998p. 340) made the same point a few years before Zeuthen regarding the limited applicability of marginal analysis in production theory: “If the entrepreneur is still free with regard to the project in question, because he has not yet made any inconvertible investments for its realization, it is average costs that count for him. But if he has already a vested interest in the line of business concerned, he sees things from the angle of additional costs to be expended. He who already owns a not fully utilized production aggregate does not take into account average cost of production but marginal cost.”

There are two, more profoundly Mengerian criticisms of the use of the marginal apparatus in monopoly theory. The first has to do with the structure of the demand curve. As noted above, Mengerian price theorists have tended to employ discrete utility and demand curves as more reflective of the “lumpiness” of reality. The marginal revenue curves associated with such demand curves have gaps, so that the lone remaining meritorious point of marginal analysis conceded by Chamberlain (1950, p. 192)—that the intersection of the marginal curves “neatly” reveals monopoly output—loses its substance. This is demonstrated in Figure 4 (Appendix), in which I have constructed the marginal curves that correspond to the average curves in Figure 3. Note that it is hardly “convenient” to identify the monopoly output—let alone the monopoly price—with the  $MR = MC$  rule, as the positive gap between marginal revenue and marginal cost actually reaches a *maximum* ( $7 - 1 = 6$ ) at the monopoly output of 5 units.

The second aspect of the marginal method that is subject to Mengerian censure is its relative insignificance in the temporal perspectives that are most useful for analyzing the dynamic pricing process. For the Mengerian price theorist, all economic phenomena emerge out of adjustment processes that have both a beginning and an end, so he is vitally interested in both the immediate and long-run factors that shape market outcomes. While Mund did not explicitly articulate this view, it underlay the analytical distinction he drew between monopoly price under “fixed stock” and under “continuous production.”<sup>16</sup> More generally, at every moment on all markets actual prices are

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<sup>16</sup>Böhm-Bawerk, however, cogently articulated the importance of this dualistic analytical perspective and its importance in explicating and grasping the reality of the unified pricing process. In response to Marshallian criticisms that the Austrian, especially his own, analysis of the pricing process dealt “too exclusively, or at least too long, with supplies of finished goods which are on hand,” Böhm-Bawerk (1959a, p. 426, n. 33) stated: “My complete presentation is sufficiently extensive in scope to include all pertinent factors, one after the other. . . . The ‘later’ of my presentation certainly cannot be said to be ‘too late’ for the content of the theory, since that is submitted as an integrated whole.”

determined by the total existing stock of the good, which has resulted from past production decisions, and the total demand for the good that is based on the momentary valuations of the buyers (and sellers, if we take into account their speculative reservation demand for units of their own good). In this “immediate run” of the real-world market economy, all production plans have already been consummated for good or for ill and the quantity of the product is fixed and at hand, so that money costs are irrelevant and the marginal apparatus is inapplicable. Thus, as we saw in Mund’s treatment of the monopolist in possession of a fixed stock, the seller is interested only in maximizing his total revenue.

Since the earlier production decisions are based on forecasts of demand in the more or less remote and uncertain future, however, it may well turn out that many producers have under- or over-estimated the demand for their product and thus experience profits or losses. In order to analyze the full impact of profits and losses on production and the allocation of resources, the economic theorist posits a change in a single economic datum while abstracting from any further exogenous changes in order to trace out the complete step-by-step adjustment process that will occur in markets affected by the change. This process consists of an ongoing revision of production plans and reallocation of resources that induce a progressive diminution in the gaps between factor and product prices and thus an inevitable grinding down of profits and losses. The adjustment process terminates with the eradication of pure profits and losses across all markets and the emergence of a system of long-run prices. This “long-run” or “final” equilibrium with its optimally adjusted pattern of resource allocation is, of course, utterly unrealizable. It is merely a mental construct that permits the theorist to grasp the myriads

of endogenous and intersecting adjustment processes concurrently operating in a market economy. These processes, which are ceaselessly buffeted and reoriented by fresh exogenous changes in tastes, resources and technology, determine the actual constellation of prices at any given moment.<sup>17</sup> The methodological point that is relevant here is that in this long-run analytical perspective firms are entering and exiting industries and entrepreneurs are establishing completely new aggregates of complementary capital goods. This renders the technique of marginal revenue and marginal cost at best superfluous and at worst misleading, because, as argued above by Zeuthen and Mises, the long-run economic calculations of entrepreneurs are more accurately and intelligibly depicted by average and total analysis.

## 7. CONCLUSION: WHY THE THEORY OF MONOPOLY PRICE FAILED

The theory of monopoly price had an impressive doctrinal pedigree and numerous substantive advantages to recommend it over the Marshallian approach. Not the least of its advantages was its realistic perspective on competition and monopoly, which was rooted in Menger's causal-realistic approach to general price theory. The theory of monopoly price completely eschewed the model of perfect competition as an analytical

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<sup>17</sup> Once again it was Böhm-Bawerk (1959b, p.115) who recognized the crucial complementarity of actual moment-to-moment market equilibrium with the construct of final equilibrium in rebutting Marshall's strictures against marginal-utility theorists for ignoring the "long-run" determinants of prices: "For we do not at all consider the supply as fixed. . . . On the contrary, the problem for whose discussion we earned Marshall's critique emerged in the very analysis of the causative and changing influence which production constantly exerts on the changing magnitude of 'supply.' It emerged amidst our endeavor to analyze to their ultimate bases the secrets of the concurrence [i.e., equality] between the value of consumers' goods and that of their producers' goods, which in turn is the condition of a relatively *permanent* establishment of a certain price. We were reproached with assuming 'fixed' supplies just when we demonstrated their formation and flexibility. We also were reproached with one-sided consideration of short-term value fluctuations just when we searched for the conditions of long-run price.

benchmark or as a welfare criterion, recognizing that the demand curves faced by all real-world sellers were negatively sloped. In the view of its proponents, competition was the essence of a dynamic, economy-wide adjustment process whose pervasiveness and intensity did not at all depend on the number of sellers present in a particular market. Even a single seller would behave competitively as long as he was not somehow protected from the ubiquitous threat posed by potential competition. Monopoly was viewed as the antithesis of competition and therefore also as an exchange or catallactic phenomenon. This did not mean that monopoly was necessarily brought about by market forces—although monopoly price theorists erroneously believed that in some cases it was—but that monopoly power manifested itself in the configuration of momentary supply and demand conditions on real markets.

The implication of this view of monopoly was that the technical conditions of production, such as the structure of cost curves, were not directly relevant to the emergence of monopoly price because in the actual world of time-consuming production and uncertainty, all production costs were sunk and anticipations of demand conditions underlying production decisions may well have been falsified by the time the seller brought his product to market. All that counted was the degree of elasticity of the actual demand curve above the competitive price *and* the ability of a seller or combination of sellers to *profitably* tap this demand inelasticity by restricting supply.

Finally, the diagrammatic constructions utilized in explicating the theory excluded marginal revenue and cost curves, which were redundant if not misleading, and highlighted the *ex ante* long-run production plans of the entrepreneur and the *ex post* immediate-run market situation in which actual prices were formed.

Nonetheless, despite its significant virtues, the theory of monopoly price was shunted aside with almost no resistance by the Monopolistic Competition Revolution of the early 1930's, and unlike the much celebrated and reprinted volumes of Robinson's and Chamberlain's, Mund's book almost immediately sank into obscurity and does not appear to have been issued in a second printing.<sup>18</sup> Now one reason for this was that the entire Mengerian approach to price theory, of which the theory of monopoly price was an integral part, had almost completely disappeared by the mid-1930's as a result of a confluence of circumstances that I described in an earlier article (Salerno 1999b). And yet there were two errors specifically committed by proponents of monopoly price theory that hastened its demise.

The first error can be readily seen in Figures 1 and 3 (Appendix), in which the competitive price is taken as equal to the "normal cost" under the conditions of continuous production. Yet the competitive price rarely, if ever, coincides with long-run average cost of production in the dynamic market process. The only situation in which the average cost of production of every good coincides with its price is the state of long-run or final equilibrium. But this is an analytical construct characterized by optimal resource allocation that never materializes in reality because of the constancy of exogenous change and the milieu of all-pervasive uncertainty in which entrepreneurs plan and undertake production decisions. In fact, a situation in which the prices of all goods persistently adhere to their per unit costs and profits and losses are permanently eradicated is not a competitive situation at all but a situation in which the competitive

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<sup>18</sup> Mund's book was not noted in the aforementioned contemporary reviews of monopoly theory published by Harrod (1969) in 1934 or Hicks (1975) in 1935; nor did it garner notice in the later survey volumes by Triffin (1940), Fellner (1965), or Machlup (1969), originally published in 1940, 1949, and 1952, respectively.

adjustment processes of the market have all come to a close. Here, entrepreneurs need no longer attempt to outdo one another by cutting price, refining the quality dimensions of existing goods, developing new technological recipes and methods, introducing new products, revolutionizing combinations of complementary capital goods by downsizing, enlarging or merging firms, etc. So to use normal cost as the criterion for the competitive price in their theory is not only nonsensical but contradicts the monopoly price theorists' own conception of competition as an interrelated and entrepreneur-driven tissue of dynamic adjustment processes that are kept perpetually in motion by the prospect of profit attendant upon better adapting production to continual changes in consumers' preferences and technical conditions of production.

The conception of competitive price under conditions of a fixed stock of goods ready for offer on the market is also erroneous and contradicts two crucial tenets of Mengerian price theory. Thus, in the example represented in Figure 2 (Appendix), we note that the competitive price corresponds to the price at which the entire stock of the good produced is saleable on the market. If a seller or group of sellers acting in concert is able to increase total revenue by withholding or destroying one or more units, then the higher price attained is a monopoly price. The problem is that this criterion for distinguishing between competitive and monopoly price is inconsistent with the Mengerian insights that all sellers in all types of market structures face negatively-sloped individual demand curves and that the entrepreneur calculates the quantity of a good to produce well in advance of its sale on the market and on the basis of an anticipated demand curve. The entrepreneur in seeking to maximize profit will therefore always plan to offer a supply on the market that lies in the elastic range of his prospective demand

curve. Should the entrepreneur's forecast of his demand curve later turn out to be overly optimistic, however, he *might* find that selling the entire stock of the product will result in a price that lies on an inelastic segment of his particular demand curve. In this case the entrepreneur—whether he is the sole seller of a particular type of good or one of many sellers of a similar or identical good—will restrict his supply by destroying or withholding part of the stock so that the price he receives maximizes total revenue (given that he does not expect the higher price or the destruction of part of the product to impair future profits). It is clear, then, that restriction of supply on a free market by withholding a portion of the stock of a good already produced cannot serve as a criterion for distinguishing a monopoly from a competitive price, because in the real world of uncertainty this action may be resorted to by all profit-seeking entrepreneurs who erroneously overestimate the prospective demand for their product.

As Rothbard (1993, pp. 586-615) thus demonstrated much later on, if it is logically impermissible to use either long-run average cost or the price that comports with the absence of withholding of units of an existing stock as the standard for competitive price, then the distinction between a competitive and a monopoly price is illusory on the free market. The theory of monopoly price then can only apply to a situation in which the free-market demand curve facing the seller of a good is coercively distorted and rendered more inelastic by legal barriers to entry imposed by government, e.g., tariffs, exclusive franchises, occupational licensure, statutory monopolies such as the U.S. Postal Service, etc.

The second error committed by monopoly price theorists was a strategic one that grossly compounded their analytical error of attempting to differentiate between a

competitive and monopoly price on the free market. Their theory posited very stringent preconditions for the emergence of a monopoly price, namely, the absence of both active and potential competition in the market *and* a demand curve for the good that was inelastic (or of a sufficiently low degree of elasticity given cost conditions) above the competitive price. When Mises revived and refined this theory in the wake of the Monopolistic Competition Revolution in the 1940's, he correctly noted that these preconditions narrowly circumscribed its applicability to a market economy unhampered by legal monopoly privileges to a few "local monopolies" including public utilities and bulky goods such as bricks and coal and to mineral deposits that are concentrated in one or a few places. With regard to the latter case of a "world monopoly," Mises (1998b, p. 27) wrote: "The economist would be at a loss for an answer if someone were to ask him for another instance of a world monopoly fostered without any aid, compulsion, or participation on the part of governments than that of the diamond monopoly."

Unfortunately, American monopoly price theorists, who provided the most advanced treatment of the theory before Mises, incongruously tended to see signs of monopoly cropping up everywhere on the free market, misled by the rapid consolidation that American industry was undergoing from the 1880's to the 1930's. In response to this "illusion" of monopoly price—and despite the fact that they had deduced from their theory that bigness *per se* did not constitute monopoly—they all vociferously advocated policies and laws aimed at busting trusts, dissolving holding companies, and uncoupling interlocking directorates. What was also oddly inconsistent with their theoretical position was the fact that they uniformly identified too vigorous competition, i.e., "cutthroat competition," by these large enterprises as the primary threat to competition. Thus Clark

(1907, pp. 393-94) feared that the ability of large firms to engage in predatory pricing based on price discrimination between spatially separated markets or on diversified product lines posed a threat to potential competition. He wrote an influential book on *The Control of Trusts* (Clark and Clark 1971, p. vi), in 1901, which was reissued in 1912 in a revised edition co-authored with his son John Maurice, in which he elaborated a policy for “regulating competition” in order to “cut off entirely an abnormal type of it by forbidding and repressing” cutthroat competition. Davenport (1968, p. 483, 485) also saw cutthroat competition as “the chief means of bringing about or maintaining a monopoly” and concluded that “combinations are inevitable” and “regulation is just as inevitable.” Fetter (1915, pp. 393-96) and his student Mund (1933, pp. 88-92) found the source of allegedly pervasive monopoly in American industry in the geographical price discrimination inherent in the “basing-point plan of delivered prices” practiced by various heavy industries. Fetter (1931) went on to write a widely read book on the subject aimed at a popular audience and entitled *The Masquerade of Monopoly*.

The inexplicable failure of its leading proponents to rigorously apply the deductions of the theory to the practical dimensions of the monopoly problem that were the subject of heated discussion in the early decades of the twentieth century marked the theory of monopoly price as an archaic scholastic exercise with no application to the economic reality that economists were struggling to explain in the 1920’s and 1930’s. Clark and Fetter were particularly culpable in this regard because they both made noteworthy contributions to the discussion of monopoly policy during respective periods when their names still retained substantial cachet among informed citizens, policymakers and professional economists. In addition, Fetter and Mund, who had assumed from the

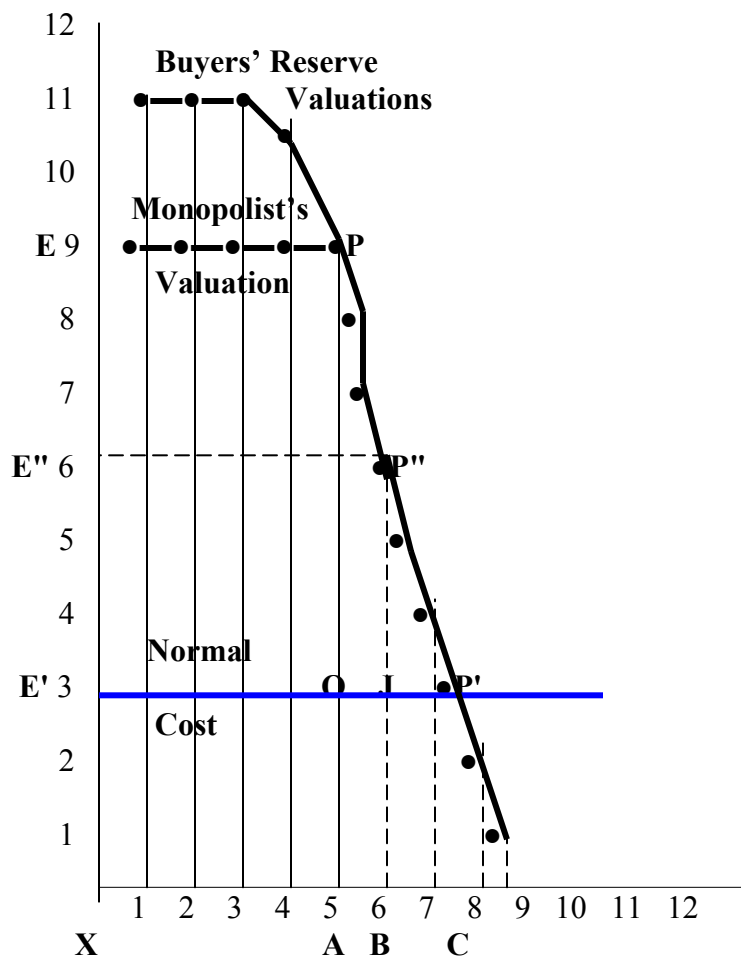
former the mantle of the leading theoretician of the monopoly price approach after the publication of his book, declined to seize the opportunity to aggressively promote the Mengerian approach that was offered by the freewheeling discussion over monopoly and competition that exploded in the pages of the scholarly journals after the publication of the Robinson and Chamberlain volumes.<sup>19</sup> Thus when Mises finally resurrected the theory of monopoly price with the publication of *Human Action* in 1949, the Monopolistic Competition Revolution had become the textbook orthodoxy in English-language economics.

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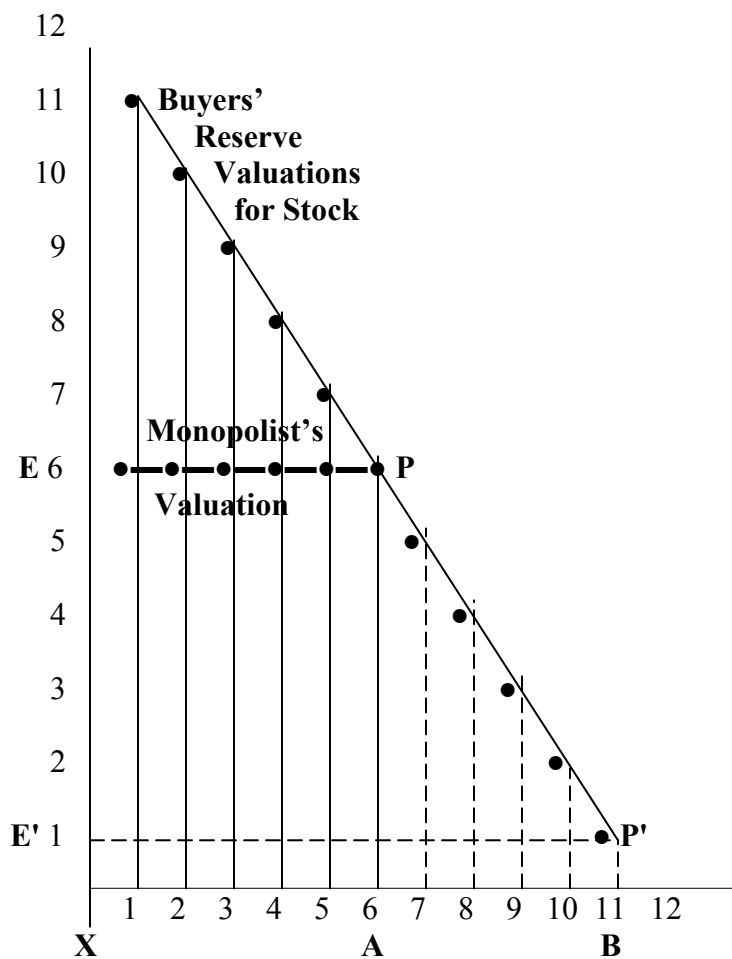
<sup>19</sup>Fetter (1937, pp. 459-544) did contribute four chapters on value and price theory to a 1937 volume on *Economic Principles and Problems* edited by Walter E. Spahr. One of the chapters contained a very good précis of the theory of monopoly price, but no critical review of the monopolistic and imperfect competition doctrines. Significantly, in the following edition published in 1940, Fetter's chapters on price theory had been replaced by chapters written by Bruce W. Knight (1940, pp. 343-432) that included a chapter on monopolistic competition. Mund (1934) published an applied article providing concrete examples of competitive and monopoly prices in the *Quarterly Journal of Economics* in 1934. In a college textbook on *Government and Business* published in 1950, Mund (1950, pp. 68-89, 111-138) included a chapter on competitive price determination which followed the Mengerian approach and a second chapter on the nature of monopoly and monopoly power in which he set forth the theory of monopoly price and employed diagrammatic analysis similar to that found in his 1933 monograph on monopoly. The book did not contain a discussion of perfect or monopolistic competition

## APPENDIX

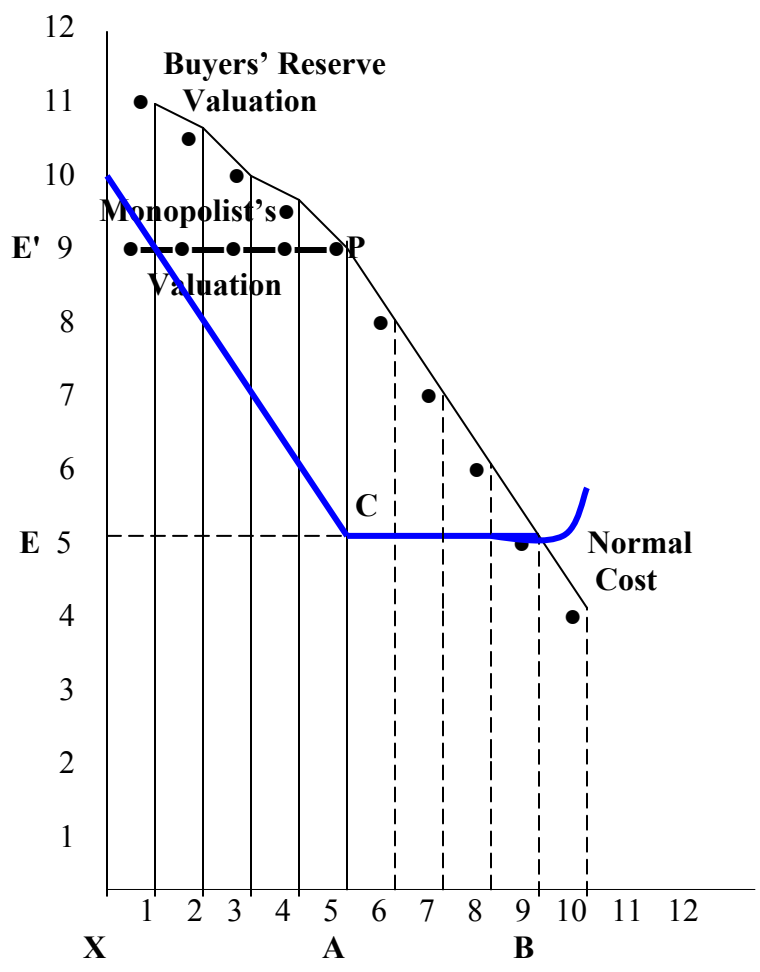
**Figure 1**  
(Reproduced from Mund 1933, p. 120)



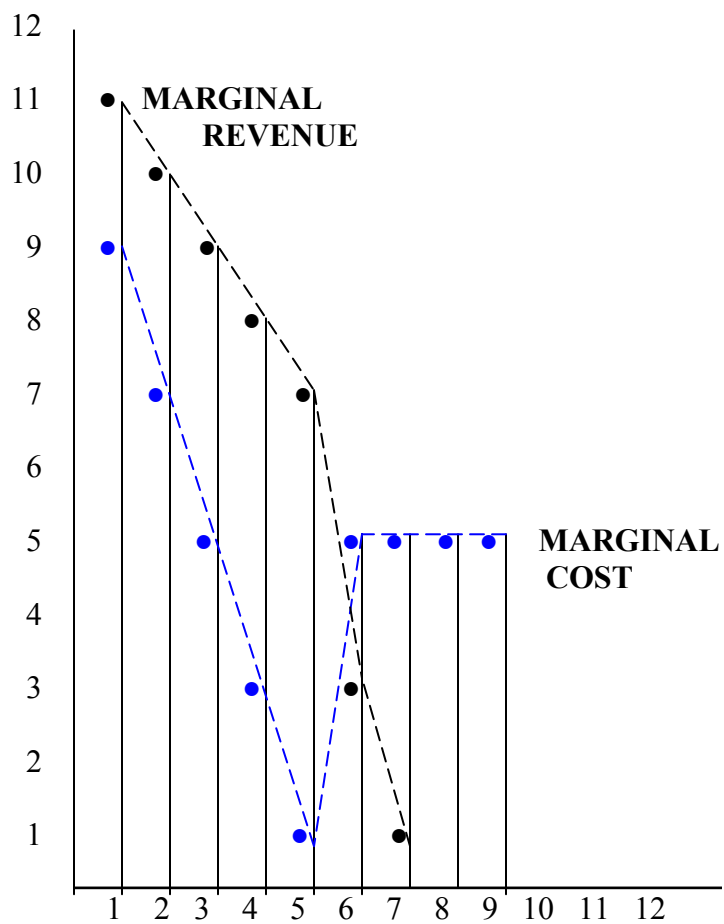
**Figure 2**  
(Reproduced from Mund 1933, p. 126)



**Figure 3**  
 (Reproduced from Mund 1933, p. 131)



**Figure 4**  
(Marginal curves associated with Figure 3)



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