Carl Menger's Theory of Exchange

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In his *Principles of Economics* Carl Menger presented the causal laws by which individuals alone and in association with others provide for their needs.[1] Menger offered an explanation of how basic exchange institutions are formed in response to the economizing actions of individuals. His teaching and manner of approach became the pillar of a school of thought that achieved international reputation around the turn of the century and is undergoing somewhat of a renaissance today.[2]

In the first part of this paper I summarize what Menger had to say about the formation of exchange institutions and the part they play in economic development. It is in the context of economic development that exchange institutions take on a precise and important meaning in Menger's intellectual system. In the second part of this paper, I concentrate on those technical aspects of Menger's theory of exchange that contributed to what is now termed "orthodox," or "neoclassical," price theory. I am especially concerned with specifying the ways in which Menger's theory of *price formation* differed from the now-current neo-Walrasian theory of *price determination*. In the final section I explain why Menger did not consider the determination of market price to be the principal problem in the science despite his own substantial contributions to the subject.

I

Thoughout his *Principles* Menger compared modern civilization and its advanced methods of production and exchange with primitive, or what he termed "isolated household" economies.[3] Among primitive peoples engaged in economic activity the success of any single household's

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plans was largely independent of the plans and choices made by other households. The problem of what I shall call "coordinative uncertainty" simply did not exist. This is not to say that the Iife of primitive man was idyllic. On the contrary, his superstitions and ignorance of basic science left him pitifully at the mercy of nature. He lacked what Menger termed defnite knowledge about the "causal connections between goods" (53, 55 and 58). Primitive man planted his seeds in the earth and stood helplessly by praying for a bountiful harvest. One year the harvest was rich and abundant, the next year scarce and tragic. The range of variation of output both in quality and quantity was, according to Menger, enormous and unpredictable.

As civilization progressed and man acquired the scientific know-how to manipulate physical processes and achieve technical objectives, he was able to bring the relationship between certain inputs and outputs more closely under his control.[4] At the same time he learned how "indirect" methods of production are used to achieve greater output levels. Capital-using methods of production involve the application of one collection of (capital) goods to produce other (capital) goods that are used to produce still other goods, and so on, until eventually goods emerge in a form that is directly serviceable to human needs. Menger termed goods far removed from final consumption "goods of the higher orders" and goods closer to the point of final consumption "goods of the lower orders" (56–58). Menger's successor, Eugen von Böhm-Bawerk summarized this notion when he offered the historical observation that capital-using methods of production become increasingly more "roundabout."

Capitalistic methods of production, while extremely productive of a wide range and quality of goods, are inherently more "time consuming." This means that goods that could be applied toward the satisfaction of present, or current, needs are instead tied up in a process that yields greater benefits, but only at a future date. This extension of the construction period increases uncertainty because the likelihood of uncontrollable forces upsetting the process once it is set in motion is enhanced. Fortunately, the disadvantages of extending the construction period are offset by an increased willingness on the part of individuals to expand their planning horizons and adopt these roundabout methods of production.[5]

Following Menger, we may think of production as consisting of a series of stages of productive activity. At each stage a variety of higher order goods (or capital goods) must be combined to produce goods of the next lower order. Modern capital-using methods of production involve a constellation of commodities (capital goods) existing at any moment like planetary bodies bearing a certain definite sequential relationship to each other and moving through the economy with a definite speed and direction. In Menger's writings and those of the later Austrian economists, we find the fullest development of what Nassau Senior called the third "elementary proposition of the science," namely, "that the powers of labor and of other instruments which produce wealth may be indefinitely increased by using their products as the means of further production" (Senior 1965: p. 26).

Like his classical predecessors, Menger emphasized the importance population growth has had on the development of economic institutions. The growth in numbers contributes to the multiplication of human needs both in quantity and quality. It is quickly discovered that an increasing number of goods are too scarce to meet everyone's requirements for them at one time. The adoption of the institution of private property, therefore, prevents interpersonal conflict among men by distinguishing what is "mine" from "thine" (94–101). At the same time individuals learn to economize when employing their property to satisfy their needs. That involves assessing the value of goods in terms of the importance the individual attaches to the least-most-important need that a unit of that good is capable of satisfying. In the case of a stock of some good already in an individual's possession, he apportions it among several competing uses by balancing what economists subsequently termed the marginal utilities of the commodity in these several uses.

Thus Menger's discovery and application of the concept of marginal utility was directly bound up with his view of production: that is, marginal utility describes how men provide for their needs when the means available are scarce and capable of being applied in several directions.[6] These same subjective comparisons allow individuals to discover when a swap or trade of their possessions is to their personal advantage (that is, the advantage of their households). In Section 2 we

shall analyze how these subjective considerations can be used to explain the terms on which the exchange is conducted.

With the multiplication in the number of stages of production, private property, and household trading, individual households come to depend on other households in a particular and definite way. At each stage of production, owners of higher order (capital) goods require complementary goods of the same order to produce goods of the next (lower) stage of production. Furthermore, they require that the complementary goods be made available at a particular time and at a particular place by other individuals, and so on, all the way down the line until the lowest stages of production are reached and consumer or final goods are produced and sold (63).

While individuals may become increasingly knowledgeable about the technological relationships between inputs and outputs, they remain tremendously uncertain or even ignorant about whether other individuals will be there with the right goods at the right place at the right time. This is the "coordinative uncertainty" (mentioned earlier), which Menger considered almost a defining characteristic of modern civilization. In order to lessen this uncertainty individuals learn to keep extensive records about their own circumstances and carefully assess their future needs. Planning is necessary if error is to be avoided. They also pay others for the specialized service of providing statistical information about existing supplies arid projections about their future availability.[7] In a market economy, information about the actions or inactions of other traders becomes highly prized indeed.

Clearly, unless the plans of individuals are coordinated in some way, the effectiveness of the capital structure in maintaining a continuous flow of final goods will be impaired. Disruptions can occur and have occurred on a dramatic scale. At several places in the *Principles* Menger called attention to the consequences to Europe of curtailment of cotton shipments from the United States during the Civil War (62, 86, 93). This experience illustrates quite dramatically how, when the supply of one important higher order good such as cotton is cut off, the complementary goods at that stage of production and at other stages down the line lose part of their value to economizing individuals.

In the extreme case complementary capital goods do become worthless if they cannot be employed elsewhere in the economy

(64–65, 163). In this way Menger attacked what he understood to be the major doctrinal position held by the classical school—that the cost of production of capital goods in either labor or money terms has some special power over current market valuations (145–148). Value, according to Menger, is always imputed backward, from (future) first-order goods to higher-order goods, and, of course, the first-order goods acquire their value from their relative effectiveness in satisfying human needs. It was this insight about the subjective character of economic valuation and the direction of its influence that informed Menger's entire work (Stigler 1937: 666–668).

It is clear then that, in a world where the smooth working of what Friedrich A. Hayek aptly termed the "structure of production" depends on the careful coordination of individual plans, the basic economic problem is no longer primarily technological; instead it is how the individual can minimize the "coordinative uncertainty" having to do with the actions and/or inactions of other individuals. Part of the answer has to do with acquiring reliable information about existing markets and their operation. Another part has to do with the widespread adoption of what Menger called commodity stocks. It is to this mechanism that I would now like to turn my attention.

According to Menger, isolated or primitive households provided for their needs by holding a wide variety of goods necessary for the fulfillment of their plans. Their "property" consisted of a variety of goods, such as oxen, hay, pitchforks, pigs, and so on. A historian examining the specific list of propertied items could probably determine not only what the needs of that household were, but also how well that household was able to provide for its needs compared with neighboring households.[8] With the development of exchange, however, individuals were increasingly able to buy what they needed when they needed it in the market. What they stored up instead of capital goods (that is, instead of specific products like oxen, hay, and pitchforks) was a specialized collection of goods that were valued because they had highly organized resale markets. Organized resale markets offered their holders reasonable assurance that their prices would not fluctuate widely for reasons I shall discuss below. Menger termed goods held for their exchange-value rather than their use-value, "commodities."[9]

Quite clearly, goods acquired their commodity reputations only at an advanced stage in the development of exchange institutions. Under these conditions—conditions associated with modern capital-using methods of production—an enumeration of the goods in an individual's possession would no longer convey definite information about what specific needs the household wanted to satisfy. However, the market value of the individual's property—what Menger termed his "wealth"—allows us to compare individuals or households and decide roughly who is in a better position to provide for his needs, whatever those needs might happen to be (110).

Now among the many commodities exchangeable in the market, some stand out as exceptionally marketable and are capable of being readily traded on a wide variety of markets at an "economic price."[10] Individuals therefore find it advantageous to acquire stocks of these comrnodities rather than others. This enhances their reputation still further and makes them more acceptable to others in exchange. Eventually one commodity snowballs in reputation and becomes the "money" commodity—the commodity that is readily tradable on *all* markets.[11] The adoption, or what might be best termed the "election," of this commodity as the community's money substantially reduces the "coordinative uncertainty" associated with trade. The need for a "double coincidence" of wants is eliminated, as are the search and other transaction costs associated with trade activity itself.[12] The adoption of money permits individuals to pursue more capitalistic methods of production by providing them with a liquid form in which their assets may be held until that time when the specific capital goods they need may be purchased from others.

The various stages of capital-using methods of production may now be synchronized more easily, precisely because a commodity exists that permits individuals to maintain their wealth positions in a form of generalized purchasing power. Menger's theory of the origin of money has been widely recognized by historians as a valuable and important contribution to the science. Translated sections of this part of his writing appeared in the *Economic Journal* as early as 1892 (Menger 1892). What has not been recognized is the way money acts to reduce the "coordinative uncertainty" Menger considered a major disadvantage of modern economic life.[13]

Commodities play still another important role in the market economy, this time in the form of commodity stocks held by producers and professional traders. According to Menger, the "first step" in the development of an economy occurs when one group of individuals offers to work up the raw materials of another for a specific price. In the next step, producers agree to supply the raw materials themselves when commissioned by consumers to furnish them with a certain product. This last arrangement has certain serious inconveniences for both consumers and producers. First, the consumer must wait for his order to be filled and never knows exactly what the product will be like. The producers, on the other hand, are sometimes flooded with orders and sometimes operate at slack capacity. According to Menger, economic organization arrives at a still higher stage of development when producers begin to manufacture goods *in anticipation of selling them at a future date* (236–237).

Of course, the producers can never be assured that the goods they are working on today will command an "economic price" tomorrow but their uncertainty is considerably lessened when some commodities come to be traded on highly organized markets, such as fairs and well-known trade centers. Here a class of professional speculators emerges to keep prices relatively stable by buying stocks of the commodity when the price falls below the "normal" economic level and by selling these stocks in the opposite case. At the same time a group of professional middlemen capture part of the "gain from trade" by buying commodities where they are relatively undervalued and selling them where they are relatively overvalued (250). This, of course, irons out price differences throughout a single-market area. With the establishment of organized markets and professional speculators and middlemen, the producers are able to synchronize the uneven rates of purchases of their consumers with the advantages of a smooth coordinated production process. Both consumers and producers surely benefit from this development as it permits more capital-intensive production techniques and a greater quantity and variety of output (cf. Lee 1974).

By way of summary we may say that Menger explained the development of exchange institutions as a rational response to the

"coordinative uncertainties" encountered by individuals employing capital-using methods of production.

II

In the first section I took up Menger's analysis of exchange institutions and explained how they complement his larger concern with economic development. Here I shall concentrate on several technical aspects of his theory of exchange that appear in the *Principles* and relate them to the work of subsequent economic writers. I shall also evaluate the claim that Menger's price theory represents a radical break with the classical notion of "normal price."

Menger began his formal discussion of exchange and price formation by criticizing Adam Smith's statement in the *Wealth of Nations* that trade among men can be explained by a "propensity to truck, barter, and exchange one thing for another."[14] According to Menger, if the significance of trade among individuals is that it helps them nourish an instinct to trade, then we should observe individuals simply passing objects back and forth as in the parlor game "hot potato." Fortunately, such peculiar market behavior would be considered insane by most outside observers and certainly not classified as *economic* behavior at all. It follows that Smith's understanding of trade must be based on something else besides a propensity or instinctual urge. Menger explained that that something else is each individual's personal interest in finding ways of better providing for his needs—what Menger termed "economizing action" (177).

Economizing action is always in response to scarcity, that is, in response to a situation where the quantity of goods available for satisfying one or more wants is smaller than the total requirements for those goods (94–101). Trade provides individuals with an opportunity to substitute something they value less for something they value more, and for that reason it is not instinctual or automatic but rational and planned. In Menger's words, trade is something "economizing men carefully consider . . . in advance." Eventually, traders arrive at a "limit . . . beyond which [they] will not continue to trade at any given time" (177).

In order to analyze that limit, Menger posited a situation where two traders meet, being endowed with different quantities of two goods, horses and cows. The trader with a relative oversupply of horses offers them (one at a time) to the other trader in exchange for cows. The second trader agrees, since by the assumptions of Menger's example he has a relative overabundance of cows. Menger shows how by way of successive cow-horse transfers (at an assumed fixed exchange rate of 1:1) each trader obtains a net gain—that is, each trader gains something capable of satisfying more urgent needs than the needs that go unfulfilled because of what is given up (177–190). This mutual gain continues, and cows are swapped for horses until one of the traders decides that if another cow is swapped for another horse his personal situation would be damaged rather than improved.

In Menger's numerical example it turns out that when one trader decides that another trade is not in his interest, the other trader simultaneously feels the same way. Menger's traders stop trading when they calculate that the marginal gain connected with the next trade is smaller than the marginal cost. According to Menger, the marginal cost of trading is equivalent to the value the individual attaches to the least most important want that must go unsatisfied because of the trade.[15]

In Menger's example of bilateral monopoly it is assumed that when the first trader decides to stop trading the other trader wishes to stop trading also. But why should two traders with different tastes and different initial endowments of commodities simultaneously call "quits?" That could only happen if the exchange rate at which their bartering activities began not only was advantageous throughout the sequence of trades but also was the "market clearing," or "equilibrium" terms of trade all along. But in a barterlike situation what is there to guarantee this result?

Let us follow Marshall and refer to this special exchange rate as the "true equilibrium price." According to Marshall's definition, it is a "true equilibrium price" because "if it were fixed at the beginning and adhered to throughout, it would exactly equate demand and supply (i.e., the amount which buyers were willing to purchase at that price would be just equal to that which sellers were willing to take at that price)." It must also be assumed that nobody has reason to believe that the future price will change (Marshall 1961: 1:333). It seems more

likely (especially for Menger's two barterers) that the exchange rate would start out at one value and vary as the sequence of trades proceeded until some final equilibrium position was reached.

In 1881 F.Y. Edgeworth brilliantly demonstrated that, although it is reasonable to expect two barterers to reach an equilibrium position by way of sequential trading, the final exchange rate and the total quantities of the two commodities traded cannot be predicted from the preferences of the traders; rather it generally depends on the *sequence* by which that final position is reached. In fact, Edgeworth showed that there is a whole range of final equilibrium positions along his famous "contract curve," the prototype of the "core" in modern economic theory.[16]

In an insightful appendix to his *Principles* entitled "Barter," Marshall proved that if the marginal utility of one of the two traded commodities remains constant for both traders throughout the sequential process, the *final* terms of trade and the amount of the other commodity traded can be predicted if one has knowledge of the tastes and endowments of both traders. Only the actual total price measured in terms of the constant marginal utility commodity depends on the bargaining strengths of the two individuals.[17] Furthermore, if we agree with Marshall's suggestion that the marginal utility of money may be considered practically constant for small transactions, we understand the justification for Marshall's important conclusion that in a money-using economy the *final* exchange rate is uniquely determined by the preferences of the two traders and is independent of their relative bargaining strengths.[18]

Let us now ask if there are any circumstances under which the market exchange rate will remain *constant* during the entire trading process and at the same time allow all traders to arrive at equilibrium positions. Stated another way, under what conditions will Marshall's "true equilibrium price" actually be the outcome of a decentralized market process. While Menger, in his analysis of barter, made such an assumption, at other places in his *Principles* he understood that something close to the "true equilibrium price" would prevail if the *number* of buyers and sellers was large (Marshall 1961: 341–342).

This is a familiar theorem in the history of economic analysis; from Adam Smith down to the present day, economists have identified large

numbers of traders with the conditions under which a single equilibrium, or "normal" price will emerge in the market. As I see it, three broad patterns of explanation have been used to justify the connection between numbers and the "true equilibrium price." At the risk of substantial oversimplification let me summarize these three patterns as follows:

1. The large group situation makes any single trader's activities a tiny part of the total market situation. Therefore, the single trader believes (correctly) that his market behavior has little or no impact on the final market outcome. These circumstances make collusive economic behavior unlikely and therefore help keep the market price at the "true equilibrium price." it is sometimes said that in large numbers traders look upon prices as *parameters* rather than *variables*. Because of this fact they are sometimes described as not possessing any degree of "monopoly power" (Lerner 1934).
2. A large body of traders can in principle complete their trades *simultaneously*, say, "when the whistle blows." Thus, while in barter we have a few traders trading sequentially, among large bodies of traders we have many people transacting simultaneously. Instead of a series of n trades spaced over some finite period, we have n traders all transacting at the same time. Under these circumstances the market actually comes to look like an auction where a crier calls a single price to which all buyers and sellers adjust their bids and offers. The crier adjusts that price appropriately until quantity demanded equals quantity supplied and the "true equilibrium price" is reached. Léon Walras' description of the market process involving tâtonnement is an appropriate description of certain auction situations, and auctions are often an effective means of conducting trade among large bodies of traders (Jaffé 1967: 1–19).
3. With larger numbers comes a multiplicity of valuing minds and a dispersion of information among the entire group of traders. Under these circumstances it is likely that a group of professional middlemen and speculators will be "alert" to opportunities for profitable arbitrage. Their actions will iron out price differences

> and guarantee that the commodity will sell nearly everywhere for the same market price. This is about as close as the market process can come to what Edgeworth had in mind when he suggested that the "true equilibrium price" could only be attained if it is assumed that traders can "re-contract;" that is, get out of contracts previously made at disequilibrium prices. Only when the "true equilibrium price" is reached will all existing contracts become final. The group of middlemen and speculators whom Menger identified with organized market structures may be viewed as agents carrying out Edgeworth's recontracting process.[19]

Of these three patterns of explanation for the "large number theorem" the first and third have a place in Menger's *Principles*. It is clear that Menger rejected the second formulation now current in the profession, especially in textbook presentations of the subject. Our current textbook formulations sum the demand curves of individual traders (horizontally) to get the market demand curve. Individual supply curves are aggregated similarly to get a market supply curve and market supply curve are then solved simultaneously to arrive at the true equilibrium price toward which current market prices are *constantly* (?) heading. It is assumed not only that all traders (simultaneously?) contract at that price but also that by the method used to compute the price in the first place the market is necessarily cleared.[20] Menger denied the usefulness of "simultaneous determination" methods in economics.

In his later methodological writings, he referred to the view that the "parts of a whole and the whole itself are mutually *cause* and *effect* simultaneously (that a *mutual causation* takes place)" as "so vague and inadequate for our laws of thinking that we will scarcely err if we designate it as eloquent testimony that our age in many respects still lacks a deeper understanding of the nature of natural organisms as well as that of social phenomena" (Menger 1963: 132–133). Menger considered economic phenomena to be "organic" and saw the economist's role as that of offering a description of the market process rather than of conjuring up specific numerical predictions about "incidental manifestations" of the process itself.[21] And so it turns out that what Menger favored was not a theory of price *determination* at all, but

rather a theory of price *formation*. It is to this development and how he makes use of the large-number assumption that I would now like to turn my attention.

Chapter 5 of Menger's *Principles* is somewhat misleadingly entitled "The Theory of Price." What the discussion really offered is a theory of the limits within which the exchange rate is free to vary under alternative market structures.[22] Menger began by analyzing isolated exchange where two traders meet, each with a single unit of a commodity that the other trader wants. Trader **A** owns a horse that he values no higher than 10 bushels of grain, while trader **B** owns 80 bushels of grain that he values no higher than 1 horse.

Thus, if the two individuals are in a position to exchange the horse and the grain, they can both make themselves better off if they agree to trade a horse for anything more than, say, 11 bushels of grain and anything less than 79 bushels of grain. Now, of course, the closer the final exchange rate is to 1 horse = 79 bushels of grain, the more the horse owner gains, and the closer the exchange rate is to 11 bushels, the more the grain owner gains. Menger pointed out that in this case—what is now termed "bilateral monopoly"—the final terms of trade depend on the bargaining strengths of the two individuals.

Furthermore, an outside observer, knowing nothing more about the two traders than what has already been disclosed, must find it reasonable to suppose that the final terms of trade will be midway between the two limits 11 and 79: that is I horse = 45 bushels of grain. It is not clear to me why equal bargaining strengths should result in an arithmetic averaging of the two price limits (why not a geometric average placing the final price an equal proportional distance between the two limits?), but Menger apparently found this conclusion intuitively obvious (Jaffé Winter 1974: 401n).

Now suppose a second horse buyer is introduced who values a horse no higher than 30 bushels of grain. The entry of this second buyer into the market guarantees that the final terms of trade will lie between the price limits of 31 and 79. That is, the introduction of the second buyer narrows the limits within which bargaining determines the final exchange rate. With many buyers facing a single seller of a commodity, the final terms of trade must lie within the limits set by the grain equivalent of the unit purchased by the individual least able to

compete who still participates in the exchange and the grain equivalent of one unit of the good to the individual most able to compete of all those competitors who are excluded from the exchange.[23] Menger goes on to show that the larger the quantity of the commodity brought to market, the fewer the competitors excluded and the more wants that will be satisfied, especially among poorer segments of the market (224–225).

In the situation where a single seller brings a large quantity of a commodity to market, that seller does not throw the entire supply on the market and wait for a market clearing price before agreeing to sell any portion of the supply, as the auction analogy suggests. Actual markets are not auctions, Menger explained, because auctions are only appropriate when the seller wishes to unload a large quantity of goods quickly (201n; 207–208). The monopolist's strategy often involves setting the price as high as possible in the beginning and thereby marketing "only small quantities of the monopolized good." Later the monopolist lowers his price "step-by-step to increase sales and thereby exploiting all classes of the population in succession—if he can obtain the greatest economic gain by following this procedure" (212). Menger admitted, however, that monopolists are usually not able to extract what Marshall termed the entire "consumer surplus." Instead they simply choose a price above the true equilibrium price and withhold a portion of the market supply. Menger offered historical examples by citing the practices of the seventeenth century trading companies that destroyed portions of their imports rather than lower their own revenues by way of a fall in the market price (214–215).

At another place in his *Principles*, Menger referred to the restrictionist practice of monopolists as a "malpractice" because it keeps the lower and upper price limits (both) higher than they would otherwise be. This both excludes certain individuals from consuming altogether and restricts the consumption of others. In general, monopolists restrict a portion of the population from providing for their needs adequately as they could in the absence of the monopoly altogether.

A numerical example may help convey what Menger had in mind. Consider a monopolist with 1,000 shoes on hand and able to sell the whole lot at $10 per pair. Suppose the monopolist destroys 200 pair

and is able to sell the remaining 800 at $14 per pair, clearly his receipts will rise from $10,000 to $11,200. According to Menger, monopoly is the rule rather than the exception at the early stages of economic development when certain trades and occupations are just developing. When two or more sellers compete, Menger argued, the malpractice disappears. Suppose two traders each possess 500 pair of shoes. If one trader restricts his supply to 300 and the market price rises from $10 to 14, his own revenue falls from $5,000 to $4,200. From this Menger concluded that neither seller would restrict supply and so, when two more sellers act "independently," the entire supply is disposed of in the market (222–223).

Unfortunately, Menger's conclusion is not correct, as the mathematical economist A. Cournot demonstrated nearly 40 years earlier.[24] Menger was astute in realizing that, when the first seller restricts his supply, he imposes a beneficial externality on the second seller that the first seller cannot capture for himself. Menger erred, however, when he supposed that *any* restriction of supply must necessarily be unprofitable to the first seller. Clearly, if the first seller destroys only 100 pair of shoes and the market price rises to $13 rather than $14, then both sellers will obtain a positive gain (although the amounts of the gain surely differ). Stated another way, from the observation that the demand curve facing an individual supplier is more elastic than the entire demand curve for the product, it does *not* follow that the elasticity of demand facing the individual supplier is greater than unity!

Menger would have been on safer grounds if he had simply reached Cournot's conclusion (in line with his entire discussion up to this point) that the more sellers in competition with one another, the lower the price limits and the greater the market supply. In fact, he did reach this conclusion at other places; Menger wrote, "When there is no natural limitation to the means of production, this means that more and more classes of society are able to consume the commodity at falling prices, and that the provisioning of society in general becomes ever more complete" (224).

This brings me to an important question: Did Menger accept the classical notion of a "normal," or "supply" price for broad classes of goods, or did he believe that prices of goods must always be subject

to radical swings and unpredictable variations? Erich Streissler reported that Menger "expressly denied the existence of such a thing as a market price" and he denied it most forcefully exactly when treating money.[25] Unfortunately, Streissler's claim does not seem to be substantiated, at least when it comes to what Menger had to say about prices and markets in his *Principles*. According to Menger, as civilization develops organized markets come into existence for broad classes of goods. In these markets professional middlemen "take care of the intellectual and mechanical parts of exchange operations for society and . . . are reimbursed for this with a part of the gains from trade."

We have already pointed to Menger's description of the role speculators play in holding inventories of goods, thereby "absorb [ing] every portion of the available quantity of the commodities coming to market at any time, even though in excess of current requirements" and also taking "care that the differences in price between the various markets do not significantly exceed the costs of transportation" (250–252). The actions of speculators and middlemen together thereby keep market prices close to what Menger termed "economic prices," that is, "prices that correspond to the *general* economic situation." Menger went on to say that "the prices that become effective [that is, actual market prices] are always the product of existing competitive conditions . . . and correspond more closely to the *general* economic situation the more complete the competition on both sides [that is, the larger the number of buyers and sellers and the more organized the market]" (248–249).[26] From the context of the discussion we may conclude that Menger's "economic price" is roughly the Austrian counterpart of Marshall's "true equilibrium price" though Menger unlike Marshall did not abstract from the speculative positions traders take regarding future price changes. Menger viewed the actions of speculators as essentially *stabilizing* and useful, especially in highly organized markets where standardized products are traded. Furthermore, the larger the number of traders, the more likely the "true equilibrium price" is to be the market price.

By way of conclusion, we may say that Menger's theory of the "economic price" was similar in definition to Marshall's but generated by a market process more in the spirit of Edgeworth's notion of

recontracting rather than the familiar auctioning or taātonnement process developed by Walras and his successors. It is of some significance that whatever recontracting did take place in Menger's analysis was largely the work of a class of professional middlemen and speculators that Menger astutely identified with highly organized commodity markets.

III

On one point, however, Menger was adamant about his differences with the classical school. That had to do with making the magnitude of price the center of economic investigation and restricting economics to the "science of prices." As Menger pointed out, this way of thinking was influenced by Aristotle; who declared "natural exchange" is to be based on an "exchange of equivalents" (305–306). This, according to Menger, led economists down the thorny path of trying to search out some objective feature of the exchange process that would serve to equilibrate the quantities of the commodities traded. In Menger's view, exchange can never be based on equality of this sort. Exchange always involves subjective estimation about unequals insofar as traders try to give up something worth less to them than what they receive in return.[27] The market price, or the exact terms on which exchange is conducted, is, according to Menger, only an "incidental manifestation of [economizing] activities, symptoms of an economic equilibrium between the economies of individuals" (191–192).

The statistical summarization of market prices and their historical behavior is by itself unilluminating. That would be like measuring the traces of particles in a cloud chamber in the hope of finding clues about the structure of the particles themselves. Menger's contribution was to successfully show how market price is *formed* out of the subjective preferences of buyers and sellers in a world where individuals are striving to satisfy as many of their most urgent needs as is possible.

In his *Principles* Menger's task was twofold: (I) to understand the process by which the market rate of exchange is established and (2) to understand the evolution of exchange institutions and how they

function in the modern economy. While his contributions to the first problem proceeded along orthodox, or neoclassical, lines, he did not consider price theory to be the *sine qua non* of economics. It is clear that the second problem, that having to do with the development and function of exchange institutions, was the one that occupied the major portion of his time.

We may conclude that at least one of the famous triad of co-discoverers of the marginal utility doctrine was interested in using the concept to explain the dynamic features of the modern exchange economy. It is really unfortunate that the whole of Menger's *Principles* was not accessible to English readers before 1950. By that time interest in the foundations of the science had fallen largely out of favor among the majority of practicing economists. Menger's ernphasis on the development of exchange institutions and the role they play in reducing the "coordinative uncertainty" associated with modern economic life is enough to destroy the ill-conceived claim that the "marginal revolution" was essentially static or unhistorical in its outlook arid represented a turning away from the classical school's, and in particular Karl Marx's, emphasis on the development of market institutions.

Notes

1. Menger explained that the "phenomena of economic life, like those of nature, are ordered strictly in accordance with definite laws" (Menger 1950: 48; hereafter all references to Menger's *Principles* are by page number only). Menger showed that a wide variety of economic, phenomena, such as "capital goods," "interest," "value," "bilateral exchange," "inventories," and "money," are related to the want-satisfying activities of individuals and their households. In spite of Menger's favorable reference to Baconian empiricism (p. 47), his approach may be termed "Aristotelian essentialism" because he was after those necessary characteristics of economic phenomena without which they would cease to be economic phenomena. Modern empiricists are critical of such an approach unless it leads to hypotheses that are capable (at least in principle) of being tested. On Menger's "essentialism," see Kauder, 1957 and White, 1977.

2. On the history of the Austrian school and the contributions of its early members, see Hayek, 1934, pp. v–xxxvii. Howey, 1960 provides a wealth of historical information on certain features of Menger's theories and their impact on the writings of his early disciples, especially Eugen von Böhm-Bawerk and

Friedrich von Wieser (see esp. pp. 24–27, 39–60, 139–178). Recent examples of the Austrian renaissance include J.R. Hicks and W. Weber, 1973 and Dolan 1976.

3. At times Menger spoke of "higher levels of civilization" or the "progress of civilization," but a comparison between primitive and modern economic life was always implied; for such comparisons, see pp. 53, 63, 73, 78, 86, 89, 91, 102–103, 153, 155–156, 161, 189–190, 197, 210, 214–215, 217, 221, 223–225, 227, 237, 239, 260, 265.

4. Menger identified "economic progress" with the degree of progress of human knowledge. The acquisition of knowledge changes primitive economy, in which "consumption goods [are] the product of . . . accidental concurrence[s]," to an economy in which they "become products of human will, within the limits set by natural laws." Furthermore, "increasing understanding of the causal connections between things and human welfare, and increasing control of the less proximate conditions responsible for human welfare, have led mankind . . . from a state of barbarism . . . to its present stage of civilization and well-being, and have changed vast regions inhabited by a few . . . into densely populated civilized countries" (p. 74). However, Menger qualified these remarks by explaining that while the "progress of civilization [that is, the growth of knowledge] tends to diminish the uncertainty regarding the quantity and quality of a product finally to be obtained . . . an appreciable degree of uncertainty . . . will always be present" (p. 70). Also, he wrote, "This uncertainty [that is, uncertainty about technological relationships] is one of the most important factors in the economic uncertainty of men [and] is of greatest practical significance in human economy" (p. 71).

5. "[I]n the process of change by which goods of higher order are gradually transformed into goods of first order . . . time is an essential feature of our observations" (p. 67), and elsewhere he wrote, "Economizing men can most assuredly increase the consumption goods available to them accordingly but only on condition that they lengthen the periods of time over which their provident activity is to extend" (p. 153). But this situation is accompanied by a serious inconvenience because "human uncertainty about the quantity and quality of the product . . . is greater the larger the number of elements involved in any way in the production of consumption goods which we either do not understand or over which, even understanding them, we have no control" (p. 71). In the first edition of his *Principles*, (which was the edition used for the English translation (Menger 1950) Menger listed another inconvenience men experience when the construction period is extended, having to do with what Böhm-Bawerk and later theorists termed "time preference"—man's relative urgency for goods now rather than later; "All experience teaches that a present enjoyment or one in the near future usually appears more important to men than one of equal intensity at a more remote time

in the future" (pp. 153–154). In the second German edition of his *Principles* (published in 1923 by his son, Karl Menger), this sentence was removed, apparently because Menger did not want his book to offer any support for Böhm-Bawerk's capital theory, with which Menger took serious exception (Stigler 1937, and Hicks and Weber 1973).

6. Technological connections among goods of the various hierarchical orders exist regardless of whether or not these same goods are scarce and traded in the market. If the goods are scarce, the basic economic problem is one of how to allocate existing supplies to secure the greatest possible satisfaction of needs. It is in this context that Menger introduced and developed the notion of "marginal utility." The best single review of Menger's technical contribution to value theory and its relationship to his general theory of economic organization is in Stigler, "The Economics of Carl Menger," pp. 656–667.

7. Menger explained that since "chiefly as a result of the division of labor, men find themselves dependent in large part upon exchange in meeting their requirements, they naturally acquire a very obvious interest in being informed not only about all the goods in their own possession but also about the goods of all the other persons with whom they maintain trading relations, since part of the possessions of these other persons is then accessible to them, if not directly, yet indirectly, by way of trade" (pp. 90–91). Menger emphasized that the interdependencies among households are due not so much to the division of labor (as Adam Smith emphasized) as to the overlapping patterns of individual plans (pp. 72–73). With progress in the division of labor a class of professional traders appears who keep statistical records "to inform the business world about the available quantities of certain commodities in the . . . trading areas relevant to each commodity, and to provide it [the business world] with a basis for judging prospective changes in stocks" (p. 94). They do this by selling information services, often in the form of business reports.

8. See Menger, *Principles*, pp. 74–76. At another place Menger wrote "The characteristic feature of the isolated household economy is not the absence of any division of labor but its self-sufficiency, production being concerned exclusively with goodsdestined for the consumption of the household itself and not at all with goods destined to be exchanged for other goods" (p. 236).

9. By Menger's definition a "commodity" is an economic good "intended" for future sale (pp. 238–291).

10. On Menger's theory of the origin of money as the most "marketable" commodity, see pp. 257–262. According to Menger, the fewer the laws restricting its transfer or possession, the more individuals there are who could find uses for it, the wider the market area, the smaller the transportation costs, the smaller the storage costs, and the slower it deteriorates over time, the greater the marketability of any commodity (pp. 241–256). Examples of

especially marketable commodities include gold, grain, securities, cotton, foreign currency, and potatoes. These goods come to be traded on highly organized markets in standardized forms and hence give rise to well-publicized "economic prices" for them. The reason is that with economic progress these markets become less "independent of each other in the formation of prices." With economic progress markets become less "independent of each other in the formation of prices" because a "special class of economizing individuals, speculators, takes care that the differences in price between the various markets do not significantly exceed the costs of transportation" (p. 251). On the general role commodity speculation plays in evening out price variations among certain groupings of commodities—commodities with highly developed resale markets—see pp. 250–256.

11. For a recent ingenious attempt to characterize Menger's process, see Jones, 1976.

12. "Possession of these commodities [i.e., highly marketable commodities] would considerably facilitate his search for persons who have just the goods he needs" (p. 259). At another place Menger explained how "possession of . . . more saleable goods clearly multiplies [the individual's] chances of finding persons on the market who will offer to sell him the goods that he needs" (p. 260).

13. Hayek, more than any other Austrian economist, emphasized the role the price system plays in coordinating the often inconsistent plans of individuals in decentralized market economies (Hayek 1949: 77–118).

14. Menger, pp. 175–178; cf. Smith, 1937, p. 13.

15. Quite independently of Menger, the British economist William Stanley Jevons offered a mathematical presentation of barter trade. Unlike Menger's example, however, Jevons' involved two commodities that are capable of being divided and subdivided (that is, beef and corn) without losing their want-satisfying properties. In equilibrium each trader equates the ratio of his marginal utilities to the market terms of trade (Jevons 1965: 75–166). Unlike Jevons, Menger did not assume that when trading stops the marginal gain of each trader *exactly* equals his marginal loss. They both stop trading because the marginal gain associated with continued trading is smaller than the marginal cost. Menger wrote that the limit at which further exchange ceases to be profitable occurs "when one of the two bargainers has no further quantity of the goods which is of less value to him than the quantity of another good at the disposal of the second bargainer who, at the same time, evaluated the two quantities of goods inversely" (p. 184). Menger made much of the "inequality" that always accompanies voluntary exchange (see Section 3 of this paper). The principal difference between Menger's and Jevons' statements about the final equilibrium position has more to do with the assumptions each makes about the divisibility of the units of the two commodities traded than with the laws behind these relationships.

16. The basic idea behind Edgeworth's analysis is that as long as the marginal rate of substitution of Trader 1 differs from the marginal rate of substitution of Trader 2, one of the two traders will alter the terms of trade to give his trading partner greater incentive to trade (Edgeworth 1881: 20–48; cf. Jaffé 1974). Also see Jaffé's remarks about Menger's place in the development of the contract curve in (Jaffé 1974). For a review of this approach, see Newman, 1965, pp. 56–69.

17. Marshall, 1961, 1:791; also see Guillebaud's excellent summary of the heated correspondence between Edgeworth and Marshall about the originality and validity of this proposition, 1961; 2:791–798. For the analytic reasons for these conclusions, see Newman, 1965, pp. 64–68. In the first four editions of his *Principles*, Marshall affixed his appendix on barter to the end of Chapter 2 of Book 5. Later editions included it as one of several appendices.

18. On Marshall's postulate and its influence, see Newman, 1965, pp. 81–83.

19. The "Austrian" view of competition as a process by which "alert" middlemen adjust existing allocations so that the consumer is ever made "better off" is developed by Kirzner, 1973. On Edgeworth's early theory of "recontracting," see Newman, 1965, pp. 68–69.

20. Even textbook writers are confused about what is being done. A generally excellent recent text tells the student that "a market exists whenever and wherever one or more buyers and sellers can negotiate for goods or services and thereby participate in determining their prices." Three lines later we are told that a "competitive market" is one where neither a single buyer nor a single seller can influence the market price by his transactions (Spencer 1977: 54).

21. See Section 3. For a similar point of view emphasizing the task of economics as that of making the world "intelligible on terms of human action," see Lachmann, 1977.

22 The analysis of price determination under alternative market structures dates at least from Senior in 1836. It was also a fundamental theme of Cournot's 1838 treatise. Cournot's influence on Menger may have been indirect through the intermediation of Rau, 1841.

23. Böhm-Bawerk's theory of exchange is an extension of Menger's (Böhm-Bawerk, 1959: 215–256).

24 Competition between two sellers will generally fail to produce the "competitive solution" or what we call here Marshall's "equilibrium price." On the development of the theory of duopoly, see William Fellner, 1949.

25 Erich W. Streissler, "Menger's Theories of Money and Uncertainty—A Modern Investigation," in Hicks and Weber, 1973, pp. 168–173.

26. It is important to emphasize that Menger denied that cost of production has any "magnetic pull" over current market price, hence his opposition to the classical view of "normal" or "long-run" equilibrium price. What, however, is

the connection between money costs of production and Menger's notion of "economic price"? As long as resource owners experience greater levels of disutility in making larger amounts of their property available to producers, supply-side of the market disutilities must have an impact on the final market price. Thus, the classical and Mengerian approaches are closer than might at first seem. The classical economists did not, however, bring in "expectations" as an independent determinant of the "economic price," and it is this "speculative" element in the determination of market price that, I believe, distinguished Menger's theory from the theories of his classical forebears.

27. Menger took a position directly opposite to that of Jevons on the Aristotelian problem of "exchange of equilivants." Jevons thought that, by showing how in the case of bilateral monopoly both traders equate the ratio of their marginal utilities to the same (objective) terms of trade, he had solved the age old problem of what in an "exchange of equivalents" is equilibrated (Jevons 1965: 98–101). See also note 15.

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