Total Repeal of Antitrust Legislation: A Critique of Bork, Brozen, and Posner

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The premise underlying laissez-faire capitalism is that the only actions which should be illegal are those which involve an initiation of aggression against another person or his property. Antitrust law is clearly in violation of this principle, because it prohibits business practices no one even alleges constitute such depredations.

The economists mentioned in the title of this paper are widely and properly celebrated for upholding the virtues of the free marketplace. However, there is one lacunae in their defense: antitrust legislation. Although they have done yeoman work in helping us to understand the beneficial effects of much commercial conduct which is prohibited by these enactments, their critique of this law is less than full. They each see a small but important role for the Antitrust Division of the Justice Department. They advocate reduction in the power and scope of this law, but not, unfortunately, total repeal.

It is as if they are a football team which has succeeded in bringing the pigskin to the three yard line, but can make no further progress. This paper is an attempt to help them over the goal line. To continue our football analogy, the present paper will not comment on the 97 percent of their work which is responsible,

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in large part, for the scholarly contribution to the cause of keeping antitrust law from being even more intrusive than it now is. In focusing on the 3 percent of disagreement, this paper may give the impression that there are large differences of perspective in public policy conclusions between these authors and their present critic. Nothing could be further from the truth.

Robert Bork

Merger

Robert Bork (1978) maintains that some entrepreneurial choices in the market lead to efficiency, while others merely serve to restrict output. His main thesis is that antitrust has thus far insufficiently distinguished between these two situations. This is important, he contends, because if consumer welfare is to be enhanced, the restriction of output must be prohibited, while wealth enhancing activities must be promoted (or at least allowed.)[1]

This can be shown by a consideration of Bork's "two vectors" hypothesis, representing, at least in the first instance, a merger. This is depicted in Figure 1.

As Bork explains:

> The diagram assumes that the merger reduces the long-run average costs of the two firms from AC_1 to AC_2 but that the increased market power created by the merger results in a restriction of output so that the rate moves from Q_1 to Q_2. We then see that consumers have lost output—for which they would have been willing to pay an amount above cost equal to the area labeled A_1—and have gained in resource savings an amount equal to the area A_2. Obviously, if A_2, the cost savings, is larger than A_1, the dead-weight loss, the merger represents a net gain to all consumers. If A_1 is larger than A_2, a net loss results.
>
> This diagram can be used to illustrate all antitrust problems, since it shows the relationship of the only two factors involved, allocative inefficiency and productive efficiency. The existence of these two elements and their respective amounts are the real

[1]Bork's discussion of "allocative efficiency" depends intimately on the "benchmarks" provided by the purely competitive model. But the entire notion of "output restriction" depends logically upon some reference point: "restriction" relative to *what*?" I owe this point to an anonymous referee.

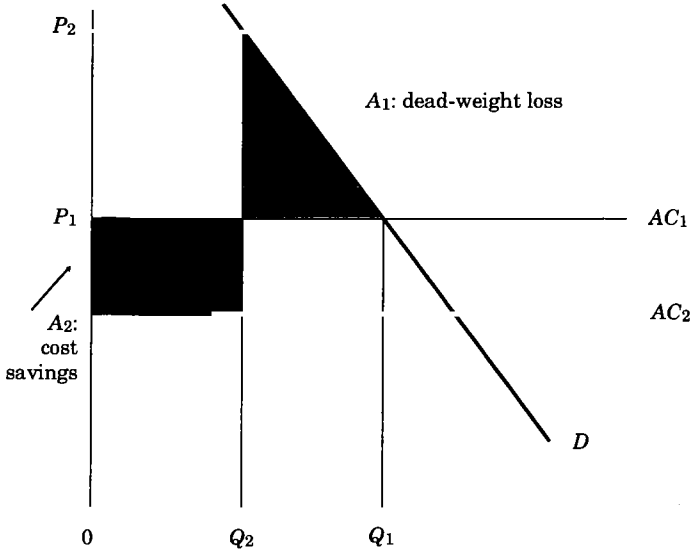

Figure 1

Source: Robert Bork, *The Antitrust Paradox: A Policy at War with Itself* (New York: Basic Books, 1978), p. 107.

> issues in every properly decided antitrust case. They are what we have to estimate—whether the case is about the dissolution of a monopolistic firm, a conglomerate merger, a requirements contract, or a price fixing agreement . . .
>
> It must also be remembered that there need not always be a tradeoff [between A_1 and A_2]. In most cases, in my opinion, economic analysis will show that one of the areas does not exist, and a decision of the case is therefore easy. Some phenomena involve only a dead-weight loss and no, or insignificant, cost savings. That is the case with the garden-variety price-fixing ring. Output is restricted so that Q_2 is to the left of Q_1, creating the area A_1, but there is no downward shift of costs, no line AC_2, and hence no area A_2. (p. 108; material in brackets added by present author)

One problem with the foregoing is that it pushes the courts into the role of determining whether or not any particular type of industrial organization or contract is or is not "cost saving." But the judiciary has no comparative advantage in making any such

determinations.[2] Its members are not selected on the basis of being able to do so. Their salaries and promotions are not in any way tied to success in distinguishing efficient arrangements from inefficient ones. Failures are not punished with demotions. Achievement is not automatically rewarded with promotion, or with the awarding of bigger, more important or precedent setting cases. Why, then, should we expect this behavior from the courts?

Indeed, if Bork himself is to be believed on this issue, jurists, all throughout the history of antitrust, have made findings which show them to be either unconcerned, or incompetent with regard to this issue. Says the author of this book:

> most of the mergers the Supreme Court strikes down and the "price discriminations" the Robinson-Patman Act is intended to stamp out . . . are examples . . . which involve only efficiency gain and no dead-weight loss. (pp. 108–9)

A second difficulty has to do with the interpretation of the demand curve. In Bork's neoclassical construal, the demand curve is seen as an existing entity. True, this author concedes that "we do not know the location of any of the sides of the triangular area A_1," (one of which is the demand curve), but this is only an inconvenience. "They are what we have to estimate" (p. 108) is the way to get around this annoyance. But this will not do.[3] Demand curves are not "out there," ready to be measured by the modern econometric tools of analysis. Rather, they are, except for one dot (P_2Q_2, in this case), hypothetical alternatives which never come into play. Demand curves answer the question, Suppose that everything else in the universe were exactly the same as it now is, with the one exception that price, instead of being at P_2, is at some other level; then, how much would the customer be willing to buy at that other price. In the event, the price however, was P_2

[2]This applies, in spades, to the administrative commissions which do the lion's share of antitrust work, such as the Federal Trade Commission. At least there is some check and balance on the former; they are subject to recall, and great scrutiny in the process of their initial appointments. These controls are greatly attenuated, if not virtually nonexistent, in the case of the civil service. I owe this point to an anonymous referee.

[3]Bork also states: "Passably accurate measurement of the actual situation is not even a theoretical possibility; much less is there any hope of arriving at a correct estimate. . . . Nobody knows these curves. Even the companies involved do not. The clarity of the graphs . . . misleads many people" (p. 108). In short, Bork himself *knows* that the demand curves are *not* "out there." The real mystery is why Bork conveniently forgets his own excellent, and essentially Austrian criticism when he addresses himself to policy issues. (I owe this point to an anonymous referee.)

and the consumer wished to purchase Q_2. That is all we know, or indeed, can know. The other points on this demand curve never come into play at all. They are contrary to fact conditionals. There is no sense in the notion that we can "estimate" them. There is no doubt that economists can look at other instances (other times, places, people) where different quantities of this item were purchased at different prices (and even attempt to control for the fact that the prices and quantities of substitutes and complements have altered, to say nothing of changing incomes, inflation, employment and even the weather) and in that way trace out a "demand curve." But this has little or nothing to do with what is depicted in that diagram. The point is, a demand curve is a unique non-repeatable hypothetical "event." All attempts to "measure" it are thus doomed to failure.

So far, we have been implicitly assuming that it is legitimate to make interpersonal comparisons of utility. It is now time to relax this assumption. In point of fact, this methodology is not tenable. It is perfectly reasonable to maintain that all trade benefits both parties in the *ex ante* sense. This is the reason they engage in such an activity, and this conclusion is part of the bedrock of the science of economics. It is quite another matter, however, to deduce from the failure of a trade to take place (in the free marketplace, Q_1Q_2 remains unsold, because it is not offered for sale) that had occured, the buyer's welfare would have exceeded the loss to the seller. This contrary to fact conditional implies that interpersonal comparisons of utility indeed can be made—without offering any evidence or reason for such an assertion—and moreover that the consumer's benefit exceeds the producer's loss. The latter contention would remain unproven even if interpersonal utility comparisons were valid in the first place. And yet, unless this assertion is true, the value of A_1 would be negative, not positive as claimed by Bork. If a "garden-variety price-fixing ring"[4] succeeds in raising prices from P_1 to P_2, there is thus nothing within the strict science of economics that can be used to show that this will reduce social (as opposed to consumer) welfare.

Still another fallacy of the two vectors approach lies behind the very drawing of the cost curves in this diagram, AC_1 and AC_2. There is nothing untoward about using them for textbook illustration purposes only. Bork, however, is attempting to justify

[4]The use of the "ring" in this context is rather pejorative; it is akin to describing the ancient and honorable profession of price fixing along the lines of a car theft "ring."

antitrust, a legislative enactment which can fine or even jail businessmen for the "crime" of price fixing, on the basis of this analysis. Under such circumstances it is reasonable to look more closely into these cost curves, an integral part of the analysis.

Cost, in economic theory, is not by any means limited to out of pocket expenses, even including implicit rent. These are part of the concept, but in its most sophisticated interpretation, cost is equivalent to the next best opportunity foregone by making any particular choice. As such, cost can only be a subjective notion (Buchanan 1969; Buchanan and Thirlby 1981; Mises 1963). The next best opportunity foregone by the choice to sell Q_1 need not be anywhere close to P_1. In any case, it can never be known by a third party, for example by the Antitrust Division of the Justice Department, the government bureau charged with punishing or incarcerating price fixers.

More radically, the cost of all saleable items is actually zero, and therefore can have no effect in any case. States Rothbard (1962, p. 604):

> there is no such thing as costs (apart from speculation on a higher future price) once the stock has been produced. Costs take place along the path of decisions to produce—at each step along the way that investments (of money and effort) are made in factors. The allocations, the opportunities foregone, take place at each step as future production decisions must be taken and commitments made. Once the stock has been produced, however (and there is no expectation of a price rise), the sale is costless, since there are no advantages foregone by selling the product (costs in making the sale being here considered negligible for purposes of simplification). Therefore, the stock will tend to be sold at whatever price is obtainable. There is no such thing, then as "selling below costs" on stock already produced.

One can go even further. Not only is the sale costless when it occurs, it may even occur at less than zero costs. For example, if I have piled up a horde of tomatoes, or shoes, or steel, or tires, and I cannot find a customer for them, then, at least in a strictly private property rights-no trespassing world (Rothbard 1973, p. 1082), I will have to pay for their removal. Under such conditions the costs of the sale will be negative. That is, if the disposal costs are $500 (I have to pay $500 to rid myself of this unwelcome

stock), then, *ceteris paribus*, I should be willing to sell it to a customer at any negative price above this level. For example, if I sell at $200, then I make a profit of $300. Even though I have to pay a customer $200 to cart away my merchandise, I am better off by $300 because the private sanitation hauler would have charged me $500.

Sovereignty

Yet another problem arises with regard to the issue of individual versus consumer sovereignty. Let us allow Bork to articulate this thesis in his own words. As far as consumer welfare is concerned, he states it as follows:

> (antitrust) can only increase collective wealth by requiring that any lawful products, whether skis or snowmobiles, be produced and sold under conditions most favorable to consumers. (p. 91)
>
> Productive efficiency, like allocative efficiency, is a normative concept and is defined and measured in terms of consumer welfare. (pp. 104–5)

But this rendition of the goal is problematic. Why should the goal of antitrust be to enhance *consumer* welfare alone? Why, for that matter, should the aim of any public policy be so narrowly defined? If it is taken for granted that some sort of welfare be maximized by legislation, why not attempt to maximize *total* welfare, that is, the welfare derived by *both* producer and consumer.

It is possible to employ a *reductio ad absurdum* in this regard. If we really want to enhance the welfare of consumers only, as opposed to both consumers and producers, all sorts of other enactments become justifiable which would not have been otherwise. For example, if there were any producer's surplus (economic rents earned by manufacturers) then these should be summarily seized, and handed over to consumers. Needless to say, however, no warrant for any such action has ever been given.

This policy, moreover, is internally inconsistent, for it will tend to counteract Bork's own goal of augmenting consumer welfare. We cannot safely ignore people as producers if we are attempting to maximize their well-being as consumers. People are people, and typically play a dual role as both consumers and producers. If we hurt them in one role, they are necessarily hurt in the other as well.

Rothbard's remarks (1962, pp. 560–61) seem to be addressed directly to the Bork hypothesis, although they were written almost two decades beforehand:

> We have seen that in the free market economy people will tend to produce those goods most demanded by the consumers. Some economists have termed this system "consumers' sovereignty." Yet there is no compulsion about this. The choice is purely an independent one by the producer; his dependence on the consumer is purely voluntary, the result of his own choice for the "maximization" of utility, and it is a choice that he is free to revoke at any time. We have stressed many times that the pursuit of monetary return (the consequence of consumer demand) is engaged in by each individual *only to the extent that other things are equal*. These other things are the individual producer's psychic valuations, and they may counteract monetary influences. An example is a laborer or other factor-owner engaged in a certain line of work at less monetary return than elsewhere. He does this because of his enjoyment of the particular line of work and product and/or his distaste for other alternatives. Rather than "consumers' sovereignty," it would be more accurate to state that in the free market there is *sovereignty of the individual*: the individual is sovereign over his own person and actions and over his own property. This may be termed *individual self-sovereignty*. To earn a monetary return, the individual producer must satisfy consumer demand, but the extent to which he obeys this expected monetary return, and the extent to which he pursues other, nonmonetary factors, is entirely a matter of his own free choice.
>
> The term "consumers' sovereignty" is a typical example of the abuse, in economics, of a term ("sovereignty") appropriate only to the *political* realm and is thus an illustration of the dangers of the application of metaphors taken from other disciplines. "Sovereignty" is the quality of ultimate political power; it is the power resting on the use of violence. In a purely free society, each individual is sovereign over his own person and property, and it is therefore this self-sovereignty which obtains on the free market. No one is "sovereign" over anyone else's actions or exchanges. Since the consumers do not have the power to coerce producers into various occupations and work, the former are not "sovereign" over the latter.

To this it may be added, in order to bring it into more direct relevance with Bork, that not only do the "consumers not have the power to coerce producers into various occupations and work," but in the free society they do not have the power to coerce the producers to locate at Q_1, as opposed to their preferred point, Q_2. How does Bork describe the distance Q_2Q_1? He claims that this is a quantity of product the consumers are willing to purchase, at a price above the costs of production, and yet, because of nefarious or at least questionable doings on the part of the seller, the customer is disappointed in this desire. The area between Q_2 and Q_1, above the cost curve AC_1 and below the demand curve is defined as $A1$, the dead-weight loss. This is the amount of welfare that could have been enjoyed by the consumer, but is not.

It is only by focusing on the buyer at the expense of the seller that Bork is able to characterize A_1 as a region of dead-weight loss. In order to see this, imagine for a moment that this author had subscribed to the notion of individual, not consumer sovereignty. If so, then how could we most accurately characterize the distance Q_2Q_1? No longer can we depict this merely as an amount of quantity that the consumer wishes, but is unable to buy. For under our present assumptions, there are two sides to this transaction, not just one. Now we can more accurately delineate Q_2Q_1 as a quantity that the consumer wishes to purchase, alright, but also as an amount that *the manufacturer does not wish to sell.* Similarly, our description of A_1 can no longer be one of unambiguous "dead-weight loss." Now, it must be characterized as an amount of welfare contended over by two different parties. If the sale takes place at Q_1, yes, Bork is correct[5]; the consumer will gain this amount of welfare. But the producer will also lose (presumably, he is unwilling to sell any more than Q_2 because past that point, his marginal revenue lies below his marginal cost). So, it is by no means an unambiguous dead-weight loss A_1 which must be set against a clear gain in cost savings of A_2; rather, A_1 is a loss only to one side of the trade, but a gain to the other.

It is possible for the Borkian side of this debate to articulate several objections to the Rothbard perspective on individual versus consumer sovereignty. First, it might be maintained, following Hutt (1940), that producers are themselves consumers. For example, whenever a seller acts in a way other than to maximize

[5]Subject to further objections to be made below.

money returns, he is really "buying" services from himself. Therefore, the concept of consumers' sovereignty is wide enough to incorporate both producers and consumers.

If we adopt this way of looking at the matter, there are now two sets of consumers. The first, call them the consumer-consumers, are the people for whom Bork drew his demand curve. These are the ones who are purportedly suffering from the output restriction from Q_1 to Q_2. The second, call them the producer-consumers, the ones engaged in this (unwarranted, improper, according to the neoclassical school) restricting of output. These two sets of consumers, according to Bork, are acting incompatibly with one another.

As Rothbard (1962, p. 562) trenchantly states,

> In the aforementioned general sense, "consumption" rules in any case. But the critical question is: *which* "consumer?" The market consumer of exchangeable goods who buys these goods with money, or the market producer of exchangeable goods who sells these goods for money?

The point is, noticing that the producer, too, engages in consumption does not help one bit in determining whether we should force, through the majesty of the law, the producer-consumer to locate at Q_1 instead of Q_2, in behalf of the consumer-consumer. Rather, it sets up an infinite regress.

A second possible objection Bork could resort to was used by Hutt. As Rothbard notes (quoting Hutt), this is to distinguish between

> when a producer withholds his person or property out of a desire to use it for enjoyment *as a consumers' good*" . . . in which case it . . . "is a legitimate act, in keeping with rule by the consumer. On the other hand, when the producer acts to withhold his property in order to attain more monetary income than otherwise . . . then he is engaging in a vicious infringement on the consumers' will." (Rothbard 1962, p. 563)

This, too, however, has been answered by Rothbard. He notes that it is not difficult, but rather impossible, to distinguish between these two motives. Secondly, the only reason more profit can be earned at P_2Q_2 than at P_1Q_1 is because of the inelasticity of demand between the two points. But this arises out of consumer (consumer-consumer, that is) choice! If the consumers were unhappy with this state of affairs, they could

> easily make their demand curves *elastic* by *boycotting* the producer and/or by increasing their demands at the "competitive" production level. (Rothbard 1962, p. 564)[6]

Predation

If it is impossible, not merely difficult, to distinguish between psychic income and profitability as motives for "withholding," this applies as well to that between "deliberate aggression" in order to drive rivals from the market and in order to profit maximize. Here are Bork's views (p. 144) on the subject:

> Predation may be defined, provisionally, as a firm's deliberate aggression against one or more rivals through the employment of business practices that would not be considered profit maximizing except for the expectation either that (1) rivals will be driven from the market, leaving the predator with a market share sufficient to command monopoly profits, or (2) rivals will be chastened sufficiently to abandon competitive behavior the predator finds inconvenient or threatening.

But the employment of the word "predation" is surely another illegitimate abuse of a metaphor taken from another discipline. Predation is what the lion does to the zebra. Strictly speaking, there can be no such activity in the free economy. For there is not even the hint of a charge, in Bork or anywhere else, that the business firms who have in this way gained the attention of the Antitrust Division have initiated violence against their competitors. If "predation" is to be given a commercial implication, it would be reasonable to confine it to such activities as fraud, theft, extortion, or "making him an offer he cannot refuse" in the parlance of a Mafia Godfather. The contrast between this and the acts of the Borkian "predator" are stark indeed. The latter "deliberately aggresses" against his competitors by offering his *customers* a better deal than they can obtain elsewhere. If this is predation, then the consumer, for whom Bork seems to have an unlimited regard, would presumably ask for more of it.

Our author lists three forms of predation. They are price cutting, disruption of distribution patterns, and misuse of gov-

[6]Rothbard (1962, p. 562) seems to have fully anticipated Bork when he talks of an economist who "hold(s) up 'consumers' sovereignty' as an *ethical ideal against which the activities of the free market are to be judged.* Consumers' sovereignty becomes almost an Absolute Good, and any action by producers to thwart this ideal is considered as little less than moral treason."

ernment processes. Only the second is important to discuss, and we shall concentrate our remarks on it. This is because of the first, price cutting, Bork spends thousands of words (pp. 144–55) showing that neither economic theory nor economic history give support to the contention[7] that this is an efficacious way of engaging in predatory behavior.[8] As to the third, this is indeed "predation" of the sort mentioned above. Here, Bork properly castigates the initiation of frivolous lawsuits "in order to harm an actual or potential business rival" (p. 159). But the answer is not antitrust; it is the awarding of severe damages to those victimized by this practice. Under this rubric we can also add false and fraudulent advertising. This, too, is a legitimate role for the forces of law and order; but it cannot be used to justify the continued existence of a Federal Trade Commission, most of whose activities are aimed at suppressing legitimate commercial endeavors.

What, then, is "disruption of distribution patterns?" Bork (p. 156) explains:

> In any business, patterns of distribution develop over time; these may reasonably be thought to be more efficient than alternative patterns of distribution that do not develop. The patterns that do develop and persist we may call the optimal patterns. By disturbing optimal distribution patterns one rival can impose costs upon another, that is, force the other to accept higher costs. This may or may not be a serious cost increase, but if it is (and the matter can only be determined empirically), the imposition of costs may conceivably be a means of predation. The predator will suffer cost increases, too, and that sets limits to the types of cases in which this tactic will be used for predation. There is a further complication, moreover, in that the behavior involved will often be capable of creating efficiencies. Thus, the law cannot properly see predatory behavior in all unilaterally enforced changes in patterns of distribution.

There are several difficulties here. First, Bork must have in mind an exceedingly static world. That is the only situation in

[7]However, he does note that (p. 154) "These considerations do not demonstrate that price cutting could never under any circumstances be a successful method of predation."

[8]However, according to the logic of the argument, it should still be prohibited. Failing attempts at murder (rape, robbery, etc.) are still properly illegal, even though they do not accomplish their goals.

which his scenario could even roughly approximate the truth. Pattern persistence, however, is surely impossible in the modern day, under a regime of even limited economic freedom, where people are able to introduce new products (e.g., computers), implement new selling strategies (e.g., supermarkets), initiate new forms of business organization (e.g., franchising). Further, just because a distribution pattern has "persisted" in the past does not mean that it is optimal today, and certainly not tomorrow (Kirzner 1973).

Second, the "further complication" is problematic. If this pattern of disruptive behavior is "often . . . capable of creating efficiencies" how then can we distinguish between those alterations in business procedure which emanate from "predation," and those which come about due to enhanced efficiency? The empirical determination called for in this regard is no comfort; without any criterion for distinguishing between these phenomena, number crunching for the sake of number crunching will amount to nothing more than a full employment bill for out of work econometricians.

Third, there is no such thing as a "unilateral" change in the market. The market is no more and no less than the concatenation of all voluntary trades which take place in a given area. But all commercial exchange is, by its very nature, bilateral, not unilateral. It takes two to tango, and it takes two to trade.

Fourth, there are no "enforced" changes in patterns of distribution, or of anything else for that matter with regard to the market. If there is any initiation of physical force or violence, it is necessarily not part of the market (Rothbard 1962).

Another disappointment with Bork's treatment of this subject is that he offers only two instances of disruption of distribution patterns that can be predatory, and there are difficulties with each. First is the use of exclusive dealing contracts. But he undermines this example with the concession that (p. 156) "it is far more probable that . . . exclusive dealing is more efficient and has (been) adopted . . . for that reason." Further undermining this case is the statement (p. 157):

> The law can usefully attack this form of predation only when there is evidence of specific intent to drive others from the market by means other than superior efficiency and when the predator has overwhelming market size, perhaps 80 or 90 percent."

The problem is not that it is difficult if not impossible to attain evidence of such specific intent. It is, more radically, that *all*

commercial endeavors are, in effect, an attempt to drive others from the market through superior efficiency. The drawback to this perspective is that Bork refuses to define "efficiency" broadly enough so as to include producer's welfare as well as that of consumers.

The second example vouchsafed to us is that of the board of trade. Boards of trade, it would appear, can act capriciously. But such organizations are, at bottom, only private clubs. They have no special legal dispensations. If members do not like the way that board of trade A is handling its affairs, they are free to set up another, competing, board of trade, B. This threat will usually serve to compel the extant trade board to act reasonably.

Apart from these specific difficulties with Bork's theory of predation, there is the underlying philosophical problem[9] that it attempts to make distinctions where there are no discernable differences. Let us, in order to illustrate this point, attempt to construct several new analogues to economic "predation" in other, unrelated, fields.

The bottom line for Borkian "predation" is that it is legitimate to actively compete in order to earn profits; even "deliberate aggression" is allowed. However, one must act so as to earn profits directly; one may not indulge in business practices that sacrifice present profits, the sole purpose of which is to bankrupt a competitor, in order to earn profits later on, in the absence of the competition which would otherwise have been supplied by it.

Right now, in football, the goal is to move the pigskin in a forward direction, in order to score points. This is analogous to earning profits. If we were to adopt Bork's philosophy to this context, we would have to ban any and all actions which undermine this end, in the short run, such as the quarterback dropping back (and *losing* valuable territory) in order to pass. Even the handoff from the center to the quarterback would have to be re-evaluated in the light of this legal philosophy. And what are we to make, in this context, of the sacrifice fly in baseball, or the bunt to advance a base runner. Surely, the purposeful loss of a valuable commodity (one of the three outs) even for the long-run good purpose of scoring an extra run would have to be regarded as illegal. Similarly, the sacrifice of a queen or some other valuable piece in chess would have to be ruled out of court. Is there really that much difference between such short-run counter-productive

[9]For a complementary critique of Bork which discusses dynamic and non-equilibrium considerations, see High (1984-1985).

behaviors in the sporting world and their counterparts in the world of commerce such as local price cutting[10] or selling some goods at a loss (loss leaders) in order to attract customers into the store?

Take another case. You are the author (composer, producer) of book (song, movie) A, I am the author of book B. These books are on the same subject; they are rivals, or competitors. I am in this for the money; I have written this book in order to maximize profits. I have been asked to review your book in a newspaper, magazine, or journal. I give it a sharply critical negative review. An implication of Bork's analysis is that this act of mine ought to be proscribed by law, for it is "the employment of a business practice that would not be considered profit maximizing except for the expectation . . . that [a] rival will be driven from the market." Surely the implication which arises from Bork's analysis is intolerable; just as assuredly, it follows the logic of his interpretation. Did I not have a competing book in the market, I would not have so denigrated your effort; thus, my review would not have been profit maximizing but for the expectation that I could thereby entice potential book buyers from you to me.

Generalizing still further, from business to the world of interpersonal relations, what are we to make of the man who denigrates his rival for the affections of a woman? In the ordinary course of events, if Roger tells Elaine that Joe is a cad, a blunderer, a lazy incompetent moocher, we would just write it down to the rights of free speech. But the Borkian perspective applies here as well, provided that Roger would have said no such thing were Joe not competing with him for Elaine's hand in marriage. But if this scenario applies, again we have a case where there is

> deliberate aggression against one or more rivals through the employment of (interpersonal) practices that would not be considered profit maximizing except for the expectation that (1) rivals will be driven from the (marriage) market, leaving the predator

[10]Price cutting is illegal because it can be part of a strategy aimed at monopolizing. Raising prices is illegal because it is a way of cutting back on production; it is monopolistic withholding, e.g., the move from P_1Q_1 to P_2Q_2. The third alternative, selling at the same price as everyone else can also be held against the law on the grounds of collusion. This highlights yet another intrinsic difficulty with antitrust no matter how circumscribed and limited in application: any law which prohibits all possible choices is not compatible with the rule of law (Hayek 1973). It is, rather, an aspect of totalitarian dictatorship—in this case, paradoxically to some, on the part of the democratic majority.

> with (the object of his desires), or (2) rivals will be chastened sufficiently to abandon competitive behavior the predator finds inconvenient or threatening.

Yale Brozen

Proper targets

Yale Brozen (1982), while not so vociferous in his defence of antitrust as Bork, clearly sees a positive role for this "curious institution." In his view (p. 14):

> The antitrust agencies should be devoting themselves . . . to detecting and prosecuting the types of explicit collusion that restrain output. In devoting investigatory and prosecutorial effort to persistently concentrated industries, increasingly concentrated industries, and dominant firms, the agencies selected exactly the wrong targets. They are themselves restraining output and the growth of productivity.

This statement embodies the theme of the book. The Antitrust Division should not be rescinded. It should not be eliminated, root and branch. Rather, it has a legitimate role to play. If it could but free itself from concern with the red herring of high concentration, and focus instead on "explicit collusion," and "output restraint," it could make a positive contribution to society.

The problem with this perspective is not that Brozen has failed to put his finger on an egregious policy (attacking concentration); he has, in a thorough going and incisive way. This course of action has lead to a far poorer and less efficient economy than otherwise would have obtained. The difficulty is, rather, that there are *good* targets that the trustbusters should instead be aiming their fire at, in his view.

We have already discussed the issue of restraining output in the context of interpersonal comparisons of utility. But we can also call into question Brozen's opposition to "restraining output and the growth of productivity" under the rubric of welfare economics. Why should these goals be the *sine qua non* of economic public policy? G.D.P., physical output, and productivity growth, however important, are, still, themselves derivable from a principle even more consequential: individual choice. If the economic actor wishes, say, to pursue leisure instead of money income, human welfare will be better enhanced by allowing that decision to stand than by rescinding it, even for the persons "own good," and by coercively bringing about a situation where there are more

goods and services in the economy than are compatible with his initial determination.

This is precisely what has occurred on the part of the those chosen as proper targets for the Antitrust Division by Brozen. They are guilty of no more than explicitly agreeing, among themselves, to produce less than Brozen, an outside observer, would compel them to produce.

Concentration

The next bone of contention to be raised has to do with concentration. There is hardly a commentator more critical with regard to the way in which concentration ratios are used in U.S. jurisprudence than Brozen. For example:

> In order to find Alcoa guilty of violating the antitrust laws, Judge Learned Hand had to find that Alcoa "controlled" the secondary aluminum market, despite the production of secondary aluminum by many suppliers, as well as that it had a "monopoly" of primary aluminum. But he never considered whether aluminum competes with galvanized sheet metal, copper, magnesium, zinc, tinplate, glass, tin, and other materials used for some of the same purposes as aluminum. (p. 46)

And again:

> The measure commonly used is total shipments from plants "assigned" to an industry by the Bureau of the Census. A plant's entire output is assigned to the industry whose products make up the plurality of total shipments from the plant. If a plant belonging to a leading firm produces trucks and refrigerators, and more than half the value of its shipments is trucks, all the plant's shipments are assigned to the motor vehicle industry. That firm will then show a higher share of motor vehicle industry shipments tha[n] its actual share. (p. 50)

Here is a further example:

> Industry definitions are generally based on technology or on inputs employed, not on markets. Separate concentration ratios are reported for beet and sugar cane refiners, for example. But since beet and sugar cane refiners compete with each other for the same customers, these ratios mean little in market terms. Their outputs are indistinguishable. In addition, glucose, dextrose, and fructose sugars are produced by the corn wet milling

> industry. Maple syrup and honey are produced by still two more industries. Artificial sweeteners are produced by still another industry. There is no concentration figure reported for the sweetener market. Although cane refiners compete with beet refiners and both compete with corn millers, maple sap boilers, beekeepers and chemical firms, no account is taken of this in measuring concentration. (p. 51)

But the case is even worse than this. For artificial sweeteners *also* compete against the Jane Fonda Workout Tapes, against vacations at fat farms, and indeed, against just about everything else, such as chess sets, shoes, paper clips and light bulbs, in the sense that the family budget can stretch only so far, and thus any increased expenditure on practically *anything* means a reduction in spending on virtually everything else.

Unfortunately, Brozen's criticism of concentration measures is limited to such Census Bureau practice. He does not take the more radical step of condemning the logical coherence of concentration ratios *per se*.

In order to define a concentration ratio, an "industry," "line of commerce," or relevant "market" must first be defined. In the view of Brozen, and indeed, of virtually the entire economics profession,[11] this can be accomplished in a non-arbitrary manner through the use of cross elasticities. But these statistics are not objective "facts" of economics; they are not constants, akin to gravity in physics. Rather, they are necessarily limited as to scope and time dimension, and this leads to intractable problems. For example, it is well known that the greater the length of run, the higher the elasticity. If the price of x rises, the quantity demanded of substitutes cannot rise by very much, if at all, immediately; in the short run, it can rise by more; in the long run, and particularly in the very long run, it can increase by a very much greater amount. So, which is the "proper" length of run? Merely to ask this question is to see the utter arbitrariness of any answer, and thus of any such measure.

Even if this objection can somehow be answered, there is still the problem of the limited nature of any and all cross elasticity measures. A spurious objectivity is lent to the whole enterprise by stating that the cross elasticity of y with respect to x is 3.0. A more meaningful way of articulating this information is to say something along the lines of "In Ohio, in 1967, allowing a length

[11]Exceptions are Rothbard (1962), Armentano (1972; 1982; 1991), High (1984-1985), Block (1977).

of run of one year, the cross elasticity of y with respect to x was found to be 3.0." The former allows for easy generalizability; not so, the latter.

Conspiracy

On numerous occasions throughout his book, Brozen attacks conspiracy. For example, if express conspiracy occurs, present laws are adequate, and there is no need to outlaw concentration to make this actionable (p. 140).

"Antitrust should focus its attention on improper exclusionary devices rather than on concentration or dominance *per se*. . . . [I]t should seek out trade restraining, explicit collusion" (p. 405).

This author (p. 147) also characterizes price fixing as "commercial conspiracy." Apart from being rather excessive, this verbiage amounts to mere emotivism. For a conspiracy is nothing more than an agreement opposed by the speaker. Bertrand Russell once said "I'm firm, you're stubborn, he's a pig-headed fool." Cognitively, these three expressions all mean the same thing; they only have different emotional content. Similarly, we can now say, "I [straightforwardly] agree, you [disreputably] connive, he engages in [criminal] conspiracy." There's not a dime's worth of difference between these three modes of expression on the factual plane; emotionally, they are worlds apart. The point is, *every* agreement or contract of which the speaker disapproves can be a conspiracy; the term is without intellectual or cognitive merit.

Brozen (1982, p. 151) even goes so far as to describe price fixing as a "defrauding" of customers. But why should this be so? I own a widget; Joe owns a widget. Each of the two widgets is the private property of myself and Joe, respectively. We agree (connive? conspire?) not to sell our own widgets, those over which we each have legitimate control, at less than $1 each. We do not compel other sellers to go along with this plan. Even less do we compel buyers to make purchases at this price. Why should this be considered a fraudulent act—a veritable act of theft—upon our customers?

Perhaps this point can best be made in another context. Our author correctly analyzes advertising, and defends this practice from the charge of being an illegitimate barrier to entry. In the following passage (p. 159), each time the word "advertising" is mentioned in the text, "conspiracy" has been added in parentheses. Try the mental experiment of substituting the latter for the former:

> The essence of the argument that advertising (conspiracy) constitutes a barrier to entry is that a new firm finds it difficult to gain customers because advertising (conspiracy) ties them to existing firms. A new entrant, it is argued, faces the "prohibitively" expensive task of advertising (conspiring) to offset the prior advertising (conspiracy) of existing firms. This view is naive and, in some of its renditions, moralistic. Presumably, firms advertise (conspire) because it is in their interest to do so. But advertising (conspiracy) is expensive to existing firms as well as to potential entrants. It must be productive in some way to be justified. It is not a net social loss; if it were, other firms could provide the same service without advertising (conspiracy) and charge less. If a new firm finds it necessary to advertise (conspire), it is because whatever advertising (conspiracy) does, customers want done.

This exercise can also be performed substituting "collude" or "price fix" or "horizontally merge" for "advertise." If so, the chief conclusion reads as follows: If a new firm finds it necessary to price fix (horizontally merge), it is because whatever price fixing (horizontally merging) does, customers want done.

Richard Posner

Posner's (1986) contribution to the case for antitrust is truly remarkable. In most instances, authors who favor this public policy content themselves with marshalling the strongest arguments they can in its behalf, usually leave criticism of the points they make to their intellectual opponents. Our present author, in contrast, not only makes as strong a case for government intervention in this regard as anyone else, but, very unexpectedly, also furnishes us with some of the sharpest criticism of it to be found anywhere. At the end of the day, the careful reader is forced to conclude that Posner is indeed an enthusiastic supporter of government meddling with the free enterprise system, but cannot help but wonder exactly why this should be so.

At the outset, however, before we deal with his brief in behalf of government bashing successful business (for that is what, at bottom, antitrust is all about), let us attempt to anticipate Posner's reaction to our characterization of his work. This will provide a good introduction to his treatment of antitrust, insofar as he employs the same methodology in the one instance as in the other: after stating his thesis, he undermines it himself.

In his view:

> Monopoly . . . and other unhappy by-products of the market are conventionally viewed as failures of the market's self-regulatory mechanisms and therefore as appropriate occasions for public regulation. But this way of looking at the matter is misleading. The failure is ordinarily a failure of the market *and* of the rule of the market prescribed by the common law. . . . The choice is rarely between a free market and public regulation. It is between two methods of public control—the common law system of privately enforced rights and the administrative system of direct public control—and should depend upon a weighing of their strengths and weaknesses in particular contexts. (p. 343)

In other words, it is improper for the present author to characterize Posner as an interventionist because of his justification of the antitrust system. Why? Because public policy always[12] involves one or the other method of public control. Notice how neatly, with this highly unusual definition, Posner retires one of his harshest critics from the field: the economist who insists upon the efficacy of the laissez-faire capitalist system. One in which there is no public control whatsoever, neither in defining the rights of person or property, nor in defending them. (For examples, see Benson 1989, 1990; Friedman 1989; Hoppe 1989, 1992a, 1992b, 1992c; Rothbard 1970, 1973, 1982.)

But this simply will not do. It is one thing to reject a philosophy due to its flaws. It is quite another matter to make it a definitional issue. Despite Posner, we continue to maintain that in addition to his two methods of public control, there is a third option: no public control at all. This is at least a potentially viable option, which should sink or swim based on its own merits. It does not deserve to be ruled out of court, definitionally, before the process of analysis even begins, as Judge Posner would have it.

Our best authority for this stance, somewhat paradoxically, is Posner himself. That is to say, he, on numerous other occasions, does make the more usual distinction between free markets and governmental meddling in them. He allows for a third alternative, apart

[12]If we can ignore Posner's "rarely," which appears to be a rhetorical flourish. This we can safely do, since he vouchsafes us no example of a case where the choice *is* between a full free market and public regulation. Indeed, he denies this possibility outright.

from the "two methods of public control—the common law system and the administrative system" mentioned above, namely, full free enterprise. He must do so, otherwise government meddling is an impossibility. All intervention must fall into one or the other of these two categories.

Consider the following:

> The problem . . . with using one government intervention in the marketplace (subsidizing workplace injuries and illnesses) to justify another (regulating workplace safety and health {through OSHA}) is that it invites an indefinite and unwarranted expansion in government. (p. 312)

> [or,] if as generally assumed, the private sector is more efficient than the public. (p. 493)

Based on his statement of p. 343, on monopoly, this is incomprehensible. How can the private sector be more efficient than the public sector (or the reverse) if there is no distinction between public and private because there are, really, only two different kinds of public sectors? How can there be government intervention into the economy, if "this way of looking at the matter is misleading?"

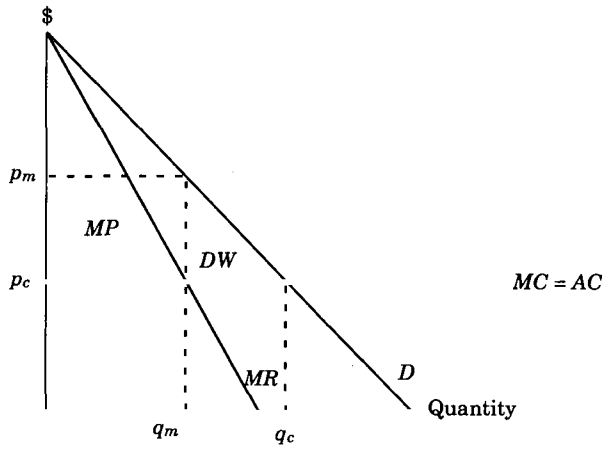

Figure 2

Source: Richard Posner. *Economic Analysis of Law*, 3rd ed. (Boston: Little Brown, 1986), p. 256.

With this brief introduction, we are now ready to consider the rather weak Posnerian argument for antitrust, and then, paradoxically, his very strong and emphatic intellectual rejection of it, and on the basis of it, somehow, his championing of this public policy.

Our author starts off with the same overused diagram, used by virtually all neoclassical economists. We are treated, once again, to the specter of the downward sloping demand, an *MR* curve which lies below *AR*, a flat *MC=AC*, on the basis of which we derive the dead weight loss due to "monopoly."[13]

But no sooner does Posner make this traditional presentation than he begins the process of subtly undermining it. He says one thing in one place, and the contrary in another, sometimes stating the thesis and the antithesis on virtually the same page. At the very outset, even before the introduction of his analysis, Posner states,

> the monopoly price . . . is the price that a firm having no competition or *fear thereof* would charge. Competition would make the price untenable. (p. 252, emphasis added)

The problem with this is that it is the rare businessman, "monopolist" or not, who has not even the *fear* of competition, let alone some actual competition or other itself. If attainment of "monopoly" price is restricted to such people, it really is an "academic concept" (p. 253) with little or no practical implication. Further, Posner enhances this criticism by conceding that "the establishment of a monopoly price creates an incentive for new sellers to come into the market" (p. 270). However, no sooner has he entertained the point that antitrust may be of only academic interest, but that he reverses field and takes it all back:

> The possibility of entry may seem to make monopoly an academic concept. But sometimes entry takes a long time, or is forbidden, or the new entrant is not able to produce at so low a cost as the exiting firm. (p. 253)

For our purposes, we may safely ignore the case where entry is forbidden. In the modern context, entry can only be prohibited

[13]This word appears in quotation marks to indicate the present author's view that real monopoly is always and ever part and parcel of government grants of special privileges. Fake monopoly, or neoclassical "monopoly," in contradistinction, is solely related to sellers facing downward sloping demand curves. See also Posner (1976).

by the state, and if this occurs, we are clearly no longer in the realm of laissez-faire capitalism, the institution we wish to defend against the Posnerian attack.[14]

As well, the worry about entry taking a long time is also without merit. If all Posner wants to do is to show that the market does not always rationally allocate resources,[15] he need not resort to "monopoly." All he need do is point to the fact that the market is rarely if ever in even partial equilibrium, to say nothing of general equilibrium. But unless it is, there are always opportunities for reallocation of resources which are wealth enhancing (Kirzner 1973). If so, then by stipulation the market misallocates resources continuously. The only problem with this approach is that it gives no reason to expect that any system can do better. And indeed, if we have learned anything from the demise of the Soviet Empire, it is clear that some systems do far worse.

But we may be doing Posner an injustice here.[16] Assume (as neoclassicals do) that price conspiracy has no redeeming virtues for consumers or for anyone else. Also assume that such agreements tend to fail over time. The issue, then, is: how *long* does it really take? If the law can put an end to an activity (without redeeming virtue) *immediately*, then why wait for the "market to work?"

There are two responses to this. First, the less radical argument, which is highly compatible with the neoclassical world view: the market works faster than government. The government typically suffers from bureaucratic and political arteriosclerosis: hearings must be held, rent seeking bribes arranged, sometimes political votes or referenda must be conducted. Even without unusual postponements, the market functions more quickly than the state. If we have learned anything from Hayek (1973), it is that a price system is by far the best communicator known to man.

The more radical response must leave the neoclassical realm and enter that of the Austrian. Here, we must withdraw the previously made assumptions. We can no longer accept the view

[14]For a critique of patents, the restriction of entry typically defended by neoclassical economists, see Rothbard (1962, pp. 652–660).

[15]That is, that the allocation of resources deviates from perfection, or could have been improved were we smarter, or had more time, or were somehow guaranteed arrival at equilibrium.

[16]I owe the inclusion of this point to an anonymous referee.

that "conspiracy" has no redeeming social values. On the contrary, we assert, all commercial agreements between two consenting parties benefit the both of them, at least in the *ex ante* sense.

Of the three grounds mentioned by Posner, he is on the firmest foundation with regard to cost, the subject to which we now turn. On this subject Posner states: "The conclusion that *DW* in figure 2 is a net social cost rests on the assumption that a dollar is worth the same to consumers and producers" (p. 256).

Note the position in which this supposition places the analysis. The whole—neoclassical—case against "monopoly" is that it misallocates resources. Deadweight loss is Exhibit A in the brief. But the existence of net social costs rest upon the claim that "a dollar is worth the same to consumers and producers." But what is the status of this claim? It is a mere "assumption." Not a scintilla of evidence is given in its behalf. Not only is this claim merely assumed, not proven, it is not even discussed. Further, it is called into question in a different context by its very author, who states, "the shape and height of people's marginal utility curves are unknown, and probably unknowable" (p. 436).[17]

Let us be clear on what is being said. We are not claiming that Posner has committed a blatant contradiction here. He is not saying in one place that marginal utility is unknowable, and in another that we know it well enough at least to fashion public policy on the basis of it. Nor does he hold that interpersonal comparisons of utility are, and elsewhere also are not, possible. However, what he does, is, if anything, even more problematic.[18] For surely knowledge of interpersonal comparisons of utilities are more risky and difficult than about the size and shape of a single person's marginal utility function. Posner throws up his hands in defeat at the prospect of obtaining information on the less complex of this pair, and bases his justification of antitrust policy on the more complex. The laws of logic would appear to indicate that if proposition A (interpersonal comparisons of utilities) is less secure than proposition B (the size and shape of a single person's marginal utility function), and if public policy cannot be grounded on the basis of B, then it certainly cannot be founded on the basis of A.

[17]"Probably unknowable" is curious. Does Posner believe that one day, with advanced scientific techniques, we will discover the shape and height of these curves?

[18]Alternatively, we could interpret Posner's statement (p. 436) as a claim about interpersonal comparisons of utility, in that it is couched in the plural. If so, there is the great danger of an incompatibility in the two views.

Nor does this exhaust the incompatibilities between Posner's defense of antitrust and his statements in other contexts. In the former case, he relies heavily on the existence of an objective, presumably measurable set of cost curves. What then, are we to make of the following quotes:

> Yet it would be difficult for a court to compute the firm's marginal cost. (p. 286)
>
> Suppose a firm makes many different products, and some of the inputs—the time of its executives, for example—are the same for the different products. If the firm cuts the price of just one product, how should executive salaries be treated, in both the short and the long run, in deciding whether the price cut is predatory? (p. 288)
>
> An important but invisible cost of a natural resource such as gas is the foregone opportunity to use it in the future. (p. 338)

These statements present difficulties. This is because foregone opportunities are, by their very nature, subjective. No one can know, judging from actions[19] what the next best alternative was to any decision. If a man buys A at the cost of $1, we know he preferred this item to the money he paid for it. But we don't know his alternative cost: what he would have done with this financial resource had he not just purchased A. Would he have put it in the bank? bought B instead? purchased a stock or bond? placed it under his mattress? Only the man himself can know anything about this contrary to fact conditional.

And yet Posner (and all neoclassicals) makes bold to draw cost curves of other people, purportedly based on their foregone opportunities. But he can never know these even in principle! Does this stop him from weaving apologetics for government intervention on the basis of these curves? Not a bit of it.

States Posner: "Theft is also 'just' a transfer payment; the victim's loss is the thief's gain." But this is not true, unless it can be shown that the subjective evaluation placed on the item by the thief and his victim is identical, a manifest impossibility. Given that there are no utils (they are only a figment of the imagination of the neoclassical economists) and thus that there is no way of

[19]Human actions (Mises 1963) and their implications are the only reliable way of ascertaining truth in economics. Merely asking an economic actor to specify the next best alternative foregone as the price of making any given choice is hardly a guarantee of determining it. He could be lying.

comparing the satisfaction of two different people, the thief and the property owner, Posner's statement cannot be true. He asks (p. 258 n. 4), "Is this clearly so when the theft is of a good other than money?" It would appear that the implication here is that it is true that the victim's loss equals the thief's gain, when the good is other than money. If this is what Posner has in mind, he is quite correct. If the thief takes a bicycle or an oxygen tent, for example, he and the victim might place quite different evaluations on the good in question. But, contrary to Posner, the same analysis applies to money. Suppose the thief steals $100. Then, to be sure, the victim loses the $100, and the criminal gains an identical amount. But they may have used these funds for very different purposes, and derived very different amounts of satisfaction from this money, for all we know. We as outside third parties are in no position to distinguish between alternative uses. Suppose that the victim (the thief) were to use the $100 for successful cancer research—this $100 is the straw that breaks the back of the problem and uncovers a cure—and the thief (victim) for tying one on. Can we assert that the former brings about more utility than the latter? Not unless there are utils which may be interpersonally compared.

We have seen no reason to suppose that there is anything on the market deserving of the appellation, "monopoly." The revenue and cost curve argument, and the geometry upon which it is based, has been found wanting. Nevertheless, we must now leave the realm of high neoclassical theory for the moment, and turn to the practical question of how to determine whether "monopoly" power exists in certain specific circumstances. That is, we now assume, just for the sake of argument, that Posner's analysis of the economics of monopoly was correct, and our own critique either non-existent or fallacious.

The basic answer given to this practical question is elasticities. To put this in biblical terminology, by their elasticities shall thee be able to distinguish the "monopolistic" sheep from the competitive goats. In particular, cross elasticities of demand tell all. They indicate how competitive is one good with another. Thanks to them, we can give a non-arbitrary definition to the extent of an industry, without which concentration ratios, market shares, "monopoly" "power"—and all the other accouterments of modern antitrust philosophy—would all become unintelligible.

There are several problems with this tidy scenario. For one thing, elasticities are slippery characters. It is by no means clear which of the many alternative definitions is reasonable. Once

again we are aided in our quest to undermine Posnerian economics by Posner himself, who instructs us as follows: Just as in the case of "the calculation of variable cost and therefore of marginal cost," elasticities, too, are "highly sensitive to the time period" (p. 287). In the very short run, elasticities are small and hence "monopoly" is easy to perceive. As the length of the run under consideration increases, however, so does the elasticity, and with it the likelihood of finding "competitive" markets.

So which should be used? There are problems for the Posner thesis either way. In the long run then, elasticities are high, and the finding of "monopoly" unlikely. If our interests are confined to the short run, a determination of "monopoly" is attained more easily, but at the cost of relevance. That is, "monopoly" is only a short run or temporary problem. Posner admits as much, in the context of yet another discussion, this one not on "monopoly" but rather "monopsony." In his view,

> monopsony is a problem only where an input consumes resources that would be less valuable in other uses. Normally this condition is fulfilled only in the short run. (p. 292)
>
> And again, "monopsony pricing would have only short run effectiveness. (p. 293)

We must conclude, then, that either "monopoly" is non-existent, or it presents no serious problem, hardly a ringing endorsement for antitrust policy.

There is yet another criticism of elasticity criterion. It arises even if we could somehow overcome the intractable difficulty of length of run: this measure does not have the attributes of a constant in the physical sciences, such as gravity. Rather, elasticity is merely a shorthand numerical summation of an act which took place in a specific geographical locale and at a certain point in history. In other words, we are never entitled to say that the cross-elasticity of y with regard to x is 4.7. At best, we can only say something along the lines[20] of "In Cleveland, in 1991, the cross elasticity of y with respect to x was 4.7." In Posner's view, we should fine people, and perhaps haul them off to jail,[21] on the

[20]Posner (p. 281 n. 1) cites Eric A. Hanushek and John M. Quigley, "What is the Price Elasticity of Housing Demand?" *Review of Economics and Statistics* 449 (1980). A more accurate title for this article would have been "What *was* the Price Elasticity of Housing Demand?"

[21]Cf. the electrical case, where businessmen were actually incarcerated on the basis of this law; in the more ordinary case of treble damages, there is still the threat of a jail sentence if the fine is not, or cannot be paid.

strength of a statistic, measurement of which has all the likelihood of success as in nailing jello to a tree.

There is also the problem of a "chilling effect" concerning the victims of the anti- "monopoly" law. These businessmen, who have been more successful in attracting customers than deemed appropriate by the Posnerites, will tend to have diminished enthusiasm for a whole host of economically productive practices.[22] Lowering prices, improving product quality, more reliable delivery, better insurance, etc., will all tend to increase consumer satisfaction. But they will also invite the negative attention of the trust busters.

There is also the possibility of mistakes, ordinary human error, either in defining the markets, or calculating the elasticities, or in interpreting them. Again, Posner himself leads the way in pointing out the risks:

> As one might expect, errors are frequent in attempting to define the market for antitrust purposes. A good example is the celebrated cellophane monopolization case, in which the Supreme Court held that cellophane was not a relevant market because there was a high cross elasticity of demand between cellophane and other flexible packaging materials. (p. 281)
>
> The courts have often mishandled economic evidence in antitrust cases. For example, in the U.S. Steel monopoly case, the Supreme Court, in ruling for the defendant, was impressed by the fact that U.S. Steel's market share had declined steadily after the combination of competing steel manufacturers to form the corporation (and that its competitors had not complained about its competitive tactics). The Court failed to recognize monopoly behavior. (p. 270)

One would think that this would give him pause for thought. If we couldn't rely upon the courts "to do the right thing" in this case, from whence springs the optimism that they will do so in future? And yet, the bottom line for Posner is that upon this foundation of sand it is reasonable, it is responsible, to erect a policy affecting virtually the entire economy of the country.

Elsewhere, Posner launches a devastating critique of:

[22]Given that businessmen know the elasticity - market share test to which they will be subjected, they will be able, to some degree at least, to act so as to alter these statistics. Surely, this is a misallocation of resources. Yet from the private perspective of businessmen, they will do so as long as the costs are less than the possible losses which result from fighting off antitrust law suits.

> direct regulation—which itself may be radically imperfect. For one thing, it tends to be more costly than common law regulation, because it is continuous; the common law machinery is invoked only if someone actually is hurt. . . . For another thing, direct regulation tends to be more politicized than common law, because it relies more heavily on the public sector and because judges, although public officials, are more protected from political reward and retribution than administrators are. . . . A related point is that regulation involves serious information problems. If accident victims have nothing to gain from bringing an unsafe condition to the government's attention, the regulators may have difficulty finding out what exactly the problem is. (p. 345)

But why doesn't Posner realize that antitrust too constitutes "direct regulation?"

As far as information costs are concerned, our author gives an additional reason for preferring "monopoly":

> An individual margarine producer may be reluctant to advertise the low cholesterol content of his product because his advertising will benefit his competitors, who have not helped defray its expense. (p. 349)

Yet another series of Posner's remarks—this time on the cost reducing proclivities of "monopoly"—undercuts his argument in behalf of antitrust:

> Sometimes monopoly will persist without any legal barriers to entry. Maybe the monopolist's costs are so much lower than those of any new entrant that the monopoly price is lower than the price that a new entrant would have to charge in order to cover his costs. (p. 262)

> The conditions of supply and demand in a market may be such that one firm can supply, at lower average cost than two or more firms, the entire output demanded; or one firm may have a superior management in whose hands the assets of all the other firms would be worth more than they now are. Either situation could lead to a monopoly through merger that might generate cost savings greater than the costs of the monopoly pricing that would result. *Unfortunately, it is exceedingly difficult to distinguish situations of this kind from the case of a merger to create a monopoly that involves few or no cost savings.* (p. 278; emphasis added)

> It is hard to base any conclusions on market share alone, even ignoring the substantial probability that if a firm has grown to a large size other than by recent . . . mergers, it probably is more efficient than its competitors, and its lower costs may outweigh the social costs resulting from its charging a monopoly price. Indeed, its monopoly price may be lower than the competitive price would be. (p. 283)

Further argument given by Posner to undermine his antitrust contention concerns potential competition:

> We know that the higher the elasticity of demand facing a firm, the less market power it has; and we also know that if an increase in price will evoke new output from other firms, i.e., if the elasticity of supply is positive, then the firm's elasticity of demand will be higher than it would otherwise be. This suggests, however, that there is no need for a separate doctrine of "potential" competition. All that is necessary is to define markets broadly enough so that they include firms that, although they do not currently sell in the market in question, would do so if price rose slightly. (p. 284)

But no sooner does he call for a way of incorporating potential competition into the antitrust analysis, on the very same page, he offers a succinct and well chosen criticism of it:

> since collusion is largely a short run phenomenon, . . . maybe the elimination of such (new entry) threats is not important enough to warrant antitrust concern, especially since it will be difficult to compute market shares for firms that do not yet have any productive capacity. Indeed, it will be quite difficult to identify which firms are likely to build productive capacity to enter the market if the market price rises above the competitive level. (p. 284)

In summary, let us be clear on what is being said here. We do not claim that these quotes from Posner contradict his case in behalf of antitrust. In his own mind, whether antitrust is justified or not depends upon a "balancing" of the grounds for and against; his conclusion is that the former outweigh the latter. The point being made here is that the support he gives for the case against antitrust is so strong, and in its behalf so weak, that despite his own explicit conclusion, the burden of his analysis vitiates this law.

There are two discernible hypotheses concerning antitrust which may be found in the *Economic Analysis of Law*. First, the neoclassical one given by Posner in those sections of his book dealing with the subject: the market is inefficient, veering off to "monopoly," in all too many cases. The function, purpose, motive, and result of antitrust is to negate this market failure, thereby increasing wealth, efficiency and economic welfare.

Despite the overwhelming popularity of the foregoing thesis in the journal and especially textbook literature, there is actually a second perspective which has some currency within the profession, that of rent seeking.[23] This alternative, in the tradition of the public choice school, tends to be somewhat underplayed by Posner, at least in those sections of his book dealing with "monopoly." It would be unfair to claim, however, that he is unaware of it. Consider the following:

> The deficiencies of public utility regulation viewed as a method of regulating profits, the degree to which it seems deliberately to maintain inefficient rate structures, and the frequency with which it has been imposed in naturally competitive industries and also used to discourage competition in industries that have some, but not pervasive, natural monopoly characteristics (railroads, for example) may lead one to wonder whether the actual purpose of public utility regulation is to respond to the economist's concern about the inefficient consequences of unregulated natural monopolies. Maybe instead regulation is a product, much like other products except supplied by the government, that is demanded by and supplied to effective political groups. Under this view there is no presumption that regulation is always designed to protect the general consumer interest in the efficient supply of regulated services. (p. 339)

[23]This is a misnomer, and a very misleading one. Literally, apart from what landlords do, rent seeking applies to the seeking after economic rent, e.g., the difference between the price someone would have been willing to sell for (buy at) and the price at which the deal was actually consummated. To be sure there are "rent seekers" in this sense, zillions of them, because all one has to do to be one is to be an entrepreneur. The real "rent seekers," the ones who attempt to use government and regulatory means for their own ends (and, unfortunately, all too often succeed) would better and more accurately be categorized as booty seekers, or as thieves who work through the political process. Examples of such legalized theft include agricultural land reserves (theft from farmers), heritage preservation laws (theft from owners of hold homes), tariffs (theft from traders), minimum wages (theft from unskilled workers and potential employers), rent control laws (theft from landlords).

No, the problem with Posner is not that he is unaware of the public choice thesis; it is, rather, that he chooses not to apply it to antitrust policy. As we have seen, he has waxed eloquent about the court's many shortcomings in this regard (e.g., U.S. Steel, cellophane, etc.). One would think, then, that he would apply the same public choice analysis to antitrust law in general, as he does to public utility regulation, one particular aspect of this legislation. Tragically, he does not.

Why not apply this insight not only to public utility regulation, where it is very apropos, but also to antitrust, where it is equally applicable? Indeed, there is an important literature which views anti- "monopoly" legislation, and the attendant law suits, as nothing but the despoilization of, or takings (Epstein 1985) from, private property owners (Kolko 1963).

Posner, instead of calling for the repeal of antitrust, recommends that cartel contracts not be enforced (p. 266). Actually, he goes further than that, characterizing this as an inadequate remedy, and advocates even more stringent controls. Nevertheless, he may have overlooked a better means to the end he favors. It is possible, that is, that strict enforcement will do more to undermine cartel agreements than non-enforcement.[24]

Consider the following. Suppose that the cartel fixes its price, through contract, at a level higher than "normal." This will necessitate an agreement to cut back on quantity, according to some agreed upon formula. If this plan is enforced by law, all will be well for the cartel provided that no outsider comes in. (The cheating cartel member is now little or no problem because, we may suppose, there are very stiff penalties for such behavior written into the contract.) But if one does, and can bribe at least one of the members of the cartel to insist that its cutback provisions be adhered to,[25] all members of the cartel can be put into serious jeopardy of bankruptcy. For if newcomers enter, even without undercutting the price, the first instinct of the cartel will be to produce more, thus lowering prices, in order to meet the competition. But if they are prevented from doing so by one "Trojan

[24]Nothing stated herein should be taken to indicate agreement with this goal of reining in cartel agreements. From the perspective of the present author, these arrangements, as in the case of all other "capitalist acts between consenting adults" such as the trade of $1.00 for a newspaper, enrich the parties who take part in it, at least in the *ex ante* sense (why else would they agree to do so).

[25]We assume that if the members of a cartel unanimously wish to end it, no contract enforcement will deny them this right.

Horse" member of the cartel, the new entrants may be able to sweep all before them.

But this scenario will be anticipated by all firms thinking of signing on with a cartel. It will put a serious crimp in all such arrangements. These organizations may still spring up, but an extra cost will clearly be imposed upon them. They will be disadvantaged by having to act so as to exclude the "Trojan Horse," or any member who can be converted into this status by being bought out.

Conclusion

We have discussed the works of three eminent, conservative, "free market" oriented economists. Certainly, they constitute a reasonable sample of this universe of discourse. We have found that however profoundly they defend market institutions in other contexts, they fail to do so in the case of antitrust. Why this lacunae should exist on the part of people otherwise concerned with economic freedom is for another day's analysis. But that this is so is the only conclusion that may be fairly drawn from the discussion above.

References

Armentano, Dominick T. 1972. *The Myths of Antitrust*. New Rochelle, N.Y.: Arlington House.

———. 1982. *Antitrust and Monopoly: Anatomy of a Policy Failure*. New York: Wiley.

———. 1991. *Antitrust Policy: The Case for Repeal*. Washington, D.C.: Cato Institute.

Benson, Bruce L. 1989. "Enforcement of Private Property Rights in Primitive Societies: Law Without Government." *Journal of Libertarian Studies*. 9: 1–26.

———. 1990. *The Enterprise of Law: Justice Without the State*. San Francisco: Pacific Research Institute for Public Policy.

Block, Walter. 1977. "Austrian Monopoly Theory—A Critique." *Journal of Libertarian Studies* 1, no. 4 (Fall): 271–79.

Bork, Robert H. 1978. *The Antitrust Paradox: A Policy at War with Itself*. New York: Basic Books.

Brozen, Yale. 1982. *Concentration, Mergers, and Public Policy*. New York: Macmillan.

Buchanan, James M. 1969. *Cost and Choice: An Inquiry into Economic Theory*. Chicago: Markham.

———, and G. F. Thirlby. 1981. *L.S.E. Essays on Cost*. New York: New York University Press.

Friedman, David. 1989. *The Machinery of Freedom: Guide to a Radical Capitalism*. La Salle, Ill.: Open Court. 2nd ed.

Hayek, F. A. 1973. *Law, Legislation and Liberty*. Chicago: University of Chicago Press.

High, Jack. 1984–1985. "Bork's Paradox: Static vs Dynamic Efficiency in Antitrust Analysis." *Contemporary Policy Issues* 3: 21–34.

Hoppe, Hans-Hermann. 1989. *A Theory of Socialism and Capitalism*. Norwell, Mass.: Kluwer Academic Publishers.

———. 1992a. *A Theory of Socialism and Capitalism: Economics, Politics and Ethics*. Boston: Dordrecht.

———. 1992b. "The Economics and Sociology of Taxation." In *Taxation: An Austrian View*. Llewellyn H. Rockwell, Jr., ed. Norwell, Mass.: Kluwer Academic Publishers.

———. 1992c. *The Economics and Ethics of Private Property: Studies in Political Economy and Philosophy*. Norwell, Mass.: Kluwer Academic Publishers.

Hutt, W. H. 1940. "The Concept of Consumers' Sovereignty." *Economic Journal* (March).

Kirzner, Israel M. 1973. *Competition and Entrepreneurship*. Chicago: University of Chicago Press.

Mises, Ludwig von. 1963. *Human Action*. Chicago: Regnery.

Posner, Richard. 1976. *Antitrust Law: an Economic Perspective*. Chicago: University of Chicago Press.

Rothbard, Murray N. 1962. *Man, Economy, and State*. Los Angeles: Nash.

———. 1970. *Power and Market: Government and the Economy*. Menlo Park, Calif.: Institute for Humane Studies.

———. 1973. *For a New Liberty*. New York: Macmillan.

———. 1982. *The Ethics of Liberty*. Atlantic Highlands, N.J.: Humanities Press.

Stigler, George. 1968. *The Organization of Industry*. Homewood, Ill.: Richard D. Irwin.

Telser, Lester. 1987. *A Theory of Efficient Cooperation and Competition*. Cambridge, England: Cambridge University Press.

Ludwig von Mises's Monetary Theory in Light of Modern Monetary Thought

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Ludwig von Mises's contributions to the development of the technical methods and apparatus of monetary theory continue to be neglected today, despite the fact that Mises succeeded exactly eight decades ago, while barely out of his twenties, in a task that still admittedly defies the best efforts of the most eminent of modern monetary theorists, viz., integrating monetary and value theory. Such a unified and truly "general theory" is necessary to satisfactorily explain the functioning of the market economy, because the market economy, or any economy based on social cooperation under the division of labor, cannot exist without monetary exchange and calculation.[1]

Mises's work on monetary economics is not only ignored by the roiled mainstream of neo- and "new" Keynesians, monetarists, and new classicists, it is also considered *passé* by many Austrian-oriented economists and policy analysts, especially those whose primary influence is the post-World War II writings of Mises's former student F. A. Hayek. A typical example of this flippant and uncomprehending dismissal of Mises's monetary thought is provided by a review of *The Gold Standard: An Austrian Perspective*, which appeared in the publication of a free-market think tank (review of The Gold Standard 1986, pp. 14–15.) In commenting on this edited volume of mainly Misesian papers

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[1]The first to make this point was Ludwig von Mises ([1920] 1990) in his classic article demonstrating the impossibility of economic calculation under socialist central planning. For recent reviews and elucidations of the socialist calculation debate from a Misesian perspective which emphasize the same point, see Rothbard (1991); Salerno (1990a, pp. 45–49; 1990b).

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on the gold standard, the anonymous reviewer opined that "large parts of the book are unsatisfactory when considered as contributions to modern economic theory. Many of the essays have a strongly anachronistic flavor and do not succeed in integrating their arguments with the (often relevant) debates in modern monetary theory." *Mirabile dictu*, the reviewer then goes on to endorse as superior to the gold standard bizarre "laissez-faire" schemes such as the issuance of private fiat moneys and the separation of the unit of account from the medium of exchange, which have been resurrected under the rubric of the "New Monetary Economics" but which still emit the unmistakable musk of their association with obscure and long-dead monetary cranks.[2] Had the reviewer enjoyed even passing familiarity with Mises's regression theorem, he would have instantly realized the untenability of these schemes.[3]

But the problem goes beyond Hayekian epigones laboring as policy analysts in think tanks. Prominent economists, too, in the wake of the collapse in rapid succession of the Keynesian and then monetarist paradigms, have been recently casting around for non-gold, "laissez-faire" alternatives to central bank manipulations of the money supply. There is, of course, Hayek's proposal for the issue of private fiat currencies; and recently Milton Friedman (1992, pp. 126–56) endorsed bimetallism as superior to a mono-metallic gold standard, while the plan coauthored by Yeager and Greenfield (1983) to dissolve the link between the monetary unit of account and the medium of exchange has recently been endorsed by another former monetarist, Richard Timberlake (1991), himself a former advocate of a parallel gold standard.[4] Even the supporters of a gold-based free-banking system, such as Lawrence White and George Selgin, who drew their initial inspiration from Mises, who himself advocated such a system because he believed it would severely restrain the issue of fiduciary media, now argue that such a system would give rise to an "invisible-hand" maturation process that eventually culminates in the complete and "spontaneous" withering away of the monetary gold base to yield a fiat bank money.

[2]For an overview of the forerunners of the New Monetary Economics by two of its proponents, see Cowen and Kroszner (1987).

[3]A critique of Hayek's scheme for privately issued paper fiat currencies is provided by Rothbard (1992b, pp. 2–5).

[4]For a critique of the Timberlake twist on the Greenfield-Yeager proposal, see Rothbard (1992a); Timberlake's earlier, and much sounder, proposal is evaluated by Salerno (1982, pp. 16–18).

Unfortunately, all such schemes are based on a failure by their authors to perceive money as an outgrowth and driving force of "micro" market processes, a perception that can only be gained from Mises's monetary theory with its unification of real and monetary analysis. What is urgently needed then, and what I will attempt to supply in this paper, is a fresh evaluation of Mises's monetary theory and a clarification of its relationship to modern monetary thought. With this endeavor, I hope to demonstrate to Austrian-oriented and other economists that Misesian theory provides fresh and relevant answers to the seemingly intractable problems still confronting modern monetary economists.

In 1985, James Rolph Edwards (1985) published an insightful and stimulating work in which he attempted a doctrinal assessment of Mises's contributions to monetary theory. As I shall indicate in detail below, while Edwards shed important light on Mises's originality as a monetary theorist and brilliantly defended him against some modern detractors, he failed in his main effort to portray Mises as the prototypical modern monetary economist, with an analytical tool kit that included an asset demand for money, the natural-rate hypothesis, the accelerationist view of lagged adjustment of nominal wages during inflation, a consistent modern monetary approach to the balance of payments and the exchange rate, rational expectations, etc. Nonetheless, Edwards's book does provide a useful framework, which I will employ for comparing Misesian with modern monetary theory. Specifically, I will use Edwards's topical development in organizing my own paper and employ some of his comments on Mises's theory as a point of departure for my own evaluation.

In the next section, "The Nature, Development, and Supply of Money," I address Mises's approach to defining money, classifying its different forms and components, and measuring the money supply. I also briefly discuss Mises's development of a consistent ordinalist approach to value theory as a foundation for his monetary theory. The following section, "The Regression Theorem and the Demand for Money," deals with Mises's formulation of a cash-balance demand for money, a supply-and-demand explanation of the determination of money's purchasing power, and his arguments in favor of the non-neutrality of money. It concludes with a consideration of Mises's regression theorem and its defense against criticism by Don Patinkin and others. In the concluding section "The Monetary Adjustment Process: The Inter-Spatial Equalization of the Value of Money, and the Determination of Exchange Rates," I focus on Mises's approach to the

inter-spatial equalization of the purchasing power of a single money and the determination of the exchange rate between independent but co-existing moneys. In the case of the former, I significantly elaborate on Mises's view that the market's arbitrage processes rapidly re-establish monetary equilibrium after it has been disturbed, while demonstrating the importance to monetary analysis of Mises's methodological devices of the plain and final states of rest. I also draw attention to important methodological contributions by Philip Wicksteed and Arthur Marget which facilitate a better analytical grasp of the monetary adjustment process. In the discussion of exchange-rate determination, I carefully distinguish between the Misesian version of the purchasing-power-parity theory and the Casselian version adopted by modern economists, explaining why the former version is immune to many of the criticisms commonly raised against the latter.

The Nature, Development, and Supply of Money

In chapter two, Edwards (1985, pp. 29–43) reviews Mises's Brobdingnagian, though unhappily neglected, efforts in preparing the conceptual groundwork necessary to a full statement of the theory of money. These include the development of a purely ordinal theory of subjective value and of marginal utility more than two decades before the celebrated "ordinalist revolution" of the 1930s, which ended up totally and erroneously expunging the very concept of marginal utility from economics. As Edwards (ibid., p. 34) points out, compared to the equilibrium condition yielded by the indifference curve analysis embraced by the later Anglo-American ordinalists, which assumes infinitely divisible goods, the equilibrium condition derived from Mises's approach is "more general and correct," because "real trade more often than not [I would say "always"] involves discrete goods." Unfortunately, despite Mises's clear doctrinal priority in formulating a purely and consistently ordinal theory of value and in completely eliminating the notion of measurable utility from economics, "To this day the major historians of economic thought appear unaware of Mises's contributions here."[5]

[5]This oversight is just beginning to be redressed in the mainstream economic literature. See, for example, High and Bloch (1989) for recognition of Mises and other neglected Austrian forerunners of the ordinalist revolution of the 1930s.

As Edwards (1985, pp. 31–32) points out, Mises built on Carl Menger to develop a theory of the nature and origin of money. As the most generally saleable good in society or "the general medium of exchange," money emerges step by step from an evolutionary market process driven by the actions of individuals consciously striving to obtain the maximum benefit from their cooperation in exchange and the division of labor. All other functions of money, e.g., as a "store of value," "unit of account," "standard of deferred payments," etc., are and must remain subsidiary to money's primary function as a medium of exchange. As we will see below, Mises's regression theorem goes beyond Menger in demonstrating that, logically, money can only come into being as a product of voluntary catallactic processes.

Under the rubric of "Definitions and Components of the Money Stock," Edwards (ibid., pp. 36–38) draws attention to Mises's original and indispensable taxonomy of money, which yields a statistical definition of money that is consistent with the one employed by modern economists. Before Mises wrote, economists generally distinguished between bank notes and token coins on the one hand and demand deposits or checking account balances on the other.[6] The former only were included along with specie in the category of money. Mises rejected this distinction as useless for the purposes of economic science. Mises's repudiation of the older classification accords with his staunchly Mengerian "essentialist" approach to economics, which finds expression in his dictum that "The greatest mistake that can be made in economic investigation is to fix attention on mere appearances, and to fail to perceive the fundamental difference between things whose externals alone are similar, or to discriminate between fundamentally similar things whose externals alone are different" (Mises [1953] 1971, p. 62).

In formulating a new and more useful classificatory framework, Mises draws a distinction between standard money—whether of the "commodity," "credit," or "fiat" variety—and

[6]This is true even of such allegedly revolutionary monetary theorists as Irving Fisher, hailed by Milton Friedman as the "greatest economist that America has ever produced." While Fisher ([1913] 1985, pp. 47, 53) identified bank deposits as an "excellent substitute" for money, he insisted that they "are not money." Even Edwin Cannan, who was one of the pioneers in formulating the demand for money as an asset or stock demand and whom Mises (1990a, pp. 23, 172) referred to more than once as "the great British economist," maintained a rigid distinction between bank deposits and money. See, for example, Cannan (1929, pp. 64–85); a good survey of Cannan's contributions to monetary theory can be found in Gregory (1927).

"money substitutes," defined as perfectly secure and immediately convertible claims to money, such as bank notes and demand deposits, which substitute for money in individuals' cash balances. Within the class of money substitutes, Mises further distinguishes between "money certificates," or notes and deposits fully covered by reserves of the standard money, and "fiduciary media," which denote uncovered money substitutes. Mises employs the term "money in the narrow sense" to denote the aggregate stock of standard money in the economy, corresponding to what is today called "the monetary base." "Money in the broad sense" is Mises's term for the monetary aggregate equal to standard money plus money substitutes minus bank reserves or, alternatively, equal to standard money (including reserves) plus fiduciary media. This latter aggregate is roughly approximated by the current definition of M1.[7]

In noting the similarity between Mises's broader definition of money and modern M1, Edwards commits minor errors of commission and omission, but they are worth noting because they elucidate Mises's essentialist approach to theoretically defining money and identifying its empirical counterpart. Respecting the

[7]Lawrence H. White (1986, p. 314 n. 23) criticizes Mises's use of the term "money substitutes" to designate secure and instantaneously redeemable claims to money, i.e., money certificates plus fiduciary media, as "confusing" because the term suggests "nonmoneyness." But it is precisely Mises's point in using such a term to indicate that claims to the standard money, e.g., gold, whether fully backed by gold or not, as long as they are perceived by the issuing institution's clients as instantaneously redeemable for gold at face value, are *not* money in themselves, because their value is not determined by a valuation process independent of that which determines the value of gold. In contrast, in suggesting as replacements for Mises's "money substitutes" and "money-in-the-narrower sense" the terms "inside money" and "outside money," respectively White himself might be charged with sowing confusion for implying that the instantaneously redeemable bank notes and deposits he denotes by "inside money" constitute a separate money whose value is determined independently of the value of the money commodity. But if we look more closely at White's free banking position, we discover that this is precisely what he intends to imply. For the free bankers, from the very moment of their first issue, bank notes and deposits are considered a fiat money in embryo, whose "invisible-hand process"-driven by evolution to maturity will result in the full and final expulsion of gold from its monetary role. Thus, the contractual suspension of specie payments and option clauses that free banks allegedly will negotiate with their clients, when they are implemented or even if they are widely expected to be, will establish "bank money" (another favored term) as an independently-valued credit money. Eventually, in the "mature free-banking system," according to White and Selgin ([1987] 1989, p. 235), there would emerge a situation in which, "At the limit, if inter-clearinghouse settlements were made entirely with other assets . . . and if the public were completely weaned from holding commodity money, the active demand for the old-fashioned money commodity would be wholly nonmonetary," and the public would presumably be finally freed from its shackles of gold to enjoy the virtues of an invisible-hand-generated private fiat money.

first error, Edwards (1985, p. 38) states that "in modern times, money consists of fiat currency, token coins, and *credit money* with fractional reserves." The error here is that checkable deposits, to which the words I emphasized clearly refer, are not considered by Mises to be credit money, but fiduciary media, a subclass of money substitutes. Credit money, on the other hand, as noted above, is one of the three categories of standard money, which also includes fiat and commodity money. Mises ([1953] 1971, pp. 61–62) defines credit money as "a claim against any physical or legal person [which] must not be both payable on demand and absolutely secure. . . . Credit money . . . is a claim falling due in the future that is used as a general medium of exchange." Generally, credit money emerges when an issuer of fiduciary media suspends redemption of these media for a definite or indefinite period of time.

The essential economic distinction between the two resides in the fact that the value of a money substitute, considered as a perfectly secure and instantaneously redeemable claim to money, is completely dependent upon and always equal to the value of the sum of standard money to which it entitles its holder. In contrast, the value of credit money is established by an "independent process of valuation" (Mises ibid., p. 61). For example, Bank of England notes denominated in gold pounds were money substitutes during the periods of their unqualified convertibility prior to 1797 and after 1821, while they circulated as credit money for the duration of suspended specie payments from 1797 to 1821. As we would expect of credit money, during the latter period, the purchasing power of the paper pound fluctuated independently of the purchasing power of the quantity of gold which corresponded to its original definition. The fact that the prospects and timing of future redeemability influenced these fluctuations marked the currently inconvertible notes as credit rather than fiat money.

A proper understanding of the concept of credit money is important, because Mises seems inclined to classify most historical instances of non-commodity money as credit rather than fiat money. For example, in *Theory of Money and Credit*, which was translated from the second German edition published in 1924, after the German hyperinflation had run its course, Mises (ibid., p. 61) writes: "It can hardly be contested that fiat money in the strict sense of the word is theoretically conceivable. . . . Whether fiat money has ever actually existed is, of course, another question, and one that cannot off-hand be answered affirmatively. It

can hardly be doubted that most of those kinds of money that are not commodity money must be classified as credit money. But only detailed historical investigation could clear this matter up." Even as late as 1966 in the third edition of *Human Action*, Mises (1966, p. 429) stops short of categorically affirming the historical existence of fiat money, declaring that "It is not the task of catallactics but of economic history to investigate whether there appeared in the past specimens of fiat money or whether all sorts of money which were not commodity money were credit money."

The omission in Edwards's discussion—partly explained by his narrow focus on *Theory of Money and Credit*—involves a failure to recognize Mises's ambivalent attitude toward the inclusion of saving deposits in his broader definition of money. A strong case can and has been made for the view that saving deposits in the contemporary U. S. economy constitute "perfectly secure and immediately convertible claims to money" and, therefore, according to Mises's own criterion, are to be identified among the components of money in the broad sense.[8]

As early as 1924, Mises ([1953] 1971, p. 270) recognized that institutional developments had led banks "to undertake the obligation to pay out small sums of savings deposits at any time without notice." This circumstance, according to Mises (ibid.,

[8]This case has been made by Rothbard (1978) and Salerno (1987), who argue for inclusion in the money supply of all currently spendable dollars in the economy, i.e., those immediately obtainable without penalty or risk of capital loss. As reported by the Federal Reserve Bank of Cleveland (1992, p. 3) recently, Shadow Open Market Committee member William Poole has endorsed a monetary aggregate, MZM (for "money of zero maturity") which seeks to identify and capture those dollars "immediately available without penalty or risk of capital loss" and which comes close to the TMS (for "true money supply") aggregate developed by Rothbard and Salerno. The main difference between the two is that TMS excludes, while MZM includes, all Money Market Mutual Fund shares; both include, in addition to items in M1, savings deposits and Money Market Deposit Accounts, at the same time excluding small time deposits. White (1986), on the other hand, beginning from a Misesian medium-of-exchange definition of what constitutes money, similar to Rothbard and Salerno's, arrives at a much narrower empirical measure of the money supply which excludes non-checkable demand deposits, such as, passbook savings accounts, on the grounds that the passbooks themselves do not literally pass from hand-to-hand in the payments process. Israel M. Kirzner (1976), in a critique of Rothbard, raises the same objection as White to the inclusion of non-checkable deposits in the money supply, and then goes further to express skepticism of any attempts to produce a statistically unweighted aggregate of the nominal stock of money. It is ironic that Kirzner's thoroughgoing commitment to subjectivism should lead to his rediscovery of and support for a Divisia-type monetary aggregate in advance of its modern reintroduction into mainstream monetary economics in the 1980s. For a brief critique of the White-Kirzner position on excluding non-checkable demand deposits from a monetary aggregate based on the medium-of-exchange definition of money, see Salerno (1987, pp. 2–3).

p. 270), induced some people, for example, "small business people and not very well-to-do private individuals," to utilize these deposits as "current accounts" notwithstanding their technical status as "investment deposits." Thus Mises implies that at least some portion of saving deposits function economically as money substitutes and warrant inclusion in his broad concept of money.

During the 1920s and into the 1930s, there was tremendous growth in the volume and economic significance of savings deposits both in the U. S., due to Federal Reserve policies, and throughout the world economy (Phillips, McManus, and Nelson [1937] 1972, pp. 29, 95–103; Rothbard 1975, pp. 92–940). In an important but neglected article written in the early thirties, Mises ([1933] 1990) places much of the blame for the financial and exchange-rate instability of the early 1930s on the pandemic treatment of savings deposits as money substitutes, a development actively sought and encouraged by the banks. As Mises (ibid., pp. 528–29) argues:

> The bank which receives [saving deposits] has to lend it to business. A withdrawal of the money entrusted to it by the saver can only take place in the same measure as the bank is able to get back the money it has lent. As the total amount of the saving deposits is working in the country's business, a total withdrawal is not possible. The individual saver can get back his money from the bank, but not all savers at the same time. . . . Since the saver does not need the deposited sum at call or short notice it is not necessary that the savings banks or the other banks which take over such deposits should promise repayment at call or at short notice. Nevertheless, this is what they did. And so they became exposed to the dangers of a panic. They would not have run this danger, if they had accepted the saving deposits only on condition that withdrawal must be notified some months ahead.

Mises also demonstrates that it was the egregiously inflationary and foredoomed attempt made by central banks to insure the instantaneous redeemability of saving deposits promised by the commercial banks, and not the spontaneous and generalized "capital flight" that is usually alleged, which was the root cause of the destructive exchange-rate gyrations of the 1930s. Writes Mises ([1933] 1990, pp. 108–9):

> Capital invested in real estate or industrial plants or in shares of companies holding property of this nature cannot fly. You can sell such property and leave the country with the proceeds. But—unless

> there is no expansion of credit—the buyer simply replaces you. . . . One person or another can withdraw his capital from a country, but this can never be a mass movement. There is only one apparent exception, *i.e.,* the saving deposit which can be withdrawn from the bank at once or at short notice. When the saving deposits are subject to instant withdrawal and the bank of issue renders the immediate withdrawal possible by advancing credits for these savings to be withdrawn, then credit expansion and inflation cause the exchange ratio to rise [the domestic currency to depreciate]. It is obvious that not the flight of capital but the credit expansion in favor of the savings banks is the root of the evil. . . . If the Central Bank were to leave [the banks] to their fate, their peculiar embarrassment would not have any effect on the foreign exchanges. That the additional issue of great amounts of bank notes for the sake of the repayment of the total amount or of a great portion of a country's saving deposits makes the foreign exchange go up is easy to understand. It is not simply the wish of the capitalists to fly with their capital, but the expansion of the circulation, that imperils monetary stability.

Despite his brilliant and pathbreaking analysis of the causes and effects of the progressive transformation of saving deposits into de facto money substitutes, Mises was still unprepared in 1966, in the third edition of Human Action, to include these deposits in his broader definition of money. There Mises (1966, p. 460 n. 23) refers to them as "demand deposits not subject to check," but then inconsistently denies that they are money substitutes. Instead, he identifies saving deposits as foremost among "secondary media of exchange," a category encompassing highly marketable financial assets, such as government bonds and blue chip stocks, which permit their owners to economize on the holding of cash balances. Unlike money substitutes, secondary media of exchange "must first be exchanged against money or money substitutes if one wants to use them—in a roundabout way—for paying or for increasing cash holdings" (Mises 1966, p. 461). Uncharacteristically, Mises never addresses the momentous institutional fact, clearly recognized in his 1933 article, that, unlike stocks and bonds whose exchange values in terms of money fluctuate according to market forces, saving deposits are "exchanged" on a market in which their money "price" is virtually fixed (at par value) and guaranteed by the practically inexhaustible resources of the central bank.

The Regression Theorem and the Demand for Money

Murray N. Rothbard (1988, p. 179; 1977) has characterized the regression theorem as the "*pons asinorum*" for critics of Mises's monetary theory and as the "keystone of monetary theory" in general. And, as Edwards (1985, p. 49) points out, Mises himself "considered the integration of monetary and value theory by the application of marginal analysis to be the central problem, and his solution to be the most important contribution of [*The Theory of Money and Credit*]." In this spirit, Edwards (ibid., p. 24) refers to the third chapter of his own book, which comprises trenchant defenses against critics of Mises's regression theorem and approach to the demand for money, as "perhaps the heart of the study."

Against the allegation of Patinkin (1965, p. 79) and, later, Laurence S. Moss that Mises confused the marginal utility of holding money with the marginal utility attaching to the goods for which it exchanges, Edwards (1985, p. 53) definitively demonstrates that the confusion is the critics' and that "The entire context of Mises's discussion unequivocally bears on the derivation of the individual and market demands for money to *hold* as *stock*." While Edwards (ibid., p. 65, n. 35) affirms that Patinkin and Moss are "respectful in their treatment of Mises's contributions," one would surely be hardpressed to identify a single instance in the history of economic thought in which an eminent economist's position was interpreted less sympathetically than in the present case, especially when one considers Patinkin's unsurpassed scholarship in the history of monetary theory.

Edwards also neatly disposes of the absurd charge by "real balance" theorists such as Howard S. Ellis (1934, p. 163) and Moss (1976, p. 32) that Mises conceives the demand for money as a demand for nominal units of money without regard to the purchasing power or exchange value of these units. As Edwards (1985, pp. 53–54) argues, "If a unit of money has a value, then the individual can, for an additional unit of money income, compare the marginal utilities of the additional present or future goods obtainable with that of adding that unit's worth of purchasing power to his/her cash balance, and it is precisely the magnitude of *real* balances that Mises is talking about determining by such a marginal calculation. The individual simply expresses that demand by demanding nominal units of money with a given purchasing power each."

Indeed we may go further than Edwards and turn the tables on those who insist that money demand analysis must proceed via a "real value calculus" and in terms of the utility of "resources held in the form of money." In his outstanding but unduly neglected tome on monetary theory, which includes an encyclopedic review of the development of the cash balance approach to the demand for money, Arthur W. Marget ([1938–42] 1966, 1, pp. 414–83) conducts a remarkable running defense of the Menger-Mises-Cannan "money balance" variant against the claims of the Walras-Pigou-Keynes "real balance" variant. First, Marget argues that the real balance approach is unrealistic, because it rests on the assumption that the holders of cash explicitly utilize an index number to "deflate" their money balances. According to Marget (ibid., p. 446 n. 88), "The real issue, so far as the question of realism is concerned, is whether the element of price change enters the 'calculations' of the cash-balance administrator as a matter affecting 'his prospective receipts and payments in monetary units,' as Hawtrey [as well as Mises] holds, or whether it enters as part of a kind of 'deflation' process—in the statistical sense of 'deflation'—represented by the division of a cash balance by a price index. The question . . . is whether, from the standpoint of realism, it is helpful to think of cash-balance administrators as taking 'express account of any index number relating their cash to its equivalent in products.'"

Marget's second objection to the real balance approach stems from the fact that "demand for 'resources in the form of currency' which is held to determine the price level, needs, in order that a given amount of 'money' may be translated into 'real' terms, a 'price-level' which assigns to 'resources in the form of currency' a given 'real' value" (ibid., pp. 450–51 n. 99). Without dated price levels, *à la* Mises's regression theorem, however, exponents of this approach, which was developed as a means of escaping the so-called "Austrian circle," are themselves trapped in a logical circle. Finally, Marget (ibid., p. 451) contends that, in deflating money balances to their "real" equivalent in terms of products, many real balance theorists equate "the utility of a cash balance" to "the utility of the goods that might be purchased by the expenditure of the cash balance." The result is that these theorists are unable to explain why anyone should ever choose to hold cash instead of other forms of wealth, given that equal utilities generate indifference among alternatives.

Edwards successfully counters another criticism advanced both by Ellis (1934, p. 164) and Moss (1976, p. 32). The latter argue that Mises's theory of the demand for money yields a

demand curve that is drawn as a rectangular hyperbola in nominal cash balance space. A demand curve of this shape, they note, is logically inconsistent with Mises's repeated and vigorous denials that an addition to the stock of money—even when this increment is distributed so as to equi-proportionally increase all individual cash balances—causes an equi-proportional increase of all prices. Edwards (1985, p. 55) thoroughly demolishes this criticism by demonstrating that it rests on a clearly erroneous interpretation of Mises's theory "as saying that the individual values units of money only with a view to maintaining a predecided and given level of purchasing power, and that utility calculation is not applied to the level of real balances. From this perspective they find his non-proportionality argument contradictory. It does not occur to them that his non-proportionality argument is evidence *against* their interpretation of his theory of the demand for money."

Edwards (1985, p. 56) himself falls into error, however, when he charges Mises with "a failure to step from a non-rectangularly-hyperbolic demand for nominal balances to the rectangularly-hyperbolic market equilibrium curve." Edwards initiates his criticism by concurring with Mises that an equi-proportional addition to cash balances, let us say a doubling, will not lead *initially*, i.e., immediately prior to the first round of spending of the excess balances, to an inversely proportional variation or halving of marginal utilities of money on individual value scales. Thus, as Edwards recognizes, the overall elasticity of Mises's "instantaneous" demand curve for nominal balances, which is derived from instantaneously existing marginal utility schedules for goods and money, may properly take on (absolute) values less than, greater than, or equal to unity. Or, in other words, the instantaneous demand curve for money only fortuitously traces out a rectangular hyperbola.[9]

[9]Rothbard's analysis of the demand for money implies that it tends to be basically inelastic due to the high inelasticity of what he calls the "exchange" or "pre-income" component of monetary demand, which is distinguished from the "reservation," "cash-balance" or "post-income" component. The former is expressed in the exchange for money of the services of the original productive factors, land, and labor, and of existing inventories of capital and consumer goods, for which the reservation demands of their producers are usually highly inelastic. See Rothbard ([1962] 1970, 1, pp. 662–67; 2, pp. 350–56). The inelasticity of the exchange demand for money is similarly accounted for by Herbert J. Davenport ([1913] 1968, pp. 267–73). Davenport (ibid., pp. 301–3, 316–21) also provides a surprisingly modern account of the reservation demand for money, as a short-run, speculative phenomenon, but ultimately fails to integrate the two components into a satisfactory overall theory of the demand for money.

Edwards (ibid., p. 56) proceeds to argue, however, that Mises erred "in assuming that it followed that prices would not rise proportionately with M. This would occur because, as prices increased, real balances would decline, reversing all of the initial wealth effects, until equilibrium was attained at the initial level of real balances, *ceteris paribus*." Edwards is here contending, *à la* Patinkin, that, notwithstanding the non-unitary elasticity of the "instantaneous" demand curve for money, real balance effects generated by an increase of money will initiate a dynamic adjustment process that culminates in an equi-proportional increase in overall prices. But Patinkin's demonstration that an increase in money accomplished via an equi-proportional increase in everyone's cash balances brings forth an increase of all prices in the same proportion rests either on his arbitrary assumption of the constancy of the real data, i.e., relative prices and real wealth, during the transition from one Walrasian equilibrium position to the next, or on his equivalent simplifying assumption that "prices rise during the *tatonnement* in an equi-proportionate manner" (Patinkin 1965, p. 44).[10]

In contrast, the very time-embracing "step-by-step" method which Mises (1978a, p. 59) consistently applies in analyzing monetary phenomena leads inevitably to a denial that the real data of the system could, under any conceivable initial set of circumstances, remain unaltered during a disequilibrium adjustment or *tatonnement* process. For Mises (1966, p. 414), "The process is always uneven and by steps, disproportionate and asymmetrical." In fact, Mises ([1953] 1971, pp. 141–42) rigorously demonstrates the long-run nonneutrality of money even under the most stringent and highly unrealistic assumption that new money is injected into the economic system in a way that does not disturb the pre-existing relative distribution among individuals of total wealth.

Writing in *Human Action*, Mises (1966, pp. 412–13) concludes that

> Changes in the supply of money must necessarily alter the disposition of vendible goods as owned by various individuals and firms. . . . We may, if we like, assume that every member gets a share of the additional money right at the moment of its inflow into the system, or shares in the reduction of the quantity of

[10]On the key role played by the assumption of the constancy of relative prices for deriving the neutrality of money in Patinkin's system, see Rousseas (1972, pp. 53, 72).

> money. But whether we assume this or not, the final result of our demonstration will remain the same. This result will be that changes in the structure of prices brought about by changes in the supply of money available in the economic system never affect the prices of the various commodities and services to the same extent and at the same time.
>
> The main fault of the old quantity theory as well as the mathematical economists' equation of exchange is that they have ignored this fundamental issue. *Changes in the supply of money must bring about changes in other data too.* The market system before and after the inflow or outflow of a quantity of money is not merely changed in that cash holdings of the individuals and prices have increased or decreased. There have been affected also changes in the reciprocal exchange ratios between the various commodities and services which, if one wants to resort to metaphors, are more adequately described by the image of price revolution than by the misleading figure of an elevation or a sinking of a "price level." (Emphasis added)

Thus for Mises, "real balance effects" are inextricably bound together with "distribution effects." The very process by which the market adjusts the (positive or negative) excess demands for money of individuals necessarily "revolutionizes" wealth positions and the price structure. And this is the case even if these (nonzero) individual excess demands sum to zero in the aggregate. Writes Mises (1966, pp. 417–18):

> Every change in the money relation alters—apart from the effects on deferred payments—the conditions of the individual members of society. Some become richer, some poorer. It may happen that the effects of a change in the demand for or supply of money encounter the effects of opposite changes occurring by and large at the same time and to the same extent; it may happen that the resultant of the two opposite movements is such that no conspicuous changes in the price structure emerge. But even then the effects on the conditions of the various individuals are not absent. Each change in the money relation takes its own course and produces its own particular effects. If an inflationary movement and a deflationary one occur at the same time or if an inflation is temporally followed by a deflation in such a way that prices finally are not very much changed the social consequences of each of the two movements do not cancel each other. To the social consequences of an inflation those of a deflation are added. There is no

> reason to assume that all or even most of those favored by one movement will be hurt by the second one, or vice versa.

Edwards (1985, p. 56) also argues that Mises's "nonproportionality argument" contradicts Mises's own no less vigorously stated position that an increase in the aggregate money stock would leave human welfare unchanged, because "a change in M would result in a proportional change in P." Edwards here implies that Mises derives his proposition that money always yields to society its full utility as a medium of exchange from a "process" analysis of the effects of a change in the quantity of money on a given economic system. For Mises, however, the proposition regarding the welfare effects of additions to the money stock is derived from a purely "comparative static" analysis of two simultaneously existing but unconnected economic systems which are based on identical real data and differ only in the magnitudes of their nominal money stocks. While the discussion by Mises which Edwards cites to support his interpretation is admittedly ambiguous on this point (Mises [1953] 1971, p. 85), elsewhere in the same work Mises (ibid., pp. 142, 145) draws a clearcut distinction between the two forms of analysis:

> the level of the total stock of money and of the value of the money unit are matters of complete indifference as far as the utility obtained from the use of the money is concerned. Society is always in enjoyment of the maximum utility obtainable from the use of money. Half of the money at the disposal of the community would yield the same utility as the whole stock, even if the variation in the value of the monetary unit was not proportioned to the variation in the stock of money. But it is important to note that it by no means follows from this that doubling the quantity of money means halving the objective exchange-value of money. . . .
>
> If we compare two static economic systems, which differ in no way from one another except that in one there is twice as much money as in the other, it appears that the purchasing power of the monetary unit in the one system must be equal to half that of the monetary unit in the other. Nevertheless, we may not conclude from this that a doubling of the quantity of money must lead to a halving of the purchasing power of the monetary unit; for every variation in the quantity of money introduces a dynamic factor into the static economic system. The new position of static equilibrium that is established when the effects of the fluctuations thus set in motion are completed cannot be the same as that which

> existed before the introduction of the additional quantity of money.

In the course of rebutting Moss's astounding contention that Mises "saw the demand for real balances as constant and given by the state of the world . . . [and] did not apply subjective cost and benefit considerations to the demand for real balances," Edwards (1985, p. 57) himself seriously misconstrues Mises's position on the relationship between the demand for money and the interest rate. Edwards correctly characterizes Mises's overall approach to the problem as "the classic one of long-run interest rate neutrality, based on a view that the rate of interest and the demand for money had essentially different determinants."[11] This, Edwards (ibid., p. 57) implies, accounts for the fact that Mises "did not generally regard interest foregone as the cost of holding money." This is incorrect on both exegetical and logical grounds.

First of all, Mises identified three basic categories of opportunity costs which may be incurred in the decision to hold cash balances. These include "interest foregone" as well as the foregoing of "instantaneous consumption" and of "plain saving" i.e., the accumulation of stocks of durable consumers goods.[12] That the foregoing of an interest return is one of the potential "costs" of holding money is logically implied in the very application of marginal utility theory to the explanation of the purchasing power of money. In this approach, the opportunity cost of allocating a sum of money to cash balance is the renunciation of the marginal utility of the most highly valued alternative use of this money, which may or may not be the investment of the sum in interest-bearing securities. The assertion by Edwards (1985, p. 57) to the contrary, this is readily deducible from Mises's analysis in *Theory of Money and Credit* of the manner in which individuals adjust to a disequilibrating influx of newly-created money into their cash balances. Writes Mises ([1953] 1971, pp. 139, 134–35):

> For these persons, the ratio between the demand for money and the stock of it is altered; they have a relative superfluity of money and a relative shortage of other economic goods. The immediate consequence of both circumstances is that the marginal utility to

[11]For a recent, vigorously-argued vindication of this position, see Hans-Hermann Hoppe (1992).

[12]On the nature of plain saving as distinguished from capitalist saving, see Mises (1966, pp. 530–31).

> them of the monetary unit diminishes. This necessarily influences their behavior in the market. . . . He who has more money on hand than he thinks he needs, will buy, in order to dispose of the superfluous stock of money that lies useless on his hands. If he is an entrepreneur, he will possibly enlarge his business. If this use of the money is not open to him, he may purchase interest-bearing securities; or possibly he may decide to purchase consumption goods.

If we assume that one of the individuals in Mises's example does in fact allocate his increment of new money to the purchase of interest-bearing securities—assuming that his value rankings of the utilities derived from the various uses of the money have remained constant—it is to be inferred from this purchase that the foregone interest on these securities constituted the opportunity cost of holding an equal-sized unit of money *prior* to the infusion of new money into his cash balance.

Mises (1966, p. 430) is even more explicit on this point in *Human Action*, where he states that:

> The keeping of cash holding requires sacrifices. To the extent that a man keeps money in his pockets or in his balance with a bank, he forsakes the instantaneous acquisition of goods he could consume or employ for production. In the market economy these sacrifices can be precisely determined by calculation. They are equal to the amount of originary [or pure] interest he would have earned by investing the sum. The fact that a man takes this falling off into account is proof that he prefers the advantages of cash holding to the loss in interest yield.[13]

Not only does Mises conceive the interest rate as a potential cost of holding money, he also recognizes that it is a monetary phenomenon in a real and important sense. That is, in a barter economy, where monetary calculation does not exist, it would be impossible to even conceive the difference in value between present and future goods as a unitary rate. The reason, as Mises (1990b, p. 65) points out, is that "Only within a money economy can this value difference be comprehended in the abstract and separated from changes in the valuation of individual concrete economic goods. In a barter economy, the phenomenon of interest could never be isolated from the evaluation of future price movements of individual goods."

[13]Also see Mises (1966, pp. 404, 463), for similar statements.

Of course, recognizing that the interest rate is an outgrowth of monetary exchange and calculation expressible only in monetary terms and that, as an element determined within the system of interdependent money prices, it functions as an opportunity cost of holding money does not imply that "real balances [are] a function of wealth and the interest rate." That Edwards does not fully comprehend this point is attributable to his failure to appreciate that Mises's methodological approach is worlds apart from the neoclassical methodology of mutual determination that Edwards himself apparently espouses. The analytical framework of Mises's monetary theory is the general interrelationships and interdependencies of the system of market prices. Within this framework, there are multifarious opportunities for money expenditures on consumer goods which, in addition to the opportunity to hold ready cash, compete with opportunities to invest money at interest. Thus it might be argued that a fall in the interest rate, *ceteris paribus*, lowers a given individual's cost of currently consuming, let us say, apples. But it is an impermissible leap of logic from this formally unexceptionable statement to the conclusion that the interest rate is one of the functional determinants of the demand for apples.

Edwards does make an important contribution, however, in his defense of Mises's regression theorem against Patinkin and his demolition of the latter's alternative "Walrasian solution" to the circularity problem in monetary analysis. Employing the methodology of simultaneous mutual determinism, Patinkin is able to formally demonstrate that no specific prior value of money need be assumed in deriving a market demand schedule or "excess demand function" for money. Moreover, Patinkin's demonstration implies that if economic agents form their subjective valuations of cash balances on day two with reference to the unique purchasing power of money prevailing on day one, as Mises assumes, the outcome is not a schedule of quantities demanded of money at varying purchasing powers but a single quantity demanded. Thus Patinkin (1965, pp. 115–16) concludes that writers such as Mises who believe that there is a circularity problem to be addressed in explaining the determination of the purchasing power of money fall victim to a "basic misunderstanding of the theory of price determination" and to an elementary "confusion of 'demand' with 'amount demanded.'"

In defending Mises, Edwards argues that, before Patinkin's "individual-experiment" can proceed, i.e., before each individual can establish his indifference map for goods and (nominal) money

balances, money itself must have utility and therefore a known and pre-existing purchasing power, because the very existence of indifference curves implies that the individual is able to maintain a given level of utility by substituting at the margin determinate quantities of goods for determinate quantities of money. Edwards's insightful argument on this point is worth quoting at length (Edwards 1985, pp. 59–60):

> note that [Patinkin's] method of generating a demand curve for money assumes the indifference curves to exist and have the normal properties. Yet, translating into modern terms, the whole essence of the problem, as recognized by all parties to the [circularity] debate at the time, was precisely that without some specific value of money *no* such indifference curves could even *exist*. Consider: we have goods on one axis, with a given intercept (the endowment), and money on the other. But money is only money when it is a medium of exchange, that is, when it has a value (purchasing power) in terms of other goods. Then it can be valued for storage purposes and the utility curves can exist.
>
> We might place pieces of paper with a number on them on the axis, but if they have no nonmonetary utility and no purchasing power they would have no utility. The indifference curves can only exist when we place a budget line on the graph, that is, postulate a goods price of money, and that is precisely Mises's point. . . . Mises would argue that since the indifference curves cannot exist until the budget line does, the latter is logically prior. His interpretation of such a graph would be that the budget used is yesterday's exchange value of money, while the indifference curves embody today's subjective valuations of money.

Presumably, Patinkin would counter this critique by arguing that the temporal and causal approach to explaining the demand for money followed by Mises—referring as it does to a particular value of money—would be incapable of generating more than a single point on a demand curve in nominal money space. Edwards's reply to this objection, although it points us in the right direction, is not completely satisfactory. Thus he argues, somewhat tentatively, that the Patinkinite charge "is not quite correct," because, while the formation of individuals' subjective valuations for money with reference to "some *particular* prior value of money" yields only a single quantity demanded, "there is an infinite number of such possible prior values, and if their tangencies with individual's [sic] existing indifference curves were plotted,

demand functions of the normal shapes would result" (Edwards 1985, p. 66 n. 47).

But the point that Edwards should have made is that market participants, in deciding upon the size of their cash balances, are interested in the future purchasing power of money. In attempting to forecast the future structure of prices, which is the inverse of the purchasing power of money, they resort to the prices of the immediate past, let us say, yesterday. They do not mechanically project the realized prices of yesterday into the future, but use them as the basis for appraising the structure of prices which will emerge and prevail today as a result of the anticipated changes intervening in yesterday's constellation of the qualitative economic data.

Based on their appraisements of money's prospective purchasing power and their anticipated uses for a general medium of exchange today, market participants rank units of money on their subjective value scales and thus establish the marginal utilities that underlie today's market demand for money. For each individual, the marginal utility of money will decline as successive units of a given purchasing power are added to his cash balance. Consequently, an increase in the total stock of money, ceteris paribus, will lead to a decline in individual marginal utilities of money and this will translate into a rightward shift in demand curves in goods markets and higher money prices offered and paid, i.e., a decline in the purchasing power of money. In other words, the instantaneous demand curve for money that emerges from Mises's analysis is multi-valued and negatively-sloped and interacts with the vertical line representing the current stock of money to determine today's purchasing power of money.

Contrary to Patinkin's assertion, then, in Mises's analysis, the demand for money is not logically constrained to a single quantity dependent on a specific realized purchasing power, but describes a schedule of quantities that responds inversely to variations in the current purchasing power of money. To illustrate this, if we assume that the total quantity of money that market participants desire to acquire and hold, based on their forecasts of the future purchasing power of money, is insufficient to completely absorb the current stock of money, then there will result a temporal process involving variations in total money expenditures on goods and services, i.e., "real balance effects," that drive the price structure and therefore the purchasing power of money to the level at which the stock of and demand for money are equated. Abstracting from distribution effects, the inverse response of the

amount of money demanded to the alterations in its purchasing power, which occurs during this adjustment process, will trace out a segment of the instantaneous demand curve.

Summing up the differences between the Misesian and Patinkinite methods for solving the circularity problem, Edwards (1985, p. 60) sees a distinct advantage in the Misesian method, because it allows for the possibility of disequilibrium occurring between the actual and desired stock of cash balances and the operation of an adjustment process that eventually restores equilibrium. In contrast, the Walrasian solution offered by Patinkin effectively precludes the emergence of monetary disequilibrium and a dynamic adjustment process. As Edwards (ibid., p. 61) argues: "Where demand and excess demand functions are derived using given preferences and hypothetical alternative values of money, and the value of money determined by the market demand and supply functions determines the actual quantities demanded simultaneously, the individual is always at equilibrium. . . . The solution to a simultaneous equation set *never* yields anything but equilibrium values."

The Monetary Adjustment Process: The Interspatial Equalization of the Value of Money, and the Determination of Exchange Rates

In chapter four, Edwards (1985, p. 69) examines Mises's contributions to international monetary theory, and, in the process, goes a long way towards establishing that Mises anticipated "every major element of the modern monetary approach to international adjustment (MAIA)." Indeed, Edwards (ibid., p. 133) argues that "This is true to such an extent that Mises might justly be designated the founding father of the MAIA in the twentieth century."

The central proposition of the modern monetary approach is that "the balance of payments and currency exchange rate changes are essentially monetary phenomena equilibrating the stock demands for and supplies of national currencies" (ibid., pp. 69–70). Proponents of this approach have traced the roots of the MAIA back to the writings of classical monetary theorists including David Hume and British "bullionist" pamphleteers John Wheatley and David Ricardo. Edwards argues, however, that in their eagerness to identify and credit the classical forebears of the monetary approach, doctrinal historians have given a partly distorted account of its development, which completely overlooks

Mises's unquestioned precedence in formulating important elements of the uniquely "modern" version.

As Edwards (ibid., pp. 77–78) points out, before Mises, proponents of the monetary-oriented classical and neoclassical approaches to balance-of-payments adjustment, including prominent cash-balance theorists such as Alfred Marshall and Knut Wicksell, explained the international distribution of the money commodity using a macro "expenditure flow" concept of the demand for money. According to this conception, each nation's equilibrium share in a given global stock of money is determined, given the payments habits of its population, by the relative volume of business it transacts at the exogenously given level of world prices. Or, in terms of the Fisherian Equation of Exchange, a nation's demand for money is conceived as a demand for a flow of money payments (M x V) needed to support an aggregate expenditure flow (P x T).

Mises, in contrast, builds up his explanation of the distribution of the stock of money among nations from the Mengerian (and modern) conception of the individual's demand to hold a *stock* of the general medium of exchange. For Mises, individuals' subjective value rankings of money and goods hold the ultimate explanation for the allocation of the global stock of money among individual cash holders and thus among nations, obviating any reference to disembodied averages and aggregates such as a nation's velocity of circulation of money or total volume of business transactions. Thus in Mises's view, as in the modern MAIA, "international monetary *flows* (that is, deficits and surpluses in the balance of payments) act to equilibrate the stock demands and supplies of money" and, therefore, assuming a fixed global monetary stock, "only changes in the *demands* for money (resulting in net excess demand, positive or negative) can produce a surplus or deficit" (Edwards 1985, p. 77). Conversely, "If the state of the balance of payments were such that international movements of money were required *independent of any altered estimation of money on the part of those involved* (that is, in the absence of change in the stock demands), operations would be induced to restore equilibrium" (ibid., p. 76).

Unfortunately, in his own eagerness to establish Mises's rightful and preeminent position in the MAIA tradition, Edwards glosses over several significant differences between the Misesian and the rational expectations-based modern approaches. These differences are important enough to warrant critical comment.

Edwards (ibid., pp. 70–71, 73–74) points out that Mises, like the modern proponents of the monetary approach, holds that "the law of one price" applies to money as well as to commodities. In other words, in the case of a single money, the purchasing power of the monetary unit tends to be geographically uniform. For adherents of the modern monetary approach, such as Laffer and Miles (1982, p. 232), this means that, assuming profit maximization and no barriers to trade, "All commodities' prices should be fully arbitraged in each and every numeraire at each and every moment in time." This concept of instantaneous arbitrage for an individual good then "can be extended to the overall price indexes of two countries by taking a weighted average of the prices of goods consumed in both countries" (ibid., p. 232).

But the rational expectationist conception of instantaneous arbitrage is inconsistent with the step-by-step method employed by Mises in his analysis of the monetary adjustment process. As Mises (1978a, p. 59) emphasizes, "The step-by-step analysis must consider the lapse of time." Moreover, Mises ([1953] 1971, pp. 187–94; 1966, pp. 219–23) criticizes and deliberately eschews the use of price indexes to measure changes in the purchasing power of money, except for rough historical estimates.[14] Therefore, when Mises ([1953] 1971, p. 176) states that "The purchasing power of money is the same everywhere," he is *not* referring to a tendency to equalization of national price indexes, as Edwards (1985, p. 77) seems to imply at one point. For Mises, interspatial equalization of the value of money refers to an equilibration of the vast and unaveraged array of alternative quantities of goods which are purchasable by a unit of money.

Furthermore, from Mises's perspective, equilibration of money's purchasing power array cannot necessarily be expected to yield equality between the prices of physically identical goods available in different locations, let alone between the arbitrarily selected and weighted price indexes of different nations or regions. The reason is to be found in Mises's pathbreaking subjectivist

[14]Even the practical usefulness of index numbers for judging day-to-day variations in the purchasing power of money is severely limited. As Mises (1966, pp. 222–23) points out, "A judicious housewife knows much more about price changes as far as they affect her own household than the statistical average can tell. She has little use for computations disregarding changes both in quality and in the amount of goods which she is able or permitted to buy at the prices entering into the computation. If she 'measures' the changes for her personal appreciation by taking the prices of only two or three commodities as a yardstick, she is no less 'scientific' and no more arbitrary than the sophisticated mathematicians in choosing their methods for the manipulation of the data of the market."

insight that the situation of a good in space may affect its perceived usefulness and thus its subjective value in satisfying human wants.[15]

Edwards (1985, p. 74) properly recognizes the implication of this insight for the case in which a "good has a subjective value as *consumption* good where it is, and a different one as *production* good in those places to which it may be transported." The good available at its place of production, for example, coffee-in-Brazil, is evaluated by coffee drinkers in New York City as a capital good which must be combined with further complementary capital goods, that is, the means of transportation, before it can attain the (higher) subjective value of the consumption good, coffee-in-New York. As Edwards (ibid., p. 74) also notes, Mises distinguishes money from nonmonetary commodities in this respect, because, in the case of the former, the use of money substitutes and clearing systems operate to render its position in space indifferent to economic agents. For Mises, then, stocks of money, wherever they may be situated within the unitary market area, for all practical purposes, comprise a perfectly fungible commodity whose transference between market participants is virtually costless. Thus the Law of One Price fully applies to money, and Edwards (ibid.) concurs with Mises's conclusion that "the purchasing power of money is the same everywhere, only the commodities offered are not the same."

Edwards defends Mises against Ellis's criticism that Mises has only proved the international equalization of "utility flows per unit of purchasing power" rather than of the purchasing power of money itself (Ellis 1934, p. 224). However, Edwards's defense itself rests on a failure to comprehend the full scope of Mises's insight regarding the influence of the spatial element on the quality of (nonmonetary) goods. Thus, in response to Ellis's critique, Edwards (1985, p. 74) upholds Mises's proposition that the objective value of money tends to equality and supports this position with the following example: "Consider a good sold in any number of locations in different directions from the factory, and at distances and elevations such that their transportation costs are the same. On Mises's assumptions it is clear that though such physically identical goods are at different locations they are *economically* the same and their prices would not differ in equilibrium."

[15]Mises arrived at this insight independently of Nassau Senior, whose work containing the treatment of this problem was not published until 1928. On this point and for a discussion of Senior's contribution, see Wu (1939, pp. 126–28); also see Bowley ([1937] 1967, pp. 205–8).

Edwards's conclusion is not fully consistent with Mises's conception of the spatial quality of goods, because this conception does not merely embrace the pure distance between the location of the consumer and the location of the good, but also the consumer's positive or negative psychic response to the very location of purchase or consumption. For example, the same brand of men's shirt may simultaneously sell for a significantly higher price at a mall boutique than at a downtown clothing store, because, at the margin, consumers are prepared to offer a higher price for the good purchasable at the more accessible and pleasant location. Or consider that alcoholic beverages consumed in a restaurant situated atop one of the towers of the World Trade Center, which offers a breathtaking view of Manhattan and its surroundings, command much higher prices than drinks mixed with the same ingredients and imbibed in a street-level pub located a few blocks away. Surely, we do not expect would-be bar patrons at the World Trade Center to react to knowledge of such price discrepancies by a mad scramble to the elevators in order to take advantage of the higher purchasing power of money at ground level. This is not to deny, of course, that whenever consumers are neutral between stocks of a technologically identical good ready for consumption or purchase at two different locations, the spatial equilibration of the purchasing power of money will imply the complete eradication of inter-local price differences.

The proper response to Ellis's critique is to point out that, for Mises, the equilibration of the purchasing power of money is accomplished within the same process that gives rise to the structure of relative prices. This process culminates in a state in which, barring further change in the data, mutual gains from further exchange between any two market participants are impossible, because the ordinal value rankings of equal units of the various goods and money are identical for all those possessing them. This state also reflects the *absolute* equalization of the objective exchange value of money between any two locations, because it implies both that inter-local differences between prices of technologically identical goods do not exceed their costs of transportation (abstracting from time in transit) between their consumption and production centers, and, more generally, that no individual can achieve a more desirable outcome from the exchange process by diminishing his expenditures on goods available at one location and substituting expenditures on goods, whether physically indistinguishable or not, offered at alternative locations.

Thus, contrary to Ellis, interspatial equalization of the *objective* value of money can only exist when there also exists common *utility* rankings for goods and money on the individual value scales of all market participants or, less accurately, when "utility flows per unit of purchasing power" are equalized.

It is instructive to analyze in more detail the market adjustment process which produces the tendency to the interspatial equilibration of the purchasing power of money, because it elucidates the reasons for Mises's insistence, as against Wieser, that such a tendency strongly and rapidly reasserts itself amid the ceaseless fluctuations of the underlying economic data (Mises [1953] 1971, pp. 173–75). Or, more loosely speaking, it explains why monetary equilibrium is much more quickly established than the final equilibrium position of the real sector of the economy. This analysis also permits us to answer the question of whether the occasional unqualified statements by Mises (ibid., pp. 201, 210) to the effect that "the purchasing power of money is the same everywhere" are intended as merely polemical flourishes or represent what Mises believed to be a close approximation to the actual moment-to-moment situation in the economy, as when we speak of "the" market price for wheat or for oil.

Mises's analysis of the market process is predicated on the indisputable premise that the process has an unavoidable spatial, as well as temporal, dimension, because the individual sellers and buyers whose actions constitute it are spatially diffuse and possess different capacities for forecasting, learning of, and adapting to the ceaseless change that characterizes human life (Mises 1966, p. 328). At each moment in time, the unitary market process produces a structure of money prices which is determined by consumer valuations (including, of leisure and of present versus future goods) and entrepreneurial price appraisements interacting with the currently existing total stocks of goods of various orders. The exchanges which take place as a result of these subjective valuations and appraisements produce a situation in which no individual perceives that he can improve his situation by further exchange at prevailing prices, because the marginal utility of any good he might offer exceeds the marginal utility of the good he will receive in exchange. On every market in the economy, therefore, the situation is the same as it is at the close of Böhm-Bawerk's famed horse market (Böhm-Bawerk 1959, pp. 217–30). This "momentary equilibrium," as Böhm-Bawerk (ibid., p. 231) refers to it, or "plain state of rest" (PSR), as it is designated by Mises (1966, p. 244), will persist only so long as

the prevailing state of valuations of the marginal pairs in each market remain constant. But these valuations are bound to change precisely because, in many cases, they are formulated on the basis of inaccurate forecasts and incomplete information regarding market opportunities. The result is that the actual market prices which we observe are always in disequilibrium in two related but logically distinct senses. First, the array of realized prices embodies inter-local discrepancies in the exchange value of goods and money, which present the opportunity for arbitrage profits, whether in terms of money or of enhanced consumer surplus.[16] Second, for many of the goods exchanged, the prices that clear the market exceed or fall short of their respective monetary costs of production, including an interest return to time preference, thereby generating pure or entrepreneurial profits and losses.

In analyzing adjustment of the first type of disequilibrium, we must abstract from the inevitable changes in production decisions that will be initiated by capitalist-entrepreneurs consequent upon their experience of pure profits and losses. The analytical device which is ready made for our purpose is Wicksteed's country fruit market in which the stocks of the various (perishable) commodities as well as consumer valuations are fixed for the duration of the "market day," during the course of which buyers exercise their demands. This market is, moreover, assumed to be "imperfect" in two senses. First, buyers and sellers are spatially constrained and, hence, neither group is instantaneously and fully informed of current transaction prices at all locations or "stalls." And second, neither buyers nor sellers have perfect knowledge of what Wicksteed calls the "ideal market" or "equilibrating" price for any commodity, which, when once established, will not vary for the remainder of the market day.[17]

[16]I am using the term "consumer surplus" in a purely psychic sense to denote the ordinal difference in value ranking between a good and its monetary purchase price. This is the sense in which Mises (1966, p. 388) uses the term.

[17]The classic discussion of the country fruit market can be found in Wicksteed ([1932] 1967, 1, pp. 219–28). A very good analysis of a pure exchange economy can also be found in Kirzner (1963, pp. 105–35). In contrast to Wicksteed's methodological focus on an isolated "market day" in a full production-and-exchange economy, however, Kirzner (ibid., p. 106) begins his analysis with an "imaginary economy" in which he assumes "*no production is possible*"; all commodities are obtained costlessly by natural endowment. Unfortunately, Kirzner's methodological construct is inferior to Wicksteed's, because it serves to divert attention from the vitally important point that the analysis applies just as fully to the real-world economy of continuing and costly production, since the market's pricing process always proceeds on the basis of stocks of goods that have already been produced and are therefore fixed or in inventory for the given moment.

In the absence of these imperfections of knowledge about the current and future state of the market, the prices established for the first set of transactions of the market day would invariably result in a PSR characterized by spatial equality in the purchasing power of money: the same commodity would have the same price at different stalls and each and every buyer would allocate his income among the different commodities available at different locations so that, at prevailing prices, no alteration in his spatial pattern of expenditures would result in an increase in his "total utility" or the utility-ranking of the aggregate collection of goods he purchases. Until sellers' stocks are completely exhausted and the market comes to a close, this identical "Wicksteedian state of rest"[18] (WSR) will be repeatedly disrupted and then re-established as each new group of perfectly informed buyers arrive and undertake transactions at the prevailing equilibrium set of prices.

However, the inescapable spatial and temporal constraints on market participants would prevent the initial pricing process from culminating in a WSR. Aware of the deficiencies of their information and foresight, both buyers and sellers arrange the temporal pattern of their exchanges according to speculative anticipations of the course of actual market prices. Buyers seeking psychic arbitrage profits devote time to comparison shopping and forego purchases offering a consumer surplus in one location while speculating on the availability at another location either of a higher-ranked good for an equal monetary expenditure or of the same good for a lower price. On their side, sellers may exercise a speculative reservation demand for their own commodities. Thus, the constellation of actual market prices that emerges at any moment early on in the market day will diverge from the equilibrating constellation as a result of ignorance and speculative errors. During the PSR which succeeds each set of transactions undertaken at "false" prices during the early going, market participants begin to discover spatial inequalities in the purchasing power of money and to exploit these opportunities for arbitrage profits. (For analytical convenience, we are assuming; as Wicksteed did, that trading at false prices does not alter the structure of market demand.) As their experience of the market grows during the course of the day, the continually revised transaction

[18]Although this construction of a fully-arbitraged, but not final, state of rest is implicit in much of Mises's monetary theorizing, he never formally analyzes it, as he does the PSR.

plans of buyers and sellers come to reflect more accurate and complete information and eventually give rise to the equilibrium set of prices. The lull or WSR which succeeds this latter set of transactions describes a situation in which the spatial divergences in the purchasing power of money have been completely eradicated and the prices of all goods fully arbitraged. For the rest of the market day, each successive set of transactions takes place at equilibrium prices and thus generates a momentary WSR until the arrival of the next group of buyers on the scene.

Wicksteed's analysis, with its assumptions of given consumer value scales and fixed stocks of goods and money, thus allows us to disentangle the complex phenomena of entrepreneurship and production from those of arbitrage. It also serves to emphasize that the determination of money's purchasing-power array is a pure exchange phenomenon: since everyone is a "dealer" in money and money is always "in inventory," a perfectly adequate explanation of the actual exchange ratio between money and goods may be made without reference to problems of production. In the same way, the Böhm-Bawerkian and Wicksteedian explanation of actual, moment-to-moment market prices of individual nonmonetary goods completely and correctly abstracts from production phenomena, due to the fact that the exchanges taking place at any moment in time are determined exclusively by the stocks of goods in existence and prevailing subjective valuations. As Böhm-Bawerk (1959, p. 229) has written: "I do really believe 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 derived from all the valuations that are present in society. I do not advance this as a metaphorical analogy, but as living reality." And, as Mises (1966, p. 245) himself stresses, "The theorems implied in the notion of the plain state of rest are valid with regard to all transactions without exception. . . . The notion of the plain state of rest is not an imaginary construction but the adequate description of what happens again and again on every market."

Perhaps the most powerful defense of the analysis of momentary positions of rest and of their relevance for monetary analysis was presented by Marget. According to Marget ([1938–42] 1966, 2, pp. 222, 240):

> The ultimate goal of any theory of prices [theory of indirect exchange], like that of any part of economics which undertakes to explain economic reality, is to explain why *realized* prices are

> what they are. "Quoted prices," the prices which are included in the "*ex ante*" schedule of the general theory of value [theory of direct exchange], "expected" prices, "equilibrium" prices (in most of the senses of the concept of equilibrium), or any kind of prices other than *realized* prices are to be introduced into the argument only insofar as they help to explain why prices actually realized on the market are what they are. . . .
>
> In a fully developed monetary economy, a realized price represents the passage of money for an article sold for money. And the "passage of money for articles sold for money" is precisely what constitutes the subject matter of those aspects of the theory of money and prices which undertake to explain why the dimensions of the stream of money which "passes" for a given commodity or group of commodities is relatively large at one time and relatively small at another. . . .
>
> But it also constitutes the subject matter of that part of the "general" theory of value which is built upon the proposition that any realized price is what it is as a result of the conformation and position of the market demand curve and market supply curve prevailing at the moment the price is realized.

Or, as Marget ([1938–42] 1966, 2, pp. 239–40) summarizes it, "the prices which we must ultimately explain are the prices 'realized' at specific moments in clock time [and] the only demand and supply schedules which are directly relevant to the determination of these 'realized' prices are market demand and supply schedules prevailing at the moment the prices are 'realized.'" The only sense in which Margetian "realized" prices may be characterized as "equilibrium" prices is in the sense of an "equality between demand price and supply price for a given quantity of a commodity *in all cases in which prices are actually realized in the market for this quantity of the commodity*" (ibid., p. 253).

With respect to the "market" demand curves, whose variations account for "changes in realized money prices," Marget (ibid., p. 176) conceives them as instantaneous curves, whose shape and position are influenced by forecasting errors and incomplete knowledge of arbitrage opportunities. Thus, each such curve represents "a set of 'plans' by prospective purchasers of a given commodity at the time that they reach the decision to purchase or refrain from purchasing that commodity at a given price. [And] the mere fact that these plans may themselves change between successive realized decisions to purchase or not

to purchase does not alter the further fact that *the actual purchases themselves may be assumed to be based on calculations whose results are embodied in 'plans' the resultant of which is the decision to purchase a given amount if the price is at one level and another amount if the price is at another level*" (Marget [1934–42] 1966, 2, p. 177).

Analogously, Marget (ibid., pp. 255–56, 553–56) construes the "market" supply curve, which interacts with the market demand curve to yield realized prices, as the momentary, Wicksteedian "curve of reserve prices," which is the reversed portion of the general demand curve representing sellers' reservation demand for the existing stock of the good. As Marget (ibid., pp. 554, 556) points out, the concept of sellers' reserve prices embodies recognition of the element of expectation and of the all-important distinction between "amount supplied" and "amount produced," which is necessary when "accounting for prices *realized and the amount of sales realized* within a given historical ('clock-time') period."

The analytical significance which Marget assigns to momentary (disequilibrium) positions of rest is not intended to belittle the usefulness of equilibrium analysis, nor does it imply a lack of interest in market adjustment processes unfolding over time. To the contrary, it is precisely because the experienced outcomes of the market process do not coincide with expected outcomes that the participants are induced to revise their expectations and plans during each succeeding lull in the market process, thereby precipitating another round of realized transactions. Assuming the underlying data are unchanged, the Wicksteed-Mises-Marget approach yields a coherent explanation of how, as information becomes more complete and speculation more accurate, PSRs succeed one another until the intermediate equilibrium situation represented by a fully-arbitraged state of rest (or WSR) is brought into being. Thus as Marget (ibid., pp. 235–36) argues:

> without the use of [instantaneous] market demand and supply curves . . . it is impossible to explain either (1) why, of a given range of *possible* "ex ante" prices, only one is "realized" in a given market situation; or (2) how the *goals* of dealers and consumers, even when these goals are short-period goals, are approached (if they are approached at all) through successive realized market transactions. And without a conception of an "equilibrium" price, even over a period as short as [Marshall's market day], it is in many cases impossible to understand what these goals are, and

> therefore why the successive market demand and supply schedules show the direction and the type of change that they do, and therefore lead to the successive realized prices actually registered in successive market transactions.

It should be added that the "short-period" equilibrium implied in Marget's dealer-consumer market is the WSR, which, as I argued above, is appropriate to analyzing the short-period arbitrage processes and nonproduction speculative activities involved in the adjustment of the purchasing-power array of money. The WSR must not be confused with the concept of what Mises (1966, pp. 246–47) calls the "final state of rest" (FSR), which is an imaginary construction of the position of the economy when prices and production have been completely and finally adjusted to a given alteration in the economic data, including a change in the quantity of money. Any account of the economy's approach to the FSR must refer to the specific function of the capitalist-entrepreneur or "promoter" who actively seeks to profit by allocating factors of production among time-consuming, capitalist production processes, a function which is ignored in the pure exchange analysis of the WSR, dealing as it does with fixed stocks of goods. But, as Marget teaches, the analysis of the temporal path to the FSR must also refer to the successive realized price structures that emerge momentarily and then are displaced by a successor as the equilibrating changes occurring in production continually alter the available stocks and marginal utilities of goods until production has been fully adjusted and the structure of "final" prices emerges.

The usefulness of the imaginary construct of the FSR in monetary theorizing and its relationship to the concepts of the PSR and WSR is illustrated when we trace out the consequences of a change in the quantity of money. To fully analyze this adjustment process, we must completely abstract from all other exogenous changes and processes of adjustment, and so we must begin our analysis from an FSR in which not only the distribution of cash balances and the value of money but also relative prices and production have been fully adjusted to the existing economic data. An unanticipated increase in the total stock of money will disrupt the prevailing FSR as the initial recipients of the new money suddenly discover their cash balances to be in excess of their needs. On the very next market day, they begin to disgorge the excess money balances by increasing their demands for various goods and services according to their subjective marginal

utility rankings of additional units of money and goods. If we maintain our assumption that arbitrage processes work themselves out over the course of the Wicksteedian market day, the final set of transactions of the day yields a fully-arbitraged purchasing power of money. Not only will this purchasing-power array be lower than that existing at the end of the previous market day, it will also embody a different relative price structure, which reflects the altered pattern of relative demands caused by money's nonneutrality and which, to the extent that it has not been anticipated, results in entrepreneurial profits and losses.

Thus, while the purchasing power of money has been interspatially equalized, it is far from being fully equilibrated by the end of the first market day. The second round recipients of the additional money—those sellers who are the first to be favored by the inflation-fueled increase in the demand for products and services—seeking to rid themselves of their excess cash balances, return to market the next day with their own increased demands for goods and this brings about another revolution in the price structure, with yet a new WSR emerging by the end of the day. Each succeeding market day likewise will dawn with a revised structure of demands for goods and will terminate in a WSR featuring an altered purchasing power of money, until all prices and incomes have been affected to a greater or lesser extent by the injection of the new money. As noted above, however, the permanent redistributions of income and wealth brought about by the sequential nature of the monetary adjustment process, constituting what Mises (1966, pp. 416–19) calls money's "driving force," will result in a permanently altered structure of relative demands for consumer goods as well as permanent alterations in the structure of individual time, liquidity, and leisure preferences. But even after the newly-injected money has percolated throughout the entire economy and exhausted its driving force in a general but uneven increase of prices, the adjustment process will not be complete, because it will take additional time for the production processes and capital structure of the "real" economy to be fully adapted by capitalist-entrepreneurs to the money-induced changes in consumer demands, time preferences, etc. It is only after the complete adaptation of production that the monetary adjustment process comes to an end and the "final" price structure and purchasing power of money emerges.

A Misesian analysis of the monetary adjustment process hence depends upon a number of concepts of rest or equilibrium.

The PSR explains the purchasing power of money prevailing at any moment and embedded in the structure of "realized prices." The WSR is an imaginary construct which serves to isolate and illuminate the arbitrage and speculative forces that are constantly propelling the market to rapid convergence upon a single price for each and every commodity (taking into account differences in spatial quality) and a geographically uniform value of money. While the overall economy is unlikely to ever come to rest in a fully-arbitraged state, historical insight leads to the conclusion that arbitrage processes run their course relatively rapidly in clock time, especially where there exist professional arbitrageurs and commodity speculators, organized commodity and retail markets, sophisticated communications and transportation, and consumer advertising. Thus, the interspatial equalization of the purchasing power of money does not wait upon the culmination of the overall monetary adjustment process, which may take years, but is a powerful tendency exhibiting itself at every step of the process. For Mises ([1953] 1971, p. 174) not only is such a tendency deduced "from the principles of the theory of prices," it is "clearly demonstrated day by day in the market." Therefore, it is an historical judgment and not polemics which prompts Mises (ibid., p. 176) to declare that "the exchange ratios between money and economic goods of completely similar constitution in all parts of a unitary market area . . . are at any time equal to one another." Wicksteed ([1932] 1967, 1, pp. 144), in fact, reaches a similar conclusion, stating that "this ideal state of equilibrium [i.e., the WSR] never exists; but a sense of mutual advantage is perpetually bringing about approximations to it."

However, as I argued above, the monetary adjustment process cannot be completely accounted for without reference to the FSR, because variations in the monetary data inevitably modify relative income and wealth positions and hence bring about an alteration in relative prices. These money-driven changes in the structure of relative prices account for the profits and losses realized in the transactions that establish the PSR at any point in the uncompleted adjustment process. The emergence of profits and losses impels entrepreneurs to immediately begin revising purchase, sale, and production decisions and so to drive the economy through a series of temporary states of rest toward a final position of full adjustment and zero profits. Unlike the geographically uniform value of money of the WSR, which is closely approximated in actually prevailing market conditions, at any point of historical time, the economy is always far from reaching the

FSR. The FSR only indicates the direction of movement of the historical market process at any moment. As Mises (1966, p. 245) writes: "the final state of rest will never be attained. New disturbing factors will emerge before it will be realized. . . . the market at every instant is moving toward a final state of rest. Every later new instant can create new facts altering this final state of rest."

In addition to this pathbreaking analysis of the international adjustment process and formulation of the law of one price under the conditions of a single money, Mises also pioneered in the early twentieth-century revival of the purchasing-power-parity (PPP) theory of exchange rates and in the formulation of what is now known as the "asset market" view of the influence of expectations on the formation of the exchange rate, two key elements of the MAIA when applied to the case of independent but co-existing moneys.

Edwards (1985, p. 73) points out that Mises rediscovered the PPP theorem four years before Cassel published the first of his many statements of it.[19] Edwards, unfortunately, does not perceive the fundamental difference between the Casselian and Misesian formulations of the theorem, which is crucial to explaining why Mises continued to rigorously maintain the "absolute" version of the theorem long after Cassel and almost all other economists abandoned it for the empirically testable "relative" version. Nor does he remark on the fact that Mises never vitiated the explanatory significance of the theorem by restricting it to a situation in which "real shocks" to the economy and therefore alterations in relative prices are assumed absent, as Cassel apparently did (Officer 1982, p. 254).

For Mises, the equilibrium exchange rate, or what he initially called the "static" and later the "final" exchange rate, between two currencies exactly equals the inverse of the ratio between the purchasing powers of the two currencies. In the Misesian version of the theorem, moreover, a given depreciation of the overall purchasing power of currency A relative to currency B effects an increase of the final price of B in terms of A in precisely the same proportion, despite the permanent revolution in relative prices that is invariably produced by the depreciation process.

[19]According to Officer (1982, p. 251 n. 1) Cassel devoted at least parts of twenty-five English-language publications to expounding the PPP theorem. Officer (ibid., p. 252) reports that Cassel claims to have perceived the main point of the theorem in 1904 and to have incorporated its main ideas into his classroom lectures as early as 1905.

The differences between Mises and Cassel ultimately stem from Mises's analytical coup in perceiving the artificiality of the distinction long maintained in classical monetary analysis between the case of a parallel standard, i.e., two different moneys circulating side by side in domestic use, and the case in which there is only one kind of money employed in domestic transactions while another kind is in use abroad. According to Mises ([1953] 1971, p. 179), although "prevailing opinion" treats the two cases separately, "there is no theoretical difference between them as far as the determination of the exchange-ratio between the two sorts of money is concerned." Where economic relations exist between a gold-standard country and a silver-standard country, "from the economic point of view, both metals must be regarded as money for each area" (ibid., p. 180). Furthermore, according to Mises (ibid.), whether traders utilize both moneys or the "foreign" money along in carrying out an international transaction, "the only important point is that the existence of international trade relations results in the consequence that the money of each of the single areas concerned is money also for all other areas."

One of the few economists who appreciated Mises's theoretical breakthrough in this area was Lord Robbins (1971, p. 22) who wrote: "As von Mises pointed out years ago, the theory of the foreign exchanges can be viewed simply as a special case of the theory of parallel currencies."[20]

As simple and compelling as Mises's insight is, it has revolutionary implications for the analysis of exchange-rate determination. Most importantly, the exchange rate between two different national currencies is no longer determined, as it was for Cassel (quoted in Officer 1982, p. 252), by the "quotient between the general levels of prices in the two countries." National price levels, each of which include purely domestic goods, e.g., houses and haircuts, whose spatial quality components render their prices interlocally, and *a fortiori*, internationally incommensurable, are wholly irrelevant to the issue, because there is no longer a reason to distinguish between internationally "tradable" goods and domestically produced and consumed "nontradable" goods. As in the case of domestically co-existing parallel currencies, each and every spatially-differentiated good finds expression in the purchasing-power array of each of the two national currencies.

[20]Rothbard ([1962] 1970, p. 725) also follows the Misesian approach in theorizing about exchange rates.

The Misesian exchange-rate theorist would thus reject out of hand the claim of modern macro theorists such as Jeffrey D. Sachs and Felipe B. Larrain (1993, pp. 657–58) that the presence of nontradable goods "affects every important feature of an economy, from price determination, to the structure of output, to the effects of macroeconomic policy [and] undermine[s] the case for purchasing power parity." In fact, all goods can be and are traded internationally, even though many are "immovable" or "nontransportable." Certainly, one of the lessons learned from the exchange-rate gyrations of the 1980s was that American real estate and consumer services, when rendered sufficiently cheap by a depreciated dollar, are purchasable by foreign speculators and tourists. For the Misesian, the apparent problem presented to the PPP theorem by the existence of goods whose position in space is fixed is easily soluble when the spatial dimension of quality is taken into account.

Thus, for example, if the final or PPP exchange rate between the U.S. dollar and the British pound is two-to-one, then the pound price of a house located in London must be exactly one-half the dollar price of this same house. Of course, due to consumer perceptions of the difference in quality between the two cities as residential locations, the final price in dollars (pounds) of an identically constructed house situated in Manhattan may be triple that of the London house also expressed in dollars (pounds). To maintain purchasing power parity, therefore, it is not necessary that technologically identical but immovable goods available in different locations maintain equal prices in the same currency, but only that the ratio of the prices in two different currencies of an immovable good in the same location equal the inverse of the exchange rate between these two currencies. If the ratio of currency prices for any given commodity diverges from the prevailing exchange rate, then the final state of rest has not yet been attained, and profit opportunities will exist for selling goods for the relatively overvalued currency, purchasing the undervalued currency, and using it to repurchase the original good. These arbitrage operations will drive the exchange rate and the ratio of currency purchasing powers toward a mutual and final adjustment.[21]

Another feature which significantly distinguishes Mises's formulation of the PPP theorem from Cassel's involves the question

[21]A good explanation of this arbitrage process is given by Rothbard ([1962] 1970, pp. 725–26).

of whether the exchange rate is exclusively a monetary phenomenon, or whether changes in the nonmonetary data are capable of bringing about a permanent departure of the equilibrium exchange rate from the rate which maintains strict PPP between the two currencies. As alluded to above, especially in his later writings, Cassel himself seems to have hinted at what might be termed an "inclusive" approach to exchange-rate determination, i.e., one which includes references to non-monetary factors as codeterminants of the exchange rate.[22]

More recently, proponents of the modern MAIA have been sharply criticized for writing out models of exchange-rate determination that embody an absolute version of the PPP theorem along Casselian lines and that exclude any reference to the influence of real factors on the formation of the exchange rate. Thus, for example, Thomas M. Humphrey ([1980] 1983, pp. 195, 200) has argued that "The main shortcoming of the monetary approach is that it ignores the effect of real relative price changes on the exchange rate. In particular, it ignores the influence of changes in the *real terms of trade* (i.e., the relative price of imports and exports) and *internal relative prices* (i.e., the relative price of exports and domestic nontradeable goods). . . . [R]eal structural changes in tastes, technology, and market structure . . . operating through real relative prices . . . necessitate real equilibrium changes in the exchange rate and thereby produce systematic divergences from purchasing power parity."

Whatever the validity of this criticism of the PPP theorem formulated in terms of relative national price levels, it has no bearing whatever on a theorem relating to the relative purchasing powers of independent currencies coexisting in a unitary market area. The Misesian version of the PPP theorem remains intact in its absolute and exclusively monetary formulation.

To illustrate, let us consider the case of a monopolistically-induced increase in the price of oil, the U.S. import, relative to the U.S. export, wheat. While the "terms of trade" turn against the U.S., *ceteris paribus*, i.e., in the (unlikely) absence of any induced changes in the monetary data, there will be no long-run depreciation of the U.S. dollar against the Saudi riyal, because both currencies experience an equal reduction of their purchasing powers in terms of oil and, assuming the demand for oil is inelastic along the relevant segment of the global demand curve,

[22]Officer (1976, p. 9) has argued this, while Paul Samuelson (1966) has denied it. For a brief description of this "milder approach," see Krueger (1983, p. 68).

equal increases of their purchasing powers in terms of wheat. Of course, this is not to deny that short-run and self-reversing fluctuations in the exchange rate may accompany the market's adjustment to the alteration in relative prices. Thus U.S. consumers may initially respond to the increased price of oil by increased expenditures on oil without a corresponding reduction in their spending on wheat, allowing their cash balances to temporarily run down.[23] This will cause an "overabsorption" of output relative to their shrunken real income by U.S. residents, creating an excess demand for riyals in the foreign-exchange market and necessitating a temporary rise in the exchange rate and a depreciation of the dollar. The movement in the exchange rate will thus assist in clearing excess demands in output markets and adjusting the terms of trade to prevent overabsorption and preserve balance of payments equilibrium, but only until U.S. residents' expenditures adjust, cash balances are reestablished at their former equilibrium levels, and the exchange rate floats back down to its unchanged PPP level.

Moreover, other things are not likely to remain equal; in particular, we can expect a change in the relative demands for the two currencies which results from the redistribution of income and wealth from U.S. entrepreneurs and laborers to their Saudi counterparts and leads to a long-run depreciation of the dollar. But it is the relative decline in the cash-balance demand for the dollar and therefore in its purchasing power *vis-à-vis* the riyal, and not the deterioration of the U.S. terms of trade, which is the direct cause of the change in the *final* exchange rate.

There remains to be noted Mises's status as a forerunner of the modern explanation of the effect of expectations on the exchange rate. The modern "asset market view," as it is called, treats foreign exchange markets as efficient asset markets in which current prices and exchange rates adjust promptly to changing expectations regarding the prospective development of the relative purchasing powers of the various currencies. Modern writers in the MAIA tradition, who have been responsible for reviving this view, generally give credit for its origination to such

[23]Hayek ([1937] 1971, p. 18) in his earlier incarnation as a Misesian monetary and business-cycle theorist discusses cash balances as cushions permitting market participants to soften and delay the adaptation of their real incomes to their altered money incomes. This function of cash balances has recently been rediscovered in the literature on the "buffer" or "shock-absorption" approach to the demand for money. See, for example, Kanniainen and Tarkka (1984), Knoester (n.d.), and Laidler (1984).

writers as Cassel, Keynes, and Dennis Robertson, and to German-speaking writers, including Walter Eucken, Fritz Machlup, and Melchior Palyi (Kreinin and Officer 1978, pp. 28–31; Humphrey [1980] 1983; Edwards, 1985, p. 79).

These economists writing in the 1920s arrived at this view while seeking to explain the significant discrepancy that they observed between the rates of price inflation and exchange-rate depreciation toward the end of the German hyperinflation. While Mises has been recognized as meriting inclusion in the group who pioneered the asset market view, and even as "perhaps its strongest proponent" (Humphrey [1980] 1983, p. 192), Edwards (1985, pp. 80–81) discovers a sophisticated statement of the view presented by Mises in the first German edition of the *Theory of Money and Credit* published in 1912, two years before the inception of the German war inflation. Amazingly, while Mises thus enjoyed a temporal advantage over the other expositors of the asset market view, he suffered the distinct disadvantage *vis-à-vis* those writing in the 1920s of not having had the direct and stark experience of the hyperinflation available to guide his inquiry.

In re-evaluating the main elements of Mises' monetary theory, one thing especially stands out. Mises took great pains to establish his theory of money on the bedrock of value and price theory. However, the value-theoretic concepts that Mises relied upon in pursuing his monetary analysis were not derived from Walras, Pareto, or Marshall but from Menger, Böhm-Bawerk, and Wicksteed. This fact goes a long way toward explaining the lack of comprehension that Mises' monetary theory has generally met with among mainstream monetary economists. While it represents an added burden to those who seek to present the Misesian approach to a wider audience, it also offers an opportunity to acquaint neoclassical economists with the fruitfulness of an alternative, but not unrelated, tradition in value and price theory.

References

Böhm-Bawerk, Eugen von. 1959. *Capital and Interest*. Vol. 1: *The Positive Theory of Capital*. George D. Huncke, trans. South Holland, Ill.: Libertarian Press.

Bowley, Marian. [1937] 1967. *Nassau Senior and Classical Economics*. New York: Octagon Books.

Cannan, Edwin. 1929. *Money: Its Connexion with Rising and Falling Prices*. 6th ed. Westminster, England: P. S. King & Son.

Cowen, Tyler, and Randy Kroszner. 1987. "The Development of the New Monetary Economics." *Journal of Political Economy* 95, no. 3: 567–90.

Davenport, Herbert J. [1913] 1968. *The Economics of Enterprise*. New York: Augustus M. Kelley.

Edwards, James Rolph. 1985. *The Economist of the Country: Ludwig von Mises in the History of Monetary Thought*. New York: Carlton Press.

Ellis, Howard S. 1934. *German Monetary Theory 1905–1933*. Cambridge, Mass.: Harvard University Press.

Federal Reserve Bank of Cleveland. 1992. *Economic Trends* (July).

Fisher, Irving. [1913] 1985. *The Purchasing Power of Money: Its Determination and Relation to Credit, Interest and Prices*. 2nd ed. Fairfield, N. J.: Augustus M. Kelley.

Friedman, Milton. 1992. *Money Mischief: Episodes in Monetary History*. New York: Harcourt Brace Jovanovich.

Greenfield, Robert L., and Leland B. Yeager. 1983. "A Laissez-Faire Approach to Monetary Stability." *Journal of Money, Credit, and Banking* 15 (August): 301–15.

Gregory, T. E. 1927. "Professor Cannan and Contemporary Monetary Theory." In *London Essays in Economics: In Honor of Edwin Cannan*. T. E. Gregory and Hugh Dalton, eds. London: George Routledge & Sons. Pp. 31–65.

Hayek, F. A. [1937] 1971. *Monetary Nationalism and International Stability*. New York: Augustus M. Kelley.

High, Jack, and Howard Bloch. 1989. "On the History of Ordinal Utility Theory: 1890–1932." *History of Political Economy* 21, no. 2: 351–65.

Hoppe, Hans-Hermann. 1992. "The Theory of Employment, Money, Interest, and the Capitalist Process: The Misesian Case against Keynes." In *Dissent on Keynes: A Critical Appraisal of Keynesian Economics*. Mark Skousen, ed. New York: Praeger.

Humphrey, Thomas M. [1980] 1983. "Dennis H. Robertson and the Monetary Approach to Exchange Rates." In Essays on Inflation. Idem. 4th. ed. Richmond, Va.: Federal Reserve Bank of Richmond.

———, and Robert E. Keleher. 1982. *The Monetary Approach to the Balance of Payments, Exchange Rates, and World Inflation*. New York: Praeger.

Kannianinen, Vesa, and Juha Tarkka. 1984. "The Demand for Money: Microfoundations for the Shock-Absorption Approach." Department of Economics. University of Helsinki Working Paper No. 210.

Kirzner, Israel M. 1963. Market Theory and the Price System. Princeton: D. Van Nostrand.

———. 1976. Discussion of M. Rothbard, "Austrian Definitions of the Money Supply." Presented at a Symposium on Austrian Economics. Windsor Castle, England. Unpub. Manuscript.

Knoester, Anthonie. N.D. "Theoretical Principles of the Buffer Mechanism, Monetary Quasi-Equilibrium and Its Spillover Effects." Institute for Economic Research Discussion Paper Series No. 7908/G/M. Rotterdam, Netherlands: Erasmus University.

Kreinin, Mordechai E., and Lawrence H. Officer. 1978. *The Monetary Approach to the Balance of Payments: A Survey.* Princeton Studies in International Finance No. 43. Princeton: Princeton University Press.

Krueger, Anne O. 1983. *Exchange-Rate Determination*. New York: Cambridge University Press.

Laffer, Arthur B., and Marc A. Miles. 1982. *International Economics in an Integrated World*. Glenview, Ill.: Scott, Foresman.

Laidler, David. 1984. "The Buffer Stock Notion in Monetary Economics." *Economic Journal,* Supplement 1984: 17–33.

Marget, Arthur W. [1938–42] 1966. *The Theory of Prices: A Re-Examination of the Central Problem of Monetary Theory*. 2 Vols. New York: Augustus M. Kelley.

Mises, Ludwig von. 1966. *Human Action: A Treatise on Economics*. 3rd ed. Chicago: Henry Regnery.

———. [1953] 1971. *The Theory of Money and Credit*. 2nd ed. Irvington-on-Hudson, N.Y.: Foundation for Economic Education.

———. 1978a. *Notes and Recollections*. South Holland, Ill.: Libertarian Press.

———. 1978b. *On the Manipulation of Money and Credit*. Percy L. Greaves, ed. Bettina Bien Greaves, trans. Dobbs Ferry, N.Y.: Free Market Books.

———. [1919] 1983. *Nation, State, and Economy: Contributions to the Politics and History of Our Time*. Leland B. Yeager, trans. New York: New York University Press.

———. [1933] 1990. "Senior's Lectures on Monetary Policy." In idem, *Money, Method, and the Market Process.*" Richard M. Ebeling, ed. Norwell, Mass.: Kluwer Academic Publishers. Pp. 104–9.

———. 1990a. Economic Freedom and Intervention: An Anthology of Articles and Essays. Bettina Bien Greaves, ed. Irvington-on-Hudson, N.Y.: Foundation for Economic Education.

———. 1990b. "The Position of Money among Economic Goods." Alfred Zlabinger, trans. In idem, *Money, Method, and the Market Process*. Richard M. Ebeling, ed. Norwell, Mass.: Kluwer Academic Publishers. Pp. 55–68.

Moss, Laurence S. 1976. "The Monetary Economics of Ludwig von Mises." In idem, The Economics of Ludwig von Mises: Toward a Critical Appraisal. New York: New York University Press. Pp. 13–49.

Officer, Lawrence H. 1976. "The Purchasing-Power Parity Theory of Exchange Rates: A Review Article." *IMF Staff Papers* 23, no. 1: 1–60.

——. 1982. "The Relationship between the Absolute and the Relative PPP Theory of Cassel." *History of Political Economy* 14 (Summer): 251–55.

Patinkin, Don. 1965. *Money, Interest, and Prices: An Integration of Monetary and Value Theory*. 2nd ed. New York: Harper & Row.

Phillips, C. A., T. F. McManus, and R. W. Nelson. [1937] 1972. *Banking and the Business Cycle: A Study of the Great Depression in the United States*. (New York: Arno Press).

1986. Review of *The Gold Standard: An Austrian Perspective*. Llewellyn H. Rockwell, Jr., ed. *Cato Policy Report* 8 (November/December): 14–15.

Robbins, Lionel. 1971. *Money, Trade and International Relations*. New York: St. Martin's Press.

Rothbard, Murray N. [1962] 1970. *Man, Economy, and State: A Treatise on Economic Principles*. 2 vols. Los Angeles: Nash.

——. 1975. *America's Great Depression*. 3rd ed. Kansas City: Sheed & Ward.

——. 1977. Private Correspondence (September).

——. 1978. "Austrian Definitions of the Supply of Money." In *New Directions in Austrian Economics*. Louis M. Spadaro, ed. Kansas City: Sheed Andrews and McMeel.

——. 1988. "Timberlake on the Austrian Theory of Money: A Comment." *Review of Austrian Economics* 2: 179–87.

——. 1991. "The End of Socialism and the Calculation Debate Revisited." *Review of Austrian Economics* 5, no. 2: 51–76.

——. 1992a. "Aurophobia: or, Free Banking on What Standard?" *Review of Austrian Economics* 6, no. 1: 97–108.

——. 1992b. "The Case for a Genuine Gold Dollar." In *The Gold Standard: Perspectives in the Austrian School*. Llewellyn H. Rockwell, Jr., ed. Auburn, Ala.: Ludwig von Mises Institute. Pp. 1–17.

Rousseas, Stephen W. 1972. Monetary Theory. New York: Alfred A. Knopf.

Sachs, Jeffrey D., and Felipe B. Larrain. 1993. *Macroeconomics in the Global Economy*. Englewood Cliffs, N. J.: Prenctice-Hall.

Salerno, Joseph T. 1982. *The Gold Standard: An Analysis of Some Recent Proposals*. Cato Institute Policy Analysis (September 9). Washington, D.C.: Cato Institute.

——. 1987. "The 'True' Money Supply: A Measure of the Supply of the Medium of Exchange in the U. S. Economy." *Austrian Economics Newsletter* 6 (September): 1–6.

——. 1990a. "Ludwig von Mises as Social Rationalist." *Review of Austrian Economics* 4: 26–54.

——. 1990b. "Postscript: Why a Socialist Economy Is 'Impossible'." In Ludwig von Mises, *Economic Calculation in the Socialist Commonwealth*. Auburn, Ala.: Ludwig von Mises Institute. Pp. 51–71.

Samuelson, Paul A. 1966. "Theoretical Notes on Trade Problems." In *Collected Scientific Papers of Paul A. Samuelson*. vol 2. Joseph E. Stiglitz, ed. Cambridge, Mass.: M.I.T. Press. Pp. 821–30.

Timberlake, Richard H. 1991. *Gold, Greenbacks, and the Constitution*. Berryville, Va.: George Edward Durrell Foundation.

White, Lawrence H. [1986] 1989. "A Subjectivist Perspective on the Definition and Identification of Money." In idem, *Competition and Currency: Essays on Free Banking and Money*. New York: New York University Press. Pp. 203–17.

——, and George A. Selgin. [1987] 1989. "The Evolution of a Free Banking System." In *Competition and Currency: Essays on Free Banking and Money*. Lawrence H. White. ed. New York: New York University Press. Pp. 218–42.

Wicksteed, Philip H. [1932] 1967. *The Common Sense of Political Economy and Selected Papers and Reviews on Economic Theory*. 2 Vols. Lionel Robbins, ed. New York: August M. Kelley.

Wu, Chi-Yuen. 1939. *An Outline of International Price Theories*. London: George Routledge and Sons.