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Entrepreneurial Discovery and the Competitive Market Process: An Austrian Approach

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I

THE AUSTRIAN TRADITION is represented in modern economics by a "very vocal, feisty and dedicated subset of the economics profession" (Karen Vaughn 1994, p. xi). Much of the work of this group of scholars is devoted to the most fundamental problems of microeconomics.[1] This Austrian work, therefore, differs in character and content from a good deal of neoclassical theory which, despite widespread and growing awareness of its limitations, continues to serve as the analytical core of mainstream economics. This paper sets forth the outlines of one important approach within modern Austrian economics, an approach offering a perspective on microeconomic theory which (while it has generated a considerable literature of its own) is not ordinarily well-represented either at the (mainstream) textbook level, or in the (mainstream) journal literature. Although the author subscribes to and has contributed to this approach, the purpose of this paper is exposition, not advocacy. References in the paper to criticisms of mainstream microeconomics which have been discussed in the Austrian literature should be understood here not as arguments in favor of the Austrian approach, but as clues that may be helpful in understanding what the Austrians are saying, and how what they are saying is to be distinguished from the approach taken by other modern economists.

This paper does not offer anything like a survey of modern Austrian economics. It does not deal at all with such major

[1] The emphasis here on microeconomics expresses the focus of the present paper, not the scope of modern Austrian economics. For important modern Austrian contributions to macroeconomic and to monetary theory, see Roger Garrison (1978, 1984), Lawrence White (1984), George Selgin (1988), Selgin and White (1994), Steven Horwitz (1992). See also Brian Snowdon, Howard Vane, and Peter Wynarczyk (1994, ch. 8). For a link between Friedrich Hayek's macroeconomics and the Austrian microeconomics set forth in this paper, see Dieter Schmidtchen and Siegfried Utzig (1989).

areas within it, such as cycle theory, monetary theory, capital theory. Within its chosen scope of microeconomics, it does not claim to represent a universally accepted Austrian position (or even to cover its entire range of topics). Nonetheless, the approach described here is arguably central to the reviving contemporary interest in Austrian ideas, and has been treated as such in a number of recent general surveys of modern Austrian economics (Stephen Littlechild 1986; Bruce Caldwell and Stephan Boehm 1992; Vaughn 1994).[2]

During the past two decades modern Austrian economics has emerged out of the classic earlier "subjectivist" tradition[3] (which began in the late nineteenth century with Carl Menger, Eugen von Boehm-Bawerk, and Friedrich von Wieser),[4] particularly as that tradition came to be represented in the midcentury contributions of Ludwig von Mises and Friedrich Hayek.[5] The early work of the Austrian School until the 1930s was correctly perceived as simply one variant of the dominant early twentieth century mainstream approach to economic understanding (often loosely referred to as "neoclassical"). But the work of Mises and Hayek from the 30s on, steered the Austrian tradition in a direction sharply different from that being taken at that time by mainstream neoclassical microeconomics.[6] By 1950 both Mises and Hayek had crystallized separate, definitive, statements of their disagreements with mainstream microeconomics, and of their own substantive approaches. These were indeed separate statements, differing from one another certainly in style and, no doubt, to some degree also in substance. But it can be argued that they are best understood as both overlapping and complementary, rather than as contrasting alternatives. It was these contributions of Mises and Hayek which, while almost entirely ignored by the midcentury mainstream of the profession, have nourished the Austrian revival of the past two decades, and which have generated the modern Austrian approach to understanding the competitive market process set forth in this paper.

At the basis of this approach is the conviction that standard neoclassical microeconomics, for which the Walrasian general equilibrium model (in its modern Arrow-Debreu incarnation) is the analytical core, fails to offer a satisfying theoretical framework for understanding what happens in market economies. This conviction is rooted (a) in criticisms of the lack of relevance in models which seek to explain market phenomena as if they were, at each and every instant, strictly equilibrium phenomena, and (b) in the belief that it is a methodologically legitimate demand to be made of a theory of the market, that it not merely begin with the instrumentalist assumption of already-attained equilibrium, but also realistically offer a plausible explanation of how, from any given initial set of nonequilibrium conditions, equilibrating tendencies might be expected to be set into motion in the first place. As will

[2] For an authoritative, encyclopedia-style set of surveys of modern Austrian economics, see Boettke (1994).

[3] For discussions of Austrian subjectivism (and also on its influence on other schools of economic thought) see Alfred Coats (1983), Jack Wiseman (1983, 1985), Gerald O'Driscoll and Rizzo (1985, ch. 2), James Buchanan (1982), Ludwig Lachmann (1982).

[4] For general surveys of the history of the Austrian tradition, see Hayek (1968), Vaughn (1994), Kirzner (1992). For collections of papers representing the work of the Austrian School from 1870 to the present see Littlechild (1990), Kirzner (1994).

[5] Among the principal relevant works are Mises (1949), Hayek (1941, 1948, 1978).

[6] For the thesis that these developments in the work of Mises and Hayek stemmed from their participation in the interwar debate on the possibility of socialist economic calculation, see Kirzner (1992, ch. 6).

be noted below, such criticisms are not (or, at any rate, no longer) *exclusively* "Austrian" criticisms. In fact, a good deal of recent non-Austrian work in microeconomics has in some fashion attempted to grapple with these difficulties. What stamps the entrepreneurial discovery approach as Austrian is not these criticisms themselves, but rather the specific positive elements of the approach.

These positive elements focus on the role of knowledge and discovery in the process of market equilibration. In particular this approach (a) sees equilibration as a systematic process in which market participants acquire more and more accurate and complete *mutual knowledge* of potential demand and supply attitudes, and (b) sees the driving force behind this systematic process in what will be described below as *entrepreneurial discovery*. Although, of course, much contemporary mainstream work in microeconomics takes its point of departure from the imperfection of knowledge (relaxing the older standard neoclassical assumption of complete, universal information), the Austrian approach set forth in this paper has little in common with this work.

For the mainstream, imperfect information is primarily a circumstance constraining the pattern of attained equilibrium (and introducing a new "production" cost, that of producing or searching for missing information). For the Austrian approach imperfect information is seen as involving an element which cannot be fitted at all into neoclassical models, that of "sheer" (i.e., unknown) ignorance. As will be developed below, sheer ignorance differs from imperfect information in that the discovery which reduces sheer ignorance is necessarily accompanied by the element of *surprise*—one had not hitherto realized one's ignorance. Entrepreneurial discovery is seen as gradually but systematically pushing back the boundaries of sheer ignorance, in this way increasing mutual awareness among market participants and thus, in turn, driving prices, output and input quantities and qualities, toward the values consistent with equilibrium (seen as the complete absence of sheer ignorance).

What will emerge from this paper is thus the exposition of an Austrian way of understanding the systematic character of markets which, while sharply differing from the mainstream competitive equilibrium model, does not necessarily see that model as totally irrelevant. (Many practical questions, such as those regarding the effects of price controls, minimum wage laws, and the like, can be answered quite adequately without going beyond simple competitive supply-and-demand equilibrium models.) The dynamic competitive process of entrepreneurial discovery (which is the driving element in this Austrian approach) is one which is seen as *tending systematically toward*, rather than away from, the path to equilibrium. Therefore, the standard, competitive equilibrium model may be seen as *more* plausible as an approximate *outcome*, in the Austrian theory here presented.[7] This aspect of the entrepreneurial discovery approach troubles a number of the Austrian economists who have not accepted it. In order to clearly locate the entrepreneurial discovery perspective within the range of modern Austrian theoretical points of view, it will be necessary briefly to identify more precisely the various disagreements which other Austrians have had with this approach.

Section II of this paper will review the

[7] For a critique of the use by Austrian economists (such as Mises and Murray Rothbard) of a concept (the "evenly rotating economy") which parallels that of the equilibrium state, see Tyler Cowen and Richard Fink (1985).

Austrian criticisms of the equilibrium emphasis of the neoclassical models. Section III will develop the Austrian understanding of the market process, based upon the twin concepts of sheer (i.e., unknown) ignorance and entrepreneurial discovery. Section IV will survey several areas of applied microeconomics (antitrust economics, welfare economics, the theory of justice, and the possibility of socialist economic calculation), taking special note of the significant differences which the Austrian approach entails in regard to policy recommendations in these areas. Section V will note the various criticisms to the entrepreneurial discovery theory developed in this paper, offered by several contemporary Austrian economists. Section VI concludes the paper by clearing up certain misunderstandings concerning the Austrian approach.

II

Mainstream microeconomics interprets the real world of markets as if observed phenomena represent the fulfillment of equilibrium conditions.[8] Markets consist of successfully maximizing agents whose decisions are held to fit in together perfectly, in the sense that each maximizing decision being made correctly anticipates, in effect, at least, all the other maximizing decisions being made simultaneously. It is this latter condition which mathematically constrains the attained values of the key decision variables. For this condition to be fulfilled, only that set of input and output prices and quantities can prevail which simultaneously satisfies the relevant equations of supply and demand (themselves constructed by aggregating the selling and buying decisions consistent with maximizing under a range of hypothesized states of affairs). It is this aspect of modern neoclassical economics which accounts for its characteristic emphasis upon: (a) the constrained maximization pattern imposed by the theory upon individual decision making, and (b) the mathematics of simultaneous equation systems. Valiant attempts have been made to enrich the realism of these equilibrium microeconomic models by building into them assumptions acknowledging imperfections in competition. Nonetheless, the dominant trend has been to concentrate upon models of *competitive* equilibrium, that is upon models in which both prices and product/resource qualities are taken as given to each decision maker, and as being independent of the decisions made. Not only do these competitive models (like all equilibrium models) assume complete mutual knowledge (in the relevant sense), they also assume, in effect, that the crucial market variables of price and quality are somehow presented to each decision maker as an external fact of nature. Neoclassical economics operates on the assumption that the world reflects the relationships that would prevail in such equilibrium models—with the model of competitive equilibrium being the favorite one. While Austrians have not been alone in criticizing this approach to understanding markets, their criticisms have been both pioneering and trenchant.

Austrian dissatisfaction with this standard approach to understanding real world market phenomena emerged most clearly in the forties. Both Mises and Hayek expressed dismay at models labeled as competitive, in which market participants are forbidden, as it were, from competing (in the sense in which, in everyday discourse and experience, market participants compete by bidding

[8] It has been strongly argued by Frank Machovec (1995) that the great neoclassical economists of the period before 1930 did *not* proceed in this manner.

higher prices or by offering to undersell competitors, by offering consumers better quality merchandise, better service, and the like; see Mises 1949, p. 278ftn; Hayek 1948, pp. 92–118). Their unhappiness with models of so-called perfect competition ultimately stemmed from their unwillingness to surrender the economists' insights into the dynamic character of active markets to equilibrium models, in which all decisions have somehow been pre-reconciled, held as at all times governing market phenomena. It seems accurate to understand their impatience with the neoclassical preoccupation with equilibrium models as arising from (a) the blatantly false nature of the assumption that market conditions are at all times in equilibrium, and (b) methodological unease with an instrumentalist mode of theorizing and empirical analysis that finds it useful to presume that equilibrium always prevails, while recognizing no obligation to account theoretically for any equilibrative process (from which equilibrium might be explained as emerging).

Modern presentations of the entrepreneurial discovery approach have echoed these criticisms of equilibrium economics, and have deployed these criticisms in seeking to demote the concept of perfect competition from its position of dominance in modern neoclassical theory, in order to replace it by notions of dynamic competition (in which market participants are, instead of exclusively price takers, competitive price—and quality—makers). Within the two broad bases for Austrian (as well as for non-Austrian) criticism, several strands of difficulty with the neoclassical competitive equilibrium paradigm may be distinguished. The clear identification of these strands will help us understand the Austrian character of the positive approach, based on entrepreneurial discovery, to be developed in Section III.

(a) Criticisms of the unrealistic character of neoclassical theory relate both to the way in which individual decisions are modeled in that theory, and the way in which that theory sees real world market outcomes as satisfying the conditions for equilibrium.

(i) At the individual level Austrians have taken sharp exception to the manner in which neoclassical theory has portrayed the individual decision as a mechanical exercise in constrained maximization. Such a portrayal robs human choice of its essentially open-ended character, in which imagination and boldness must inevitably play central roles. For neoclassical theory the only way human choice can be rendered analytically tractable, is for it to be modeled as if it were *not* made in open-ended fashion, as if there was *no* scope for qualities such as imagination and boldness. Even though standard neoclassical theory certainly deals extensively with decision making under (Knightian) risk,[9] this is entirely consistent with absence of scope for the qualities of imagination and boldness, because such decision making is seen as being made in the context of known probability functions. In the neoclassical world, decision makers know what they are ignorant about. One is never surprised. For Austrians, however, to abstract from these qualities of imagination, boldness, and surprise is to denature human choice entirely.[10]

Now we should emphasize that a good deal of critical attention has been directed in recent years by non-Austrians at the neoclassical assumption of perfect information. A significant literature has shown how imperfect information may,

[9] Frank Knight developed his classic distinction between risk and uncertainty in Knight (1921).

[10] (See for example, Ernest Pasour 1982 and Naomi Moldofsky 1982; see also George Shackle 1972; Buchanan 1979.)

as a consequence of entailed externalities, render the equilibrium outcomes of market economies inefficient in terms of Paretian criteria. It is however necessary to dispel a certain confusion which has arisen in this regard. Joseph Stiglitz (1994, pp. 24f) who has been a central contributor to this critical literature, has taken note of what he believes to be the parallel Austrian concern with imperfect information. He has also (1994, p. 43) drawn attention to what he understands as the contrary Austrian view, namely, that it claims informational efficiency for the price system. We should emphasize that, on both these points, he has missed the crucial element that sharply distinguishes the unknown ignorance (with which Austrians have been concerned) from the imperfect information (central to the critical literature in which Stiglitz himself has been a pioneer). For Stiglitz "imperfect information" refers to known-to-be-available information which it is costly to produce. But for Austrians the focus is upon what has been termed "previously unthought-of knowledge" (Esteban Thomsen 1992, p. 61). In Section III we shall return to see how, as a consequence of this distinction, Austrian appreciation for the discovery potential of market processes does not at all imply that "informational efficiency" for market outcomes which Stiglitz has denied.

(ii) At the market level, Austrians have rebelled against a microeconomics which can find coherence in markets and can explain market phenomena only by asserting that markets are, at all times, to be treated as if already in the attained relevant state of equilibrium.

Such a picture of the world Austrians find simply false, not merely in the sense that an explanatory theoretical model may, obviously, not offer a photographic representation of the richly complex reality it is being used to explain, but in the sense that this picture falsely labels important features of reality. For Austrians it is unacceptable to claim that, at each and every instant, the configuration of production and consumption decisions currently made, is one which could, in the light of the relevant costs, not possibly have been improved upon. To claim that, at any given instant, all conceivably relevant available opportunities have been instantaneously grasped, is to fly in the face of what we *know* about real world economic systems. It is one thing to postulate rapid equilibrating processes as imposing systematic order upon markets; it is quite another thing (in the *absence* of any theory of equilibrative processes!) to treat the world as at all times already in the attained state of equilibrium.[11]

(b) The basic methodological foundation for Austrian unhappiness with mainstream neoclassical preoccupation with equilibrium models, has not so much to do with the false and misleading picture of real markets, which standard deployment of these models entails, as with the instrumentalist view of theory which the neoclassical equilibrium-preoccupation came to express. Austrians, in this version of their criticism, need have no quarrel with equilibrium models as such. No doubt significant features of real world market economies can indeed be illuminated by use of such models. But, the Austrian criticism runs, we are surely entitled to demand a theoretical basis for the claim that equilibrating processes systematically mold market variables in a direction consistent with the conditions postulated in the equilibrium models. If competitive markets are to be explained in terms of Marshallian supply and de-

[11] For examples of Austrian literature critical of the standard equilibrium approach see Rizzo (1979), Sanford Ikeda (1990). For a mainstream reaction to this literature see Christopher Phelan (1987). See also Brian Loasby (1994), David Harper (1994a).

mand diagrams, surely we are entitled to a theoretical process—"story" which might account for the economists' confidence in the special relevance of the intersection point in that supply and demand diagram. In our undergraduate freshman classes we do offer such stories: if above equilibrium prices prevail, this generates surplus of supply over demand; these surpluses force prices downwards, etc., etc. But strictly speaking, these plausible stories are, within the neoclassical framework, quite illegitimate. That framework requires us simply to accept equilibrium models as the only explanatory tool necessary for understanding prices and outputs. This, for Austrians, is methodologically unacceptable. What, we must ask, accounts for the powerful equilibrating tendencies which economists believe to be operating in markets? If, at any time, real world limitations upon the perfection of information possessed have prevented instantaneous attainment of equilibrium, why should we have confidence in any possible equilibrative process?[12] And how, if we do observe such equilibrating processes, can we understand what has generated them?[13]

Kenneth Arrow's well known paper of 1959 offers an excellent illustration of (a) how a foremost exponent of the neoclassical approach perceptively recognized one aspect of the problem upon which this latter Austrian criticism has focused, and (b) how this led him to develop an analytical dynamics from which the standard competitive equilibrium model emerges only as the outcome of a process. Arrow focused his attention upon the Marshallian perfectly competitive supply and demand model in the single commodity market, and especially, upon the requirement of this model that supply equal demand. He draws attention to the logical gap in the perfectly competitive model:

> Each individual participant in the economy is supposed to take prices as given and determine his choices as to purchases and sales accordingly; there is no one left over whose job it is to make a decision on price. (Arrow 1959, p. 43)

He overcomes this difficulty by proposing that it be recognized "that perfect competition can really prevail only at equilibrium" (Arrow 1959, p. 41). In disequilibrium each supplier faces a downward sloping demand curve and, acting "monopolistically," seeks an optimal price-quantity combination. The equilibrating process operates through each supplier discovering that (as a result of the comparable activities of his fellow "monopolists") his demand curve is shifting "at the same time as he is exploring it" (Arrow 1959, p. 46).

Arrow recognized that the very notion of a perfectly competitive market in disequilibrium is incoherent. And he recognized an obligation to offer a model that might account for the emergence, out of initial disequilibrium, of an equilibrating process. His critique of the core of neoclassicism, illustrates well the vulnerability of mainstream theory to the Austrian criticisms discussed in this section. A number of non-Austrian writers have followed Arrow's critique, and Franklin Fisher's (1983) important contribution attracted a modest amount of professional attention. Nonetheless, the mainstream has proceeded by virtually ignoring these criticisms, and operating as if its core paradigm was, by and large, as relevant as ever.

Austrians maintain that a theoretical

[12] This confidence has, in recent literature, been challenged also on the grounds of possible path-dependency. See for example Brian Arthur (1989), Robin Cowan (1990).

[13] For literature on the role of process theory in economics, see particularly Jack High (1990), Lachmann (1986), Ikeda (1990, 1994), Wolfgang Kerber (1994). For a pioneering contribution see George B. Richardson (1960).

framework for understanding the equilibrative process is available. This framework offers its explanation not by denying the operation of competition in disequilibrium but per contra (and in sharpest contrast to Arrow's labeling system), by reformulating the notion of competition to make it utterly *in*consistent with the equilibrium state.

III

The entrepreneurial discovery approach which has emerged in modern Austrian economics during the past quarter of a century was developed out of elements derived from Mises and from Hayek. From Mises the modern Austrians learned to see the market as an *entrepreneurially* driven *process*. From Hayek they learned to appreciate the role of *knowledge* and its enhancement through market interaction, for the equilibrative process. These two distinct elements have been welded into an integrated theoretical framework which, on the one hand, is consistent with and, on the other hand, is articulated in a manner more explicit than the earlier Austrian expositions.[14]

Mises' conception of the market as an entrepreneurially driven process pervades his mature theoretical work.

> The driving force of the market process is provided neither by the consumers nor by the owners of the means of productions—land, capital goods, and labor—but by the promoting and speculating entrepreneurs . . . Profit-seeking speculation is the driving force of the market as it is the driving force of production. (Mises 1949, pp. 325–26)

"The activities of the entrepreneur are the element that would bring about the unrealizable state of the evenly rotating economy if no further changes were to occur" (Mises 1949, p. 335). "In the imaginary construction of the evenly rotating economy there is no room left for entrepreneurial activity . . ." (Mises 1949, p. 253). The focus here is on the market *process*, as opposed to the "imaginary construct" of the "evenly rotating economy" (corresponding roughly to the state of general market equilibrium).

Entrepreneurial activity has no place at all in neoclassical equilibrium microeconomics (because it is inconsistent with the conditions satisfied in the equilibrium state; William Baumol 1993, ch. 1). But for Austrians the entrepreneurial role provides the theoretical key with which to account for the market as a process. For Mises, the economist

> shows how the activities of enterprising men, the promoters and speculators, eager to profit from discrepancies in the price structure, tend toward eradicating such discrepancies . . . He shows how this process would finally result in the establishment of the evenly rotating economy. This is the task of economic theory. The mathematical description of various states of equilibrium is mere play. The problem is the analysis of the market process. (Mises 1949, pp. 352–53)

Hayek's emphasis on the role of knowledge and its enhancement in the course of the market process goes back to his work in the thirties. It was Hayek who insisted that

> the concept of equilibrium merely means that the foresight of the different members of the society is . . . correct . . . in the sense that every person's plan is based on the expectation of just those actions of other people which those other people intend to perform and that all these plans are based on the expectation of the same set of external facts . . . Correct foresight is then . . . the defining characteristic of a state of equilibrium. (Hayek 1948, p. 42)

In his pioneering discussion of the equilibrating process Hayek pointed out that,

[14] For excellent modern Austrian expositions of the approach developed in this section see Martti Vihanto (1989, 1994). For discussions which are at least partly critical of the Austrian approach see Loasby (1989, ch. 10) and Claudia Loy (1988).

"if we want to make the assertion that, under certain conditions, people will approach (the equilibrium state), we must explain by what process they will acquire the necessary knowledge" (Hayek 1948, p. 46).

For Hayek the equilibrating process is thus one during which market participants acquire better mutual information concerning the plans being made by fellow market participants. For Mises this process is driven by the daring, imaginative, speculative actions of entrepreneurs who see opportunities for pure profit in the conditions of disequilibrium. What permits us to recognize that these two perspectives on the character of the market process are mutually reinforcing, is the place which each of these two writers assigns to *competition* in the market process. The Austrian approach includes a concept of competition which differs drastically from that encapsulated in the label "competitive" as used in modern neoclassical theory.

For neoclassical economics the maximum possible degree of competition is represented by the equilibrium notion of perfect competition, in which all traces of rivalry are absent. Anything less than perfect elasticity in the supply/demand curves faced by potential buyers/sellers corresponds, in neoclassical terminology, to some degree of monopolistic power.[15] Mises rejected this nomenclature, in that it implies that monopoly prices are somehow determined without that competitive process which constitutes for Mises the essence of the market. "Catallactic competition is no less a factor in the determination of monopoly prices than it is in the determination of competitive prices . . . On the market every commodity competes with all other commodities" (Mises 1949, p. 278). He cites Hayek's critique of the doctrines of imperfect or monopolistic competition (Mises 1949, p. 278 fn.), and emphasizes that competition (far from being defined, as in the perfectly competitive model, as the state in which all participants face identical prices) "manifests itself in the facts that the sellers must outdo one another by offering better or cheaper goods and services and that the buyers must outdo one another by offering higher prices" (Mises 1949, p. 274). In other words, the essence of competition is precisely that dynamic rivalry which the neoclassical equilibrium notion of competition is at great pains to exclude. Hayek's pathbreaking critique of the dominance of the perfectly competitive model (and hence also of the corollary doctrines of imperfect and monopolistic competition) takes as its point of departure precisely this feature of the model. That model, he points out deals

> with a state of what is called "competitive equilibrium" in which it is assumed that the data for the different individuals are fully adjusted to each other, while the problem which requires explanation is the nature of the process by which the data are thus adjusted. (Hayek 1948, p. 94)

For Hayek, on the other hand, "competition is by its nature a dynamic process whose essential characteristics are assumed away by the assumptions underlying static analysis" (Hayek 1948, p. 94). "Competition," he insists

> is essentially a process of the formation of opinion . . . a process which involves a continuous change in the data and whose significance must therefore be completely missed by any theory which treats these data as constant. (Hayek 1948, p. 106)

In other words the role of competition in economic theory must, for both Mises and Hayek, focus not on the state of affairs at the end of the market process, but upon the character of that process

[15] See George Stigler (1957) for the emergence of the view that explicitly rejects rivalrousness as an ingredient in competitive analysis.

itself. More recently Hayek has emphasized the nature of competition as a "discovery procedure"—i.e., as generating "such facts as, without resort to it, would not be known to anyone . . ." (Hayek 1978, p. 179).

For the modern Austrian approach, this perception of competition as the dynamic, driving force for discovery in the market process has become central. The key to an explanation of the equilibrative process is to recognize the pivotal role of dynamic competition in that process. This equilibrative process of competition is at work even in markets in which one firm may enjoy monopolistic privilege. This is because even a monopolistic equilibrium can be approached, in a world of uncertainty, only through a process whereby market participants can become better aware of one another's attitudes and plans. Only the process of competition can achieve this.[16]

We have thus placed our finger on the key interrelated analytical concepts with which the modern Austrian entrepreneurial discovery theory of the market process operates. These concepts are: (a) the entrepreneurial role; (b) the role of discovery; (c) rivalrous competition. Each of these requires some brief discussion.

(a) *The entrepreneurial role*: In standard neoclassical equilibrium theory there is, by its very character, no role for the entrepreneur. In equilibrium there is no scope for pure profit: there is simply nothing for the entrepreneur to do. (If textbooks do speak of the entrepreneur in the theory of the firm this turns out to refer simply and imprecisely to the owner of the firm who, operating in equilibrium markets, is indeed able to "maximize," but who has no opportunity to sell output at a price exceeding costs.)[17] If the entrepreneur grasps the opportunities for pure entrepreneurial profit created by temporary absence of full adjustment between input and output markets, the neoclassical market in full equilibrium can, of course, find no room for him. In Austrian theory the entrepreneur is an agent whose character has been carefully explored.

For Mises the term "entrepreneur" refers to "acting man in regard to the changes occurring in the data of the market" (Mises 1949, p. 255). Entrepreneurship is human action "seen from the aspect of the uncertainty inherent in every action" (Mises 1949, p. 254). The Misesian concept of human action thus implies the open-ended framework within which all decisions made must necessarily partake of the speculative character essential to the notion of entrepreneurship. "In any real and living economy every actor is always an entrepreneur" (Mises 1949, p. 253). By freeing microeconomic analysis from the constrictions of the equilibrium state, Austrian theory is able to recognize the speculative element in all individual decision making, and to incorporate the activity of the real world business man into

[16] It follows that monopolistic (or monopolistically competitive) equilibrium *states*, are entirely compatible with the notion of dynamic competition (which might in fact bring about such states).

[17] The statement in the text presumes that rents earned by firms who own scarce, non-reproducible resources used in their production operations, are (although included in accounting "profit") properly to be included in the firms' economic costs. These firms certainly enjoy an advantage over other firms who, not owning these resources, must produce with resources of lower productivity. But this advantage consists, for the economist (as distinct from the accountant), not in entrepreneurial profit won by the fortunate firms, but rather in rental income earned through asset *ownership*. The entrepreneur is considered as hiring these resources from himself as owner, and should then include this rental income as part of his (implicit) economic costs. For a full and classic discussion of the sense in which differential rent on assets owned are properly included in the firm's economic costs, see Fritz Machlup (1952, pp. 237f, 288ff).

a theoretical framework that provides understanding of the market process. In focusing upon the entrepreneurial decision in a Knight-uncertain world, Austrian theory thus diverges sharply from the notion of the individual decision that constitutes the analytical building block of neoclassical microtheory. For neoclassical microtheory each decision, whether made by consumer, firm, or resource owner, is made within a definitely known framework made up of a given objective function, a given set of resource constraints, and a given set of technologically or economically feasible ways of transforming resources into desired objectives. (Uncertainty, while of course recognized as surrounding each decision, expresses itself in the form of known probability distributions relating to the given elements of this known framework.) In this neoclassical context, there is no room for entrepreneurship not only in the sense (mentioned earlier) that no opportunities for pure profit can possibly exist, but also in the sense that the model precludes all Knightian uncertainty that might affect the character of the individual decision. Boldness, imagination, drive are characteristics which are simply irrelevant to individual decision making in neoclassical microtheory.

This Austrian emphasis on the entrepreneur is fundamental.[18] Whereas each neoclassical decision maker operates in a world of *given* price and output data, the Austrian entrepreneur operates to *change* price/output data. In this way, as we shall see, the entrepreneurial role drives the ever-changing process of the market. Where shortages have existed, we understand the resulting price increases as driven by entrepreneurs recognizing, in the face of the uncertainty of the real world, the profit opportunities available through the expansion of supply through production, or through arbitrage. Except in the never-attained state of complete equilibrium, each market is characterized by opportunities for pure entrepreneurial profit. These opportunities are created by earlier entrepreneurial errors which have resulted in shortages, surplus, misallocated resources. The daring, alert entrepreneur discovers these earlier errors, buys where prices are "too low" and sells where prices are "too high." In this way low prices are nudged higher, high prices are nudged lower; price discrepancies are narrowed in the equilibrative direction. Shortages are filled, surpluses are whittled away; quantity gaps tend to be eliminated in the equilibrative direction. In a world of ceaselessly changing tastes, resource availabilities, and known technological possibilities, this entrepreneurial process cannot guarantee rapid (or slow) convergence to a state of equilibrium. But it does at each moment guarantee profit-incentives tending to nudge the market in what, from the perspective of that moment, must be recognized as the equilibrative direction.

The critical question for an entrepreneurial theory of market process, is how to understand, in the existence of such profit-incentives, the existence also of a systematic tendency for entrepreneurial errors to be replaced by profit-making entrepreneurial corrections. For this aspect of the entrepreneurial discovery theory we must postulate a tendency for the profit opportunities generated by earlier entrepreneurial error, *to be no-*

[18] For an example of Austrian work in an applied field in which this emphasis on entrepreneurship is central, see Charles Baird (1987). For general discussion of this Austrian emphasis, see also Jochen Runde (1988). A work which (while on the whole sharply critical of the Austrian approach) provides a very insightful exposition of it, is Stavros Ioannides (1992, especially chs. 3, 4, 5). Other valuable recent critical discussions of Austrian entrepreneurial theory include Martin Ricketts (1993), Vaughn (1994, pp. 141ff), Harper (1994b).

ticed and grasped. The Austrian approach indeed includes such a postulate. To appreciate this we turn to the second of the above listed three key analytical elements in this approach.

(b) *The role of discovery*: We have already seen that Hayek pioneered in interpreting the equilibrative market process as a process of mutual discovery. In the course of this process market participants become better informed of the plans being made by other participants. Whereas some initial plans must, as a result of initial entrepreneurial error, turn out to have been mistaken, these errors tend systematically to become eliminated as market experience reveals the infeasibility of some (hitherto sought after) courses of action and the (hitherto unnoticed) profitability of other courses of action. In the world of static equilibrium, a chosen course of action, because it was pronounced mathematically to have been the optimal course of action within the given decision framework, cannot fail to be chosen again and again, so long as that given framework prevails. In the market-process world of entrepreneurial discovery, on the other hand, flawed plans (i.e., those made on the basis of an erroneously imagined decision framework) can be expected to tend to be corrected through the responsiveness of alert, imaginative entrepreneurs to the opportunities revealed as a result of the initially flawed plans. In other words, this approach postulates a tendency for profit opportunities to be *discovered* and *grasped* by routine-resisting entrepreneurial market participants.

In the neoclassical context a decision can never be *corrected*—because no decision can ever be *truly* mistaken. The reason for a *change* in a decision, thus can be found only in an exogenously generated change in the relevant decision-framework. But in the Austrian context a decision can be *corrected* as a result of the decision-maker's discovery of an earlier *error* in his view of the world. Whereas earlier plans had overlooked available profit opportunities (as, for example, where some buyers buy goods at high prices, that were being sold elsewhere in the same market for lower prices), subsequent plans can be expected to reflect discovery of the profit opportunities implicit in (and constituted by) the earlier plans. We should acknowledge that, from the neoclassical perspective, it is not at all obvious why we should expect such discoveries to be made.

After all, it may be objected from the mainstream economist's point of view, if an available opportunity for profit was universally overlooked yesterday, why should we expect that opportunity to be noticed today? It is not as if that profit opportunity was the object of systematic search (in which case it might be expected that a time consuming search process would identify it sooner or later). An opportunity for pure profit cannot, by its nature, be the object of systematic search. Systematic search can be undertaken for a piece of missing information, but only because the searcher is aware of the nature of what he does not know, and is aware with greater or lesser certainty of the way to find out the missing information. In the economics of search literature, therefore, search is correctly treated as any other deliberate process of production. But it is in the nature of an overlooked profit opportunity that it has been *utterly* overlooked, i.e., that one is not aware at all that one has missed the grasping of any profit. From the neoclassical perspective, therefore, a missed opportunity might seem (except as a result of sheer, fortuitous good luck) to be destined for permanent obscurity.

It is here that the Austrian perspective offers a new insight, into the nature of *surprise* and *discovery*. When one be-

comes aware of what one had previously overlooked, one has not produced knowledge in any deliberate sense. What has occurred is that one has discovered one's previous (utterly unknown) ignorance. What distinguishes *discovery* (relevant to hitherto unknown profit opportunities) from *successful search* (relevant to the deliberate production of information which one knew one had lacked) is that the former (unlike the latter) involves that *surprise* which accompanies the realization that one had overlooked something in fact readily available. ("It was under my very nose!") This feature of *discovery* characterizes the entrepreneurial process of the equilibrating market. What accounts for a systematic tendency toward that succession of wholesome surprises which must constitute the equilibrative process, is not any implausible series of happy accidents, but rather the natural *alertness* (Kirzner 1973, pp. 35f, 65f) to possible opportunities (or the danger of possible disaster) which is characteristic of human beings. In the world of uncertainty such natural alertness expresses itself in the boldness and imagination which Austrian theory ascribes to entrepreneurs in the context of the market. Entrepreneurial alertness refers to an attitude of receptiveness to available (but hitherto overlooked) opportunities. The entrepreneurial character of human action refers not simply to the circumstance that action is taken in an open-ended, uncertain world, but also to the circumstance that the human agent is at all times spontaneously on the lookout for hitherto unnoticed features of the environment (present or future), which might inspire new activity on his part. Without knowing what to look for, without deploying any deliberate search technique, the entrepreneur is at all times scanning the horizon, as it were, ready to make discoveries. Each such discovery will be accompanied by a sense of surprise (at one's earlier unaccountable ignorance). An entrepreneurial attitude is one which is always ready to be surprised, always ready to take the steps needed to profit by such surprises. *The notion of discovery, midway between that of the deliberately produced information in standard search theory, and that of sheer windfall gain generated by pure chance, is central to the Austrian approach.*[19] The profit opportunities created by earlier entrepreneurial error do tend systematically to stimulate subsequent entrepreneurial discovery. The entrepreneurial process so set into motion, is a process tending toward better mutual awareness among market participants. The lure of pure profit in this way sets up the process through which pure profit tends to be competed away. Enhanced mutual awareness, via the entrepreneurial discovery process, is the source of the market's equilibrative properties.

Austrians are careful to insist (i) that continual change in tastes, resource availabilities, and known technological possibilities always prevent this equilibrative process from proceeding anywhere near to completion; and (ii) that entrepreneurial boldness and imagination can lead to pure entrepreneurial losses as well as to pure profit. Mistaken actions by entrepreneurs mean that they have misread the market, possibly pushing price and output constellations in directions not equilibrative. The entrepreneurial market process may indeed reflect a systematically equilibrative *tendency*, but this by no means constitutes a *guaranteed* unidirectional, flawlessly converging trajectory. What the Austrian entrepreneurial discovery process seeks to explain is not any imaginary mechani-

[19] For further discussion of the Austrian concept of discovery see Kirzner (1989, ch, 2). See also Littlechild (1982a), Michael Beesely and Littlechild (1989), Manfred Streit (1992).

cal sure-fire convergence to equilibrium, but rather the existence and nature of those important tendencies which markets display toward continual discovery and exploitation of pure profit opportunities thus tending to nudge the market in the equilibrative direction. In this process the capacity of market participants to discover earlier error, is central.[20]

(c) *Rivalrous competition*: What drives the market process is entrepreneurial boldness and imagination; what constitutes that process is the series of discoveries generated by that entrepreneurial boldness and alertness. Austrians are at pains to emphasize the dynamically competitive character of such a process. The process is made possible by the freedom of entrepreneurs to enter markets in which they see opportunities for profit. In being alert to such opportunities and in grasping them, entrepreneurs are competing with other entrepreneurs. This competition is not the competitive state achieved in neoclassical equilibrium models, in which all market participants are buying or selling identical commodities, at uniform prices. It is, instead, the rivalrous process we encounter in the everyday business world, in which each entrepreneur seeks to outdo his rivals in offering goods to consumers (recognizing that, because those rivals have not been offering the best possible deals to consumers, profits can be made by offering consumers better deals).[21]

[20] For clarification of possible misunderstandings concerning this claim for equilibrative tendencies in markets, see Section VI below.

[21] For the existence of a long tradition in economics in which rivalrous competition was recognized, see Paul McNulty (1967), Robert Ekelund and Robert Hebert (1981). For modern Austrian (or Austrian-influenced) discussions of dynamic competition see Donald Boudreaux (1994), Dominick Armentano (1978), Mark Addleson (1994), Thomas Arthur (1994), Harald Kunz (1989).

It is from this perspective that Austrians stress (i) the discovery potential in rivalrous competition, and (ii) the entrepreneurial character of rivalrous competition. The competition that characterizes the market process reveals information which no one was aware of its having been lacking. (This, as we shall see in Section IV, will be of importance in assessing the possibility of the deliberate engineering, in a socialist economy, by central planners, of the kinds of outcomes yielded in a capitalist economy by the competitive market process.) This is what Hayek had in mind when he referred to competition "as a discovery procedure" (Hayek 1978, p. 179). The competitive process is an entrepreneurial one in that it depends crucially on the incentives provided by the possibility of pure entrepreneurial profit. From this perspective profit emerges most importantly not as evidence of entrepreneurial error (which it certainly is), but as the powerful incentive to keep down the incidence of entrepreneurial error.

As noted in Section II, Stiglitz saw Austrians as claiming "informational efficiency" (in the Paretian sense) for this "discovery procedure" of the market. This is not the case. The knowledge gained through the discovery process of the market refers to the "unthought-of knowledge" with which Austrians have been concerned. Ignorance of this unthought-of knowledge is responsible for failure to attain equilibrium. Attainment of equilibrium, imagined as the eventual outcome of an uninterrupted process of market discovery, does not attribute informational efficiency to that state of equilibrium. The informational inefficiency which Stiglitz and his colleagues have attributed to equilibrium states, relate, on the other hand, to "known ignorance," that is, to "known-to-be-available" in-

formation which it is costly to produce.[22]

IV

The entrepreneurial discovery approach offers a theoretical framework for understanding how markets work. This framework has important practical implications for applied economics and for economic policy. We briefly take note of four areas of application where the Austrian approach implies sharply different practical conclusions from those usually derived from neoclassical economics. A number of additional areas of application might also have been explored here. Examples of such areas, omitted here because of space constraints are: law and economics (see for example Rizzo 1979), and the economics of transition (see for example Boettke 1993). The four areas examined are: (a) antitrust policy; (b) the applicability of accepted theories of economic justice; (c) welfare economics; (d) the workability of central planning under socialism.

(a) *Antitrust Policy*: Standard economics, built upon neoclassical insights into the Pareto-efficiency qualities of perfectly competitive equilibrium, has for most of this century been deployed to support antitrust policy limiting firm size (both absolutely and relative to the industry). Despite the healthy dose of realism introduced into antitrust economics in recent decades, and despite the substantive theoretical improvements introduced into our understanding of competition by the theory of contestable markets, it remains the case that standard microeconomics sees the ideal degree of competition as represented by the perfectly competitive model. The Austrian view sees matters quite differently.

For the Austrian approach competition is socially beneficial primarily in a dynamic sense. Coordination tends to be induced among the decisions made in the market place under the pressure of rivalrous entrepreneurs alert to the profit-opportunities created by initial discoordination. To harness the entrepreneurial initiative intrinsic to this kind of dynamic competition, we do not require fulfillment of the classic Knightian conditions for perfect competition—in fact those conditions *preclude* scope for (and, in fact, any need for) entrepreneurial initiative. The perfect knowledge requirement central to the perfectly competitive model can in fact be satisfied only by assuming away the need for any coordinative process. To induce dynamic entrepreneurial competition we require the fulfillment of only one condition: guaranteeing free entrepreneurial entry into any market where profit opportunities may be perceived to exist. Most of the insights of contestable market theory turn out not only to be consistent with the entrepreneurial discovery approach, but in fact to be implied by that approach. To limit the size of firms (for example by obstructing mergers) is, in the entrepreneurial discovery approach, to block entrepreneurial entry, and is thus *anti*-competitive in the relevant sense. Conversely, many aspects of real-world business activity, involving such practices as advertising, or any of innumerable forms of product differentiation, set down as imperfectly competitive or even as "monopolistic" in the standard framework (because they imply less than perfectly elastic demand curves facing firms), are precisely the kinds of en-

[22] The paragraph in the text has the objective of making clear the distinction between the quite separate aspects of imperfect information treated respectively by Stiglitz and by the Austrians. It does not have the objective of providing an Austrian critique of Stiglitz's position. For such a critique see Thomsen (1992, ch. 3). See also Boehm (1989, pp. 208f), and Thomsen (1994).

trepreneurial initiative which make up the dynamic competitive process.[23]

(b) *Economic Justice*: There are many policy issues which hinge upon public perceptions of economic justice or injustice. In recent decades economists have explored the economic justice of alternative economic policies. In this they have been following a venerable tradition in economics. When John Bates Clark wrote his *Distribution of Wealth* almost a century ago, his motivation, in developing the tools of marginal productivity theory, was to demonstrate the consistency of capitalism with economic justice. One significant implication of the entrepreneurial discovery approach has been that it appears to cast crucial aspects of the capitalist system in a drastically different ethical light than has traditionally emerged from the neoclassical perspective.

Neoclassical economics asks us to rule on the justice of the method through which or the pattern in which a *given* (known-to-be-knowable) *pie* is distributed among the potential claimants to it. This may be seen as a pie of given output; or, in more sophisticated versions, it may be seen as the yet-to-be-determined pie to be baked out of given inputs. This "given-pie" framework for discussion of economic justice restricts us to considering the justice of capitalist earnings or receipts in regard only to already existing goods (including already existing inputs with the capability of generating alternative outputs). From the Austrian perspective, such restriction places artificial blinders upon our ethical assessment of capitalist incomes.

[23] For an excellent example of non-Austrian appreciation for these considerations, see Fisher, John McGowan, and Joen Greenwood (1983), Yale Brozen (1982). Among Austrian (or Austrian-inspired) writers on this issue see Armentano (1986), Beesely and Littlechild (1989), Thomas DiLorenzo and High (1988), Michael DeBow (1991).

In the Austrian perspective there must be afforded the possibility, at least, of considering the justice also of *discovered* income. A discovered income is one gained not by earning or otherwise receiving a share of any given pie, but one gained by discovering the existence of something valuable, the very existence of which was hitherto wholly unknown. Discovery would include not only one of hitherto unknown natural resources (as in an oil discovery) but also of new kinds of output (as through entrepreneurial product-innovation), or of new additional productivity (of known outputs) available from known inputs (as when an entrepreneur innovates a new productive technique). The earmark of a genuine discovery is that it reveals the existence of something concerning which one had not been merely ignorant, but in fact *utterly* ignorant (in the sense that one was not even aware of one's ignorance). All kinds of discovery essentially create something genuinely new, something simply not present (as far as human knowledge up until now could fathom) in the pie of available inputs and outputs given just prior to the moment of discovery.

The making of a genuine discovery is not an act of deliberate production (in this it differs also from a successful deliberate search). Neither is it simply the fortuitous outcome of a stroke of wholly undeserved luck. Discovery is attributable, at least in significant degree, to the entrepreneurial alertness of the discoverer. A theory of justice built upon a perspective which compels us to refrain from considering and therefore recognizing the moral character of discovered gain must, from the Austrian perspective, appear seriously incomplete if not wholly misconceived.

All this has, of course, particular relevance to judging the justice of *pure entrepreneurial profits*. Such profits simply do not fit into the neoclassical distri-

butional scheme, and, therefore, defy any justification within standard theories of justice otherwise sympathetic to capitalist distribution patterns.[24] For the Austrian viewpoint, however, pure entrepreneurial profits emerge clearly as the wholly discovered gains, which accompany entrepreneurial creation and discovery in the sphere of production. An understanding of pure profits in this manner permits the economist to explain more accurately (to the philosopher, citizen, or statesman engaged in moral judgments concerning capitalist justice) the true economic character of what they are evaluating.[25]

(c) *Welfare Economics*: Neoclassical economics includes an analytical framework designed to assess the social efficiency of alternative arrangements, policies, and events. The Austrian approach to understanding markets outlined in this paper, implies a certain dissatisfaction also with the neoclassical approach to welfare economics. The cause for this dissatisfaction can be identified in straightforward fashion.

Standard welfare theory considers the allocation pattern governing the uses made of society's resources at a given instant (or, by strict extension, to a given intertemporal allocation pattern being irrevocably adopted at that instant). The theory then analyzes that pattern from a perspective of imagined omniscience, against the socially optimal allocative pattern implied by the data. Austrian economists along with many other economists are of course deeply concerned by the well-understood analytical difficulties (especially for methodological individualists) of defining what "socially optimal allocation" is to mean, within the neoclassical framework.[26] But the Austrian dissatisfaction of interest to us in the present context has a different root. The entrepreneurial discovery approach reminds us that the degree of achieved social efficiency (or even the degree of efficiency that will be achieved in the equilibrium state toward which a market may be converging) is not the only dimension along which to judge the economic success of a social system. Just as important, surely, is the speed and accuracy with which the system is able to identify and overcome the waste and discoordination of disequilibrium situations. Standard welfare theory provides no scope for considering this dimension, because this discoordination involves that sheer ignorance which cannot be incorporated into neoclassical analysis (so that intertemporal welfare analysis cannot grapple with, or even consider, the question of how rapidly—or whether—the volume of sheer ignorance is being reduced).

Up to now, it must be acknowledged, Austrian economics has—with one important exception to be noted below—not done much more than to identify this serious shortcoming of standard welfare economics. But this identification (and its being related to the social function of the entrepreneurial discovery process) must be considered already a significant step forward.[27] As a result of this step, Austrian economists are not satisfied to ask, in regard to issues such as tax policy

[24] See for example Clark (1899, p. 201). For a discussion of Robert Nozick's (1974) theory of justice in regard to profit, see Kirzner (1989, p. 69f).

[25] These observations on an Austrian view of economic justice have been advanced by the present writer (Kirzner 1989). They do not substantially overlap with the observations concerning justice expressed either by Mises or by Hayek.

[26] For Austrian critiques of standard notions of social efficiency, see Rizzo (1979), Rothbard (1979).

[27] Roy Cordato (1992) has done valuable work exploring this avenue for Austrian normative economics. For a critique of Cordato's work see David Prychitko (1993). See also Vihanto (1989, pp. 86f), Alan Hamlin (1992), Robert Sugden (1992) and White (1992, pp. 263f).

and the like, merely what impact will a given program have upon the allocative efficiency of the system (as an exercise, say, in applied comparative statics). They also ask what impact it will have in regard to the stimulation of those acts of entrepreneurial discovery upon which the equilibrative process must depend. The one area in which Austrian economics has not merely raised new questions but has in fact fruitfully pursued the entrepreneurial discovery approach to its full welfare-economic implications, is in the modern version of its long-standing Misesian critique of central planning. To this we now turn.

(d) *Central Planning under Socialism*: In a famous 1920 article Mises asserted on theoretical grounds, the "impossibility" of rational economic calculation under socialism and hence the impossibility of central planning. In a series of essays during the thirties, Hayek supported Mises' contention and responded to several attempted solutions by socialist economists to refute that contention. Out of all these attempted solutions, the "decentralized" solution of Oskar Lange and Abba P. Lerner became the most famous. For decades the mainstream literature on comparative systems routinely cited these solutions by Lange and Lerner as having definitively laid to rest the critiques of the possibility of socialist calculation argued by Mises and Hayek.

During the past 15 years, largely as a result of the resurgence of interest in the Austrian tradition, a different assessment of the interwar calculation debate has emerged.[28] Especially as an implication (or application) of the entrepreneurial discovery approach to understanding the market process, it has come to be recognized that Lange and Lerner had not, in fact, refuted the theoretical challenge leveled by Mises and Hayek. The history of the economic calculation debate is not our concern here. What is important is that a modern Austrian understanding of the market process is able to show the limitations of the Lange-Lerner solution. In seeking to simulate, through decentralized socialist production, the conditions satisfied in a perfectly competitive equilibrium market system, that solution in fact misses the difficulties which Mises had seen for the possibility of socialist planning.

The Lange-Lerner solution requires the central planning authority to announce non-market prices for resources and commodities. Working with these prices as "parameters" (see Lange 1938, p. 70)—as if they corresponded to the prices under perfectly competitive equilibrium—decentralized socialist managers would then plan their resource "purchases" (from state suppliers), their output production and input mix, in a manner designed to equalize marginal cost and marginal revenue (*as if* maximizing firm "profit" under perfectly competitive conditions). The extent to which the announced prices in fact diverged from the "correct" values would be revealed in the surpluses and shortages generated for the various resources, thus permitting the central authority to adjust prices accordingly in the directions necessary to achieve resource market clearing. The entire scheme is based, explicitly, on the view that the capitalist market economy operates in this way; that resource and output prices are given to entrepreneurs, and that firms then use these prices parametrically to maximize the excess of revenue over cost. The Austrian entrepreneurial discovery approach sees the market economy quite differently, and therefore sees the problem facing the socialist central planning authority quite differently.

[28] Major contributions to this literature have been Don Lavoie (1985), Vaughn (1980), Boettke (1993, ch. 3), see also Willem Keizer (1989) and J. Huerta de Soto (1992).

The economic problem facing any society, in this view, is primarily that of how, in a world of incessant changes in tastes, resource availabilities, and technological possibilities, to generate mutually sustaining expectations on the part of agents in the economy, such that (a) the series of actions taken are in fact able to be completed as planned, and (b) that that series of actions tends to reveal and exhaust all the available opportunities for social economic gain. Under the imagined conditions of perfectly competitive equilibrium this problem does not exist, not because it has already been successfully solved, but because the equilibrium state has been constructed to avoid the problem in the first place. Whether under socialism or under capitalism, reference to the equilibrium state offers no clues as to how to solve the problem; it offers only a picture of a world in which the problem has never existed.

From this perspective the Austrians understand that whatever social efficiency may be achieved in the market economy is not achieved at all by its participants behaving as if they were agents in a perfectly competitive equilibrium state—but precisely by their behaving entrepreneurially and (dynamically) competitively, under conditions of disequilibrium. The Lange-Lerner solution, in which the socialist managers are instructed to act as perfectly competitive agents, and in which resulting resource surpluses and shortages lead the central authority to adjust resource prices, is simply *not* a simulation of how markets actually operate under capitalism. This solution has *not* successfully incorporated the techniques to which any capitalist successes may be attributed. Central adjustment of non-market prices in response to resource surpluses and shortages (generated by socialist managers having mistakenly behaved as if the originally announced prices were in fact "correct") corresponds to nothing that occurs in capitalist markets (despite its similarity to certain highly dubious textbook stories of how perfectly competitive market clearing prices are arrived at). The Lange-Lerner solution offers no scope whatsoever for anything in socialism that might correspond to the pure profit motivated entrepreneurial acts of discovery which drive the capitalist market process.[29]

V

It remains to relate the entrepreneurial discovery approach outlined in this paper to alternative viewpoints within the universe of modern Austrian economists. The entrepreneurial discovery approach embraces elements, especially elements in its criticisms of neoclassical microeconomics, with which all Austrian economists broadly agree. But the specific framework of the entrepreneurial discovery approach—seeing the market process as consisting of systematic equilibrating tendencies, made up of episodes of mutual discovery and learning (by market participants)—has been rejected by a number of modern Austrian economists. These economists emphasize, more than does the entrepreneurial discovery approach, the radical uncertainty of the future, with which market participants must contend. We may distinguish two groups of Austrians who have, as result of such emphasis, dissented from the entrepreneurial discovery approach: (a) those who object radically to the asserted equilibrative character of the market process, and (b) those who object to the emphasis of the entrepreneurial discovery approach upon

[29] For a valuable non-Austrian paper independently recognizing much of what is here argued in the text, see Louis Makowski and Joseph Ostroy (1993).

systematic mutual learning as the key feature in the market process (as well as to what they believe to be the implication of the entrepreneurial discovery approach, that the market in fact successfully attains *approximate* equilibrium).

(a) Those who object to the asserted equilibrative character of the market process (as explained in the entrepreneurial discovery approach), have been led by one of the leading figures in the modern Austrian revival, Ludwig Lachmann. A significant number of younger "Austrian" economists have followed Lachmann in this regard, and their debates with exponents of the entrepreneurial discovery approach have enlivened and enriched Austrian economics during the past decade. A careful exposition and analysis of these critics of the entrepreneurial discovery theory is beyond the scope of this paper. The following thumbnail sketch of the Lachmann position undoubtedly fails to do justice to the subtleties of that position, and is offered here only to identify, at least, a stream of Austrian dissatisfaction with the entrepreneurial discovery approach. Lachmann (1986, 1991) saw the market process as one not only in ceaseless motion (on which the entrepreneurial discovery theorists would be in thorough agreement) but in a ceaseless motion in which *at no time* is there any assurance that the equilibrative forces are stronger than the disequilibrative forces (set in motion by changes in the independent variables of the system)—so that one may not presume to say that the market process even *tends* to promote mutual discovery among market participants. Following on the later work of George Shackle (Lachmann 1976) this group of Austrians has questioned the very meaningfulness of any equilibrium concept at all. They have deplored an approach (the entrepreneurial discovery approach) which appears to them simply as an attempt to rescue what they believe to be an unsalvageable way of understanding markets, viz. within the neoclassical paradigm. In a world of incessant change, they argue, it is precisely those acts of entrepreneurial boldness which must frustrate any discovery efforts made by fellow entrepreneurs. The entrepreneurial character of the market process (which is not disputed) must virtually guarantee, indeed, that that process must *fail* to be characterized as a systematic procedure of mutual discovery.[30]

Some followers of Lachmann, as well as others, have questioned, not so much the meaningfulness of the equilibrium concept itself (or of the notion of an equilibrating tendency), as the idea that we can, even in principle, identify an equilibrium position. In an open-ended world there is, these critics argue, no equilibrium position "out there" that can serve as a reference point for discussion of the presence or absence of "equilibrating tendencies" (see for example, Buchanan and Viktor Vanberg 1991).

(b) Those who object to the systematic learning character of the market process (as claimed by the entrepreneurial discovery approach) have been led by Murray Rothbard (1994; a foremost late twentieth century exponent of Austrian economics) and by Joseph Salerno (1993, 1994). Although their position is a relatively new one and has not yet generated sustained debate within the Austrian camp, it has already elicited a good deal of attention, and seems likely to stir up vigorous discussion in the immediate future. Rothbard and Salerno's understanding of the market process sees it

[30] Among those who have been deeply influenced by Lachmann's position, see Christopher Torr (1981), O'Driscoll and Rizzo (1985), Lavoie (1994), Wiseman (1989), Loasby (1992). See also Peter Lewin (1994). For critical reaction to Lachmann's position, see O'Driscoll (1978), Garrison (1987).

not as a continual process of knowledge acquisition, but as a continual process of entrepreneurial decision making which, at each moment, encourages the most perceptive entrepreneurs to make their best judgments in a world of incessant change, through the use of monetary calculation of estimated profits and losses. The degree to which the market achieves coordination is attributed, in the Rothbard-Salerno view, not to any systematic process of knowledge enhancement (through entrepreneurial alertness or anything else), but to the ability of shrewd entrepreneurs, using money prices as tools for calculation, to deploy resources at each moment, in what they believe to be their most urgently demanded uses—as judged ultimately by the consumers. At each moment, it is then claimed, the market has generated that "constellation of resource prices" which *always* reflects the circumstance that existing resources are devoted to their most valuable uses (Salerno 1993, p. 124). Rothbard and Salerno do not deny that the entrepreneurial approach accurately captures the insights pioneered by Hayek in his papers on knowledge (Hayek 1937, 1945, 1948). Their position is simply that this approach differs sharply from a distinctly Misesian paradigm, a paradigm which they endorse.

One important implication of this position is the assertion that, because of the incessant changes in the external data of the market, it leads to the denial of any actual progression in historical time toward long-run equilibrium (Salerno 1993, p. 122). This assertion claims, it appears, not merely that exogenous changes prevent the equilibrating process in any given period of time, from going very far (a claim which, it is recognized, the entrepreneurial discovery approach would certainly endorse), but also that unless one "invokes the ideas of quiescent calendar periods which separate successive exogenous shocks" (an invocation attributed by Salerno to the entrepreneurial discovery approach; Salerno 1993, p. 129), exogenous changes are *continually* frustrating any tendencies toward eventual equilibration.

The brief remarks in this section concerning debates within the "Austrian camp" should help dispel any illusion (possibly created by this paper) that the entrepreneurial discovery approach is seen as a cut-and-dried, completed body of Austrian doctrine. Most "Austrians" see this approach as an important but still debated development in work still in progress. They see it as inviting further exploration and application to such areas as: law and economics (see, for example, Rizzo 1979), the interface between Austrian and mainstream neoclassical paradigms, and the evaluation of mainstream neoclassical attempts to confront the kinds of concerns which have motivated Austrian economics. The theory of entrepreneurial discovery is thus seen as embodying a set of ideas able to inspire several new research programs, rather than as constituting any kind of definitive orthodoxy.

VI

These concluding observations take up briefly the question of whether there exists any necessary relationship between an Austrian approach (such as the entrepreneurial discovery perspective discussed here) and support for a policy of uncompromising laissez faire. A complete and careful discussion of this relationship is beyond the scope of this paper (and, if it were to be successful in expounding the relevant nuances, would require far more space than is here available). Nonetheless it seems useful to offer the following outline for such a

discussion. This will (a) respond to frequently expressed (and fully justified) curiosity concerning this relationship, and (b) perhaps provide necessary further clarification of the Austrian position presented in this paper.

It is true that, in their policy judgments, economists in the Austrian tradition have tended overwhelmingly to favor market solutions for solving society's economic problems. Certainly, this tendency is largely rooted in a shared and appreciative understanding of the coordinative properties of the entrepreneurial market process. There are, indeed, Austrian grounds for arguing that government regulation of market activity is likely to obstruct and frustrate the spontaneous, corrective forces of entrepreneurial adjustments. Yet to conclude that Austrian economics by itself rigorously entails adoption of unbridled laissez faire as the scientifically endorsed economic policy for nations, is a far too oversimplified—and inaccurate—conclusion.

Let us not forget that traditionally the economic case for laissez faire depended, for whatever its worth, on the claim that spontaneously achieved outcomes *are*, in a relevant sense, *efficient* (and can therefore only be worsened, not improved, by regulatory interference). Austrian economics cannot, strictly speaking, possibly offer a case for laissez faire based on this claim. After all, Austrian economics makes *no* claim that the market outcomes at any given date are efficient and socially optimal (in any sense in which traditional neoclassical welfare theory would use these terms). It is therefore certainly a misreading of the Austrian theory to construe it as claiming that the entrepreneurial discovery process ensures an unerring trajectory toward the attainment of that complete mutual awareness which is necessary for any notion of social optimization. What the Austrian theory argues is the far more nuanced thesis that the unbridled market tends to offer the incentives likely to stimulate movement in the direction of complete mutual awareness. To the extent that a case for laissez faire must rest on the claim that the market *attains* complete mutual awareness, Austrian economics provides no basis for such a case.

In addition it should be emphasized that, although the entrepreneurial discovery approach throws significant light on the incentives which stimulate movements in the direction of full mutual awareness, this does not amount to the assertion that *all* movements *must* be in that direction. Still less is it the case that entrepreneurial discovery is claimed successfully to *attain* full mutual awareness. As was noted in Section III entrepreneurial decisions may be entirely mistaken; they may in fact be *more* mistaken than those other entrepreneurial judgments they are replacing. So that, instead of correcting the earlier misallocations of resources, the entering entrepreneurs may be making matters even worse. And such errors may generate still more errors. Moreover, even if one imagined that, in a world of stable resource availabilities and consumer preferences, entrepreneurial judgments tend to avoid new errors, the possibility of volatile changes in resource supply and consumer demand conditions must inevitably prevent the entrepreneurial discovery process from proceeding very far toward complete mutual awareness by market participants.

If the Austrian theory claims that entrepreneurial discovery can account for a tendency toward equilibrium, that vague-sounding term "tendency toward" is used deliberately, advisedly, and quite precisely. Such a tendency does exist at each and every moment, in the sense that earlier entrepreneurial errors have

created profit opportunities which provide the incentives for entrepreneurial corrective decisions to be made. These incentives offer rewards to those who can better anticipate precisely those changes in supply and demand conditions which we have seen to be so disconcertingly possible. What our understanding of the entrepreneurial discovery process provides, is not conviction that an unerringly equilibrative process is at all times in progress, but rather appreciation for the economic forces which continually encourage such equilibrative movement.

Such Austrian appreciation for the market forces encouraging the equilibrative tendency certainly does offer support for laissez faire. It is no accident that Austrian economists have tended to see economics as showing the unwisdom of government regulation. For, although entrepreneurs can, as noted above, make errors, *there is no* ***tendency*** *for entrepreneurial errors to be made.* The tendency which the market generates toward greater mutual awareness, is not offset by any equal but opposite tendency in the direction of diminishing awareness. Understanding how government regulation of entrepreneurial activity is likely to frustrate the coordinative tendency toward error-correction, is often believed sufficient to permit the Austrian economist roundly to condemn such intervention.[31]

[31] For an example of such a belief see Kirzner (1985).

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