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Hayek's Implicit Economics: Rules and the Problem of Order

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From Menger to the present day, economists working in the Austrian tradition have displayed an ambivalent attitude toward the use of equilibrium constructs in economic analysis. On the one hand, they have repeatedly argued that economics should be primarily concerned with explaining economic processes that generate spontaneous economics orders. On the other, they have been reluctant to attempt to explain market processes without reference to some more or less standard notion of equilibrium to ground the analysis.

In Menger, the ambivalence shows itself in his references to prices that reflect the "full economic situation" despite the disproportionate weight that he gives to the growth of knowledge in explaining economic development. Similarly in Mises's *Human Action*, one finds a verbal analysis of evolutionary market processes as well as a justification for employing Mises's own notion of equilibrium, the evenly rotating economy, to illuminate aspects of a market order. Hayek's early work on capital theory makes full use of equilibrium reasoning while his positions in the economic calculation debate show his deep reservations about the appropriateness of the way equilibrium notions are employed by economists.

While the ambivalent attitude toward equilibrium has been a part of Austrian economics from its beginnings, it was largely Hayek's ruminations on the subject that called attention to the problematic nature of using equilibrium theorizing to capture the essence of a market process. In essays written in the 1930's and 1940's, and especially his 1937 article, "Economics and Knowledge," Hayek raised questions about the meaning and use of equilibrium that led later Austrians to debate the usefulness of equilibrium analysis for explaining market processes. Israel Kirzner and Ludwig Lachmann were the main players in the debate of the late 1970's and early 1980's (Vaughn (1992)), but the issue permeated the emerging American Austrian community and made for a temporary intellectual connection between Austrians and post-Keynesians.

Kirzner and his allies argued that it was crucial to describe the entrepreneurial function as "coordinating" where coordinating is a close cousin of, and sometimes a synonym for, equilibrating (Kirzner (1992, pp. 3–37)). Unless one could claim that entrepreneurs tended to coordinate otherwise discoordinated economic actions, Austrians would lose all claim to showing the fundamental order of a market economy, the order that they, along with Hayek, regarded as an empirical fact. To these Austrian, some notion that bore at least a family resemblance to conventional equilibrium was essential for preserving the theoretical explanation of economic order. Lachmann and his allies, however, argued, from a Shacklean

perspective, that equilibrium (except of the individual actor) was utterly incompatible with theorizing about an on-going market process that takes place in real time. If the future is created out of the undetermined choices of present actors, the notion of moving toward a particular equilibrium is incoherent (Buchanan and Vanberg (1991)). When O'Driscoll and Rizzo (1985) attempted a reconciliation of the two views with their theory of "pattern coordination," (1985, pp. 85–88) a theory that described a situation in which some features of a market action were perfectly coordinated (or in equilibrium) while others where open-ended and capable of generating Shackelean surprise, it satisfied neither side.[1]

Among neo-Austrians, the debates over the use of equilibrium that took place in the seventies and eighties appear to have died down. Many Austrians apparently accept the Kirzner-Garrison thesis that Austrian economics claims the "middle ground" between the perfect knowledge assumptions of general equilibrium theory and the total ignorance that they attribute to the Lachmann-Shackle position. In the middle ground, Kirzner argues, "Equilibrium is indeed never attained, yet the market does exhibit powerful tendencies towards it" (1992, p. 5). While others may find the "middle ground" unconvincing (Vaughn (1997)), this is not the place to launch into a point by point critique. Rather, my purpose here is more constructive. I propose to demonstrate that an explanation of economic order that does not rely on commonly available equilibrium constructs and still demonstrates the systematic regularities that Kirzner rightfully insists upon is not only possible, but is actually implicit in the writings of Friedrich Hayek.

It is well known that in "Economics and Knowledge," Hayek explored the assumptions about time and knowledge that must underlie a coherent use of equilibrium, and thereby, perhaps inadvertently, called the whole equilibrium notion into question. After that promising beginning, Hayek did not directly address the question of equilibrium again, yet the issues that concerned him in that essay shaped most of his later writings about markets and social processes in general. It is not surprising, then, that Hayek's later writings would contain the major ingredients for an account of market order that does not rely on conventional notions of equilibrium. It is also not surprising that such an important contribution to economic theory has not been more widely recognized since Hayek never specifically labelled his alternative formulation as "economics" per se. Yet, his many subsequent writings on social and political theory depend upon an implicit economics that for the most part is only alluded to in the context of other topics.

What is the central feature of Hayek's "implicit economics" that gives rise to increasing economic order? The key to economic order in Hayek's later writings is found in the role he sees for institutions as repositories of social learning. While he only explicitly described this role in the development of political and cultural institutions, his analysis applies perhaps even more usefully to the evolution of market institutions than it does to social and political ones.

Hayek's alternative embeds the Austrian appreciation of entrepreneurship within a larger institutional context of the market order. It is the institutional context that compensates for individual ignorance and makes it possible for people to formulate sensible expectations

[1]See the reviews of *The Economics of Time and Ignorance* written by Israel Kirzner and Ludwig Lachmann which were published simultaneously in *Market Process* in 1986 and now reprinted in Boettke and Prychitko, eds. (1994, pp. 38–51).

about the future. Only because human actors can take for granted as stable large areas of market activity, are they able to engage in the entrepreneurial experiments that can lead to the growth of market knowledge. Hayek's implicit economics describes a world of bounded, but unpredictable change where price equilibrium is a minor feature, and may even be beside the point.

Contra socialism

It is relatively uncontroversial to claim that Hayek's critique of equilibrium was formulated within the context of the economic calculation debate of the late thirties and early forties[2] (Caldwell (1988), Kirzner (1988), Vaughn (1994)). The market socialists, and especially Oskar Lange, he believed, were being led into a gross underestimation of the problem of central planning because of their "excessive preoccupation" with equilibrium to the exclusion of market processes (1940, p. 188). Hayek criticized the socialists for attempting to redesign the economy by using a theoretical construct that at best described a potential outcome of a market process and was made tractable only by assuming all market adjustments were instantaneous and all knowledge given.

We see this line of argument as early as 1935 in "The State of the Debate" (Hayek (1948, pp. 148–180)), where he begins to explore the relationship between the assumptions of general equilibrium and the actual market experience. Here are the beginnings of many of Hayek's later arguments concerning the nature of knowledge and the way in which market processes generate learning. Specifically, he makes three points that will figure importantly in his later writings on the market order: that information is not "given" to any one person but is dispersed among many individuals (p. 155), that relevant market knowledge consists partly in "techniques of thought" for solving problems, and that market processes are in fact the product of the many small adjustments that people make to constant change (p. 156). Even more surprising, he hints at his later argument, usually attributed to his 1969 article, "Competition as a Discovery Procedure," that market activity is a kind of trial and error process in which the most competent and knowledgeable succeed. He argues that to say that technical knowledge is given must mean that . . . "people with all kinds of knowledge will be available and that among those competing in a particular job, speaking broadly, those that make the most appropriate use of the technical knowledge will succeed" (p. 155).

In sum, Hayek maintains (a) that knowledge is diverse and (b) that competitive processes somehow will allow the most successful knowledge to emerge, a harbinger of his future accounts of social evolution. Further, the market process itself is a set of activities responding to constant change and not a static state of affairs. Markets reflect the numerous small adjustments that people make in response to perceived changes. While it may not "come near" the state of equilibrium described by a system of equations, that is not the point. "The

[2]This does not mean that Hayek's work on capital theory was unimportant to his thinking about equilibrium. In fact, the problems of intertemporal equilibrium that he was addressing in his business cycle theory may well have stimulated his objections to the socialists' too facile attempt to pattern new economic institutions on the Walrasian model. Hayek knew too well from his capital theory the difficulties in even defining an equilibrium position in a complex capital using economy over time to think "solving" for equilibrium prices in the socialist commonwealth would be a simple matter. On this issue, see Foss.

essential thing about the present economic system is that it does react to some extent to all those small changes and differences which would have to be deliberately disregarded under the system (of central planning)" (p. 156). This "essential thing," then, appears to be some sort of process of orderly change.

While Hayek chipped away at the particulars of the socialist planning schemes in a series of articles critical of central planning, it was specifically in his justly famous article, "Economics and Knowledge" that he raised the central issues of the use of equilibrium constructs that were to trouble Austrian economists more than forty years later.

Economics and knowledge

In "Economics and Knowledge," Hayek does not reject equilibrium theorizing out of hand. Instead, he seems to want to save the concept by reinterpreting it. Equilibrium to Hayek, means a relationship between proposed actions. To say that an individual is in equilibrium means that his actions are all part of one plan based on his subjective view of the world. The problem for economics is to explain how an individual's subjective beliefs ever come to conform with the "objective data" of the world around him. Similarly, equilibrium among several people is a state of affairs in which the beliefs of all individuals are such that they can all carry out their plans without disappointment. However, such a state requires that the mutual beliefs and expectations of these individuals are congruent with the objective facts of the world. The problem is made more difficult by the realization that one person's plans and actions become the "facts" that other people must take into account in their plans. The problem is to explain how markets enable people to learn enough about each other's plans so that they can coordinate their own actions to the actions of others. This requires, according to Hayek, empirical propositions about how people learn: As Hayek puts it,

> . . . my main contention will be that the tautologies, of which formal equilibrium analysis in economics essentially consists, can be turned into propositions which tell us anything about causation in the real world only in so far as we are able to fill those formal propositions with definite statements about how knowledge is acquired and communicated (p. 33).

Any such propositions will recognize the nature of knowledge in a market economy: that knowledge (or "data") consists of beliefs and expectations (p. 49), that people learn from experience, (p. 46) and that knowledge is fragmented and reflects a "division of knowledge" (p. 50). The division of knowledge, further, raises a central question of economics:

> How can the combination of fragments of knowledge existing in different minds bring about results which, if they were to be brought about deliberately, would require a knowledge on the part of the directing mind which no single person can possess? (p. 54).

How, indeed? Stated in this fashion, the question is at the heart of our understanding of economic order. It was Hayek's contention that equilibrium theory as it was understood at

the time, begged this central question. Since the only justification for equilibrium theory is if there is a tendency toward equilibrium in the real world, it simply is not useful to describe a set of equilibrium conditions unless one also has a theory of how those conditions can be achieved.[3]

In "Economics and Knowledge," then, Hayek presents himself with a complicated problem. If equilibrium is to be useful, it must explain how people come to know enough to carry out mutually consistent plans, but that means developing two auxiliary theories: a theory of how knowledge is acquired and a theory of how divided knowledge can be interconnected. That is, we must discover how people are able to acquire the knowledge useful to them in a market economy and a theory of how people can use other people's knowledge to their own advantage without themselves acquiring it.

The first half of the solution—The price system

Hayek makes his first pass at solving the problem he sets out in "Economics and Knowledge" in his 1945 article, "The Use of Knowledge in Society" (Hayek (1948, pp. 77–91)). There he opens with a restatement of the economic problem as he sees it: "... how to secure the best use of resources known to any of the members of society, for ends whose relative importance only these individuals know. Or, to put it briefly, it is a problem of the utilization of knowledge which is not given to anyone in its totality" (p. 78).[4]

He makes it clear that the problem is an on-going one for market participants which requires them to continually adjust their actions to new information:

> "The continuous flow of goods and services is maintained by constant deliberate adjustments, by new dispositions made every day in the light of circumstances not known the day before, by B stepping in at once when A fails to deliver" (p. 83).

Now, exactly how is it possible for people to adjust to constant changing circumstances in a manner that allows "A to step in when B fails to deliver."

Hayek's answer in this essay is his justly famous paean to the price system:[5] The price system is a "marvel" that economically communicates relevant knowledge and allows people to take advantage of the knowledge of others at minimum cost to themselves.

To most economists, Hayek's account of the communication function of prices is unproblematic. Recently, however, it has generated criticism that Hayek's praise of the economy of prices is too neoclassical and conflicts with his earlier statements about knowledge.

[3]For a full discussion of Hayek's various uses of equilibrium, see Rizzo (1990, 1992).

[4]Stated this way, it seems as if he is limiting himself to explaining the dissemination of existing knowledge through an economic community. However, in light of his subsequent statement that "the economic problems arise always and only in consequence of change ..." (p. 82) it seems likely that Hayek took for granted that new knowledge would arise as part of the market process as well. On the other hand, he did not specifically address the question of the discovery of new knowledge in this article. That discussion did not appear until 1968.

[5]"... in a system in which the knowledge of the relevant facts is dispersed among many people, prices can act to co-ordinate the separate actions of different people in the same way as subjective values help the individual to co-ordinate the parts of his plan" (p. 85).

Desai (1996) has argued that for prices to function as Hayek says, they must be equilibrium prices, contradicting his earlier statements that markets never reach equilibrium. Kirzner (1992, p. 149) has gently chided Hayek for overemphasized the information content of prices per se while failing to emphasize that it is changing prices that really convey relevant information. While both criticisms have merit (in fact, Hayek does refer indirectly to equilibrium prices in summing up his argument (p. 86)), the force of his argument is on how changing prices lead to subsequent adjustments, not on the equilibrium character of prices. Changing prices are a way of linking dispersed knowledge (knowledge of time and place) together in an economical way. Flexible prices make possible "constant deliberate adjustments" to changing circumstances (p. 83). Granted, this does not entirely solve the problem of what information is conveyed by non-equilibrium prices, but neither does it preclude a later solution.

Hayek's praise of the price system has also suggested to some that he regarded the price system alone is *sufficient* for communicating relevant information (Fleetwood (1997), see Thomson (1992) for a contrary view). However, to interpret Hayek as arguing that prices are the only source of information for bringing about the coordination of plans must de-emphasize (as Fleetwood does) both the context of the argument and several crucial qualifying statements included toward the end of the article.

There is no doubt that "The Use of Knowledge in Society" is an article extolling the price system. However, given Hayek's purpose which was to bolster his arguments against administered prices in central planning schemes, perhaps the strong emphasis he places on the communicating properties of prices may be treated as exaggeration to make a point. Where Lange et al. were attempting to devise a system of arriving at equilibrium prices outside of genuine markets, Hayek was pointing out that if prices even approach equilibrium it is because individual actors can react to change. Hence the importance of emphasizing the role of flexible prices in a decentralized market for permitting the numerous "small adjustments" that generate efficient resource use.[6]

More important for our purposes, at the end of the article, Hayek places the price system in the context of a larger class of phenomena that we can loosely term the institutions of society. Even at this early date, Hayek notes both that institutions are a necessary feature of any set of social arrangements and that man did not consciously design the institutions that are so helpful to him in the carrying out of his plans:

> We make constant use of formulas, symbols, and rules whose meaning we do not understand and through the use of which we avail ourselves of the assistance of knowledge which individually we do not possess. We have developed these practices and institutions by building upon habits and institutions which have proved successful in their own sphere and which have in turn become the foundation of the civilization we have built up.

[6]Hayek's continual emphasis on small adjustments in the market reflect his later attitude toward the possibility of catallactic order. In fact, it is likely that he believed that most prices tended to be stable or varying only slightly in a well functioning market.

> The price system is just one of those formations which man has learned to use . . . after he had stumbled upon it without understanding it (p. 88).

It seems clear from this passage that at least by 1945, Hayek had hit upon the key to an account of the economic order that did not rely on conventional notions of equilibrium: that key was to view the economy as a set of institutions of which the price system was an important component, but not the only important component. Unfortunately, instead of going on to work directly on a more technical theory of how the price system was related to the other institutions of society to produce economic order, Hayek more and more turned his attention to "the philosophical and methodological issues" that underlay the economic planning debate (Hayek on Hayek, 79). Not that these were antithetical interests. In fact, by turning his attention to the larger issue of central planning and eventually the liberal order, he sketched the outlines of more complete theory of the market process as well.

Rules and spontaneous order

Hayek's political and social writings are exercises in explicating the notion of a spontaneous order, a set of social arrangements that appear to be designed by some single intelligence, but in fact, arise as the by-product of human actions aimed at individual purposes. According to Hayek, spontaneous orders emerge as the consequence of rule governed human action: social order is only possible because human beings follow rules, both formal and informal. Formal rules are the abstract rules of law that are enforced by the coercive powers of the government; informal rules are customs and habits of a social group enforced primarily through social approbation or disapproval. In both cases, rules function in two important ways in society. They increase predictability in social interaction and they serve as a repository of knowledge that may not be fully understood by the actors who follow the rules.

While Hayek's most important writings on the nature of the social and political order date from 1960 (*The Constitution of Liberty*), the seeds of his arguments can be found as early as 1944 in *The Road to Serfdom*, his political as opposed to his economic response to the economic calculation debate. In *The Road to Serfdom*, (as well as in some of his shorter paper written during the early 1940's) one can see his early objections to economic planning extended to the consequences planning would have for political society.

The central argument in *The Road to Serfdom* is that economic planning potentially leads to dictatorship and despotism. Planning requires establishing a hierarchy of ends, but humans have a multiplicity of disparate and often conflicting wants that cannot be aggregated into a unique hierarchy. Hence only the coercive powers of a dictator can bring about the necessary "agreement" about ranked goals that permit the plan to be fulfilled. Even worse, this spurious agreement will still not achieve the planners ends because knowledge is limited and fragmented and the plan itself will bring about unintended consequences that can only be addressed by even more coercive methods. Hence, economic planning, far from being

a benign supplement to democracy could in fact destroy it. Only a system of decentralized decision-making guided by the rule of law is likely to preserve political liberty.[7]

Hayek's discussion of the rule of law here is a mere shadow of what it would become in his later works. However, by distinguishing between formal and substantive rules, he makes an important point that he will explore in greater depth later on. Formal rules are abstract and apply equally to all people. As a consequence, they allow people to predict some consequences of their actions, an indisputable advantage when formulating their own plans. If we remember that formulating plans that are capable of fulfillment is Hayek's definition of equilibrium, formal rules (or as he will later call them, abstract rules of order) are vital for bringing about a Hayekian equilibrium. In fact, the formal rules of law. ". . . could almost be described as a kind of instrument of production, helping people to predict the behavior of those with whom they must collaborate . . . " (1944, p. 73).

While his discussion of rules in *The Road to Serfdom* is suggestive, in *The Constitution of Liberty*, suggestions become a full blown discussion of the importance of rules to social order. Here, however, he adds another dimension to the function of rules in social order: Both "the transmission in time of our accumulated stock of knowledge and the communication among contemporaries of information on which they base their action" is important in human social order (1960, p. 27). In earlier writings, he emphasized the communication problem at a moment in time; here, he explores the role of institutions as transmitters of knowledge through time to subsequent generations. In this issue we see the seeds of his later theory of social evolution.

The later Hayek became famous (or infamous) for his theory of social and cultural evolution. It was the one aspect of his work that generated criticism from friend and foe alike.[8] While most criticism focused on his formulation in *Law, Legislation and Liberty*, he actually puts forth a reasonably complete argument about the nature of social evolution in *The Constitution of Liberty*, and does so in a way that undercuts later criticisms. For our purposes, it is important to note that both here and in *The Road to Serfdom* that he understands cultural evolution first by analogy to an economic phenomenon: the evolution of "tools" or technology.

Hayek explains that techniques of production evolve gradually as people learn to modify existing tools to better suit their purposes (cf. Smith (1976, p. 20)). The result is often that the original model of a modern tool might well be unrecognizable to current workmen. Traditions and institutions are like tools ". . . which the human race has evolved and which enable us to deal with our environment. These are the results of the experience of successive generations which are handed down. And once a more efficient tool is available, it will be used without our knowing why it is better, or even what the alternatives are" (1960, p. 27).

[7] *The Road to Serfdom* is a much undervalued work, in part because Hayek himself referred to it as polemic. He claimed that he lost so much academic credibility by writing it, that he had to produce a very scholarly work to regain his reputation. While the world can be grateful that his sense of scholarly embarrassment led to the publication of another monumental work, *The Sensory Order*, given the careful reasoning and measured argument characteristic of the book, Hayek seems entirely too diffident about the contribution he made in *The Road to Serfdom*. Vaughn (1984). For similar assessments of the work, see Boettke (1995) and Barry et al. (1984).

[8] See, for example, Gray (1986), Buchanan (1986), Vanberg (1986). For a more favorable view, see Vaughn (1994) and Whitman (1998).

Traditions and institutions of society are like tools in that they, too, embody cumulative learning about solutions to problems that has taken place through perhaps millennia of experimentation.

Hayek continues with a terse description of a process of social evolution that will form the basis for his later trilogy, *Law*, *Legislation and Liberty*:

> "Every change in conditions will make necessary some change in the use of resources, in the direction and kind of human activities, *in habits and practices* (italics mine) . . . Thus every change in a sense creates a "problem" for society, even though no single individual perceives it as such; and it is gradually "solved" by the establishment of a new over-all adjustment" (1960, p. 28).

The consequence of this problem solving is "successful adaptations of society that are constantly improved and on which depend the range of what we can achieve" (1960, p. 34).

Adaptation and the role of individual actors

But how is successful adaptation brought about? How are problems solved if no individual "perceives it as such?" That is, what is the mechanism for social evolution that allows previous learning to be embedded in the traditions and institutions of society? Hayek has sometimes been criticized for allegedly failing to ground his evolutionary theory in individual action, but a close reading of his account of social evolution here should lay that criticism to rest. He clearly argues that innovations occur because in an essentially rule following society, some individuals are willing to bear the disapproval of their fellows to solve problems in novel ways. The growth of human knowledge proceeds, then, "by the selection and imitation of successful habits" (1960, p. 59). "The existence of *individuals* (italics mine) and groups simultaneously observing partially different rules provides the opportunity for the selection of the more effective ones" (1960, p. 63). Evolutionary progress does not depend exclusively on simple observation and imitation, however; it also proceeds through persuasion: "Advance consists in the few convincing the many" where "individuals act according to their own designs" (1960, p. 110).

To reconstruct the argument: Societies are characterized by a system of overlapping rules (traditions, customs, practices). Individuals attempt to solve their own economic "problem," often with novel actions. Insofar as others can observe the novel action, they choose either to imitate it or to condemn it. Novel actions which appear to enhance their own ability to further their aims are likely to be adopted and spread. In this way, novel practices can be introduced into a society and may even cause it to splinter into new social arrangements. Insofar as the new practice also serves to solve some larger, unperceived, social problem as a by-product of individual action, it represents a successful social adaptation.

The question of the relationship between individual actions and imitation of those actions and the degree to which the new practice is really "more effective," is an important one. While the implicit criterion for judgment is the degree to which the practice furthers individual aims, what benefits an individual in the short run might not prove to be beneficial to others who follow his lead in the long run. The problem arises because of the imperfections

in judging from the "outside" what has led to individual success and partly because in a complex reality, individual experimentation is never controlled. It might be that the short run success of an individual will give way to long run failure after all factors have had time to operate. In short, even an apparently successful practise may or may not foster the flourishing of the group that adopts it. Hayek only alludes to the problem here, but he addresses it head on in his next major work: *Law*, *Legislation and Liberty*. His answer there was to develop his much criticized theory of group selection.

Group selection

Hayek's theory of group selection was a logical continuation of the evolutionary theory he had begun to develop earlier. Individuals may adopt rules that appear to them to enhance their ability to achieve their ends, but there would be no way to know whether or not the new rule would have negative consequences to themselves and/or to others over time. In so far as the rule were to be adopted by a whole society (or some large subset thereof), its efficacy could only be tested in the long run, and in competition with groups that followed alternative rules. Groups would rise or fall depending upon how well their commonly shared rules allowed them to compete for resources with other groups.

While Hayek's presentation of his group selection theory admittedly was often murky, it is important to point out that whatever its problems, Hayek was not at all expunging individual agency from his theory of social evolution as some critics have argued. Consider the problem he was addressing: How do people come to acquire new knowledge and new technologies when there is no "given" knowledge or no recipe book to read from. The adoption of rules, no matter how initiated is always subject to testing through the experience of using them. Some sort of selection process is operable in human social orders whether we like it or not. But humans live in groups. Social evolution by definition is the evolution of rules followed by groups of human beings. Hayek, however, pointed out that it is individual minds that conceive of problems and new ways to solve those problems, and it is individuals who choose whether or not to follow a new rule. Evaluating, choosing individuals are the first step in introducing and selecting any novel course of human action. The unintended consequences of novel actions are unforeseeable and affect the ultimate selection of social rules.

From social rules to catallactics

While it is widely recognized that Hayek began his investigations into the nature of social order as a consequence of his work on economic systems, it is generally not recognized that Hayek's theory of the evolution of social order is most convincing when used to explain the evolution of market institutions. Indeed, if we tie together the arguments Hayek makes in his political writings with his economic essays, we see a coherent account of economic order that does not rely on conventional equilibrium analysis emerge as pieces of jigsaw puzzle.

Unfortunately, Hayek did not himself try to rewrite economic analysis in light of his work on social institutions. However, he did bring some of the pieces together in two important

pieces: "Competition as a Discovery Procedure" (1978, pp. 179–190) and Volume II of *Law, Legislation and Liberty* (1976, pp. 107–132).

"Competition as a Discovery Procedure" is important for several reasons. It contains one of Hayek's first clear references to tacit knowledge in economic affairs (Vaughn (1994), Fleetwood (1997)). Fleetwood has argued that it is evidence of a Hayek III who recognizes the reality of social knowledge. For our purposes, however, even more important is the distinction Hayek makes here between an economy and a spontaneous order. An economy, "is an organization or arrangement in which someone deliberately allocates resources to a unitary order of ends" (1978, p. 183). A market order, or catallaxy, as he now calls it, is composed of individuals with a multiplicity of often competing ends. The market order facilitates the achievement of individual ends through competition, and the process of competition generates the knowledge that economists often regard as given.

But how to describe the characteristics of this order? Hayek once again is critical of conventional notions of equilibrium. The term, equilibrium, is "unfortunate" because it "presupposes that the facts have already all been discovered and competition, therefore, has ceased" (1978, p. 184). Conventional equilibrium is most appropriately applied to an economy. The term is not useful to describe the properties of a market in which knowledge is continually being discovered. A market society is an "order" (or spontaneous order) that can reflect varying degrees of "orderliness" and can be maintained through a process of change. While here, Hayek compares the catallaxy to a "self-organizing system," he does not go into detail about how the system works.[9] In fact, it isn't until 1978 in volume II of *Law, Legislation and Liberty* that he attempts a fuller explanation of the nature of a catallactic order.

The game of catallaxy

A spontaneous order, according to Hayek, is a recognizable pattern of actions that emerges because the elements follow specific rules. A catallaxy is "a special kind of spontaneous order produced by the market through people acting within the rules of the law of property, tort and contract" (1978, p. 109). Laws of property, tort and contract support a set of exchange relationships that contributes to the cooperative meshing of plans among a wide interdependent network of human beings. The consequence of these exchange relationships is continually growing wealth for those so connected. Wealth grows because people can innovate with their own property, and the returns to their efforts accrue to them. Hayek calls this the "game of catallaxy". Gains can be measured because the price system and its derivative, cost accounting, is available as a sign of the benefit of the effort to others. In the game, the discoveries of some are communicated to all: "It is by conveying information in coded form that the competitive efforts of the market game secure the utilization of widely dispersed knowledge" (1978, p. 117).

Notice that once again, Hayek emphasizes the role of prices in maintaining catallactic order. However, here, he notes that the price system has its limits. The market proceeds

[9]For a discussion of the relationship between Hayek's theory of spontaneous order and modern complexity theory, see Vaughn and Poulsen, "Is Hayek's Social Theory an Example of Complexity Theory?" George Mason University Economics Department Working Papers, 1998.

by trial and error which means that there will be a constant stream of disappointments as people find their expectations falsified. If change is too rapid, Hayek implies, people will find it difficult to use the price system to formulate reasonable plans. Change is continual in human life, but people can only cope effectively with constant change if it is not too rapid or disruptive.

In a well functioning market order, current prices must always "provide some indication" of what future prices will be for people to plan. For the "negative feedback" of the market to function to bring about more and more plan coordination, two conditions are necessary: that there be a "fairly constant framework of known facts, (and) only a few of them change . . . (and) . . . so long as the price mechanism operates as a medium of communicating knowledge which brings it about that the facts which become known to some, through the effects of their actions on prices, are made to influence the decision of others" (1978, p. 125). The implication seems to be that for markets to do their jobs, there must be large areas of stability to give a basis for handling changes at the margin.

This is a very provocative idea that Hayek himself did not plumb for further insights. In fact, as others have noted (Burczak (1994)), he seems in the rest of this chapter to fall back on more equilibrium saturated notions such as production possibilities curves and the law of one price. Yet, if we try to flesh out Hayek's sketchy argument here, there may be a way to reconcile his equilibrium-like arguments with his more compelling discussion of coping with change. To proceed, we must ask first what in Hayek's thought creates the "constant framework of known facts" that changes only gradually.

It seems reasonable to interpret the constant framework as the relatively stable set of institutions, practices, and traditions that constitute a market order. This set of regular practises is likely under normal conditions to change slowly so that coping with change is largely an exercise in making marginal adjustments to a more or less intact set of plans.

The institutions and traditions of a social order are recurring patterns of actions that in fact define the substance of the market order. By their very existence, they provide a degree of predictability in human behavior that allows actors to take vast areas of human experience for granted. In markets, humans come to rely on more or less stable market institutions to give them a basis for formulating their economic plans. While Hayek does not specifically call attention to them, markets are really defined by the institutional arrangements for trade. All trades have rituals or expected behaviors associated with them. Not to know them means not to be able to trade. Such rituals or behaviors are characteristics of all firms, personal relationships (to which Hayek explicitly called attention), and locations for trade. By inverting Hayek's original insight, we can even think of technologies as traditions or rules for action that embody past knowledge and create a certain basis upon which to plan.

Hayek's emphasis in all of his writings is on markets as means of adapting to change and on the concomitant growth of knowledge. Consider, however, what he means by knowledge. Certainly, it is universal scientific knowledge, but he is more concerned with local knowledge and with tacit knowledge. In all cases, knowledge is knowledge of some rule. What markets generate is growing knowledge about how to do things to improve one's wealth. It is not much of a stretch to call this knowledge, rules of market behavior.

A market order or catallaxy, then, is a network of overlapping institutional arrangements that facilitate the actions of entrepreneurs to create wealth in two ways: (a) the institution of

monetary exchange gives rise to prices that enable entrepreneurs to make judgments about the expected profitability of a proposed venture and (b) their expectations and judgments are informed and constrained by their knowledge of the relatively stable structure of market, political and social institutions. Entrepreneurial actions are undetermined and even creative, yet there are reasonable bounds to what is likely to emerge in any given market order. The future is unknowable, as Lachmann was always ready to remind us, but the range of imagined possible futures is constrained enough by the institutional environment to make some futures far more likely than others. It is this bounding of the future by the institutions of any particular market order that makes the achievement of human plans generally possible. We can achieve our goals as often as we do because not everything changes at once, and because we know (or at least some people guess correctly) which institutions are more likely to change than others. In normal circumstance, then, Hayek suggests that most markets will likely be relatively stable with prices changing infrequently and/or by small amounts. These markets will be closest to the neoclassical notion of equilibrium and make account for Hayek's reversion to equilibrium notions in his account of the catallaxy.

However, a well functioning catallaxy should also enhance individuals' abilities to cope relatively successfully with significant, major changes brought about by, say, important new innovations or even natural disasters. Major changes will upset individual plans more drastically and require major institutional adjustments. In a healthy catallaxy, however, existing webs of interconnections should provide enough resiliency to incorporate the emergence of new institutions as people learn the implications of changing market situations. The important question, then, is what characteristics of a catallaxy contribute to its ability to deal with major changes? One can only infer that Hayek believed that in some circumstances, markets would have a more difficult time dealing with catastrophic changes than "small adjustments". Large changes would be likely to break too many connections in the market and distort or render obsolete too much knowledge of time and place. However, except perhaps in his early writings on business cycle theory or his writings on inflation in the 1970's, he did not take up this important question. Instead, Hayek focused his analysis on the way in which political and legal institutions could affect individuals' ability to act within the market order.[10]

If this reading of Hayek is correct, we are led to an entirely different picture of a market order than is portrayed by general equilibrium theory. The value of general equilibrium is partly to show the interconnectedness of the market order, but professional focus has been limited to examining equilibrium prices and the welfare consequences that follow therefrom. In Hayek's implicit economics, these issues are sidelights. What is in full focus is the interconnectedness of the institutional structure with its regular trading relationships and established channels of communication. Within these channels, actors are constantly making all those "small adjustments" incited often, but not always, by price changes that keep goods flowing at costs as low as anyone knows how to make them. Prices, then, are vitally important in communicating information within the web of trading relationships and

[10]It could well be that he believed that government was the primary source of destabilizing change and that markets would not in themselves generate major disruptions. In any case, this is an area in Hayek's approach that requires much more attention.

for facilitating economic calculation, but prices do the job within the context of a relatively stable institutional structure.

Conclusion

Clearly, the outline of the market order offered above is a reconstruction, not an exposition, of Hayek's understanding of a spontaneous market order. Further it is just the beginning of such a reconstruction. It seems clear, however, that as the details are worked out, conventional notions of equilibrium as some destination of a market process or as a criterion for evaluation will be irrelevant. And, it also seems clear, that this will in no way increase the difficulty of explaining a coherent and wealth creating market order. The worries that many Austrians have expressed—that rejecting equilibrium theory (even as an end-point of a market process) means giving up any explanation of the coherence of markets will hopefully be revealed to have been for nought.

The market process is motivated by the efforts of actors to improve their own well-being. The consequence of market action is a continual increase in useful knowledge brought about as successive solutions to economic problems. This useful knowledge gets embodied in new market institutions and practises. What must be emphasized is that markets work not solely because people are entrepreneurial but also because they are entrepreneurial within a particular institutional. Human beings cannot learn or find solutions to problems in a vacuum. They always start from some basic knowledge of "time and place" which in large part consists of knowledge of the local institutional structure. This knowledge is necessary to a reasonable assessment of the consequences of their actions.

Entrepreneurship can only be exercised if the entrepreneur already knows a great deal about the circumstances surrounding the opportunity he believes he has identified. That is, an entrepreneur can exploit profit opportunities only insofar as he knows how to buy in one market and sell in another with all the rich detail that those activities encompass. This knowledge of "how to" is knowledge of at least the relevant parts of the institutional structure that makes up a market economy. While such knowledge does not guarantee entrepreneurial success, it does load the dice, so to speak, in the entrepreneur's favor. Or rather, it means that entrepreneurial hunches or judgments will be based on a large substrata of relatively predictable behavior that will make their own ventures more likely to be successful than if no such substrata existed. So in so far as entrepreneurial knowledge is in the middle ground between perfection and perfect ignorance, it is because there is a well developed and relatively stable institutional structure to have knowledge of.

Austrians for years have acknowledged the importance of institutions in market society without fully examining their theoretical role. It is now time to follow in Hayek's footsteps to complete the integration of institutions and prices that he began. Only then will a full account of the functioning and benefits of a market society be developed.

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