TWENTY

The Market as a Creative Process

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Had Pyrrhus not fallen by a beldam's hand in Argos or Julius Caesar not been knifed to death? They are not to be thought away. Time has branded them and fettered they are lodged in the room of the infinite possibilities they have ousted. But can those have been possible, seeing that they never were? Or, was that only possible which came to pass?

James Joyce[1]

1. Introduction

Contributions in modern theoretical physics and chemistry on the behavior of nonlinear systems, exemplified by Ilya Prigogine's work on the thermodynamics of open systems (Prigogine and Stengers, 1984), attract growing attention in economics (Anderson, Arrow, and Pines, 1988; Arthur, 1990; Baumol and Benhabib, 1989; Mirowski, 1990; Radzicki, 1990). Our purpose

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here is to relate the new orientation in the natural sciences to a particular nonorthodox strand of thought within economics. All that is needed for this purpose is some appreciation of the general thrust of the enterprise, which involves a shift of perspective from the determinism of conventional physics (which presumably inspired the neoclassical research program in economics) to the nonteleological open-endedness, creative, and nondetermined nature of evolutionary processes.

Prigogine and Stengers (1984, p. 177) refer to this shift in perspective as "a reconceptualization of the physical sciences," as a move "from deterministic, reversible processes to stochastic and irreversible ones." The emphasis is shifted from equilibrium to nonequilibrium as a "source of spontaneous self-organization" (Prigogine, 1985, p. 108), to self-organizing processes in open systems far from thermodynamic equilibrium (Prigogine, 1985, p. 108). A characteristic feature of such systems is the presence of nonlinearities that can amplify "small causes" into "large effects." At critical points (referred to as "bifurcations"), very small events can have significant macroeffects, in the sense that they "decide" which particular path – among a number of equally possible paths – the system will take, a fact that introduces a stochastic element and renders self-organizing processes in far-from-equilibrium conditions inherently undetermined.[2] Such processes exhibit a mixture of necessity and chance that, as Prigogine and Stengers note (1984, pp. 169ff.), produces a unique and irreversible "'history' path along which the system evolves."

What is suggested here is a generalized perspective that brings into focus creativity and open-endedness in the evolution of nonequilibrium systems, a perspective that has as its *leitmotiv* "that the future is not given" (Prigogine, 1986, p. 493), but is created in an unfolding evolutionary process.[3] Authors like P. M. Allen (1988, p. 99) and J. S. Wicken (1987, p. 3) speak of a *new evolutionary synthesis*, a "unified view of the world which bridges the gap between the physical and the human sciences" (Allen, 1988, p. 118). In his discussion on the relevance of the "new evolutionary synthesis" for economic theory, Allen stresses the concern with *microscopic diversity* as the critical feature. The "cloudy, confused complexity of the real world" (1988, p. 99) is the essential subject of an evolutionary approach – in contrast to a perspective that looks for types and classes, and that views microscopic diversity and variation as negligible aberrations, to be averaged out through classification and aggregation.[4] Variability and individual diversity at the microscopic level drive evolutionary processes; they are the crucial ingredient to the "creativity" of these processes, of their potential to generate novelty. As Allen (1988, p. 108) puts it: "The fluctuations, mutations and

apparently random movements which are naturally present in real complex systems constitute a sort of 'imaginative' and creative force which will explore around whatever exists at present." Allen sees here the critical difference between an evolutionary perspective and one that centers around the notion of predetermined equilibrium states, the difference between the new self-organization paradigm and a "Newtonian paradigm" in which any "representation of 'creative processes' was entirely absent" (*Ibid.*, p. 97).[5]

As noted, our purpose is, first, to identify a body of criticism of orthodox equilibrium theory in economics that seems to correspond closely with the developments noted in the natural sciences, and, second, to elaborate on the implications of this (the *radical subjectivist*) criticism in some detail and, particularly, in its relation to its near neighbor, the entrepreneurial conceptualization of Israel Kirzner.

2. Subjectivism, the Growth of Knowledge, and Indeterminedness

P. M. Allen's article is but one example of the growing number of comments on the apparent relevance of the *new evolutionary synthesis* for a reorientation of economic theory. The reasons that limit the applicability of equilibrium models, even in the traditional realm of physics and chemistry, apply *a fortiori* to the domain of economics. The equilibrium concept is associated with a world view that treats the future as implied in the present. In principle, future states could be predicted based on sufficient knowledge of the present; that is, if it were not for *de facto* limits on our knowledge of an immensely complex reality. By contrast, a core insight of the new paradigm is that nature is creative, that novelty and genuinely unpredictable outcomes are generated as the evolutionary process unfolds over time. The creativity argument has all the more force where concern is with social processes that are driven by human choice and inventiveness.[6]

One criticism of economic orthodoxy that has been advanced from a strict *subjectivist* position (a criticism that has, to our knowledge, been developed independently of the literature discussed above) has, in some respects, a strikingly similar thrust.[7] It should be said at the outset that there is no clearly delineated body of thought that would fall under the rubric of *subjectivism.* The term has been adopted by, and used as a label for, a number of perspectives in economics that agree in their broad criticism of the neoclassical general equilibrium framework, but that are by no means theoretically homogeneous. With this proviso stated, we want to concentrate the discussion here on what is often referred to as "radical subjectivism," a position associated primarily with the name of G. L. S. Shackle (1979) as well as with

the work of such other authors as L. M. Lachmann, J. Wiseman, and S. C. Littlechild. In Sec. 3, we shall take a closer look at the modern Austrian version of subjectivism, represented by I. Kirzner's work on entrepreneurship, and we shall discuss the differences that Kirzner sees between his own position and "radical subjectivism."[8]

At the core of Shackle's attack on the "neoclassical citadel" (Lachmann, 1976, p. 54), and central to the radical subjectivist view in general, is the issue of what we can claim to know about the future in our efforts to understand the world of human affairs. The basic objection to neoclassical general equilibrium theory is that it embodies assumptions about the knowability of the future that are entirely unfounded, not only in their most extreme variant, the assumption of perfect knowledge, but also in their softer varieties, such as assumptions about rational expectations or Bayesian adaptive rationality. For radical subjectivism there is simply no way around the fundamental fact that whatever happens in the social realm is dependent on human choices, choices that – if they are *choices* – could be different, and could, if they were different, have different effects.[9] There can, therefore, be no "given" future, independent of the choices that will be made. Instead, there are innumerable potential futures of which only one will emerge as the choice-process unfolds. As Shackle puts it, "the content of time-to-come is not merely unknown but nonexistent, and the notion of foreknowledge of human affairs is vacuous" (1983, p. 33). Or in J. Wiseman's terms: "The essence of the radical subjectivist position is that the future is not simply 'unknown,' but is 'nonexistent' or 'indeterminate' at the point of decision" (1989, p. 230).[10]

The recognition that in human social affairs the future is undetermined but "created" in the process of choice, does not imply that the future is "beyond *conjecture*" (Wiseman, 1990, p. 104), nor does it ignore that individuals have *expectations* about the future on which they base their action. The subjectivist's understanding of the nature and role of such expectations is, however, critically different from their interpretation in a neoclassical framework. To the subjectivist, expectations may be more or less reasonable (in the sense of being more or less defendable in the light of past experience), but they can, ultimately, not be more than conjectures about an undetermined and, therefore, unknowable future. To the neoclassical economist, by contrast, expectations are about a future that is, in principle, *knowable*, even if its knowability may be limited by imperfections of the "expecters." Ignorance of the future is essentially seen as a source of inefficiency, as a problem that can, in principle, be remedied by learning.[11] By contrast, from a subjectivist position, such ignorance is simply "an inescapable characteristic

of the human condition" (Wiseman, 1989, p. 225). And "the possibility of learning does not imply that through learning the future will become knowable, but only that experience will change behavior" (*Ibid.*, p. 143).[12]

Arguing on the same theme, Shackle suggests that every person choosing among different courses of action can be seen "to be making history, on however small a scale, in some sense other than mere passive obedience to the play of all-pervasive causes" (1983, p. 28). Every choice can be seen as the beginning of a sequel that "will be partly the work of many people's choices-to-come whose character . . . the chooser of present action cannot know" (*Ibid.*, pp. 28ff.).[13] Our "knowledge" of the future is, from this perspective, not "a deficiency, a falling-short, a failure of search and study" (*Ibid.*, p. 33). Rather, it reflects a fundamental fact of human existence, "the imaginative and originative source and nature of the choosables, and the endless proliferant creation of hypothetical sequels of choosable action" (*Ibid.*, p. 36). It reflects, in other words, "*the plurality of rival possibles*" (*Ibid.*, p. 37).[14]

The emphasis on choice as an *originating* force, the notion of the *creativeness* of the human mind, and the outlook on history as an *open-ended*, evolving process, are intimately interconnected aspects of the same general theme that marks the critical difference between the subjectivist perspective and its neoclassical counterpart. It marks the difference between the *non-teleological* outlook on the human social realm that informs the subjectivist notion of an open-ended, creative-choice process, and the *teleological* thrust that underlies, if only implicitly, the neoclassical notion of an equilibrium solution that is "preordained by patterns of mineral resources, geography, population, consumer tastes and technological possibilities" (Arthur, 1990, p. 99).[15] To Shackle and other radical subjectivists, the whole general equilibrium concept is questionable when applied to a constantly changing social world that has no predeterminable telos, whether in the pompous sense of a Marxian philosophy of history or in the more pedestrian sense of a conceptually definable equilibrium toward which the process of socioeconomic change could be predicted to gravitate. In a world in which creative human choice is a constant source of an "unknowable future," the notion of a "social equilibrium" is, in J. Wiseman's words, a "pseudo-concept" (1989, p. 214), one that can "have only the most tenuous general meaning" (*Ibid.*, p. 265).[16]

Another way of stating the subjectivist objection against the neoclassical equilibrium concept is by saying that the latter does not provide for an adequate account of "real" historical time. It does not take seriously the fact that, as L. M. Lachmann puts it, "*Time* and *Knowledge* belong together" (1977, p. 85), that "time cannot pass without modifying knowledge" (*Ibid.*, p. 93).[17] The common argument that "simplifying assumptions" allow

general equilibrium models to ignore the complexities of the "time and knowledge" problem is rejected by Wiseman as unconvincing. The simplifying assumptions about human knowledge are, he argues, "not legitimate simplifications but a gross perversion of the nature of the decision-problem faced by people living in the real world" (1989, p. 140), a defect that cannot be remedied by sophisticated refinements of the models that are based on such assumptions.[18]

The contrast is between two critically different perspectives by which efforts to understand the world can be guided: (1) a *teleological* perspective, and (2) a *nonteleological* perspective. We argue that it is its uncompromising nonteleological character that marks the critical difference between the understanding of the market process suggested by the subjectivist perspective and various standard conceptions of the market that, if only in a very subliminal fashion, have a teleological undertone. And, as an aside, we want to submit that this "residual teleology" constitutes somewhat of a hidden common link between standard economic teaching on the self-organizing nature of markets and the blatant teleology of the socialist planning mentality.

3. Kirzner's Theory of Entrepreneurship

Israel Kirzner's work, with its explicit emphasis on the entrepreneurial role in economic interaction, is of particular interest in the present context because of Kirzner's (1985, pp. 7ff.) claim that his own "alertness" theory of entrepreneurship keeps a balanced middle ground between "two extreme views," the neoclassical equilibrium view on the one side and Shackle's subjectivism on the other, or, in our terms, between a teleological and a nonteleological concept of the market process.[19] As we shall argue, however, in spite of his emphasis on innovative entrepreneurial dynamics and in spite of his verbal recognition of the *creative* and *open-ended* nature of the market process, Kirzner's approach fails to escape the subliminal teleology of the equilibrium framework.[20]

There is, as Littlechild (1979) has pointed out in some detail, a disharmonious mixture in Kirzner's work, between a basic affinity to, and remaining disagreements with, the radical subjectivist position. Kirzner explicitly recognizes the creative dynamics of the market process, and indeed, makes this the central theme of his work. He criticizes the neoclassical position for assigning "*no* role . . . to the creative entrepreneur" (1985, p. 13); he talks of the role of entrepreneurship "in an open-ended, uncertain world" (*Ibid.*, p. 52), a world in which we "find scope for the unpredictable, the creative,

the imaginative expression of the human mind" (*Ibid.*, p. 58); and he talks of new products, new qualities of products, new methods of production, and new forms of organization that are endlessly generated in the course of the entrepreneurial process.[21] Yet, such emphasis on creativity, imagination, and novelty is combined with a theoretical perspective that located the essence of entrepreneurship in "the discovery of error" (Kirzner, 1985, p. 50), and the scope for entrepreneurship "in the possibility of discovering error" (*Ibid.*, p. 51), a combination that can hardly be called harmonious.

Discovery of error means, in the context of Kirzner's theory, such things as the discovery of "erroneously low valuation" (*Ibid.*, p. 50) of resources, the "alertness to hitherto unperceived opportunities" (*Ibid.*, p. 52), or the noticing of "situations overlooked until now because of error" (*Ibid.*), phrases that all invite the same questions: If the essence of entrepreneurial discovery is to "provide protection" or "rescue" from "earlier" or "past error" (*Ibid.*, p. 53), what is then the benchmark or *reference-base* against which the failure to do something can be judged to be an "error"? And how does the notion of *creativity* square with such definition of entrepreneurial activity? Are creativity and imagination the same as discovery of errors?

There is, in our view, a fundamental inconsistency in Kirzner's attempt to integrate the innovativeness of entrepreneurial activity into an equilibrium framework – by modeling it as *discovery* of "erroneously overlooked opportunities."[22] The critical step in Kirzner's argument, the step that is intended to establish a "middle ground" between a teleological and a non-teleological understanding of the market process, is his extension of the notion of a divergence between "different parts of the market" (1985, p. 62) from a *cross-sectional* to an *intertemporal* interpretation.[23] According to the cross-sectional interpretation, the entrepreneur acts essentially as *arbitrageur:* By taking advantage of hitherto unnoticed divergences between different parts in a present market, he helps to bring about greater consistency (Kirzner, 1985, pp. 61ff.). According to the intertemporal interpretation, the entrepreneur takes advantage of yet unnoticed divergences between *today's* market and *tomorrow's* market, thus helping "to coordinate markets also across time" (*Ibid.*, p. 62).[24]

Whatever may be said about the knowability of divergences in the cross-sectional interpretation, it should be obvious that the notion of *intertemporal* divergences between markets at different points in time is inherently problematic. If, as we must assume, divergences between today's and tomorrow's markets are typically associated with differences between today's and tomorrow's *knowledge*, what does it mean to say that entrepreneurial alertness corrects the "failure to realize" divergences between *present* and *future*

markets? What sense does it make to describe today's failure to possess tomorrow's knowledge as *error*?[25] If, to use Lachmann's phrase, "*Time* and *Knowledge* belong together," a comparison between present and future markets cannot possibly be made in a sense that would make such terminology meaningful. The kind of comparison that can be made, at least conceptually, across contemporaneous markets cannot be made along the "intertemporal dimension" (Kirzner, 1985, p. 62). Time is not simply another "dimension," comparable to the spatial. Different parts of a present market exist, they are *present*, and differences in their characteristics can be discovered. Future parts of a market simply do not exist; they are, by definition, not present. There are, at any point in time, many *potential* futures imaginable, based on more or less informed reflections. Yet, which future will come into existence will depend on choices that are yet to be made. Of course, human beings aim to be "prepared for the future," and they act on their expectations of what lies ahead. The subjectivist argument on the unknowability of the future is certainly not meant as a recommendation to merchants not to anticipate the coming of winter in their storekeeping. Yet, if, and to the extent that, human choices and their complex interactions shape the emerging future, the latter can be a matter of speculation, but not of foreknowledge.

The supposition that the future is foreknowable clearly seems implied when, in talking about the problem of intertemporal entrepreneurial alertness, Kirzner speaks of pictures of the future that may or may not "correspond to the truth as it will be realized" (1985, p. 55), of man's efforts to overcome uncertainty "by more accurate prescience" (*Ibid.*, p. 58), of "past failure to pierce correctly the fog of uncertainty" (*Ibid.*, p. 53), and so forth. It is far from obvious how such insinuation of a preknowable future can be consistent with a genuine appreciation of the creativity of the human mind. Indeed, when arriving at this issue, Kirzner simply retreats to the *ex cathedra* claim that his approach does encompass the two notions, without actually showing *how* this can be done. He emphasizes that intertemporal entrepreneurial alertness "does not consist merely in 'seeing' the unfolding of the tapestry of the future in the sense of seeing a preordained flow of events" (1985, p. 56). Indeed, he insists that such alertness must "embrace the awareness of the ways in which the human agent can . . . in fact *create* the future" (*Ibid.*). Yet, as if the compatibility of the two arguments were obvious, he also insists that the function of market entrepreneurship in the multiperiod context is nonetheless still that of "discovery of errors" in the sense explained above (*Ibid.*).[26] And he leaves undiscussed the issue of what one entrepreneur's creativity means for the truthfulness of another entrepreneur's picture of the future.[27]

If, as Kirzner's construction seems to suggest, today's failure to possess tomorrow's knowledge qualifies as *error* from which entrepreneurial alertness is to provide rescue, one could conclude that the ultimate benchmark or reference base for such judgment is an imagined world in which everything that humans may ever imagine, think, or know will be revealed.[28] Judged against such a benchmark, every act, however imaginative and creative, can be seen as a discovery of something that was already waiting to be found. And failure to discover may be discussed in terms of error and overlooked opportunities. It seems questionable, however, whether the mental construct of such an imagined world is a helpful analytical guide when applied to the study of socioeconomic change.

What might be misleadingly suggestive here is the analogy to the scientific discovery process. To the extent that science is concerned with an objective reality "out there," our conjectural knowledge of this reality can be expected to grow over time, through a process of discovery. Although we cannot know at present what we will know in the future, any future increase in knowledge can, in some sense, be viewed as a finding of something that could, in principle, be currently discovered. There is something knowable out there, to be discovered sooner or later. Any such account of the discovery process in science is itself seriously challenged by the new conceptions advanced by Prigogine and others, because of its neglect of real time. But, even if, for the purpose of our discussion here, we should leave this issue aside, the analogous challenge advanced by the radical subjectivists to neoclassical equilibrium economics applies with full force to the concept of the market as a discovery process. Entrepreneurial activity, in particular, is not to be modelled as discovery of that which is "out there." Such activity, by contrast, *creates* a reality that will be different subsequent on differing choices. Hence, the reality of the future must be shaped by choices yet to be made, and this reality has no existence independent of these choices. With regard to a "yet to be created" reality, it is surely confusing to consider its emergence in terms of the discovery of "overlooked opportunities."[29]

4. Conceptions and Misconceptions of the Market

The essential characteristic of the radical subjectivist position that marks its critical departure from a neoclassical framework is, at the same time, the feature that it shares with the new evolutionary synthesis discussed at the beginning of this article: Its conception of "a world in which time plays a vital role" (Littlechild, 1979, p. 38), of history as an open-ended evolving process, and of a future that is not predetermined, merely waiting to be

revealed, but that is "continuously *originated* by the pattern and sequence of human choice" (*Ibid.*). Such a conception has clear implications for the theory of the market that set it apart from various theoretical constructs that have been used to explain or to illustrate the adaptive nature of the market process. If the emphasis on the creativity of human choice is taken seriously, it is not only the standard neoclassical equilibrium notion that seems questionable, but also less orthodox conceptions of the market process, including Kirzner's more subliminally teleological perspective on markets and entrepreneurship. By stating this we certainly do not want to suggest that "radical subjectivism" exists as a well-specified theoretical paradigm ready for adoption – it clearly is not. What we want to suggest, however, is that the creativity of human choice poses a problem that any effective socioeconomic theory cannot evade.

The critical shift in perspective may be further illustrated by reference to three separate understandings of the spontaneous order of the market that have been advanced by scholars who have been generally supportive of market organization of the economy, no one of whom would ever have referred to the market as an "analogue computer" for the "computation of equilibrium prices."

1. One of us (Buchanan) learned basic price theory at the University of Chicago in the 1940s, when all students, undergraduate and graduate, were required to master the Syllabus written by Henry Simons.[30] This Syllabus contained three well-known rent problems that were designed to provide an understanding of how a competitive economy allocates scarce resources among uses. And, as a test of the efficacy of competitive adjustment, one task given to the students was that of comparing the total product of the economy in competitive equilibrium with that which might be achieved under allocation by a benevolent and omniscient planner.

2. In a deservedly famous article, "The Logic of Liberty," Michael Polanyi introduced the metaphor of a sack of potatoes that need only to be shaken to insure minimization of volume to demonstrate how localized, decentralized adjustment, akin to that which is characteristic of market organization, works better than centralized adjustment.[31]

3. In a monograph-length essay devoted to an explication of the spontaneous order of the market, Norman Barry (1982) stated that the results of a market "appear to be a product of some omniscient, designing mind."[32]

In each of these illustrative examples, there is revealed, at least by inference, an understanding of the spontaneous ordering properties of a market process that is sharply different from the understanding held by the radical subjectivists. In each example, the efficacy of market adjustment is measured

teleologically in terms of the relative achievement of some predefined goal or objective. In Simons' problems, the objective is, simply, economic product, which is wheat in his one-good economy. In Polanyi's case, the objective is explicitly stated to be minimization of volume. In Barry's essay, the argument is more sophisticated, but any conceptualization of an omniscient, designing mind must imply some well-defined objective that exists independently from the separate participants' own *creative* choices.

If the efficacy of market organization, is, as insinuated in the above examples, evaluated teleologically, in terms of its capacity to approach an independently (that is, independent of the choice of process itself) determinable state, then there remains only an ambiguous discourse over comparative performance as between such an organization and centralized economic planning. Even if Simons, Polanyi, and Barry, along with others, may have succeeded in demonstrating that decentralized arrangements are superior in achieving some objectively identifiable goal, their conceptualization of the market process forces them into a line of comparative defense that a radical subjectivist understanding of the market would have rendered unnecessary from the outset. If the market is genuinely perceived as an open-ended, nondetermined evolutionary process in which the essential driving force is human choice, any insinuation, however subtle, of a "telos" toward which the process can be predicted to move must be inherently misleading. There is, in our view, no systematically sustainable middle ground between a teleological and a nonteleological perspective. And all conceptualizations of the market process that suppose, whether explicitly or implicitly, a "something" toward which the process is moving are, by this very fact, *teleological*, whether the "something" is specified as an equilibrium or otherwise. This applies to the notion of a mechanical equilibrium as implied in the standard textbook models of intersecting demand and supply curves, as well as to the thermodynamic equilibrium concept that is implied where the market process is interpreted in terms of exhaustion of potential gains from trade. And it also applies to images of the market that are intended to capture the constant change in the equilibrium-telos, such as K. Boulding's image of the "dog chasing a cat" (Littlechild, 1986, p. 32).

It should be noted that to question the appropriateness of teleological conceptions of the market is not the same as denying the apparent fact that the human participants in the "catallaxy," the game of the market, reasonably *adapt* to the circumstances that they confront and to changes that they expect to occur. The predictive potential of microeconomic theory lies in the uniformity of such adaptive response among persons. But such adaptive behavior does not imply that the overall process is moving toward

some determined goal, whether conceived as a predetermined equilibrium or as a "moving cat." The game described by the market may be misunderstood if interpreted in a teleological mind-set. The market economy, *as an aggregation*, neither maximizes nor minimizes anything. It simply allows participants to pursue that which they value, subject to the preferences and endowments of others, and within the constraints of general "rules of the game" that allow, and provide incentives for, individuals to try out new ways of doing things. There simply is no "external," independently defined objective against which the results of market processes can be evaluated.

We may illustrate the nonteleological perspective on market interaction by dropping the familiar presupposition that potential traders initially possess quantities of well-defined marketable goods. Assume that no goods exist, and that persons are described by certain talents, capacities, and skills that enable them to produce consumable goods from nature. Assume that the rules of the game allow persons to claim enforceable rights to the shares in natural endowments and to their own capacities and skills. In this model, trade will take place when persons recognize that their well-being can be enhanced by producing *and* exchanging rather than producing for their own consumption only. But the chain of choices is extended, and, also, there is an added requirement that any participant exercise *imagination* in choosing to specialize in production with the ultimate purpose of achieving an increase in well-being through exchange.

Think of the choice calculus of a person in this setting. What can I produce that will prove of exchange value to others? Response to this question allows the participant not only to select among a preexisting set of goods, but, also and importantly, to *create* new goods that are expected to be of potential exchangeable value. Once the creative-inventive-imaginative element in choice is introduced into the game here, then any idealized omniscience on the part of a planner who might attempt to duplicate the market result would become patently absurd. Individuals would use their own imagination, their own assessment of the potential evaluations of others, in producing goods wholly divorced from their own consumption, goods that are anticipated to yield values when put on the market, values that, as income to the producers, can be used to purchase goods from others in the nexus. This seeking to satisfy others through producing marketable value as an indirect means of producing value for themselves – this characteristic behavioral element in a market order was central to Adam Smith's insight. And it is this feature that allows us to compare the performance of market organization with alternative social arrangements, even in the absence of an independently existing scalar. Markets tend to satisfy the preferences of persons, regardless of what

their preferences might be, and even when we acknowledge that preferences emerge only within the process of choice itself.

The market conceived as a "game without goods" also suggests the tenuousness of the whole notion of equilibrium, defined as the exhaustion of gains from trade, which looms so important in the alternative teleological perspective. In the production and exchange of preexisting and well-defined goods, it is relatively easy to think of the game as having a definitive and final outcome once the goods have been so allocated that no participant seeks out further trades. Goods are, by definition, then allocated to their highest valued uses. But the usefulness of this equilibrium notion becomes less clear when we assume that there is no definite set of goods to be allocated. Conceptually, it remains possible to "freeze" the imaginative elements in individual choice at some point and allow the production-exchange process to work itself out to an equilibrium, where no further gains from trade, *and from imagination of new trading prospects*, are possible. The artificiality of such an equilibrium construction is apparent, however, since there seems nothing in the mind that is even remotely analogous to the cessation of exchange. There is no determinate limit to the potential of market value to be created as the process of human interaction proceeds.

What has made, and continues to make, the equilibrium concept attractive even to economists who, like Kirzner, are explicitly critical of the neoclassical orthodoxy is, it seems, its perceived capacity to readily capture the coordinative properties of markets, and the suspicion that the radical subjectivist critique may leave one incapable of systematically accounting for the orderliness of markets. Even if such suspicion may have been invited by some of the radical subjectivists, the emerging *new evolutionary synthesis* suggests a theoretical perspective that allows the subjectivist emphasis on the creativity of human choice, with all its implications, to be taken seriously, while, at the same time, it offers nonteleological explanations for the adaptiveness and coordinative properties that markets exhibit.

5. Conclusion

We have suggested that a perceptual vision of the market as a *creative process* offers more insight and understanding than the alternative visions that elicit interpretations of the market as a *discovery process*,[33] or, more familiarly, as an *allocative process.* In either of the latter alternatives, there is a telos imposed by the scientist's own perception, a telos that is nonexistent in the first stance. And removal of the teleological inference from the way of looking at economic interaction carries with it significant implications for

any diagnosis of failure or success, diagnosis that is necessarily preliminary to any normative usage of scientific analysis.

We may illustrate the differing implications in application to the observed failure of the centrally planned economies of Eastern Europe and elsewhere. The neoclassical economist, trapped in the allocationist perception, tends to locate the source of failure in the distorted incentive structure that causes persons to be confronted with choice alternatives that do not reflect authentically derived evaluations. Resources do not flow to their most highly valued uses because persons who make decisions about resource use do not find it privately in their own interest to shift allocation in such fashion as to accomplish this conceptually definable, and desirable, result.

Some of the modern Austrian economists, and notably Kirzner, add an important element to the neoclassical critique. They suggest that, even if the incentive problems could, somehow, be ignored or assumed corrected, there would still remain the epistemological or knowledge problem. Only a decentralized market structure of economic interaction can exploit fully the knowledge of localized circumstances required to allow a definition of the ultimate valuation that is placed on resource use. Only the market can allow persons the effective liberty to discover the particular localized eccentricities that give form to value. This extension of the neoclassical emphasis on incentive structures is important and relevant to any overall assessment of the central planning model for an economy.

We suggest, however, that the critique, even as extended, falls short of capturing an essential element in any comparative assessment of the market and the planning alternatives. The teleological feature remains to be exorcised. In the neoclassical setting, even as extended by Kirzner, an *omniscient* and *benevolent* monolithic planner could secure the ideally defined result. Omniscience would, of course, insure access to any and all knowledge; benevolence could be such as to match the objective function precisely with whatever it is that individuals desire. But even the planner so idealized cannot create that which is not there and will not be there save through the exercise of the creative choices of individuals, who themselves have no idea in advance concerning the ideas that their own imaginations will yield.

The fundamental misunderstandings of the theory of the market economy that provided the analytical-intellectual foundations for socialism as a principle for socioeconomic organization are exposed by any one of the three interpretations contrasted here. The market as an allocative process, responding to the structure of incentives that confront choice makers; the market as a discovery process, utilizing localized information; or the market as a creative process that exploits man's imaginative potential – socialism

cannot, organizationally, be made equivalent to any one of these idealized perceptions. But, the "fatal conceit" that was socialism, to use Hayek's descriptive term here, would have surely faced more difficulty in achieving dominance as an idea if the creative spontaneity of the market process had been more fully appreciated.

Notes

1. Joyce, 1960. p. 30.
2. Prigogine and Stengers: "Whenever we reach a bifurcation point, deterministic description breaks down. The type of fluctuation present in the system will lead to the choice of the branch it will follow. Crossing a bifurcation point is a stochastic process, such as the tossing of a coin" (1984, p. 177).
3. Prigogine: "[W]e come to a world which is open, in which the past is present and cumulative, in which the present is there but the future is not. . . . The future does not exist yet, the future is in construction, a construction which is going on in all existing activities" (1985, p. 117).
4. The critical importance of individual diversity and variation from an evolutionary perspective is similarly stressed by biologist E. Mayr, who uses in this context the term "population thinking": "Population thinkers stress the uniqueness of everything in the organic world. What is important for them is the individual, not the type. . . . There is no 'typical' individual, and mean values are abstractions. . . . The differences between biological individuals are real, while the mean values which we may calculate in the comparison of groups of individuals (species, for example) are man-made inferences" (Mayr, 1982, pp. 46ff.). Mayr contrasts "population thinking" with "essentialist thinking": "Adoption of population thinking is intimately tied up with a rejection of essentialist thinking. Variation is irrelevant and therefore uninteresting to the essentialist. Varying characters are 'mere accidents,' in the language of essentialism" (*Ibid.*, p. 487).
5. As P. Allen points out, one has to realize "that there is a critical difference between asking whether a system *obeys* the laws of physics, . . . or whether its behavior can be predicted from a knowledge of those laws" (1985, pp. 268ff.). For nonlinear systems, Allen argues, the first can be the case without the second being possible, due to the mixture of deterministic and stochastic aspects of nonlinear systems (*Ibid.*, p. 270). Allen's argument parallels K. R. Popper's remark in *The Open Universe:* "[C]ausality has to be distinguished from determinism, and our world of uniqueness is – unlike Kant's noumenal world – in space and, even more important, in time; for I find it crucially important to distinguish between the determined *past* and the open *future*" (1982, p. 48). In reference to Prigogine's work, Popper argues in the same treatise: "We must not . . . blind us to the fact that the universe that harbours life is creative in the best sense: creative in the sense in which the great poets, the great artists, the great musicians have been creative, as well as the great mathematicians, the great scientists, and the great inventors" (*Ibid.*, p. 174).
6. Prigogine: "Clearly, a social system is by definition a nonlinear one, as interactions between the members of the society may have a catalytic effect. At each

moment fluctuations are generated, which may be damped or amplified by society. An excellent example of a huge amplification . . . is the acquisition of knowledge. . . . Instead of seeing human systems in terms of 'equilibrium' or as a 'mechanism,' we see a creative world of imperfect information and shifting values, in which different futures can be envisaged" (1986, p. 503).

7. This similarity has been explicitly noted by Fehl (1986); see also Witt (1985).
8. There are other versions of "economic subjectivism" that can be distinguished from both its "radical" and Austrian variety, in particular, the "opportunity costs approach" that has been systematically stated by one of the present authors (Buchanan, 1969, 1987). This version, as well as others that could be identified, will, however, not be discussed as such in the present article.
9. Allen: "The response to this question of 'choice,' which makes modelling and predicting difficult, can be of two kinds. Either we can suppose that choice is an illusion and that the mechanical analogy is in fact legitimate, or we must find some new scientific paradigm in which 'choice' really exists" (1985, p. 269).
10. Littlechild stresses that same point when he summarizes the "radical subjectivst" view as implying that the "as-yet-undetermined actions of other agents" make for "the essential open-endedness of creativity" (1986, p. 31) in human affairs, that "the future is not so much unknown as it is nonexistent or indetermined at the time of decision" (*Ibid.*, p. 29).
11. Wiseman: "Mainstream economics deals with unknowability by assuming it away. In the simple model, this is done by assuming perfect knowledge of the future. . . . The more sophisticated models assume knowledge of the possible number of future states of the world. . . . They assume that *someone* has a knowledge of the future that no one can possibly have" (1990, p. 103). See also Wiseman (1989, p. 159).
12. Wiseman: "*The future* has not yet happened. About it, men can have only *opinions*, related to past experience (learning). Since men can (must) choose how to act, their chosen acts, together with the evolution of the physical world, are continuously creating the emerging future. If this is so (as it must be), then the future cannot be known 'now' (that is, in the continuous present)" (1989, p. 268).
13. As a summary of Shackle's position, Littlechild states, "Choice . . . represents an origin, a beginning. . . . [I]t does have a sequel. It makes a difference to what comes after. This sequel cannot be foreknown, because subsequent events will depend partly upon other such choices yet to be made" (1979, p. 33).
14. Shackle: "[I]f we had *all the data there are or could be* about the *present*, we might still not be able to infer what the sequel of any action now chosen would be. . . . If history, past and to come, is all one book already written at the beginning of time, what is choice? . . . But if choice is fertile, effective, truly *inceptive*, then there can be no foreknowledge. History-to-come, in that case, is not only unknown but *not yet existent*" (1981, p. 60).
15. We use the term "teleological" here in a more general sense than that of an explanation in terms of intended ends or purposeful design. We classify as "teleological" all theoretical perspectives that explain processes in terms of some predeterminable end point toward which they are supposed to move, rather than in terms of explicitly specified forces and principles that actually "drive" them. It is in this sense that we classify as "teleological" an equilibrium theory that

describes economic processes in terms of "where they are going," namely, their end-point equilibria, but does not provide an explicit explanatory account of the dynamics of these processes themselves.

16. Littlechild: "[F]or G. L. S. Shackle, the relevance of the whole concept (of general equilibrium) is in question. Every act of choice embodies the chooser's creative imagination of the future. The market therefore follows a 'kaleidic' process, with moments of order interspersed with disintegration into a new pattern. The economy is changing and developing, but in no sense does it have a single goal" (1983, pp. 48ff.).
17. Lachmann: "The impossibility of prediction in economics follows from the fact that economic change is linked to change in knowledge, and future knowledge cannot be gained before its time. Knowledge is generated by spontaneous acts of the mind" (1977, p. 90).
18. Wiseman: "But if what is assumed away is the essence of the problem, then greater complexity will generate not greater insights but more sophisticated confusion" (1989, p. 227).
19. Kirzner: "I claim, indeed, that the 'alertness' view of entrepreneurship enables us to have the best of both worlds: we *can* incorporate entrepreneurship into the analysis without surrendering the heart of microeconomic theory" (1985, p. 11). Stated differently, Kirzner claims to avoid the neoclassical orthodoxy's failure to account for "the creative entrepreneur" (*Ibid.*, p. 13), without falling "into the seductive trap offered by the opposite extreme" (*Ibid.*), that is, by the radical subjectivist position.
20. G. P. O'Driscoll's and M. J. Rizzo's exposition of a modern Austrian-subjectivist economics is, in a similar way, characterized by a tension between the acceptance of basic tenets of radical subjectivism and the attempt to maintain "an appropriately revised idea of equilibrium" (1985, p. 79).
21. Kirzner: "In the course of this entrepreneurial process, new products may be introduced, new qualities of existing products may be developed, new methods of production may be ventured, new forms of industrial organization, financing, marketing, or tackling risk may be developed. All the ceaseless churning and agitation of the market is to be understood as the consequence of the never-ending discovery process of which the market consists" (1985, pp. 30ff.).
22. Kirzner: "I postulate a continuous discovery process – an entrepreneurial discovery process – that in the absence of external changes in underlying conditions, fuels a tendency toward equilibrium" (1985, p. 12).
23. Kirzner: "What market entrepreneurship accomplishes is a tendency for transactions in different parts of the market (including the market at different dates) to become coordinated" (1985, p. 64).
24. Kirzner's crucial argument, in this context, is worth quoting at some length: "When we introduce the passage of time, the dimensions along which mutual ignorance may develop are multiplied. Market participants in one part of today's market may not only be imperfectly aware of the transactions available in another part of the market; they also may be imperfectly aware of the transactions that will be available in next year's market. Absence of consistency between parts of today's market is seen as a special case of a more general notion of inconsistency that includes also inconsistency between today's transactions and those to be

transacted next year. . . . It is still the case, as noted, that the entrepreneurial function is that of bringing about a tendency for transactions in different parts of the market (conceived broadly now as including transactions entered into at different times) to be made in greater mutual consistency. But whereas in the case of entrepreneurship in the single-period market (that is, the case of the entrepreneur as arbitrageur) entrepreneurial alertness meant alertness to present facts, in the case of multiperiod entrepreneurship alertness must mean alertness to the future" (1985, pp. 62ff.).

25. A well-known classical statement of the argument that we simply cannot anticipate future knowledge and, therefore, cannot predict future human choices that will be affected by such future knowledge, can be found in K. R. Popper's Preface to his *The Poverty of Historicism* (1957).
26. The same kind of tension between Kirzner's chosen theoretical framework and his attempt to incorporate the notion of entrepreneurial inventiveness in the creation of new products and new ways of doing things is also visible in his more recent discussion on the subject (Kirzner, 1989, pp. 84ff.). In her review of this book, K. Vaughn comments on Kirzner's attempts to account for the creative aspects of entrepreneurship while retaining his earlier language: "It has become obvious to this reviewer that the old language no longer fits his new theoretical insights" (1990, p. 185).
27. Kirzner indirectly refers to this issue without, however, discussing it: "In particular the futurity that entrepreneurship must confront introduces the possibility that the entrepreneur may, by his own creative actions, in fact *construct* the future as *he* wishes it to be. In the single-period case alertness can at best discover hitherto overlooked current facts. In the multiperiod case entrepreneurial alertness must include the entrepreneur's perception of the way in which creative and imaginative action may vitally shape the kind of transactions that will be entered into in future market periods" (1985, pp. 63ff.).
28. And, by implication, one could argue that the "equilibrium" toward which intertemporal coordination – as it is promoted by entrepreneurial discovery of error – tends to gravitate can only be some final state of universal enlightenment, at the end of all times. Support for such, admittedly exaggerated, interpretation may be seen in statements such as this: "My view, therefore, sees initial market ignorance indeed as an inescapable feature of the human condition in a world of change, but also as subject to continual erosion. . . . (Entrepreneurs) discover where existing decisions were in fact mistaken. Here lies the source for any equilibrating tendencies that markets display" (Kirzner, 1985, p. 13).
29. The discussion here, and elsewhere in this article, is related, at least indirectly, to a criticism of Michael Polanyi advanced by one of us in two related articles (Buchanan, 1977, 1985). Polanyi conceptualized the scientific process as exploration or discovery, and he argued persuasively that decentralized organization of the scientific enterprise would insure more rapid advance in "solving" the "jigsaw puzzle." From this conceptualization of the scientific process, Polanyi supported, by analogy, the spontaneous ordering properties of decentralized market processes.

    Buchanan's criticism suggested that, even if the discovery-exploration metaphor remains applicable to the enterprise of the physical sciences, such

a metaphor is misleading when applied and extended to economic or political interaction among freely choosing individuals.

30. The Simons' Syllabus was circulated only in mimeographed form. Gordon Tullock, himself a student of Simons in the 1940s, edited and published a somewhat incomplete version in 1983 (Tullock, 1983).
31. This article was the title essay in the volume *The Logic of Liberty* (Polanyi, 1951).
32. For a commentary on Barry's essay, see Buchanan (1982).
33. Although the thrust of his work clearly supports the vision of the market as a creative process, Hayek's (1978) illuminating discussion on "Competition as a Discovery Procedure" is not entirely free of the ambiguities that the concept of *discovery* tends to invoke when applied to the market process. Potentially misleading are, in this regard, his comparison between the discovery processes in science and in the market (*Ibid.*, p. 181) and some of his comments on the problem of measuring market performance (*Ibid.*, pp. 185ff.).

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