Transactional Economics

John Dewey's Ways of Knowing and the Radical Subjectivism of the Austrian School

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Only the road and the dawn, the sun, the wind, and the rain,
And the watchfire under the stars, and sleep, and the road again.
—John Masefield (1878–1967), “The Seekers” (1923:52–53)

Abstract

The radical subjectivism of the Austrian school of economics is a special case of Dewey's ways of knowing. Austrian economists adopted an Aristotelian deductive approach to economic issues such as social behavior and exchange. In Dewey's contrasting view, the scientist commends new, alternative ways of knowing to the scientific community, offering more profound insight or more efficacious practical applications. Alternative ways of knowing which do not offer practical or intellectual benefits are to be rejected. Dewey's transactional strategy, asserting knowledge as ways of knowing, suggests a broader and more fundamental critique of the socialist position in the calculation debate. The arguments presented by the Austrian school can be reformulated in terms of Dewey's transactional philosophy.

Introduction

John Dewey's most distinctive philosophical doctrine is the substitution of “inquiry” for “truth” (Dewey and Bentley 1949:196). Intellectual activity focuses not on the outcome but on the process of constructing “warranted assertions.”¹ As with Masefield's “seekers,” the journey is as important as the destination (Dewey 1938c); in transactional philosophy, the means and hypothesized end are equally important and co-defining aspects within inquiry.² Dewey criticizes the traditional, ontologic notion of truth in which each item of knowledge is immutable, perfect, and final (Dewey and Bentley 1949:189). In contrast, Dewey views thought as an evolutionary process (Russell 1945:772), a view known as pragmatism or instrumentalism (Blanshard 1962:31). The idea of truth embodied in the scientific method, that

all explanations are tentative (Dewey 1925:9), seems to be one of Dewey's starting points (Handy and Harwood 1973:11–20). Most scientists and philosophers, however, believe in an ultimate fixed destination for human inquiry—an ontologic absolute.

Dewey goes beyond them in rigor, if not always in formalism, because he acknowledges we cannot be sure about the finality of any truth we aim to uncover. Until we can establish that ontological truth does exist—a rather tall order as long as we remain fundamentally ignorant of its content—we are not entitled to assume its existence, or for that matter that it may have any particular content. Dewey emphasizes further that the meaning of knowledge is context-dependent (Dewey and Bentley 1949:137). Dewey prefers the expression “belief” to “knowledge,” to emphasize its tentative nature. He also recommends the expression “warranted assertion” in place of “truth” (Dewey 1938b:7, Dewey and Bentley 1949:165) to divest the subjects of inquiry of their purportedly ontologic character.

Dewey's philosophy can be applied in the social sciences, and particularly in economics, to clear methodological roadblocks and deepen our understanding of economic reality. As suggested above, this appeal to Deweyan transactional strategy should be viewed as an appeal to higher rigor, rather than a retreat from rigorous reasoning. This paper will discuss the applicability of Dewey's approach to several areas of economics of particular interest to the Austrian school. The paper is organized as follows: following this brief introduction, Dewey's philosophy is outlined in part 2, “Dewey's Pragmatism and the Transactional Strategy;” next, the transactional view is applied to two important problems in modern economic theory in part 3, “The Subject-Object Distinction in Economics” and part 4, “Entrepreneurship and Equilibria;” followed finally by part 5, the “Conclusion.”

Dewey's Pragmatism and the Transactional Strategy

Dewey's philosophical methodology, the transactional strategy or transactional view, aims at breaking down problematical dualisms (Dewey 1938a:5).³ Examples of problematic dualisms reconceptualized with the transactional strategy include mind versus body, organism versus environment, stimulus versus response, subject versus object, meaning versus context, etc. In Dewey's view, the strict ontological separation implied by these rigidly dichotomous pairings can be highly misleading. With the example of mind and body, it remains unclear where one stops and the other begins. Generally, one cannot exist or be defined or imagined without the other—there can be no organism in the absence of an environment, and no environment in the absence of organisms, no subject without an object and vice versa, and so on (Palmer 2004; 2005:11–13).

Palmer (2005) uses the phrase “transactional strategy” to describe Dewey's approach to problematical dualisms, separations, or oppositions. The transactional strategy consists of two phases. In the first phase, the purported ontological separations are reinterpreted as functional distinctions, which are always tentative and often arbitrary (Dewey 1925:9). Functional distinctions are better viewed as

inherently tentative rather than absolute and ontological; however, they can retain tremendous power and practical efficacy as functional distinctions with the status of working conjectures. The tentative nature of arbitrary definitions or distinctions was, in practice, often substituted with a permanent and absolute, neo-Platonic essence.

The second phase of the transactional strategy attempts to frame a reconciliation⁴ of the former ontologically distinct dualism by envisioning the two sides of each functional distinction as aspects of a more inclusive, encompassing whole, a transaction. Transactions recognize that the two parts are not really separate, usually because one cannot exist or even be defined without reference to the other, and that the functional distinction is an arbitrary one made for our convenience. In other words, a functional distinction is problem-driven—it is defined in relation to what we are trying to achieve within a given inquiry. Among the functional distinctions Dewey reconciled within transactions were (a) body and mind within action, (b) organism and environment within life-activity, (c) stimulus and response within coordination, and (d) designation and existence within fact (Palmer 2005).

In Dewey's view, it is a mistake to treat conceptual distinctions, separations, divisions, dualisms, dichotomies, etc., as something ontological, observer-independent, and existing prior to observation—which is not to say that conceptual distinctions are not real in other senses, for example, as assertions warranted on the basis of past inquiries. Conceptual distinctions are only subjective,⁵ not ontological; that is, they can never be finally and necessarily real or universal, or can never be finally demonstrated as real, universal, and ontologically absolute.⁶ Palmer (2005:2–3) suggests “a distinction is a difference noted, [but] an ontological separation is a division assumed to have been there all along.” There is no way for us to be objectively certain that differences we note have, in fact, been there all along, for in so doing we must note observed differences, and thus involve ourselves. We can quite legitimately, however, claim any difference we note as subjective knowledge, a distinction we construct for our own convenience. Economics, however, offers a rigorous approach to analyzing the problems of subjective knowledge and preference, much like statistics offers a rigorous approach to analyzing the problems of uncertainty.

Palmer further notes that distinctions are a broader category than separations (Figure 1). A separation presupposes a distinction, but a distinction does not necessarily presuppose a separation. A separation is a necessary and sufficient condition for a distinction, but a distinction is neither a necessary nor sufficient condition for a separation—things are often distinct without being separate. As long as we consider a distinction to be an ontological separation, human understanding is constrained by any limits the separation imposes. The difficulty lies in the fact that not all distinctions are necessarily separations. Viewing the separation as a tentative working distinction liberates us from this particular limitation (Dewey 1925:9). Working distinctions can be modified or abandoned as needed whenever they fail the practical test of utility.

Figure 1. The Relationship between Separations and Distinctions

The Subject-Object Distinction in Economics

In economics, individuals and their institutional extensions, households, firms, labor unions, governments, government agencies, etc., are the subjects which construct and revise entrepreneurial plans, conferring value on physical objects.⁷ The subject-object dichotomy is alive and well in modern economics, and seems to be as indispensable as it is central to the discipline. Goods possess value not because it is an objective, physical, or intrinsic property of the goods themselves, but because of judgments and expectations which differ from person to person and for the same person at different times (Mises 1960:93–97; compare with Dewey 1925:319–328). The objects and their physical characteristics are not thought to have any economic significance apart from the subjective valuation and expectations of the subjects. The subject confers value and meaning on objects of economic activity, planning, and exchange. Meaning resides in individuals but evolves socially through interaction among individuals. The most familiar medium of this interaction is communication, but economics deals more particularly with the social interaction of exchanges of one good for another.

Subject and object are both broad concepts in economics. Since knowledge is inherently subjective—it must be known by someone—it may be better to view knowledge according to Hayek's (1945) distinction between knowledge, which is subjective and personal, and information, which is universal and objective but also much less important.

Economic subjectivists criticize mainstream economics for ignoring issues of purpose, intentionality and meaning (Weber 1921; Lachmann 1971; Kirzner 1992, 2000; Lavoie 1991). If economic actors extract meaning from prices, market efficiency calls for minimizing the false signals, noise, or entropy contained in price series. In an environment of spontaneously evolved rules and institutions, the outcome of a conflict should be well understood in advance, and the information can be characterized as $I = 1 - \sum p_i \ln p_i$ (Wiener 1948; Shannon and Weaver 1949; Ashby 1956:174–176), where each possible outcome i has a probability of occurrence of p_i . The less the uncertainty, the fewer outcomes are possible, the fewer the probabilities being summed, and the more concentrated the probability density function, that is, the lower the uncertainty surrounding the outcome. Further, the stronger the consensus about the society's rules, the greater individuals' subjective

prior probability assessments will accord. This will be in societies where the institutional conditions for entrepreneurship are best satisfied (Harper 1998, 2003), though entrepreneurs can also benefit by having prior assessments which differ from the mainstream (Casson 1987, 1995).

If mathematical formalism could solve real-world problems, economists could go far beyond Debreu (1959) in applying rigorous techniques (Gödel 1931; Nagel and Newman 1958; Gellert et al. 1975). Instead, mainstream economics simultaneously glorifies empiricism and axiomatization: "... economics has become more and more formal, more and more instrumental, and more and more precise about areas that are of less and less importance to anybody" (Boettke, Lavoie, and Storr 2004:3). In addition mainstream economics has long ceased to be empirical in any sense which can have practical relevance or can meaningfully inform public policy (Boettke, Lavoie, and Storr 2004:20; see also Hutt 1936; Philbrook 1953; Coase 1975; Klein 1999).

To Dewey, meaning resides in individuals but evolves primarily through interaction among individuals, a fundamentally cultural activity.⁸ But economics emphasizes the individual subjective decision. The transactional strategy attempts to resolve contradictions introduced by viewing the subject-object distinction as an ontological absolute, by (a) viewing the separation as a tentative working distinction (Dewey 1925:9) and (b) attempting to describe this distinction within an encompassing concept which includes both parts and their connection or relationship (Dewey 1938a:5; Dewey and Bentley 1949:136).⁹ In the context of economics, subject and object are related within want satisfaction, a concept comprising both subjective valuation and objective exchange.¹⁰ Objects have economic significance only when they can satisfy the subjective wants of economic actors. Thus, given the limited, technical use of the term "subjectivity" by economists (Lavoie 1991; O'Neill 2000), Austrian radical subjectivism is a special case of Dewey's ways of knowing.

Menger (1871, 1883) adopted an Aristotelian deductive approach to the economic issues of social behavior and exchange. Lachmann (1994:246) describes the evolution of the Austrian school from a first-stage value subjectivism of consumer wants to an increasingly radical second-stage subjectivism of means and ends. Mises (1949:21) takes the subjectivity of value as given, and concludes economics can only address the appropriateness of various means for attaining given, subjective ends.¹¹ Mises and Hayek viewed scientific knowledge, even in the social sciences, as asserting and aiming for objective certainty which they viewed as final and ontological. Hayek's view of scientific knowledge presented in *The Sensory Order* (1952a) and *The Counterrevolution of Science* (1952b)¹² was closer to that of the logical positivists of the Vienna circle (Schlick 1918; Carnap 1928; Nagle and Newman 1958) than to Dewey. Hayek's critique of scientific positivism in *The Counterrevolution of Science* rejected the applicability to the social sciences of the empiricism of the natural sciences.

Dewey clearly appreciated this perspective: "The attempt to secure unity by defining the terms of all the sciences in terms of some one science is doomed in ad-

vance to defeat. In the house which science might build there are many mansions” (Dewey 1938c:34). Econometrics and other forms of empirical statistical analysis applied in economics fail to address the everyday experience of economic agents or even policy makers. Dewey’s claim that “The things of ordinary experience do not get enlargement and enrichment of meaning as experience” (1925:8) perfectly describes most of the shortcomings of modern empirical economics (Klein 1999). Although Hayek was not a positivist in the sense ascribed to Friedman (1953), Hayek’s belief in the ontologic character of economic knowledge, which he shared with Mises and Menger, also shares the aim for rigorous certitude which characterized logical positivism.

It is thus somewhat ironic that Hayek rejected logical positivism and most of the related research program of modern analytical philosophy. It is clear, however, that his rejection of positivism stemmed from his special appreciation of the misapplications of empirical methods in his own discipline. Mises’s a priorism, asserting and aiming for apodictic certainty, represented a more extreme form of ontological objectivism even than Hayek’s. In Dewey’s view, a priori constructs

being reached by methods that seem to those who employ them rationally mandatory are taken to be “real” in and of themselves—and supremely real. Then it becomes an insoluble problem why the things of gross, primary experience, should be what they are or indeed why they should be at all. (Dewey 1925:9)

Among those critical of Mises’s position was Dewey scholar and economist E. C. Harwood. Harwood’s (1970) review of Mises’s *Human Action* was dismissive of its a priori methodology while simultaneously applauding all of Mises’s conclusions. Mises’s position was similar in this regard to that of non-Austrian axiomatists such as Debreu (1959), though he joined Hayek in eschewing mathematical formalism.

In Dewey’s view, the scientist commends new, alternative ways of knowing to the scientific community, offering more profound insight or more efficacious practical applications (Dewey 1925:9), that is, new solutions to new problems, and/or better solutions to old problems. “Experimental method . . . is the foe of every belief that permits habit and wont to dominate invention and discovery, and ready-made system to override verifiable fact. Constant revision is the work of experimental inquiry” (Dewey 1930:156). For Dewey all inquiry is problem-driven, though scientists are not merely passive recipients of problems, but often exercise entrepreneurial awareness in defining new ones. Thus, all scientific knowledge evolves spontaneously, even when this evolution proceeds through a paradigm shift or scientific revolution (Kuhn 1957, 1962).¹³

Because the subject-object distinction in philosophy—of which the subject-object distinction in economics is a special case—is one of Dewey’s identified problematical dualisms which the transactional strategy aims to resolve, the Austrian school is confronted with a fairly intractable contradiction. According to Hayek (1945) knowledge is subjective, but the subject-object distinction is only a tentative, ad hoc construct (Dewey 1925:9).

The radical subjectivism of the Austrian school leads to the contradictory conclusion that the market knowledge of entrepreneurial planners, including consumer preferences, is subjective, but the scientific knowledge of economists is objective, at least provided it is correct. In other words, the knowledge of economics supposedly has the property that it may be objectively true or false, and purports to occupy a higher level of understanding than the subjective knowledge of market participants. Scientific knowledge asserts an ontological absolute. Dewey's transactional strategy offers a way out of this seeming contradiction—from a Deweyan perspective, the “truths” of any scientific discipline, not only economics, are always tentative, contextual, and subject to further refinement (Dewey 1925), and thus subjective in precisely the same way as are the preferences and knowledge of market participants. Scientific knowledge occupies a higher level of generality than the market knowledge of entrepreneurial planners, and nearly always offers deeper understanding, but can neither be considered nor demonstrated to be ontologically superior.¹⁴

Both Austrian subjectivism and Dewey's transactional philosophy justify rejection of the mirage of social justice (Hayek 1976). A particularly broad and encompassing way to frame Hayek's critique of social justice is to formulate it in terms of Deweyan philosophy. In the Austrian view, our preferences are subjective and nonadditive across different individuals (Barnett 2003).¹⁵ The nonadditivity of individual preferences results from preferences being subjective in the first sense. Thus, we cannot substitute a hypothesized social preference or welfare function approximating the average of individual preferences; we can only substitute the preferences of one idealized individual. In the pursuit of so-called social justice, one problem is that there is literally nothing to aim for. Two individuals' preferences cannot be added or averaged because preferences are subjective. In the name of improving the welfare of all, what Hayek (1976) called the mirage of social justice serves not real individuals' preferences, but in the name of scientific rigor, serves objective, idealized preferences which belong to nobody. The others who are constrained from pursuing their own happiness are necessarily made worse off. This criticism is independent of the fact that coercion has to be applied,¹⁶ the second problem with social justice.

Deweyan knowledge as ways of knowing suggests a broader and more fundamental critique of the socialist position in the calculation debate (Stalebrink 2004). The Austrian school asserted that socialist economic planning, far from being more scientific than capitalist market organization, could never approach the effectiveness of the decentralized planning of the free market. A government planning agency cannot make use of the amount of information used to set prices through a spontaneously organized market, because markets utilize dispersed information summarized in prices but which cannot otherwise be collected by a central planning agency. Dewey acknowledged central economic planning as a fact of life, and preferred it be directed through democratic political institutions rather than through corporations motivated by profit (Dewey 1930:101–120). Corporate-dominated

planning was too centralized to appeal to Dewey, and through democratic participation, Dewey felt government planning could be sufficiently decentralized to avoid being so oppressive. This position puts him on the opposite side of the calculation debate from the Austrian school. However, as a non-economist, Dewey probably would have viewed issues of centralized versus decentralized economic calculation as narrowly technical with little relevance to his own political views.

Fundamentally, if knowledge cannot be shared across individuals in an absolutely rigorous, ontological sense, like that sought by logical positivism, there can never be any basis for one individual to impose entrepreneurial planning on another, whether the planning implements the planner's preferences or an idealized projection of the hypothesized social mean. Dewey had some sympathy for mild forms of social planning (Ryan 1995:110–117). His criticisms of capitalism and corporatism emphasized the need for greater democratic participation to balance the undue power exercised by concentrated wealth. This raises the issue of whether social progress should be better realized through a spontaneously emergent market order, in which all exchanges (transactions) are voluntary, or through the instrument of coercively imposed government intervention. The government which intervenes with force may equally well be a democracy with unlimited majority rule as an unlimited dictatorship.

Hypothetically, one individual might be able to make others better off, if he could force them to make different choices, but he would have to know their preferences with absolute certainty. It remains unclear whether we know our own preferences with the requisite certainty, because choice in real time is always an experimental process. It also remains unclear why force could be permissible, and whether the use of force in this context subverts choice to the extent it overrides any temporal gain in hypothesized utility. Boettke (1993, 1994a, 1994b) notes that the transition of the formerly planned economies after the collapse of communism was badly flawed by an effort to dictate the outcome. Mapping out the transition process implies central planning and precludes the emergence of a spontaneous order, precisely what was called for to allow these societies to advance.

To summarize, the transactional approach allows economics to clarify its use of the subject-object distinction. Subjectivism in the social sciences is a technical approach which emphasizes the subjective bases for human behavior, but clearly does not deny the reality of objective characteristics or phenomena. Next, we apply the transactional approach to a narrower concepts within economics, the role of entrepreneurs in maintaining market equilibria.

Entrepreneurship and Equilibria

This section explicates and reconciles three theories of entrepreneurship within the Austrian tradition,¹⁷ those of Joseph A. Schumpeter (1883–1950), Ludwig Lachmann (1906–1990), and Israel M. Kirzner (1930–), focusing on the relationship between entrepreneurial action and market equilibria. The transactional strategy offers the possibility of formulating a definitive Austrian theory of the entrepreneur. Equilib-

rium is a central concept in economic analysis, yet it appears unlikely to ever occur in reality (Nelson and Winter 1982; Makowski and Ostroy 2001). Thus, equilibrium in economic theory seems to introduce a large number of Deweyan “blocks to inquiry, blind alleys . . . puzzles rather than problems, solved only by calling the original material of primary experience, ‘phenomenal,’ mere appearance, mere impressions, or by some other disparaging name” (Dewey 1925:9). Addressing the best place of equilibrium and disequilibrium in economic analysis must be done, and is an imperative cutting across different ideological positions and schools of economic thought, which “in spite of the diverse subjects to which it applies, and the consequent diversity of its special techniques [methodology] has a common structure . . . that is applied both in common sense and science. . . . The controlled or directed transformation of an indeterminate situation into one that is so determinate in its constituent distinctions and relations as to convert the elements of the original situation into a unified whole . . .” (Dewey 1938b:105). Dewey was not trained in economics, and clearly failed to appreciate the role of entrepreneurial planning in coordinating production (Dewey 1930:134–136), though he did appreciate the application of applied science in operating industrial production (Dewey 1938c:30).

In economics, an equilibrium price is one which clears the market for a particular good and equates the quantity supplied with the quantity demanded. Prices higher than the equilibrium result in surpluses, which impel alert price-setters to lower the price. Prices lower than the equilibrium result in shortages, impelling price-setters to raise the price. Though markets may never clear perfectly or completely, there always exists a tendency toward equilibrium if the price-setters respond to incentives, because when markets clear, sellers earn higher profits, and buyers attain greater satisfaction compared to when markets fail to clear. Thus the implied equilibrium toward which entrepreneurs effect adjustment experimentally emerges with the constellations of prices they try out on the market and the plans they develop to earn profits through satisfying the wants of others. Lachmann (1947, 1956, 1971, 1976a, 1976b) focused on entrepreneurial contributions to upsetting existing equilibria to bring about better coordination among the planned production and consumption activities of autonomous yet interdependent individuals. In contrast, Kirzner (1984a) framed a broader concept of entrepreneurial action by recognizing that it can be either successful or unsuccessful. Successful entrepreneurship improves the coordination of entrepreneurial plans and is equilibrating; unsuccessful entrepreneurship is disequilibrating. Entrepreneurial success predominates because it is rewarded by market incentives.¹⁸

Schumpeterian entrepreneurs focus on technological change. They move market prices away from equilibrium by introducing new production technologies, marketing and distribution media, and new plans which increase the social dispersion of knowledge (Schumpeter 1911:64). For Schumpeter the entrepreneur seeks to shift the production function and cost function (Triffin 1940:168; Schumpeter 1962:104–105, 132). To Lachmann (1976a, 1976b), entrepreneurship is a much

broader concept, because Lachmannian entrepreneurs also change market conditions even when they are not introducing new technologies:

... the equilibrating forces, operating slowly, especially where much of the capital equipment is durable and specific, are always overtaken by unexpected change before they have done their work. . . . What emerges from our reflections is an image of the market as a particular kind of process, a continuous process without beginning or end, propelled by the interaction between the forces of equilibrium and the forces of change. (Lachmann 1976b:61)

Though a plan may be intended to offer flexibility and be adaptable to changing market conditions, planning always imposes some degree of inflexibility by limiting future choices. In Kirzner's (1973: 72–73; 1976) view, successful entrepreneurs discover previously unsuspected disequilibria and profit from their removal.¹⁹ Kirzner notes that prices remain in equilibrium until alert entrepreneurs discover information dispersal and asymmetry and act to take advantage of the arbitrage opportunity. Kirznerian entrepreneurs, when successful, establish a new equilibrium where market participants' plans are better coordinated and their wants can be better satisfied than before (Kirzner 1984b:160). Kirznerian entrepreneurs profit through alertness to new opportunities unsuspected by others: "entrepreneurship for me is not so much the introduction of new products or of new techniques of production as the ability to *see* where new products have become unexpectedly valuable to consumers and where new methods of production have, unknown to others, become feasible" (Kirzner 1973: 81).

The Schumpeterian and Lachmannian entrepreneurs disturb and destroy the old equilibrium; the successful Kirznerian entrepreneur moves the market toward a new one. Kirznerian entrepreneurs avoid risk and cost (Blaug 1998:223) because they move the market toward a new equilibrium which could only exist hypothetically after the entrepreneurial action. Kirzner on the one hand, and Schumpeter and Lachmann on the other, offer diametrically opposed views of the role of the entrepreneur in relation to market equilibria (table 1). The actual dispersion of the asymmetric information introduced by Schumpeterian and Lachmannian entrepreneurs lessens the coordination of economic plans. Kirznerian entrepreneurs exercise alertness to discover these already-existing information asymmetries, and when their plans are successful, serve to improve the coordination among others' plans. Figure 2 illustrates the relationships among the three authors' concepts of entrepreneurship.

The true market environment in which an entrepreneur operates can only be discovered through experience, but by then it is too late, because the entrepreneurial plan has already been carried out, and has failed. This first kind of knowledge problem (Kirzner's Knowledge Problem A), a problem of overoptimism, causes planned exchanges to be impossible to fulfill. Kirzner (1990:169–171) notes overoptimism is self-correcting, as market participants either adjust their plans to the realities of the market, or withdraw from the market.

It is also possible for entrepreneurs to come to the erroneous conclusions that

Table 1. Alternative Theories of Equilibria and Entrepreneurship

	Schumpeter	Lachmann	Kirzner
Market equilibria	Equilibria are disturbed through technological progress (1911). Expectations imply a certain allocation of resources. Though technological change is disequilibrating in the sense it surprises agents' existing expectations, entrepreneurial plans, and patterns of resource allocation, production, and employment, it is equilibrating in that it always reveals a new and better allocation of resources which better addresses scarcity.	Equilibria are upset by entrepreneurial innovation (1976a; 1976b), of which technological change is just one kind. Individuals act on private information they interpret subjectively (1986).	Successful entrepreneurship is equilibrating; unsuccessful entrepreneurship is disequilibrating. The natural structure of incentives ensures that entrepreneurial success predominates. Disequilibrium prices are everywhere and offer alert entrepreneurs pure profit opportunities. Entrepreneurial exploitation of disequilibrium prices adjusts markets toward equilibrium through arbitrage (1984a).
Entrepreneur	Entrepreneurs introduce information asymmetries by engaging in new activities. Dispersion of asymmetric information impairs coordination of entrepreneurial plans, resulting in less output and less efficient production.	Entrepreneurs contribute to evolving market institutions which improve consistency among planned consumption, production, and resource allocation (1956). Entrepreneurs combine capital equipment in specific ways to produce output, but can recombine it in a different manner (multiple specificity of capital).	Entrepreneurs are alert to opportunities presented by market failures and profit from fulfilling existing wants (1973). Entrepreneurs observably fail through overoptimism (Knowledge Problem A) or fail unobservably through overpessimism (Knowledge Problem B). They succeed through alertness to information they can use to overcome the knowledge problems (1990).

inputs cannot be obtained, or output sold, at sufficiently low or high prices, or that production technology, input quality, or consumer demand for the output are actually better than anticipated by entrepreneurial planners (Kirzner 1990:168–69). In these instances of overpessimism (Kirzner's Knowledge Problem B), exchanges which are theoretically feasible, and could be seen after the fact to have been feasible, are never planned or undertaken, because market participants were unaware of the feasibility of the potential exchanges. Entrepreneurs always seek to discover such opportunities, but many must go undiscovered. These kinds of problems are not self-correcting, and await entrepreneurial discovery before anyone can be aware

Figure 2. Entrepreneurship and Equilibria

of them. The entrepreneur can profit by uncovering, and remedying, instances of Knowledge Problem B.

These objections based on Kirzner's two knowledge problems can be given an alternative formulation, drawing mainly from Hayek (1949) and Kirzner (1984a, 1984b, 1990): the information set required for optimizing behavior does not exist in reality. In reality, each market participant possesses some relevant information, much of which is purely subjective. Much of this information is held exclusively by a certain individual, for example, that individual's subjective preferences or his or her plans for future consumption and production, which no one else can observe before the fact. Some information, such as undiscovered technical knowledge, is always waiting to be discovered, but until someone uncovers and acts on new information, resource allocation is always less optimal and always imposes greater material scarcity on economic agents. Individuals also differ in their alertness, both in terms of intensity and application (Kirzner 1979:170). Entrepreneurs overcome the social problem of information dispersal whenever they generate flows of information that stimulate revision of uncoordinated decisions toward greater mutual coordination (Kirzner 1984a:147) moving the market toward a never-realized equilibrium state.

Prices summarize relevant information which would otherwise be useless to market participants in satisfying their wants, but inadequacies in market prices also create the profit-and-loss incentives for entrepreneurs to adjust prices. Entrepreneurs compete in adjusting prices in a "competitive process which *digs out* what is in fact discovered" (Kirzner 1984a:150). The competitive process where "competition is valuable only because, and so far as, its results are unpredictable and on the whole different from those which anyone has, or could have, deliberately aimed at" (Hayek 1978:180) is incompatible with central planning.

Because Austrian business cycle theory is built on the concept of production or capital structure, the role entrepreneurial managers play in adjusting and maintaining the production structure connects Austrian macroeconomics with Austrian microeconomics (Dulbecco and Garrouste 1999). Baetjer (1997, 2000) notes the need to coordinate production through the capital structure is ongoing and omnipresent due to the frequent arrival of new knowledge. Furthermore, the

production structure is maintained through experimental revisions of entrepreneurial plans. “Constant revision is the work of experimental inquiry” (Dewey 1930:156). These adjustments are always experimental because the outcome cannot be known in advance: “The uncertainty of the future is already implied in the very notion of action” (Mises 1949:105). Baetjer emphasizes that capital equipment calls for complementary technical knowledge and other resources. Capital is useless if workers do not know how to use it and if complementary capital is not available, e.g., a locomotive cannot be operated by a layperson, and cannot run without tracks.²⁰ Maintaining the production structure is a dynamic, disequilibrium process (Lewin 1999:22–25; Lewin and Phelan 2000:68).

Each stage of production is filled with half-baked cakes (Kirzner 1997:37–41). Individual entrepreneurial errors are common, occurring often and randomly (Rothbard 1997:73; Mueller 2001:13). Because the production structure cannot constantly readjust without significant cost, once entrepreneurs have implemented a production plan, they may resist revising it, and may even resist alertness to new information which calls for revising a production plan once it has been implemented (Kirzner 1973:35, 64–68, 1992:26–28; Hannan and Freeman 1984).

Conclusion

Austrian radical subjectivism is presented as a special case of Dewey’s ways of knowing or transactional strategy. The Austrian economists generally view the economic knowledge of market participants as subjective, but view the scientific knowledge of economics as asserting and aiming for ontologic certainty. Correct scientific knowledge would thus possess an objective character. Dewey views scientific knowledge as tentative and non-ontologic. Because Menger, Mises, and Hayek all accepted the possibility that scientific knowledge, if correct, could possess a final, objective, and even apodictic certainty, their view was closer to that of the logical positivists of the Vienna circle than to Dewey’s pragmatism. In Dewey’s view, the scientist commends new, alternative ways of knowing to the scientific community, offering more profound insight or more efficacious practical applications. In spite of diametrically opposite positions on the status of scientific knowledge, both the radical subjectivism of the Austrian school and Dewey’s transactional philosophy justify rejection of central economic planning. The Deweyan transactional strategy, knowledge as ways of knowing, suggests a broader and more fundamental critique of the socialist position in the calculation debate.

Dewey’s transactional philosophy is applied to several problems in modern economics. The economic conception of subjectivism was explored and discussed. Though subjective valuation is central to the economic approach to analyzing behavior, the concept is effectively limited to the social sciences. Thus, the radical subjectivism of the Austrian school is too limited in scope to conflict significantly with Dewey’s transactional view. Dewey’s view, that subject and object are connected through transaction, transcends the narrow technical meaning of subject and object applied in the social sciences. Spontaneous order characterizes most

economic phenomena, and indeed, most phenomena resulting from social interaction or transaction. Spontaneously evolved institutions include government, laws, markets, and money. Spontaneous order explains why economics can be seen as a rigorous approach to the phenomena of subjectivity, much like statistics offers a mathematically rigorous approach to uncertainty and indeterminacy.

Dewey's transactional strategy was applied to clarify several problems in the theory of entrepreneurship. Examining the meaning and significance of hypothesized market equilibria and how entrepreneurs potentially can profit from disturbing or establishing coordination among the entrepreneurial plans of individuals offers a richer understanding of entrepreneurs' contribution to social progress. Different and apparently conflicting theories of entrepreneurship were demonstrated to be related as special and general cases.

The Deweyan transactional approach is essential for removing roadblocks to inquiry that would otherwise frustrate the progress of the social sciences. Economics analyzes problems of social communication through spontaneously emergent institutions. Market prices summarize the information entrepreneurial planners can use to coordinate their future productive activity against an indeterminate world of uncertainty. An essential part of economic analysis has to be the valid interpretation and contextualization of what economics asserts, calling for application of Dewey's transactional strategy.

Notes

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1. "Inquiry, through linguistic development of terms and propositions, arrives in judgment at warranted assertions upon existence" (Dewey and Bentley 1949:165). "Final judgment is attained through a series of partial judgments—those to which the name *estimates* or *appraisals* has been given. Judgment is not something occurring all at once. Since it is a manifestation of inquiry, it cannot be instantaneous and yet be inquiry. Short of attainment of a finally resolved situation (the result of final judgment and assertion) respective subject-and-predicate contents are *provisionally* instituted in distinction from and correlation with each other. Were subject-and-predicate contents final rather than provisional, distinction and relation *would* constitute a state of irreconcilable opposition. Since they are functional and operative, there is no more conflict than there is in the fact that in the course of every complex productive activity, industrial or social, divisions of labor are instituted which nevertheless are functionally connected with one another" (Dewey 1938b:133–134). This argues strongly that Dewey is subjectivist in the sense of the Austrian school: "*Final judgment is individual . . .*" and refers to "*a situation in the sense in which the meaning of that word has been explained; it is a qualitative existential whole which is unique*" (Dewey 1938b:122).

2. Dan Palmer suggests that the more desired, hoped-for, or important a warranted assertion that resolves a problematic situation, the more important the means employed to arrive at it. A further consideration is that within inquiry, ends often become means to subsequent ends. One inquirer's end may be another's mid-journey milestone, a possibility

given particularly eloquent expression by Isaac Newton (1675): “If I have seen further . . . it is by standing on the shoulders of giants.”

3. “Knowings and knowns are to be taken together as aspects of one event” (Dewey and Bentley 1949:127). Ryan (1995:113) discusses the relationship of Dewey’s philosophy to that of Hegel and Marx.

4. The term “reconciliation” is potentially misleading because it can be taken to imply a prior separateness. The goal of inquiry is to clarify the way in which two sides of a functional distinction were never apart. Thus, the problem of their reconciliation is illusory. The author is indebted to Dan Palmer for this interpretation.

5. Concepts are not physical objects as in Platonic idealism (nor are they supernatural), thus concepts cannot have any existence independent of the individual subjective beliefs of a knower. Even so, from a transactional perspective, the distinctions are equally subjective and objective, both being two phases of a single knowing transaction. Distinctions are facts in the etymologically original sense of factum or things done, and thus possess objective reality in this strictly limited sense, where the thing and the doing are present simultaneously. The objectivity of one’s knowledge is limited by the sum of knowledge and belief accepted by a particular individual. From the perspective of economics, the subjectivity of an individual’s knowledge is fairly overriding, even when many individuals accept the same knowledge as “truth.” To say that things distinguished are “only subjective,” as economists still speak of human valuation, is not representative of Dewey and Bentley’s views. Dewey replaces the stage of ontology with the stage of inquiry, not with the stage of subjectivism. In Dewey’s thought, to reject the extreme of a traditional dualism is rarely if ever to embrace the other extreme (here subjectivism). The point economics makes is more that the objective characteristics of a good, service, or entrepreneurial plan are relatively unimportant (from an economic perspective) and subordinated to individuals’ subjective valuation. Economists do not hold that objective characteristics do not exist, or that subjective valuation, such as it exists at any time in reality, is not an objective fact.

6. “It was assumed that . . . knowledge is dependent upon the independent existence of a *knower* and of something *to be known*; occurring, that is, between mind and the world; between self and not-self; or in words made familiar by use, between subject and object. The assumption consisted in holding that the subject matters designated by these antithetical terms are separate and independent; hence, the problem of problems was to determine some method of harmonizing the status of one with the status of the other with respect to the possibility and nature of knowledge” (Dewey and Bentley 1949:287–288).

7. The subjectivity of human experience is called the Rashomon effect, from Akira Kurosawa’s (1910–1998) 1950 film based on the short stories of Ryunosuke Akutagawa (1892–1927).

Non-physical objects like processes, systems, entrepreneurial plans, technical knowledge, and administrative procedures can also be valued by individuals. Dewey would point out correctly that these are also objects (Dewey and Bentley 1949:194–196), since they can be real without necessarily possessing corporeality. Dewey discourages use of the words “subject,” “subjective,” and “subjectivism,” but they seem to be necessary technical terms in modern economics. In more Deweyan language, we might say individuals (subjects) and external reality (objects) are related through (subjective) valuation, and different individuals are related (objectively) through exchange. See note 10 below on the Austrian school’s distinction between objective exchange value and subjective use value. Dewey might object that these two kinds of valuation cannot really be separated, and that the Austrian distinction is merely a conceptual schema.

8. “The environment in which human beings live, act, and inquire, is not simply

physical. It is cultural as well. Problems which induce inquiry grow out of the relation of fellow beings to one another, and the organs for dealing with these relations are not only the eye and ear, but the meanings which have developed in the course of living, together with the ways of forming and transmitting culture with all its constituents of tools, arts, institutions, traditions, and customary beliefs. . . . Man, as Aristotle remarked, is a *social* animal. This fact introduces him into situations and originates problems and ways of solving them that have no precedent upon the organic biological level. For man is social in another sense than the bee and the ant, since his activities are encompassed in an environment that is culturally transmitted, so that what man does and how he acts, is determined not by organic structure, and physical heredity alone but by the influence of cultural heredity, embedded in traditions, institutions, customs, and the purposes and beliefs they both carry and inspire” (Dewey 1938a:48–49).

9. “Transaction . . . represents that late level of inquiry in which in which observation and presentation could be carried on without attribution of the aspects and phases of action to independent self-actors, or to independently inter-acting elements or relations” (Dewey and Bentley 1949:136).

10. Menger (1871:118–121) and Mises (1912:38–45; 1949:120–121) distinguish subjective use value, which is unobservable and internal to the individual, from objective exchange value, which is both observable and external. This distinction was central to the Austrian school, but continues to be almost universally accepted in other schools of economic thought. See note 7 for discussion of a transactional resolution of this distinction.

11. Mises (1949:47–48; 1960:35–37, 57) regards scientific knowledge as value-free (*wertfrei*) because it would be true regardless of an individual’s values. This is particularly true for economic theory which addresses the fulfillment of human wants or values, but not their ultimate source or justification. Goods can be used either to satisfy an individual’s wants (subjective use-value) or for exchange (objective exchange-value).

12. Hayek (1952b:374) cites Marx, Engels, Feuerbach, Renan, Taine, Durkheim, Mazzini, Croce, Proudhon, and Pareto along with Dewey as accepting a social theory of Comte and Hegel that our material understanding of scientific technology governs and limits our development in all other fields.

13. “The transactional is in fact that point of view which systematically proceeds upon the ground that knowing is co-operative and as such is integral with communication” (Dewey and Bentley 1949:97). “No scientific inquirer can keep what he finds to himself or turn it to merely private account without losing his scientific standing. Everything discovered belongs to the community of workers. Every new idea and theory has to be submitted to this community for confirmation and test” (Dewey 1930:154).

14. In physics, Newtonian mechanics was superseded by Einsteinian relativity. Although Newtonian mechanics remains as true as it ever was in its limited context, and being a special case, is nested within Einsteinian physics, we often say that the truth of Einsteinian physics demonstrates the falsity of Newtonian physics. It remains impossible for us to know if Einsteinian relativity will ever be superseded—we cannot know that it is not ontologically final truth, and we cannot know that it is.

Similarly, the familiar Euclidian geometry of everyday experience is nested within several alternative non-Euclidian geometries of Gauss (1777–1855), Lobachevskii (1792–1856), Bolyai (1802–1850), Riemann (1826–1866), and the projective geometry of Cayley (1821–1895) and Kline (1849–1925). The non-Euclidian geometries are not nested within one another, and some are mutually exclusive. Euclidean geometry is nested within each as a special case, and each of the non-Euclidean geometries are nested within Kline’s more general system (Gellert et al. 1975:712–717).

Section 4 shows how Schumpeter's theory of entrepreneurship is nested within Lachmann's more general theory, which is nested in turn within Kirzner's (Figure 2).

15. Human choice and preference have to be viewed as objective in the sense "that man and his doings and transactions have to be viewed as facts within the natural cosmos" (Dewey and Bentley 1949:116). When economists say human preference is subjective, they merely mean that each person's value scale is unique to the individual. Even if, by chance, two individuals shared identical preferences, economists would appeal to the inherent separateness of the two individuals, an objective property, to demonstrate the difference of their preferences. In economics, Jack's and Jill's preferences are different, *even when they have the same content*, because they belong to two different individuals.

Barnett (2003) gives a comprehensive critique of preference-additivity. A modern area of research in consumer theory involves using the utility of others as an argument in utility functions (Postlewaite 1998; Bergstrom 1999). This formulation potentially breaks down the presumed separateness of individual utilities, but not their inherently subjective character. Utility independence was traditionally assumed for analytical tractability.

16. Dewey was unfortunately ambiguous regarding the permissibility of coercion. "Whether the use of force is justified or not . . . is, in substance, a question of efficiency (including economy) of means in the accomplishment of ends" (Dewey 1916:362, cited by Hayek 1973:160, note 4). Dewey's position contrasts sharply with Mises's characterization of the social sciences as value-free (*wertfrei*); to Mises and Hayek, force could never be initiated, but could only be applied as a defensive response to the force of others. See also Hayek (1960:17; 1976:44). Dewey (1935:41; 1938a:74) even suggests that liberty is liberty to exercise force over others.

17. Schumpeter is not always considered a member of the Austrian school, however, his theory of the entrepreneur was highly influential and controversial among both Austrian and mainstream economists. For a good part of Schumpeter's career, roughly c. 1900–1940, the Austrian school was the mainstream.

18. General equilibrium is a hypothetical macroeconomic condition in which all markets for goods and services are simultaneously in equilibrium. Among the functions entrepreneurs fulfill in market economies, they experiment with different prices and are alert to the shortages and surpluses which follow. Shortages and surpluses offer alert entrepreneurs valuable information for the next round of experimental price-setting.

19. On this important distinction between Kirzner and Lachmann, see especially Lewin (1999:22–25).

20. Lachmann (1947/1977:199), Lewin (1999:123–125), and Cochran (2001:22) make a similar point.

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