On the 'Stickiness' of the Economic Equilibrium Paradigm: Causes of Its Durability

Author(s): Charles C. Fischer

Source: *The American Journal of Economics and Sociology*, Jan., 1993, Vol. 52, No. 1 (Jan., 1993), pp. 51-62

Published by: American Journal of Economics and Sociology, Inc.

Stable URL: https://www.jstor.org/stable/3487634

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at https://about.jstor.org/terms

is collaborating with JSTOR to digitize, preserve and extend access to *The American Journal of Economics and Sociology*

This content downloaded from 149.10.125.20 on Sun, 16 Jan 2022 01:51:45 UTC
All use subject to https://about.jstor.org/terms

On The 'Stickiness' Of The Economic Equilibrium Paradigm:

Causes of Its Durability

By CHARLES C. FISCHER*

ABSTRACT. Thomas S. Kuhn, Imre Lakatos and Mark A. Zupan have made important contributions to our understanding of why paradigms of thought tend to be quite resistant to displacement, or even revision. Their work is extended in an attempt to explain the staying power of the economic equilibrium paradigm. It is argued that this paradigm is particularly "sticky" due to its pedagogical, methodological and protective properties. The implications of this for paradigm assessment and evolution are discussed.

I

Introduction

THE EQUILIBRIUM PARADIGM flourishes as a central part of economic orthodoxy despite the fact that its significance has been rigorously challenged methodologically, analytically, and practically. Institutionalists, social economists and others have been particularly aggressive in their attacks on equilibrium (*e.g.*, Clark, 1989; Hosseini, 1990; Toruno, 1988; Klein, 1988; Whalen, 1987). Yet it seems to have a life force immune to critical review. Why is this? What explains the staying power of this paradigm?

This article examines this important question, building upon the work of Thomas S. Kuhn, Imre Lakatos and Mark A. Zupan. Kuhn and Zupan both analyze paradigm "stickiness" in terms of sunk costs, start-up costs, and vested interests, with Kuhn adding the constraints of "normal science" investigation. Lakatos, sharing to some degree Kuhn's thesis, explains the stickiness of a research program (a term he prefers to paradigm) in terms of a "protective belt" of auxiliary hypotheses.

The relevance of these sources of rigidity to the orthodox economic equilibrium paradigm is set forth in this paper. It is argued that its staying power is due not only to these generic (macro) sources of paradigm rigidity, but also to its inherent pedagogical and methodological (micro) attributes. This macro-

* [Charles C. Fischer, Ph.D., is editor in chief of the *Journal of Managerial Issues,* and chairman and professor of economics in the department of economics, finance and banking, Pittsburg State University, Pittsburg, KS 66762.] The author is grateful to two anonymous referees for their perceptive comments about an earlier draft of the paper.

American Journal of Economics and Sociology, Vol. 52, No. 1 (January, 1993).
© 1993 American Journal of Economics and Sociology, Inc.

This content downloaded from
149.10.125.20 on Sun, 16 Jan 2022 01:51:45 UTC
All use subject to https://about.jstor.org/terms

micro dichotomy facilitates the argument that the proponents of economic equilibrium benefit not only from general sources of paradigm rigidity operative in most disciplines, but also from attributes specific and relatively unique to equilibrium itself.

The economic equilibrium paradigm was selected as the focus of this paper since it is arguably one of the most successful and pervasive reigning paradigms in orthodox economics. It is also significant that economic equilibrium provides an excellent analog to the notion of a Lakatosian research program in the physical sciences. Economic equilibrium facilitates the application of the Lakatosian interpretation of scientific method to economics.

II

Articulation and Promotion of Equilibrium

PARADIGM ARTICULATION AND PROMOTION play an important role in widening (increasing the number of) and deepening (increasing the commitment of) the followers of a particular school of thought. Paradigm articulation refers to the effective communication of a paradigm. Paradigm promotion involves the "selling" or marketing of a paradigm by the discipline.

Orthodox economics, with the adoption of equilibrium, has developed an effective set of associated methodological tools (*e.g.,* equilibrium as a theoretical norm) for articulating and promoting the discipline. Equilibrium methodology promotes rigorous formulation and quantification of economic phenomena and a means toward their consistent reconciliation. It is akin to the scientific method of the controlled experiment, and facilitates cohesive and rigorous economic analysis. (The "market is cleared!" With an equal number of values and variables the results are determinate!)

Equilibrium methodology provides for both the effective teaching (passing the "looking glass" on) and marketing of (attracting new disciples to) the discipline. As a pedagogical construct, it depicts economic phenomena in static, mechanical, deterministic relationships which (are assumed to) operate in a predictable fashion within the well defined boundaries of "economics proper" (thus, facilitating "normal science" investigation). As such, equilibrium methodology provides orthodox economists with a relatively "simple" analytical toolbox (*i.e.,* simple in the spirit of Occam's Razor), containing determinate algorithms that unravel the complexities of the real world.

The teaching and marketing of economic equilibrium centers on the functional trilogy of equilibrium as (1) a heuristic device, (2) a theoretical norm, and (3) a system of logic. Primarily, equilibrium is a *heuristic device,* promising "clarity and precision to an understanding of forces actually operative in the real world"

This content downloaded from
149.10.125.20 on Sun, 16 Jan 2022 01:51:45 UTC
All use subject to https://about.jstor.org/terms

(Souter, 1930: 57–58). What might otherwise appear as random, undirected events exhibit a sense of order when analyzed through the looking glass of equilibrium—that is, when analyzed on the presumption of the empirical market system's tendency to approximate the conditions of equilibrium. The orthodox presumption of norms of behavior, invariant relationships, and natural law mechanics of economic processes is captured in the equilibrium paradigm as a method for providing order and stability to economic phenomena. It is in this context that Joseph Schumpeter was inspired to designate equilibrium as the "magna charta of economic theory" (1939: 41–42).

Important to equilibrium as a heuristic device is the methodology of comparative statics. In the static model, time is completely ignored; all adjustments are assumed to be instantaneous. In the static equilibrium paradigm, the economist is interested in the equilibrium values of economic variables rather than the time required for the establishment of the equilibrium. The heuristic power of comparative statics is that it allows complex dynamic economic processes to be portrayed as a series of snapshots over time. No attempt is made to explain the events responsible for the transition from one moment to the next. By analogy, the methodology of comparative statics is akin to a comparison of the start and finish photos at a race track, with no explanation of what took place between the start and finish. It thus abstracts from dynamic behavior. (Critics see it as oversimplification.)

The argument for equilibrium as a heuristic device centers on notions of order, invariant relationships, norms of behavior, natural state of affairs, clarity, precision, and simplicity. These methodological attributes have strong intuitive appeal, especially for those desiring analytical determinacy and the "hard" science status such as that enjoyed by the natural sciences. In the Lakatosian framework (explored below), the heurist power of equilibrium lies in its "problem-solving machinery" (Lakatos, 1978b).

Secondly, equilibrium methodology provides researchers with a *theoretical norm,* a guidepost for assessing the state of an economic system (at a particular moment). In the words of David Easton, "By spelling out the laws governing the interaction of economic variables, it becomes possible to compare the real economic system against the theoretical norm" (1956: 40). Similarly, Schumpeter in his analysis of business cycles argued that one can only speak of economic fluctuation in terms of some reference point. Here Schumpeter was interested in the notion of a time sequence of equilibrium values, as pioneered by Henry L. Moore. Thus he said: "Throughout [Moore's] work, summed up in his *Synthetic Economics,* was the principle that trends are loci of points, every one of which indicates the ideal equilibrium value corresponding to the actual value taken by each time variable in the same point in time" (Schumpeter, 1930: 69–70).

This content downloaded from
149.10.125.20 on Sun, 16 Jan 2022 01:51:45 UTC
All use subject to https://about.jstor.org/terms

These "ideal" equilibrium values constitute a conceptual guidepost against which the economy can be empirically evaluated. Any divergence between the theoretical norm of equilibrium and the actual state of economic affairs is explained in terms of those forces that equilibrium theory would predict as being responsible for the divergence.

Finally, equilibrium is seen as a *system of logic* by its adherents; that is, as a means for providing rigorous analysis and argumentation. The logic of equilibrium is the logic of basic natural laws concerning motion, conservation of energy, and gravitation. In other words, the logic of equilibrium is the logic of Newtonian mechanics. Orthodoxy employed the Newtonian method to provide economics with a tight, rigorous system of logic. Equilibrium is a kind of prototype of the scientific method in general. Thus, economic equilibrium links the method of classical mechanics in physics to the social science setting of economics. This linkage confers "hard" science status to orthodox economics via its association with physics and mathematics (see Boulding, 1967).

In summary, equilibrium is promoted by orthodox economists as a heuristic device, as a theoretical norm, and as a system of logic. These attributes have been successful in promoting equilibrium, and have, along with other forces (discussed below), protected it from critical review. Equilibrium remains relatively unscathed (as a central concept in orthodox economics) in spite of longstanding, continual criticisms by institutionalists, social economists and others (*e.g.,* Whalen, 1987; Dowd, 1979; Georgescu-Roegen, 1971; Kornia, 1971; Rothbard, 1979; Lowe, 1965; Schoeffler, 1955; Caldwell, 1982; Ward, 1972; Hill, 1983; Dunn, 1970; Easton, 1956; Eichner, 1983; Veblen, 1898).

Below we shall focus on the work of Kuhn and Lakatos. The Kuhnian interpretation of scientific method helps us understand better the staying power of the equilibrium paradigm in terms of its ability (1) to answer the questions asked of it, and (2) to address anomalies more successfully than any rival paradigm. The Lakatosian interpretation explains the staying power of equilibrium in terms of its defensive ability to actually repel attacks made on it.

III

Disciplinary-Based Forms of Resistance And the Social Psychology of Discovery and Crisis

ECONOMIC EQUILIBRIUM, it was argued above, is well endowed with its own (endogenous) defenses against paradigm attack. It also, like all paradigms, is protected by disciplinary-based forms of resistance to paradigm shift. These are particularly strong in a social science discipline, such as economics (compared to the natural sciences). A social science setting is not as conducive to the cause-

This content downloaded from
149.10.125.20 on Sun, 16 Jan 2022 01:51:45 UTC
All use subject to https://about.jstor.org/terms

effect relationships between anomaly, crisis, and scientific revolution as is a natural science environment (Kuhn, 1970). The social sciences lack adequate criteria for objective refutation. Old theories may survive for an indefinite period of time, even in the face of new problems that demand the application of a new set of conceptual and instrumental tools.

Even when objective refutation can be accomplished, a formidable second line of resistance to paradigm shift is the "costs" it imposes on the discipline (Zupan, 1991). The adoption of an alternative methodology would involve a process of scientific retooling, an expense (and trauma) which normally will be avoided if possible: "So long as the tools a paradigm supplies continue to prove capable of *solving the problems it defines* [italics added], science moves fastest and penetrates most deeply through refinement of those tools" (Kuhn, 1970: 76).

Compounding these costs are the personal costs associated with the obsolescence of existing orthodoxy. Practitioners of orthodoxy have a vested interest in the survival of the analytical constructs they have mastered and upon which are built their works and their reputations. It should not be surprising that new insight often emerges from the work of "outsiders." For example, concerning the work of Jean Bodin (a French jurist) and the development of the quantity theory of money, Henry W. Spiegel states:

> The early history of the quantity theory of money has been traced in some detail because it constitutes a typical example of the manner in which new insight has emerged in economics. An outsider has the first vision. Then, after some time has elapsed, the idea is restated by a number of people.
>
> . . . It is these who have the greatest effect on the further trend of thought, cause the new idea to become assimilated to the main stream of conventional thinking, and earn credit for the innovation. The recognition given to Bodin in the history of economic thought conforms with this pattern (1971: 90).

Perhaps most important among the sources of disciplinary-based paradigm rigidity is the threat paradigm change poses to the very legitimacy of the discipline. Paradigm change has the capacity to bring about a major discontinuity in the nature of scientific research. A particular paradigm provides a map on which to guide scientific research. Through the theories which it comprises, it is constitutive of that research. But, more important, a paradigm provides a set of directions for map-making itself. Consequently, paradigm change entails a major shift in the criterion of legitimacy for selecting both problems and proposed solutions.

The dramatic consequence of a paradigm change is that it causes the members of the scientific community to see the world differently through their research engagement. In a sense, they are responding to a different world. This involves

This content downloaded from
149.10.125.20 on Sun, 16 Jan 2022 01:51:45 UTC
All use subject to https://about.jstor.org/terms

the learning of a new gestalt—a "gestalt switch," in the words of Lakatos—a new perception of the environment.

These costs, both to the discipline and its practitioners, weigh heavily against paradigm change. As generic ("macro") sources of paradigm rigidity, they must be factored in with the already mentioned specific ("micro") attributes of economic equilibrium which guard against paradigm shift.

Kuhn provides further insights into macro sources of paradigm stickiness. Even though economic equilibrium may be subjected to forces of analytical obsolescence—the breakdown of normal puzzle-solving activity ("Kuhnian crisis")—it is not sufficient for dramatic paradigm change, as Kuhn (1970) argues. Paradigm crisis may set the stage for changes (paradigm evolution), but it is not sufficient for the development of a new paradigm (paradigm shift). As objective circumstances change, the life span of ideas which have lost their relation to the world may be prolonged by their general acceptability as part of the "conventional wisdom." John Kenneth Galbraith proclaims that "the conventional wisdom accommodates itself not to the world that it is meant to interpret, but to the audiences' view of the world" (1958: 21). The paradigmatic looking glass, by which orthodoxy views reality, may serve to protect the profession from anomalous phenomena (the violation of "paradigm-induced expectations" that govern normal science [Kuhn, 1970: 21]), since they cannot be formulated and analyzed within the conceptual and analytical boundaries of the governing or reigning paradigm (see Grunberg, 1966).

A paradigm also may insulate the profession from socially important problems (*e.g.,* income distribution). These problems may be considered external to normal science puzzle-solving activity because of their lack of "relevance" concerning paradigm articulation. However, they do not necessarily constitute a threat to paradigm survival. That is, these problems may not violate paradigm-induced expectations.

Scientific crisis (though necessary for paradigm change) is not sufficient as a basis for paradigm change. "There must also be a basis, though it need be neither rational nor ultimately correct, for faith in the particular candidate chosen" (Kuhn, 1970: 158). This involves a faith in the future of a new paradigm. Thus, for Kuhn, scientific change is a mystical conversion falling within the realm of social psychology and religion (Lakatos, 1978a). It is this recourse to an external criterion, external to the research activity of normal science, that makes paradigm debates revolutionary.

Though paradigm debate is necessarily revolutionary in nature and scope, paradigm change (particularly in the social sciences) is not. Thus, it seems reasonable to expect that changes in the methodological structure of orthodox economics will evolve as more a matter of changes in degree than changes in

This content downloaded from
149.10.125.20 on Sun, 16 Jan 2022 01:51:45 UTC
All use subject to https://about.jstor.org/terms

kind; as more a matter of paradigm change or modification than as a paradigm shift. In the Lakatosian interpretation, this involves modifying or actually replacing the negative heuristic ("protective belt") of the paradigm (research program), and thus preserving its "hard core."

IV

Defending the 'Hard Core'

LAKATOS ARGUED that the staying power of a "research programme" derived from its negative heuristic which forbids researchers from directing the *modus tollens* (mode of denial, as opposed to *modus ponens* or the assertive mode of propositional logic) at the program's "hard core." In this section Lakatos' interpretation of scientific method and its possible relevance to economic equilibrium are examined.

Lakatos espoused the concept of a "series of theories" in place of theory as the basic unit in the logic of discovery (*i.e.,* scientific method). In his series of theories, each theory is connected by a continuity which yields a cohesive research program. Lakatos sees this continuity as "reminiscent of Kuhnian 'normal science' " (1978a: 46). The logic of discovery, Lakatos argued, could be satisfactorily examined only in the framework of a methodology of research programs.

Lakatos chose the label "research programme" because of its historical connotation. This suggests that it evolves from scientific activity undertaken over time by a group of scientists with similar intellectual background, training and goals. As such, it bears a close affinity with Kuhn's concept of paradigm (McMullin, 1976).

The Lakatosian research program is thus, by definition, established orthodoxy. As Popper, a colleague of Lakatos, explains: a research program is ". . . a mode of explanation which is considered so satisfactory by some scientists that they demand its general acceptance" (1970: 55). It would seem that economic equilibrium enjoys such status in orthodox economics.

A research program, put simply, consists of methodological rules. Some tell us what research avenues to avoid (its negative heuristic), and others what avenues to pursue (its positive heuristic). It is the program's negative heuristic which plays the crucial role in its long-term survival. According to Lakatos:

> All scientific research programmes may be characterized by their 'hard core.' The negative heuristic of the programme forbids us to direct the modus tollens at this 'hard core.' Instead we must use our ingenuity to articulate, or even invent 'auxiliary hypotheses,' which form a protective belt around this core, and we must redirect the modus tollens to these. It is the protective belt of auxiliary hypotheses which has to bear the brunt of tests and get adjusted and readjusted, or even completely replaced, to defend the thus-hardened core (1978a: 48).

This content downloaded from
149.10.125.20 on Sun, 16 Jan 2022 01:51:45 UTC
All use subject to https://about.jstor.org/terms

The negative heuristic, which defends the "hard core" of the research program, is " 'irrefutable' by the *methodological decisions* [italics added] of its proponents" (Lakatos, 1978a: 50). That is, it is irrefutable by fiat. On the other hand, the program's positive heuristic ". . . saves the scientist from becoming confused by the ocean of anomalies. He ignores the actual counterexamples, the available data" (Lakatos, 1978a: 50).

Only with the passage of considerable time and hindsight is it possible to identify negative crucial experiments. Certain anomalies may obtain such status, but only long after its discovery, only after the program has been defeated by another. In Lakatos' view, it takes a program to kill a program. Such a rival program, according to Lakatos, must explain ". . . the previous success of its rival and supersede it by a further display of heuristic power" (Lakatos, 1978a: 69). However, the forces of resistance are considerable. "Nature may shout no, but human ingenuity . . . may always be able to shout louder. With sufficient resourcefulness and some luck, any theory can be defended 'progressively' for a long time, even if it is false" (Lakatos 1978a: 110).

In summary, a research program, according to Lakatos, is composed of a "hard core" theory. A series of auxiliary theories or hypotheses, the "protective belt," protect the hard core from falsification. Anomalies are not taken as refutations of the "hard core," but of some hypothesis in the protective belt. A research program possesses a certain continuity brought about by its negative and positive heuristic. The negative heuristic redirects the *modus tollens* (in an encounter between the research program and an anomaly) away from the "hard core" and toward an auxiliary hypothesis. The positive heuristic saves the program from being swamped by anomalies by prescribing how the protective belt should be modified, or even replaced. A key point, for our purpose, is that "Lakatos seems to be recommending that scientists select certain of their hypotheses, christen them a 'hard core,' and decide in advance not to modify or renounce them in the face of difficulties" (Musgrave, 1976: 465).

V

From Hard to Soft Science

LAKATOS derived his interpretation of scientific method from the rich history of research programs in the physical sciences and mathematics. In fact, though he was better known for his work in the philosophy of the physical sciences, he regarded himself as primarily a philosopher of mathematics.

Lakatos revered the Newtonian research program as one of the most successful research programs in history. Newton, Lakatos argued, not only successfully defended his research program against numerous attacks for some time, but, in

This content downloaded from
149.10.125.20 on Sun, 16 Jan 2022 01:51:45 UTC
All use subject to https://about.jstor.org/terms

many cases, modified its "protective belt" so as to actually transform anomaly into supportive evidence. Newton's research program contains ". . . a powerful problem-solving machinery [heuristic], which, with the help of sophisticated mathematical techniques, digests anomalies and even turns them into positive evidence" (Lakatos, 1978b: 220).

The discipline of economics emulated Newton's problem-solving machinery via the development of economic equilibrium. The economic equilibrium research program, as a result, has both a "hard core" and a "protective belt" similar to that found in Newton's program.

The "hard core" of the Newtonian program consists of the three laws of mechanics and the law of gravitation (Lakatos, 1978b). Its "protective belt," its negative heuristic characteristic, consists of a sophisticated mathematical technique. The program's mathematical apparatus involves the differential calculus, the theory of convergence, and differential and integral equations (and also includes geometrical optics and Newton's theory of atmospheric refraction). Lakatos' analysis of the success of Newton's mathematical research program lead him to conclude that:

> The real difficulties for the theoretical scientist arise rather from the mathematical difficulties of the programme than from anomalies. Thus the methodology of scientific research programmes accounts for the relative autonomy of theoretical science (1970: 137).
>
> . . . . Indeed, if the positive heuristic is clearly spelt out, the difficulties of the programme are mathematical rather than empirical (1970: 136).

The increased mathematical sophistication of economic equilibrium in modern times would seem to parallel Lakatos' interpretation of Newton's method. With the increase in mathematical sophistication, the boundaries of economics were reduced to that range of phenomena amenable to quantification and mathematical rigor. This helped bring "hard" science status to economics, and may also have imbued economics (its equilibrium research program) with Lakatosian relative autonomy from those anomalies it could not explain.

To illustrate this theme, let us consider the following case. Economic equilibrium, according to critics, defines away the problem of economic concentration and power via the notion of competitive market equilibrium (which involves the questionable postulate of economic pluralism). In contrast to the market as a self-adjusting mechanism, the direct consequences of power may be a manipulated disequilibrium, depending on the interests of the power group or groups involved (Perroux, 1950). However, such environmental/institutional problems are defined away by the methodological rules of mathematical economic equilibrium. Samuelson offers the classic statement on this:

> For theoretical purposes an economic system consists of a designated set of unknowns which are constrained as a condition of equilibrium to satisfy an equal number of consistent and independent equations. . . . These are explicitly assumed to hold within a certain environment

This content downloaded from
149.10.125.20 on Sun, 16 Jan 2022 01:51:45 UTC
All use subject to https://about.jstor.org/terms

> and of certain data. Some parts of these data are introduced as explicit parameters; and, as a result of our equilibrium conditions, our unknown variables may be expressed in function of the parameters . . . (1947: 19).

Veblen's sardonic passage on the neoclassical conception of human nature and the working of consumer sovereignty captures the essence of this methodology in somewhat different terms:

> The hedonistic conception of man is that of a lightning calculator of pleasure and pain, who oscillates like a homogenous globule of desire or happiness under the impulse of stimuli that shift him about the area, but leave him intact. He has neither antecedent nor consequent. He is an isolated, definitive human datum, in stable equilibrium except for the buffets of the impinging forces that displace him in one direction or another. Self-imposed in elemental space, he spins symmetrically about his own spiritual axis until the parallelogram of forces [Newtonian economic gravity] bears down upon him, whereupon he follows the line of the resultant. When the force of the impact is spent, he comes to rest, a self-contained globule of desire as before (1919: 392).

The Lakatosian lesson applies here. Economic equilibrium, by directing the *modus tollens* away from its "hard core," has survived and even prospered while being continually confronted by such attacks. In Lakatosian terms, equilibrium's "hard core" consists of Newton's laws of mechanics and gravitation as modified to apply to economic phenomena (*e.g.,* the gravitational forces of supply and demand, and the Marshallian "scissors effect"). This "hard core," as in Newton's program, is insulated by a "protective belt" of sophisticated mathematical tools and techniques; simultaneous, determinate equation systems; maximization subject to constraint, *ceteris paribus* control, *etc.* In the Lakatosian interpretation, orthodoxy has protected the "hard core" of equilibrium by ignoring the anomalies of a complex, dynamic institutional environment. The "hard core" is legitimized by fiat.

The only real threat to the reigning program, Lakatos avers, is the possible development of a superior rival program to take its place (defined by Lakatos as one ". . . which explains the previous success of its rival and supersedes it by a further display of heuristic power." (1978a: 69)). Thus, in the Lakatosian framework, the staying power of the economic equilibrium program is largely explained by (1) the failure of its critics to establish and articulate a superior rival, and/or (2) the success of its proponents in modifying its negative heuristic. Lakatos believed that a paradigm may survive anomaly simply because its supporters have more resources, money, and ingenuity. "With sufficient resourcefulness and some luck, a theory can be defended 'progressively' for a long time, even if it is false" (Lakatos, 1978a: 110).

Borrowing from Keynes' argument (1935) that it takes a theory to kill a theory (not facts alone), perhaps (as Lakatos believed) it takes a methodology to kill a methodology (not criticisms alone). However, to use the competitive market

This content downloaded from
149.10.125.20 on Sun, 16 Jan 2022 01:51:45 UTC
All use subject to https://about.jstor.org/terms

analogy, there is no free market for paradigm competition. Long-run paradigm "stickiness" (immobility) derives from formidable imperfections in the 'marketplace' of paradigm debate.

References

Boulding, Kenneth. 1967. "The Legitimacy of Economics," *Western Economic Journal* 5 (Sept.): 299–307.

Caldwell, Bruce J. 1982. *Beyond Positivism: Economic Methodology in the Twentieth Century.* New York: Allen.

Clark, Charles M. A. 1989. "Equilibrium for What?" *Journal of Economic Issues* 23 (2): 597–606.

Dowd, Douglas F. 1979. *The Twisted Dream.* 2nd ed, Cambridge: Winthrop Publishers, Inc.

Dunn, Edgar S. 1970. "Economics And A New Social Science Threshold," *Southern Economic Journal* 36 (Apr.): 353–63.

Easton, David. 1956. "Limits of the Equilibrium Method in Social Research," *Political Behavior: A Reader in Theory and Research.* eds., H. Eulau, S. Eldersweld, and M. Janowitz. Glencoe, IL: Free.

Eichner, Alfred S. 1983. "Why Economics Is Not A Science," *Journal of Economic Issues* 17 (June): 507–20.

Galbraith, John Kenneth. 1958. *The Affluent Society.* New York: New American Library.

Georgescu-Roegen, Nicholas. 1971. *The Entropy Law and the Economic Process.* Cambridge: Harvard UP.

Grunberg, Emile. 1966. "The Meaning of Scope and External Boundaries of Economics," *The Structure of Economic Science,* ed. S. Krupp. Englewood Cliffs, NJ: Prentice.

Hill, Lewis E. 1983. "The Pragmatic Alternative to Positive Economics," *Review of Social Economy* 41 (Apr.): 1–11.

Hosseini, Hamid. 1990. "The Archaic, the Obsolete and the Mythical in Neoclassical Economics," *American Journal of Economics and Sociology* 49 (1): 81–92.

Keynes, John Maynard. 1935. *The General Theory of Employment, Interest and Money.* New York: Harcourt.

Klein, Philip A. 1988. "Of Paradigms and Politics," *Journal of Economic Issues* 22 (2): 435–441.

Kornia, Janos. 1971. *Anti Equilibrium.* New York: American Elsevier.

Kuhn, Thomas S. 1970. *The Structure of Scientific Revolutions.* 2nd ed, Chicago: U of Chicago P.

Lakatos, Imre. 1978a. *The Methodology of Scientific Research Programmes.* Cambridge: Cambridge UP.

———. 1978b. *Mathematics, Science and Epistemology.* Cambridge: Cambridge UP.

———. 1970. "Falsification and the Methodology of Scientific Research Programmes," *Criticism and the Growth of Knowledge,* eds. Imre Lakatos and Alan Musgrave. Cambridge: Cambridge UP.

Lowe, Adolph. 1965. *On Economic Knowledge.* New York: Harper.

McMullin, Ernan. 1976. "Theory and Appraisal in Science," *Essays in Memory of Imre Lakatos.* eds. R. S. Cohen, P. K. Feyerabend and M. W. Wartofsky. Boston: D. Reidel.

Musgrave, Allan. 1976. "Method or Madness?," *Essays in Memory of Imre Lakatos,* eds. R. S. Cohen, P. K. Feyerabend and M. W. Wartofsky. Boston: D. Reidel.

Perroux, Francois. 1950. "The Domination Effect and Modern Economic Theory," *Social Research* 17 (Mar.): 188–206.

This content downloaded from
149.10.125.20 on Sun, 16 Jan 2022 01:51:45 UTC
All use subject to https://about.jstor.org/terms

Popper, Karl. 1970. "Normal Science and Its Dangers," *Criticism and the Growth of Knowledge.* eds. Imre Lakatos and Alan Musgrave. Cambridge: Cambridge UP.

Rothbard, Murray N. 1979. *Individualism and the Philosophy of the Social Sciences.* San Francisco: The Cato Institute.

Samuelson, Paul A. 1947. *Foundations of Economic Analysis.* Cambridge: Harvard UP.

Schoeffler, Sidney. 1955. *The Failure of Economics: A Diagnostic Study.* Cambridge: Harvard UP.

Schumpeter, Joseph A. 1930. *Business Cycles.* Vol. I. New York: McGraw.

———. 1939. *Business Cycles.* Vol. I. New York: McGraw.

Souter, R. W. 1930. "Equilibrium Economics and Business Cycle Theory," *Quarterly Journal of Economics* 45 (Nov.): 40–93.

Spiegel, Henry W. 1971. *The Growth of Economic Thought.* Englewood Cliffs, NJ: Prentice.

Toruno, Mayo C. 1988. "Appraisals of General Competitive Equilibrium Theory," *Journal of Economic Issues* 22 (1): 127–155.

Veblen, Thorstein. 1898. "Why is Economics Not an Evolutionary Science?" *Quarterly Journal of Economics* 21 (July): 373–97.

———. 1919. "*The Place of Science in Modern Civilization.* New York: B. W. Huebsch.

Ward, Benjamin. 1972. *What's Wrong with Economics?* New York: Basic.

Whalen, Charles J. 1987. "A Reason to Look Beyond Neoclassical Economics: Some Major Shortcomings of Orthodox Theory," *Journal of Economic Issues* 31 (Mar.): 259–280.

Zupan, M. A. 1991. "Paradigms and Cultures: Some Economic Reasons for Their Stickiness," *The American Journal of Economics and Sociology* 50 (1): 99–104.

Reality is Interdisciplinary

JUST AS PHYSICS requires a unified theory of universal gravitation, electromagnetics, and quanta, so do the social sciences need a unified theory of human behavior. . . .

. . . Economics is but a part of the whole, and . . . any concrete economic decision not only has a quantitative character, but also a human aspect, and is part of a historical context. In numerous studies, I emphasized that no valid solution to economic problems can be found solely using economic theory and quantitative aspects of social life. Analysis of societies obviously requires a synthesis of all the social sciences: political economics, law, sociology, history, geography, and political science, and I specifically tried to bring out certain essential aspects of this sysnthesis in several studies on the working of democracy, the balance of the different powers and the decentralization of economic power, and the competition for power, and the essential role of elites and of social mobility.

MAURICE ALLAIS

This content downloaded from
149.10.125.20 on Sun, 16 Jan 2022 01:51:45 UTC
All use subject to https://about.jstor.org/terms