



**AgEcon** SEARCH  
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

*The World's Largest Open Access Agricultural & Applied Economics Digital Library*

**This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.**

**Help ensure our sustainability.**

Give to AgEcon Search

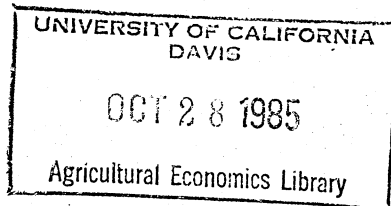
AgEcon Search

<http://ageconsearch.umn.edu>

[aesearch@umn.edu](mailto:aesearch@umn.edu)

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*

*No endorsement of AgEcon Search or its fundraising activities by the author(s) of the following work or their employer(s) is intended or implied.*



Revised Draft

METHODOLOGY, IDEOLOGY AND THE ECONOMICS OF POLICY:

WHY RESOURCE ECONOMISTS DISAGREE

Alan Randall

It is evident that there is persistent disagreement among competent and articulate resource economists: disagreement not only about the appropriate analytical and prescriptive response to particular constellations of policy issues, but also about the uses and limitations of economics as a thought system in the policy arena.<sup>1</sup> This must be disquieting and disappointing to many among us, who would regard the emergence of an integrated and cohesive (as opposed to diverse and fractious) resource economics as evidence of its maturation.

It is my purpose here to argue that the disagreements among us go deeper than mere disputes about priorities and tactics for doing resource economics, where all participants share a common vision of what resource economics is and should be. Rather, these disagreements extend beyond alternative conceptions of resource economics to fundamentally opposing methodologies, i.e., conceptions of knowledge and how to get it. While the proximate foci of disagreement will shift over time, there is literally no good reason to expect an ultimate resolution of intradisciplinary conflict and convergence of viewpoints. Finally, I argue that persistent disagreement is not only a fact of life, it has its virtues!

AAEA paper presented at its annual meetings,

Ames, IA, Aug 4-7, 1985

1985

Natural Resources

## Schools of Thought

While we each have our own preferred taxonomy, I would recognize four major schools of thought influential in resource economics and label them institutionalist/land economics (I/LE), neoclassical/rational planning (N/RP), public choice/utilitarian (PC/U), and public choice/individualist (PC/I).

I would argue that there is a neoclassical mainstream in twentieth century thought about the economics of policy, and that mainstream includes the N/RP and PC/U paradigms. Well-known economic works central to the N/RP paradigm, which flourished in the 1930s and 1940s, include those of Pigou on external diseconomies (1927), Kaldor (1939) and Hicks (1939) on the compensation test for welfare improvements, Hicks (1943) on economic surplus, and Bergson (1938) and Samuelson (1947) on welfare maximization. Much of this work is summarized in Bator's pedagogical classics on welfare maximization (1957) and market failure (1958).

The neoclassical policy economics of that period was consistent with the then-dominant rational planning school of public administration. It was considered entirely plausible that government had the necessary equipment to make things better: the information base, the analytical technology, and the cadre of experts immune to self-interest and dedicated to professionalism in the public interest.

The "market failure/government fix" naivete of the N/RP paradigm -- which attempted an intellectual justification for welfare state and regulated economy policies -- is now clearly in eclipse. Arrow (1949) and Coase (1960) have shaken its economic foundations. With respect to public administration, there is little faith, any more, in the possibility of a rational and scientific process of policy formulation, choice, and

implementation. Few believe in the Decision Maker with only the public interest at heart and his cadre of objective analysts who tirelessly assemble for his perusal all the facts and nothing but the facts.

With the advent of an economic literature on public choice (Downs 1957, Buchanan and Tullock 1962, Olson 1965), the center of gravity of mainstream policy economics shifted in that direction. The PC/U model can be characterized as a "market failure/government failure" model. Participants at every level in the public decision process are seen as self-interested, utility-maximizing beings. It is as much a problem (no, even more of a problem) for public organizations to devise ways to keep the organization's interest in line with the public interest and its individual employees' interests in line with organizational interests, as it is for private firms to coordinate their work forces. Policy is not chosen by the planners, but emerges from the interplay of myriad individuals and interest-group coalitions. This kind of policy process may well be wasteful, in two ways: transactions costs may be exorbitant; and, for a constellation of reasons exemplified by the prisoner's dilemma, the "wrong" policy outcomes may emerge. However, the degree of waste depends on the design of institutions, the "rules of the game".

The PC/U paradigm,-- taking cues from Coase (1960), Buchanan and Tullock (1962) and Posner (1972) -- applies utilitarian (e.g., benefit cost) criteria to identify the waste-minimizing configuration of imperfect markets and imperfect government institutions.

The methodology of the neoclassical mainstream is unabashedly reductionist,<sup>2</sup> which places it firmly in the mainstream of post-enlightenment western thought (Harre 1967). In fact, reductionist methodology is so dominant that most non-specialists, when asked to compare and contrast alternative philosophies of science, instinctively

restrict themselves to philosophies that differ only to the extent that they are variations on the reductionist theme.

Reductionist thought is characterized by: a preoccupation with the atomistic, the elemental, and the individualistic (wholes are seen as sets of individual units); the search for timeless and universal relationships (i.e., scientific laws); deductivism; and empiricism. Reductionism reached its zenith in logical positivism. That position being untenable, modern reductionists are inclined to believe that the very best of science is represented by the hypothetico-deductive model (Hempel 1965).

The reductionist neoclassical mainstream maintains the fiction that there exist a scientific realm (where the universal truth of propositions is at least a valid question), a metaphysical realm (where it is not), and a clear basis for distinguishing between the two. The establishment and maintenance of a science of economics is thus believed, by the mainstream, to require a sharp separation of science and ideology. Nevertheless, proponents of other points of view--be they from the other social sciences or from alternative schools of thought in economics--and introspective neoclassicists have little difficulty discerning ideological components deeply embedded in orthodox neoclassical economics. I/LEs and PC/Is tend to become irritable when confronted with mainstream insistence that its own work is conducted in an ideological vacuum.

The first thing to understand about the institutionalist/land economics (I/LE) and public choice/individualist (PC/I) schools of thought is that they are not merely alternative perspectives on how to go about doing reductionist economics. The I/LE school is clearly outside of the reductionist mainstream. The PC/I school is not quite so easy to categorize, as we shall see, but its claim of Austrian influence would

seem to take it outside the reductionist mainstream.

The IL/E paradigm has its roots in the German Historical School. Thus, its roots are not reductionist but romantic.<sup>3</sup> Modern institutionalists claim a methodology of pattern modeling, storytelling<sup>4</sup> and holism<sup>5</sup> (Wilber and Harrison 1978). In its I/LE applications, the holistic methodology starts with the premise that it is not the individual but society that is natural and organic. I/LEs have no difficulty seeing society as something beyond the mere aggregation of its individual members. Neoclassical textbooks, on the other hand, commonly treat the whole issue of the relationship between the individual and the collective under the rubric of something called "the preference aggregation problem".

In the I/LE methodology, the particular, the concrete and the historical are thought more important, and more real, than the universal and the timeless. Rather than in universal laws, the I/LE practitioner seeks understanding in terms of adaptive and evolutionary processes. Rather than by tests for truth (or truthlikeness) the I/LE practitioner evaluates his/her work by pragmatic criteria. The holism of the I/LE methodology makes it even more dependent than the mainstream on its observational base.<sup>6</sup> However, the imprecision of holist concepts often makes formal empirical hypothesis testing impossible (Wilber and Harrison 1978, p. 83). Rather, holistic propositions more commonly confront the material world via the test of plausibility.

From romanticism, the I/LE methodology inherits a respect for the cognitive status of subjective thoughts, feelings and values. The sharp separation of ideology from knowledge is not thought possible or especially desirable, and institutional analyses tend to meld descriptive and prescriptive components. There is a tendency to see values as operating within a domain of reality, blended and united with facts.

Ideologically, the romantic-holistic approach is compatible with well-developed collective institutions and strong government. However, there is no unique romantic-holistic party line about exactly what government should do. Edmond Burke and the economists of the German Historical School followed politically conservative, inegalitarian, and somewhat authoritarian ideologies. On the other hand, the American institutionalists tended to be pragmatic social reformers.

The methodology of the public choice/individualistic (PC/I) paradigm is not so easy to categorize. The eighteenth-century English individualism of John Locke is clearly reductionist in methodology, and it is combined with a natural rights ideology. In addition, the PC/I school claims Austrian influence, and the Austrian methodology defies pigeon-holding. In the famous "Scientism" essays, Hayek (1952) called for the rejection of scientism,<sup>7</sup> objectivism, collectivism and historicism, claiming that the last three members of this embattled quartet are manifestations of the first. He takes the position that the only procedure by which wholes can be comprehended is their reconstruction from the parts (p.73) and combines this with methodological individualism. This much is standard reductionism. On the other hand, Hayek is uncompromising in his attacks on empiricism and objectivism, which are mainstays of modern reductionism.

The subjectivism of the Austrians leads them to reject, for a variety of reasons, the various reductionist-positivist doctrines on the testing and validation of theories. While the logical positivists insisted that meaningful theories were necessarily constructed from sense-observable elements, Mises pronounced the basic axioms of economics to be self-evident facts of subjective experience and therefore true a priori.

Empirical testing of the premises of theory is absurd, if one takes the a priorist position.

While the modern hypothetico-deductive/falsificationist methodology seeks to test theories by denying their predicted consequences, modern Austrians view the predictions of their theories as admittedly unfalsifiable. Since there are no constants in the social "real world", empirical studies serve only to determine if a particular theory is applicable in a given situation. Falsification of universal theories about society is far too much to ask.<sup>8</sup> Combining the subjectivism of the Austrians with their skepticism about empirical testing, one arrives at a methodological position substantially removed from conventional reductionism-positivism.

Subjectivism makes it relatively unimportant for Austrians to distinguish among facts, feelings and ethics. There is no ambiguity as to the ideological leanings of the Austrian school: individualism is their ideology as well as their methodology and many Austrians espouse an especially profound faith in the beneficence of markets and private property institutions.<sup>9</sup>

While the Austrian distrust of scientism may seem to imply some commonality with institutionalism, the Austrian exaltation of individualism and contempt for collectivism immediately erodes that common ground. Against the N/RP and PC/U mainstream, the Austrians wield the clubs of individualism and subjectivism. The former denies utilitarian (e.g., benefit cost) public choice criteria because they are collectivist. The latter insists that benefits and costs can be known only subjectively, and cannot be read from market-generated data.

The discussion of the I/LE and PC/I schools has first addressed methodology and ideology, rather than economics per se, because the former



are the basic sources of the disagreements that are the initial premise of my argument. Contemporary resource economists of all four schools share a common core of neoclassical learnings, which includes virtually the entire corpus of micro and welfare economics.

To absorb that core and to pass comprehensive examinations thereupon is not sufficient to ensure that all who have done so will arrive at a common world view. Many contemporary I/LEs and PC/Is can comprehend the neoclassical core and use it in constructive ways. The standard analyses of many problems in economics are neoclassical. It is nevertheless valid for I/LEs and PC/Is to quarrel with particular neoclassical analyses (consider the Austrian - PC/I complaint that neoclassicists don't understand the subjective nature of costs), and to disagree strongly about the interpretation and import of neoclassical analyses in the policy arena. Economic disputes among I/LEs, PC/Is and mainstreamers are not confined to matters of correctness and incorrectness in analysis. More often, at issue is not so much the accuracy of the answer as the validity of question.

Consider the "aggregation problem" of the neoclassicists. It was a major blow to the N/RP mainstream, a major impetus for the transition to the emerging PC/U middle-of-the-road consensus, and a serious stumbling block to the practice of resource economics (Castle et al. 1981, p. 464) when Arrow (1949) promulgated his famous (Im)possibility Theorem. He showed that the attempt to deduce a coherent social decision rule by aggregating individual preferences was, under a particular set of conditions, impossible. There were various mainstream responses, but most involved the addition, removal or substitution of conditions on individual preferences, the domain of alternatives and/or the aggregation procedure,

in the attempt to reverse or circumscribe Arrow's result. For the mainstream, the issue was the correctness and generality of Arrow's result.

Contrast this with the I/LE and PC/I reactions. I/LEs were unconcerned about Arrow's result. Arrow's answer is uninteresting because he asked a foolish question. Of course, one cannot learn about the goals and imperatives of a society (an organic whole) by asking how individual preferences might be aggregated. That is a reductionist question and its answer -- whatever it may be -- is of no interest to a romantic-holist. To PC/Is, Arrow's question was abhorrent. It presupposes the unthinkable: that it is ethically acceptable for a collectivist decision rule to be logically derived from diverse individual preferences and then imposed, coercively, on each of these same individuals. While mainstreamers worried about the correctness and generality of Arrow's result, I/LEs and PC/Is -- each for reasons entirely consistent with their own methodologies -- dismissed Arrow's question as foolish and abhorrent, respectively.

It is equally instructive to consider the mainstream, I/LE and PC/I positions with respect to economic efficiency. First, they all agree on certain basic propositions from contemporary neoclassical welfare economics. (1) From the rather simple premise of consumer sovereignty, it is possible to derive the conclusion that for any inefficient arrangement there exist efficient arrangements which are at least potentially attainable through trade and/or compensation. (2) General equilibrium solutions derived from fundamentally different initial distributions are Pareto-noncomparable. (3) Ideal competitive equilibrium is Pareto-efficient, but real-world markets may for various reasons fail to achieve efficiency. On these basic propositions, the analytics are common to the mainstream, I/LE and PC/I schools. But there is agreement on little else.

The N/RP mainstream -- under forceful attack from PC/Us but, as Emery Castle (personal communication, June 12, 1985) points out, still enjoying the allegiance of many orthodox resource economists -- treats efficiency as the primary social goal, and a planning-oriented public sector as the way to get it. The efficiency/distribution relationship gets idiosyncratic treatment: N/RPs almost seem to argue that economic science justifies an efficiency goal and identifies the means to achieve it, but does neither with respect to distribution. The "market failure/government fix" mentality is manifested in proposals for Pigovian taxation of external diseconomies and collective efficiency in providing public goods, elaborate efficiency-based planning models as guides to public sector resource allocation (the Forest Service's FORPLAN is a contemporary remnant of the N/RP era), promotion of benefit cost analysis as a planning tool, and faith in market prices and shadow prices as information about the relative values of commodities and services.

The PC/U paradigm (the emerging contemporary mainstream) also treats efficiency as the primary goal, but has little faith in the ability of government to directly impose it. Government is better advised to design and implement institutions that induce individuals in the private and public sectors to behave in ways consistent with global efficiency. Such institutions should maximize the opportunities for trade (both conventional commerce and political trades). Institutions should be chosen to maximize the excess of benefits over costs, and institutional change may be imposed in utilitarian (i.e., uncompensated) fashion. Benefit cost analysis is essential to sound institutional design, and market prices and shadow prices serve as a totally acceptable information system about relative values of goods and amenities.

The PC/I school shares with the PC/Us the analytics of public choice, i.e., "market failure/government failure". The primary social goal is to maximize the scope of individual choice and responsibility, and it is only secondary that global efficiency is consistent with that goal. If the scope of things that can be traded is maximized and some individual or group is entitled to claim the residual generated by each transaction, individual freedom will be enhanced and waste will be eliminated. It is especially important that institutions be privatized to the maximum feasible extent, since that would minimize the discretion of public employees to allocate that which they do not own. Major points at which the PC/I paradigm departs from the PC/U are: the essentiality of Wicksellian compensation (because it is just, and also serviceable in that it eliminates redistributive rent-seeking) and the concomitant ethical unacceptability of utilitarian public decision rules; and the belief that benefits and costs are entirely subjective, so that markets permit efficient allocation but do not generate prices or shadow prices that are valid information for use in social planning or benefit cost analysis.

The I/LE school has its quarrels with each of the other schools. To I/LEs, exchange is a minor (albeit important) form of human interaction. It is a mistake to treat it as a model for all human interaction, a uniquely-qualified generator of information about the relative values people place on things, and an ideologically preferred form of arrangements among people. Efficiency is a dubious social goal since: efficiency is nonunique; alternative efficient equilibria are Pareto-noncomparable; and the public promotion of any particular efficient solution serves to validate a particular configuration of resource allocation, distribution and prices for no good reason other than that it is one of many such configurations that could be efficient. While

exchange is a valid form of social interaction, so is the constellation of interactions economists call political. Thus, political activities are valid ways of expressing one's values (not indefensible rent-seeking), and political outcomes are valid sources of intelligence about what people value. Benefit cost analysis is useful but should be kept in its place: were it to become dominant in the choice of social policies and programs, that would give prices (the outcomes of status-quo-based exchange) and their shadow-price counterparts undue influence on public policy.

Again, I reiterate that there is a core of analytical propositions about efficiency and markets that is shared by all schools. But fundamental differences in methodology and ideology lead the different schools to fundamentally different understandings of the issues, as well as policy conjectures and proposals that differ in important ways.

### **Is Disagreement Irreconcilable?**

As noted at the outset, there is a tendency among many of us to regard convergence of paradigm and methodology as an indicator of maturity for resource economics; persistent methodological diversity is therefore a little embarrassing. This reflects the Aristotelian tradition that resurfaced as post-Enlightenment rationalism. This tradition presupposes that there is one true theory of the universe waiting to be discovered; once the one true theory is found, all true "local" theories will be seen to be corollaries and special cases of the one true theory; and as the application of effort and ingenuity grows indefinitely large, human knowledge will converge toward the one true theory.

This tradition reached its zenith with logical positivism, which proposed to unify science and rid it of all metaphysical elements, with a

program based on the following tenets; (1) all complex propositions can be derived logically from elemental propositions; (2) for every elemental proposition there corresponds a sense-observable elemental fact; (3) a statement is meaningful if a method of verifying it can be described; and (4) the difference between science and nonscience is identical to the distinction between meaningfulness and meaninglessness, or sense and nonsense. Logical positivism foundered when its basic tenets -- the perfect correspondence of propositions and sense-observable facts, and verification -- were demolished.

The language of theory includes its elements, and the axioms and rules of logic by the which they are manipulated. In the logical sense, a theory can be entirely correct and yet have no point of contact with the real world. If a theory is to be about the real world, the elements of the theory need to be linked to real world objects via an observation language, i.e., a dictionary (Harre 1967) or a set of correspondence rules (Brown 1977). However there is no unique observation language (Brown, pp. 46-8). Thus, the choice of observation language becomes a convention, and theories based on different observation languages are fundamentally noncomparable. For any set of phenomena, there may coexist noncomparable theories that subsume language-based observations thereof within their overlapping but non-identical domains. Coexistence may persist indefinitely, because noncomparability precludes the climactic test in which rival theories are shown to be strictly contradictory in some respect and a confrontation with empirical evidence falsifies one of them. The coexistence thesis is dynamic: it does not preclude periods of ascendancy for particular theories, the consignment of some theories to obscurity, and the resuscitation and refurbishment of discarded theories. The pre-eminence of a single theory is neither the "normal" nor the

ultimate state of science.<sup>10</sup>

The demolition of verificationism was devastating to the positivist ambition of a sharp demarcation of science and metaphysics, knowledge and ideology. Popper's (1935) falsificationism -- while it resolved an important logical difficulty with verificationism -- could not repair the damage. The Duhem irrefutability thesis denies the logical imperative of the falsification test: since an empirical test of a theoretical proposition requires auxiliary assumptions, it is always possible to preserve the theory by attributing an empirical anomaly to the failure of an auxiliary assumption. Among the important auxiliary assumptions are those that specify what counts as evidence (Gleymour 1980), a point that links the Duhem thesis to the noncomparability thesis. More fundamentally, strict falsificationism does not provide for the growth of anything that can reasonably be called a body of knowledge. Note that, in his later years, Popper (1974) substantially amended his methodology, making less of falsification, attempting to allow for the growth of knowledge, and finding scientific merit in theories such as evolution which is clearly non-science under the tests of logical positivism and strict falsificationism.

All of this leads me to the following conclusions. Over the domain loosely called resource economics, rival but fundamentally noncomparable schools of thought can and will persist. The reductionist-positivist program to impose law-and-order on science has failed and, with it, the myth that social science can be strictly separated from ideology. Thus, the neoclassical reductionist mainstream is doomed to coexist with romantic-holistic and Austrian-subjectivist rivals that do not share its sense of urgency that knowledge and ideology be hermetically sealed, each

from the other. The rival paradigms are noncomparable and, while they share some common territory, have non-identical domains. Disagreement will persist even though the common core of shared learnings will continue to expand as it has in the past (recently, the theory of the core and a considerable body of findings from game theory have been added). The ultimate convergence of resource economists on the single true theory is an entirely false hope. Disagreement will be the norm, now and indefinitely, although the proximate foci of disagreement may change over time.

Since my argument has been complex, it may help to consider the question raised by a commentator (Terry L. Anderson, personal communication, June 24, 1985): do resource economists disagree because they have different goals, different ideologies, different methodologies, or different interpretations of the evidence? My response is that the fundamental sources of disagreement are ideological and methodological (and, at that level, it is hard to identify the chicken and the egg). Different methodologies lead to different interpretations of the evidence. Different goals emerge from different conjunctions of ideology and "images of reality", where the later depend on methodology and interpretation of the evidence.

#### Living With Persistent Disagreement

Given that persistent disagreement among competent and articulate resource economists is a fact of life, we could do more to prepare our students and our clientele to cope with it. The (false) premise of much scientific pedagogy -- that disagreement about the nature of material reality means at least one party is wrong -- serves us poorly. The premise of much teaching in the humanities -- that different world-views,



each having its particular strengths, can be expected to persist without ultimate resolution -- could usefully be introduced into the teaching of economics.

Finally, let me say a few kind words about persistent disagreement... It is entirely conventional to defend diversity, but not disagreement. The idea seems to be that it ought to be possible to take what is best from each of the rival viewpoints and create a grand synthesis.<sup>11</sup> However, my whole argument is so structured that it must necessarily deny this possibility: it is possible for the practitioner to pluck various useful insights from the alternative paradigms but the grand synthesis is a will-o-the-wisp. I propose instead to defend persistent disagreement.

To deny the possibility of the grand synthesis or the universal true theory is not to deny the idea of progress in the search for knowledge. However, progress occurs mostly within the research program, and overt rivalry among research programs is an essential stimulus to that kind of progress.

The key arguments for learning to live with persistent disagreement among resource economists are: first, the persistence of rivalry among noncomparable research programs is the reality to which we need become accustomed; second, cross-program disagreements are powerful stimuli for within-program progress and may occasionally lead to abandonment of hopelessly degenerating programs; and third (and to me, less compelling), the noncomparable observation languages and nonidentical domains of the rival paradigms do, as Castle *et al.* (1981, p. 406) suggested, provide some limited basis for specialization along pragmatic lines.<sup>12</sup>

## Footnotes

Alan Randall is a professor of agricultural economics in transition from the University of Kentucky, Lexington, Kentucky, 40546-0215 to the Ohio State University, Columbus, Ohio 43210-1099.

Stimulating comments on the initial draft were received from Terry Anderson, Olvar Bergland, Don Bromley, Emery Castle and Eldon Smith, who disagreed (but never disagreeably) with each other and/or me.

1. Anyone seeking confirmation of this proposition with minimal effort should consult the 1982 Proceedings issue of American Journal of Agricultural Economics, which includes papers by Anderson and Bromley espousing fundamentally divergent viewpoints on these matters.
2. Reductionism is the theory that complex phenomena can ultimately be understood completely in terms of regular relationships between simple, sense-observable entities. The importance of sense-observability links reductionism to materialism, objectivism, empiricism and positivism. The insistence that the complex can be understood in terms of regular relationships among simple entities links reductionism to rationalism.
3. Romanticism is an anti-reductionist philosophy that asserts the existence of organic realities that cannot be directly comprehended by analysis of relationships among their components. Further, romanticism asserts the validity of subjective experience and feelings, and treats values as having a kind of reality that a reductionist-materialist could never attribute to values.

4. See Ward (1972), who insists the storytelling is not a pejorative term but a meaningful methodology that is widely used in neoclassical as well as institutional economics.
5. Holism is a theory that the universe is correctly seen in terms of interacting organic or unitary wholes that are more than a mere aggregation of elementary particles.
6. "Holism separated from its empirical base easily becomes loose, uncontrolled speculation." (Wilber and Harrison 1978, p.83).
7. Scientism is an exaggerated trust in the methods of natural science to explain social and psychological phenomena.
8. Hayek is often thought more of a falsificationist than other Austrians. However, Caldwell (1985 manuscript) shows that, while Hayek allowed that Popperian falsification has some methodological appeal, he believed it is a fundamentally unattainable ideal when applied to theories about complex social phenomena (i.e., the only really interesting kind of theories).
9. Given its subjectivism, skepticism about empirical testing of theoretical propositions and clear ideological leanings, there is a persistent neoclassical claim that Austrian economics is primarily an ideological system. Caldwell (1982, Chapter 6) evaluates this claim and reaches conclusions sympathetic to the Austrian position.
10. The noncomparability of alternative theories is a recurring theme of recent literature in the philosophy of science. However, different authors treat it differently. Kuhn (1962) writes of paradigm switches in which, following a brief period of intellectual turmoil, a new paradigm

achieves dominance in place of the former dominant paradigm. The new and the old are noncomparable. The views of Lakatos (1978) are more consistent with mine. He uses the notion of the scientific research program. Popperian testing of rival, comparable and contradictory theories may occur within the "protective belt" of a research program and this process may lead to progress or degeneration of the research program. Lakatos' methodology permits the coexistence of rival research programs, fundamentally noncomparable, but covering some common territory. These coexisting rivals may persist for a long time; the climactic test and final destruction of one of the rivals is impossible; there will be periods of progress and ascendancy, and periods of degeneration and decline, for various rival programs; and some declining research programs will eventually be abandoned. However, it is not necessarily foolish for a few stubborn souls to continue working on a declining research program, since there is always the possibility of a breakthrough that would reverse the decline. Feyerabend (1975) argues that Popperian falsification is fundamentally wrong, as history and as method: nothing is ever truly discarded in the search for knowledge, and a long ignored concept is sometimes combined with a recent discovery to revive a moribund research program.

11. Our model protagonists genuflect in the direction of, respectively, an institutionalist-neoclassical synthesis (Bromley 1982, p.843) and a public-choice-Austrian-neoclassical synthesis (Anderson 1982, p.928).

12. Nevertheless, competition and disagreement, rather than unchallenged dominance of a particular paradigm in its special area, remain the norm. It may be tempting to argue, for example, that the I/LE paradigm has a comparative advantage in the study of land tenure in the Third World,

while the property rights PC/I approach is well-adapted to studying the problems of the U.S. public lands. But no such special niches of single-paradigm-dominance can be discerned. There is a PC/I alternative (Cheung 1969) to the IL/E analysis of Third World land tenure arrangements; and a trenchant I/LE criticism (Bromley 1984) of the PC/I program for U.S. public lands.

### References

- Anderson, Terry L. "The New Resource Economics: Old Ideas and New Applications." American Journal of Agricultural Economics, Vol. 64 (1982) pp. 928-934.
- Arrow, Kenneth J. Social Choice and Individual Values, New York: Wiley, 1949 (2nd edition 1976).
- Bator, F.M. "The Simple Analytics of Welfare Maximization." American Economic Review, Vol. 47(1957), pp. 22-59.
- Bator, F.M. "The Anatomy of Market Failure." Quarterly Journal of Economics, Vol. 72(1958), pp. 351-379.
- Bergson, Abram. "A Reformulation of Certain Aspects of Welfare Economics." Quarterly Journal of Economics. Vol. 52(1938), pp. 311-334.
- Bromley, Daniel W. "Land and Water Problems: An Institutional Perspective." American Journal of Agricultural Economics, Vol. 64(1982), pp. 834-844.
- Bromley, Daniel W. "Property Rights and Incentives in Resource and Environmental Economics," Southern Natural Resource Economics Committee meeting, Fall 1984 (Proceedings in press).
- Brown, H.I. Perception, Theory and Commitment. Chicago: University of Chicago Press, 1977.
- Buchanan, J. and G. Tullock. The Calculus of Consent: Logical Foundations of Constitutional Democracy. Ann Arbor: University of Michigan Press, 1962.
- Caldwell, Bruce. Beyond Positivism: Economic Methodology in the Twentieth Century. London: George Allen and Unwin, 1982.
- Caldwell, Bruce, "Disentangling Hayek, Hutchinson, and Popper on the

- Methodology of Economics." University of North Carolina, Greensboro, unpublished manuscript, 1985.
- Castle, Emery N., M.M. Kelso, J.B. Stevens and H.H. Stoevener, "Natural Resource Economics, 1946-75." A Survey of Agriculture Economics Literature, Vol. 3 ed. Lee R. Martin, Minneapolis: University of Minnesota Press, 1981.
- Cheung, Steven N.S. The Theory of Share Tenancy. Chicago: University of Chicago Press, 1969.
- Coase, R.H. "The Problem of Social Cost." Journal of Law and Economics, Vol. 3(1960) pp. 1-44.
- Downs, A. An Economic Theory of Democracy. New York: Harper and Bros., 1957.
- Feyerabend, P.K. Against Method: Outline of an Anarchistic Theory of Knowledge. London: NLB, 1975.
- Gleymour, Clark. Theory and Evidence. Princeton: Princeton University Press, 1980.
- Harre, R. "History of Philosophy of Science," in P. Edwards (ed.), Encyclopedia of Philosophy. London: Collier-Macmillan, VII. 289-296.
- Hayek, F.A. "Scientism and the Study of Society." The Counter-Revolution of Science. Glencoe Illinois: The Free Press, 1952, pp. 11-102.
- Hempel, C.G. Aspects of Scientific Explanation. New York: Free Press, 1965.
- Hicks, J.R. "The Foundations of Welfare Economics." Economic Journal, Vol. 49(1939), pp. 696-712.
- Hicks, J.R. "The Four Consumer's Surpluses." Rev. Econ. Stud., Vol. 11(1943), pp. 31-41.
- Kaldor, N. "Welfare Propositions in Economics." Economic Journal, Vol. 49(1939), pp. 549-552.

- Kuhn, T.S. The Structure of Scientific Revolutions. Chicago: University of Chicago Press, 1st ed., 1962.
- Lakatos, I. The Methodology of Scientific Research Programmes: Philosophical Papers. J. Worrall and G. Currie (eds.). Cambridge: Cambridge University Press, Vols. 1,2, 1978.
- Olson, M., Jr. The Logic of Collective Action: Public Goods and the Theory of Groups. Cambridge, Mass.: Harvard University Press, 1965.
- Pigou, A.C. The Economics of Welfare. London: Macmillan and Co., 1927.
- Popper, K.R. The Logic of Scientific Discovery. New York: Harper Torchbooks, 1935. Translated 1959, 1968.
- Popper, K.R. "Autobiography of Karl Popper." In Paul Schilpp, ed. The Philosophy of Karl Popper, Vol. 1, La Salle, IL: Open Court, 1974.
- Posner, Richard A. Economic Analysis of Law. Boston: Little Brown and Co., 1972.
- Samuelson, P.A. Foundations of Economic Analysis. Cambridge, Mass.: Harvard University Press, 1947.
- Ward, B. What's Wrong With Economics? London: Macmillan, 1972
- Wilber, C.K. and R.S. Harrison. "The Methodological Basis of Institutional Economics: Pattern, Model, Storytelling and Holism." Journal of Economic Issues, Vol 12 (1978), pp. 61-89.