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CRITICAL METHODOLOGY IN POLICY ANALYSIS: CRITICAL REALIST APPROACH

Abstract

Most mainstream research in social science is dominated by positivist methodologies such as regression analysis and pays little attention to the larger philosophical considerations of knowledge, thus denying any space to critical analysis. This paper is a critique of the current positivist research methodology that dominates mainstream social research today. This paper is an attempt to develop a critical research methodology that researchers can use as an alternative to the positivist methodology that dominates mainstream social science research. In doing so, I follow a dialectical approach: I develop a critique of the inherent flaws of positivist social science methodology by exposing the reductionist scientism on which it stands, and its consequent inability to generate reliable social knowledge, while at the same time, I undertake the task of constructing a critical methodology framework by synthesizing the contributions of various critical theorists. This process leads to the development of a schema which systematically identifies and links the various ontological levels with their respective logically necessary epistemological practices. In this way, I hope to make explicit the connections between philosophy of science, critical social theory, research methodology¹, and substantive models that a researcher may employ to investigate social phenomena from a critical perspective.

Introduction

The knowledge of the social world that is produced by research directly depends upon the methodology employed, which in turn depends upon the particular philosophy of science the researcher adheres to. Contingently, the remedies and solutions to social problems that emerge from that knowledge either immanently constrain and limit human capacities to solve these problems, or else can empower them with emancipatory potential to do so. In this sense, it is triply important for researchers (and their audience) to be self-aware and explicit about the philosophy of science that they base their methodologies on.

However, unfortunately most mainstream research in social science is conducted with little or no attention given to these fundamental considerations. This is mainly due to the fact that the one particular philosophy of social science, namely logical positivism and its methodological corollary, methodological individualism, (and quantitative statistical research methods that these have spawned), have usurped for itself an undisputed hegemonic position in social science research. It is this hegemonic status of positivism that I intend to problematize firstly in the following:

And this is largely based on ‘critical realism’ the philosophy of science elaborated by the philosopher Roy Bhaskar. Deriving from critical realism both ontological and epistemological imperatives and their implications for social science research, I then explain a schema adapted from one developed by Keat and Urry that, in my view, is consistent with the imperatives of critical realism.

Finally, I present an exemplar for conducting research within critical paradigm by applying it to a specific area of policy research, namely Pakistan’s energy policy, with the purpose of clarifying and concretizing the types of questions that inevitably come to fore as a result of deploying critical methodology. These pivotally important questions and considerations cannot be expected to come to light if positivist methodology is used instead. The knowledge generated by these questions is what is, in my view, crucially necessary to create the possibility of emancipatory solutions. It is hoped that this article would contribute to discussions on further elaborating and developing critical methodology, and as a result, and encourage critical research in social sciences, especially policy analysis, so that their research projects could indicate solutions essential for human emancipation.

Limitations of Study

At the outset, I would like to point out what this paper is *not about*. It is not about three things: Firstly, it does not indulge in larger paradigmatic disputes within philosophy in general, or disputes within the philosophy of science in particular: Whenever I do so, the purpose is merely to retrieve and clarify ontological and epistemological imperatives of social scientific knowledge, and in the process critique positivist ontology/epistemology and confirms the suitability of critical realism as the proper philosophical basis of social science. Secondly, it is not about elaborating any specific substantive social theory but indicates which existing social theoretical paradigms conform to the assertions of critical realism: A researcher is free to deploy any one among many substantive critical theories that generally go under the rubric of historical materialist paradigm, but there is no *a priori* compulsion to be restricted to it. Lastly, while I reject (‘western’) empirically-driven research based on logical positivism and attempt to push for an authentic space for critical research in our institutions, I am not directly or indirectly arguing for either ‘indigenous forms of knowing and knowledge’ (or what I call ‘folk science’) but especially not, ‘intuitive’ or spiritual basis for knowledge: While I believe that the former can, subsequent to it being subjected to dialectical critique, potentially be a source of generating new and unique knowledge, the latter I am afraid clearly falls outside the pail of science.

Significance of Philosophy of Science and Methodology for Researchers

One may ask, why fuss over such matters which I have indicated above? Why not just go straight away out there, collect data and do statistical analysis? After all, is not what social science research is all about? And indeed, if one picks up a research

journal randomly, whether of sociology, or economics, or political science, chances are that not a single article would bother itself with questions of philosophy of science or its methodological underpinnings. This is so because most academics, researchers and their institutions consider these matters settled—that is settled in the favor of positivism or methodological individualism. And this view has been (and is) passed on to graduate students, generation by generation, who then repeat the cycle as they become professors and researchers. Needless to say that this is a satisfactory state of affairs for those who are, by and large, satisfied by the prevailing social conditions and are supportive of status quo. However, for those interested in emancipatory social theory, this is unacceptable. As Burrell and Morgan point out:

“Theorists who wish to develop ideas in these areas [other than positivist/functionalist paradigm] cannot afford to take a short cut. There is a real need for them to ground their perspective in the philosophical traditions from which it derives; to start from the first principles; to have the philosophical and sociological concerns by which the paradigm is defined at the forefront of their analysis; to develop a systematic and coherent perspective within the guidelines which each paradigm offers . . . (1979, p.397).”

Critique of Positivism and Methodological Individualism

It is well recognized that much of social science research in western universities and institutes, and consequently also in non-western world, continues to be dominated by methodological individualism (MI) or behavioralism as it is called by its proponents in the United States. But before I discuss behavioralism, it is necessary that I first bring into discussion positivism and its epistemology—the philosophy of science that MI/behavioralism is derived from.

Positivism, Scientific Method, and Natural Sciences

Positivism², adequately defined by the Oxford English dictionary, is:

“a philosophical system elaborated from the 1830s by the French thinker Auguste Comte (1798-1857), recognizing only observable phenomena and empirically verifiable scientific facts and laws, and rejecting inquiry into ultimate causes or origins as belonging to outmoded metaphysical or theological stages of thought; a humanistic religion based on this system. In later use: any of various philosophical systems or views based on an empiricist understanding of science, particularly those associated with the belief that every cognitively meaningful proposition can be scientifically verified or falsified, and that the (chief) function of philosophy is the analysis of the language used to express such propositions.”

The core of the positivist methodology is the scientific method, first developed by scholars in medieval Baghdad but which later spread to Europe during renaissance

and was further elaborated and refined there. Clearly, the scientific method, with the 'experiment' as its heart and dynamo, unrelentingly unbarred the causal relations of the natural world which lay hidden behind natural phenomena. The systematic application of the scientific method to the study of natural world yielded, and continues to yield massive knowledge about it: Undoubtedly, this has led to the greatest achievements of human civilization.

Reductionism and Scientism

The stunning success of the scientific method in natural sciences to discover causal relations invited the deceptive thought that it could also be applied to the study of societal and human issues, i.e., to social objects. Through the latter half of the nineteenth century and the entire twentieth century, mainstream professional scholars directly imported natural science methods and concepts and devised elaborate schemes to apply these to analyze and generate knowledge of social world creating a huge body of theories and knowledge regarding society and the social world, theories and knowledge which they christened as "scientific". Thus, the 18th and 19th century political economy was partitioned into separate "sciences" of politics, sociology, economics, etc. but all based on the common foundations of methodological individualism. This borrowing of positivism and the experimental method of natural sciences was made possible by completely ignoring the crucial differences between the ontology of natural objects and social objects: the convenient assumption was made that the ontological reality of social objects was same as that of natural objects, and hence the epistemology of positivist science could be applied for their study as well³. This flawed assumption lies at the core of the dispute in social science between positivists and critical theorists, the latter accusing the former of committing the ontological error of *reductionism*, which is to equate the reality of social objects with natural objects and treat them essentially as the same, and epistemological error of *scientism*, which is to use the methods of studying natural objects for the study of social objects as well.

Below I develop the argument further by elaborating the ontological difference between natural objects and social objects and concomitantly show why methodological individualism cannot serve as the epistemology of social science. This I do largely on the basis of the critical realist philosophy of science which consists of general philosophical theory of *transcendental realism* and the special philosophy of social science, *critical naturalism* (Bhaskar, 1975, 1979, 1989, 1993). It may be pertinent to mention here that the critical realism is fundamentally at odds with positivism, the dominant paradigm in Western social sciences today.

Critical Realism

Transcendental Realism

The transcendental realist view of science is based on the fundamental proposition that objects of knowledge of the natural world have two distinct dimensions that

must always be kept apart: *intransitive* and the *transitive*. This distinction rests on the assertion that while on the one hand the production or creation of knowledge is essentially a social act, that "men in their social activity produce knowledge which is a social product much like any other, which is no more independent of its production and the men who produce it than motor cars, armchairs or books . . .," and on the other hand, "that knowledge is 'of' things which are not produced by men at all: the specific gravity of mercury, the process of electrolysis, the mechanism of light propagation. None of these 'objects of knowledge' depend upon human activity. If men ceased to exist . . .," these processes would still go on in nature "though ex hypothesi there would be no-one to know it" (Bhaskar, 1975, p.21).

Intransitive Objects of Knowledge The latter of the two dimensions mentioned above, viz, "that knowledge is 'of' things which are not produced by men at all," is called by Bhaskar the *intransitive objects of knowledge*. He states: "[I]n short . . . [these] . . . are in general invariant to our knowledge of them: they are the real things and structures, mechanisms and processes, events and possibilities of the world; and for the most part they are quite independent of us" (Bhaskar, 1975, p. 22). Among these would be actual natural objects such as stars, planets, minerals, human body, etc. as well as the *laws* that are operative in nature: law of gravity, thermodynamics, etc.

Natural sciences most commonly investigate and create knowledge of the intransitive objects of knowledge through the creation of *closed system* of experiment in which scientists are able to create or control patterns of natural events and their occurrences. However, ontologically, these patterns of events should not be confused with the causal laws which scientific inquiry helps to identify. Patterns of events are produced by the scientist during an experiment but the causal laws are not. According to Bhaskar (1989):

"What is so special about the pattern of events . . . [that scientists] deliberately produce under meticulously controlled conditions in the laboratory is that it enables them to identify the mode of operation of natural structures, mechanisms or processes which they do not produce. What distinguishes the phenomena the scientist *actually* produces from the totality of the phenomena she *could* produce is that, when her experiment is successful, it is an index of what she does *not* produce. A *real* distinction between the objects of experimental investigation, such as causal laws, and patterns of events is thus a condition of the intelligibility of experimental activity . . . The objects of experimental activity are not events and their conjunctions, but structures, generative mechanisms and the like (forming the real basis of causal laws), which are normally out of phase with the patterns of events which actually occur" (p.9).

While studying natural objects and their relationships in the closed system of an experiment, a scientist can create patterns of events and control their occurrences in a manner that are in "phase" with the causal laws, thus revealing, and confirm them. However, in the *open system* of the natural world "no constant conjunction of events

obtain." As the pattern of events in the open system is dynamic and ever-changing, being simultaneously determined by the operation of many and various causal laws, what obtains is that these patterns of events are "out of phase" with the underlying structures and mechanisms (which ground causal laws) that generate them. It is precisely for this reason that the closed system of the experiment is so important for the discovery of natural laws. However, no such heuristic device is possible for the study of social objects and their interrelationships as the social world is inherently an open system with no possibility of creating artificially closed situations.

To recapitulate the above discussion, the notion of the intransitive dimension asserts that the objects of human knowledge are real "things" that exist independently of the fact whether one has knowledge of these or not, that phenomena or patterns of events are produced by structures and generative mechanisms which ground causal laws, that reality is structured and differentiated, and that in the open system which obtains in the real world (outside of confines of controlled experiment) causal laws must be analyzed as tendencies which may or may not be realized due to the interference of other, and even contradictory causal laws: In other words, in the open system "there is an ontological gap between causal laws and their empirical grounds." (Bhaskar, 1989, p. 11). This is contrary to positivism which necessarily deduces causal laws by identifying empirical relationships between two observable variables whose values can be measured subsequently applying statistical techniques, especially regression analysis. This leads to the fatal error of confusing constant conjunction of events with causal laws, a stance which thus cannot accept that "just as a rule can be broken without being changed, so a natural mechanism may continue to endure, and the law it grounds be both applicable and true (that is, not falsified), though its effect (i.e. the consequent) be unrealized" (Bhaskar, 1989, p. 11).

Transitive Objects of Knowledge

As opposed to the intransitive objects of knowledge, the transitive objects of knowledge are the creation of human consciousness. This is the pre-existing knowledge in a discipline of knowledge which a researcher in that field confronts and has to know. As Bhaskar says, "They include the antecedently established facts and theories, paradigms and models, methods and techniques of inquiry available to a particular scientific school or worker" (1975, p. 21).

Based on the above two concepts of the objects of knowledge, Bhaskar builds his philosophy of science--transcendental realism--in opposition to (but not total rejection of) the principles of Humean "classical empiricism" and current day positivism (Popper, Hempel, and others) as well as the "hermeneutical tradition" (Dilthey, Simmel, Anscombe, Dray, Charles Taylor, Winch, Gadamer, Apel, Habermas, and others). Bhaskar summarizes "transcendental realism" in the following manner:

“It regards the objects of knowledge as the structures and mechanisms that generate phenomena; and the knowledge as produced in the social activity of science. These objects are neither phenomena (empiricism) nor human constructs imposed upon the phenomena (idealism), but real structures which endure and operate independently of our knowledge, our experience and the conditions which allow us access to them. Against empiricism, the objects of knowledge are structures, not events; against idealism, they are intransitive (in the sense defined [above]). On this conception, a constant conjunction of events is no more a necessary than it is a sufficient condition for the assumption of the operation of a causal law. According to this view, both knowledge and the world are structured, both are differentiated and changing . . . (1975, p. 25).”

Ontology of Social Objects and Their Epistemology

Critical Naturalism

The theory of *critical naturalism* advanced by Bhaskar (1989) recognizes that there are characteristic differences between natural phenomena and social phenomena, and that these differences extend to the underlying structures and mechanisms that generate phenomena in each case. These differences pivot around the fact that, as opposed to natural objects and phenomena, social objects and phenomena are *emergent*, that is, produced by the social activity of humans. According to Bhaskar (1989, p. 38), social structures are different from natural structures in the following important ways:

1. Social structures, unlike natural structures, do not exist independently of the activities they govern.
2. Social structures, unlike natural structures, do not exist independently of the agents' conceptions of what they are doing in their activity.
3. Social structures are only relatively autonomous from each other as the differentiation and development of social activities implies that they are interdependent.
4. Social structures, unlike natural structures, may only be relatively enduring. The tendencies they ground may not be applicable universally across time and space.

Given these important differences between social and natural structures, can one then say that it is possible to study the former by applying the general principles of the scientific method? In other words, can one treat social facts, structures, and societies as "real," as having an independent ontological status, and subject these to scientific investigation? Do they have an intransitive dimensions in spite of the assertion that these are emergent, that is, products of human social activity? A proper and correct resolution of this dilemma is essential if one is to avoid a

collapse into the methods of hermeneutics and phenomenology. What is equally crucial is that the emergent ontological status of social objects and phenomena be fully accounted for in order to avoid the error of scientism which positivist social science often makes⁴.

Social objects are thus real, even though their mode of existence is very different from that of natural objects. The mode of existence of the former is emergent, that is, a result of the activity of humans, while that of the latter is cosmic or given by nature, that is, fully independent of human existence. However, and this is a crucial point, because social objects are emergent and have the characteristics mentioned above, the method of their study must therefore be significantly different from that of natural sciences.

These differences fall into three categories which parallel the differences between social and natural objects: Ontological, relational, and epistemological. In the following, I will consider the implications of each of these differences for methodology.

Ontological Differences and Implications for Methodology

The emergent properties of social objects limit and necessitate methodology in certain important ways. The chief limitation results from the property of social objects that they not only cannot be empirically *identified independently* of their effects (a property which many natural objects have such as magnetic fields, etc.) but that they do not *exist independently* of their effects. This means that as "Society, as an object of inquiry, is necessarily 'theoretical' . . . it is necessarily unperceivable . . . so that it can only be known, not shown to exist." (Bhaskar, 1989, p. 45). This has major implications for the notions of validity and measurement in social sciences which will be discussed below.

Relational Character of Social Sciences and its Objects

Another important methodological implication that results from the emergent nature of the subject-matter of social sciences is the *relational character* between the two, viz. between social sciences and their subject matter. Unlike natural sciences, social sciences are *internally related* to their subject-matter in the sense that ". . . social sciences are a part of their own field of inquiry, in principle susceptible to explanation in terms of the concepts and laws of the explanatory theories they employ . . . and this necessitates a precision in the sense in which their objects of knowledge can be said to be 'intransitive'. For it is possible, and indeed likely, given the internal complexity and interdependence of social activities, that these objects may be causally affected by social science . . . Conversely, one would expect social science to be affected or conditioned by developments in what it patently cannot exist independently of, viz. the rest of society" (Bhaskar, 1989, p.47). This is the essence of the notion of *causal interdependency* between social sciences and their

subject-matter, and is in contrast to natural sciences where no such interdependency exists.

But it is crucially important to distinguish causal interdependency between social sciences and their subject matter and *existential intransitivity* of social objects, the latter being a pre-condition of science, without which no science, whether natural or social, is possible. Explaining this important difference, Bhaskar (1989) writes:

“For, although the processes of production may be interdependent [in the case of social science], once some object O_t exists, if it exists, however it has been produced, it constitutes a possible object of scientific investigation. And its existence (or not), and properties, are quite independent of the act or process of investigation of which it is a putative object, even though such an investigation, once initiated, may radically modify it. In short, the concept of existence is univocal: ‘being’ means the same in human as the natural world, even though the modes of being may radically differ. The human sciences, then, take intransitive objects like any other. But the categorical properties of such objects differ. And among the most important of these differences is the feature that they are themselves an aspect of, and causal agent in, what they seek to explain. It is vital to be clear about this point. For if it is the characteristic error of positivism to ignore (or play down) interdependency, it is the characteristic error of hermeneutics to dissolve intransitivity.” (p. 47)

Epistemological Differences between Natural and Social Sciences and Implications for Methodology

The vital epistemological feature that distinguishes the possibility of study of social from natural phenomena, and which thus determines the necessity for different methodologies for their respective sciences, is the fact that social phenomena "only ever manifest themselves in open systems; that is, in systems where invariant empirical regularities do not obtain. For social systems are not spontaneously, and cannot be experimentally, closed." (Bhaskar, 1989, p. 45). On the other hand, it is possible to set up a closed experiment in most cases in natural sciences, in which invariant empirical regularities can be produced by scientists thus making it possible for the discovery and analysis of inner structures and mechanisms (causal laws) that generate the empirical phenomena or the relations between different empirical phenomena in the natural world.

Closed Systems, Open Systems, and Methodological Implications

It is very important to keep in mind the ontological distinction between causal laws and the empirical regularities that are created by scientists in a closed system. Causal laws reflect the mode of operation of inner structures and mechanism of objects, which have a universal or transfactual application and are ontologically autonomous of humans, while empirical regularities created in a closed system are conjunctions

of events that are deliberately created through experimental manipulation. The significance of upholding this distinction can be appreciated by the fact that the real world is an open system in which no empirical regularities obtain but at the same time causal laws are in operation. For otherwise, one would have to accept the absurd notion that there are no causal laws and the natural world is comprised of totally accidental relationships.

“In open systems, causal laws can only be applied and understood as *tendencies* in the sense that it is not necessary that if "A" is considered to be an operative and correct causal law, that the effects "B" that law entails and explains, must then also appear as empirical reality. It is possible for "A" to be operative even though there is no appearance of "B". If the application of knowledge in open systems is to be at all intelligible, writes Bhaskar (1989, p. 9) "causal laws must be analyzed as the tendencies of things, which may be possessed unexercised and exercised unrealized, just as they may of course be realized unperceived (or undetected) by people. Thus in citing a law one is referring to the transfactual activity of mechanisms, that is, to their activity as such, not making a claim about actual outcome (which will in general be co-determined by the activity of other mechanism).”

The acceptance of the notion of open systems in place of closed systems has radical and far-reaching implications for social science methodologies, implications which have not been fully appreciated by mainstream social science theorists. This is evident from the fact that since Von Bertalanffy's arguments against closed systems, positivist social theorists almost ritually emphasize their acceptance of open systems, but, "despite the widely recognized deficiencies of the closed system as a theoretical construct in social science, the full implications of an open systems approach have not been pursued in any real depth. The concept has been adopted in a very partial and misleading way . . . confined to recognizing and emphasizing the environment as an influence upon the subject of study and reformulating traditional models in terms of systems concepts" (Burrell and Morgan, 1979, p.60).

In the following discussion, I shall discuss the true significance of open systems to theory-construction and methodology. To begin with, it should be noted that one of the most significant implications of the acceptance of open systems concept is that it makes untenable the application of all methodologies derived from natural sciences--which necessarily pre-suppose closed systems--to social sciences, which must necessarily investigate its objects of study in open systems, as shown above. Now, as Bhaskar writes:

“practically all the theories of orthodox philosophy of science, and the methodological directives they secrete, presuppose closed systems. Because of this, they are totally inapplicable in social sciences (which is not of course to say that the attempt cannot be made to apply them-to disastrous effect). Humean theories of causality and law, deductive-nomological and statistical models of explanation, inductivist theories of scientific development and

criteria of confirmation, Popperian theories of scientific rationality and criteria of falsification, together with hermeneutical contrasts parasitic upon them, must all be totally discarded. Social science need only consider them as objects of substantive explanation.” (1989, p. 45).

In a similar line of argument, Burrell and Morgan also note commonly overlooked incompatibility of open systems with putative methodologies. After pointing out that "it has become almost obligatory for social system theorists to decry the inadequacies of closed system theorizing" they write:

“Paradoxically, however, as a method of analysis the notion of closed system is still dominant in many areas of social enquiry. The use of controlled experiments and interview programmes, and the attempt to measure social phenomena through attitude questionnaires, all provide examples of closed system methodologies . . . The paradox is compounded by the fact that such closed system methodologies are often employed within the context of theoretical perspectives which emphasise the importance of an open systems approach. The link between theory and method is an extremely problematic one in many areas of social science.” (1979, p. 60).

Critical Realist Imperatives of Social Theoretical Model Building

So far I have discussed the critical implications of open systems to social science methodologies derived mainly from positivist social science. In the following, I shall focus on the real consequences of the acceptance of the notion of open systems to theoretical model building and identify methodological practices which may be said to be consistent with it. In doing so, I shall once again rely on the philosophical analysis done by Bhaskar in his book *The Possibility of Naturalism*. These consequences or imperatives are enumerated below.

1. A point of fundamental significance to theory or model building in social sciences is that, unlike the closed system experiment of natural sciences, in open systems it is in principle impossible to assemble conditions in which theories can be decisively tested. The profound implication of this is "that criteria for the rational development and replacement of theories in social science must be *explanatory and non-predictive*. (Particularly important here will be the capacity of a theory (or research programme) to be developed in a non-ad hoc way so as to situate, and preferably explain, without strain, a possibility once (and perhaps even before) it is realized, when it could never, given the openness of the social world, have predicted it.)" (Bhaskar, 1989, pp. 45-46). In other words, social science theories and models can only be validated on the basis of their explanatory power. Therefore, all attempts to attribute predictive power to social science theories are ill-founded as, in open systems given the simultaneous operation of numerous other interfering factors, these cannot be assumed to possess any predictive capability. Consequently, hypothesis regarding the structures and mechanisms that

underlie and generate phenomena "can be tested quite empirically, although not necessarily quantitatively, and albeit exclusively in terms of . . . [their] explanatory power." (Bhaskar, 1989, p. 49).

2. Due to the historical-transformative character of its subject-matter and the irreversibility of social processes, while measuring phenomena, social science theory must be competent to deal with not only quantitative change but also qualitative ones. Thus, along with meaningful quantitative measurement of social phenomena, keen attention has to be given to the occurrence of qualitative changes, which after they occur, would thus make initial indexes of quantitative measurements redundant and inapplicable.
3. Quantitative measurement in social science has only partial relevance and has to be supplemented by discourse based on the use of language. This is due to the concept-dependent aspect of the ontology of the subject-matter of social science (see the above discussion on emergent properties of social objects). Many of the most important concepts cannot be measured, only their meanings understood and "hypotheses about them must be expressed in language, and confirmed in dialogue. Language here stands to the conceptual aspect of social science as geometry stands to physics. And precision in meaning now assumes the place of accuracy in measurement as the a posteriori arbiter of theory." (Bhaskar, 1989, p. 46).
4. Because of the openness of social systems, and the fact that the subject-matter of social sciences is continuously developing and changing (including inherent possibilities of qualitative changes), that is, it has a historical-transformative character, social theory will always remain necessarily incomplete. This means that all forms of historicism, which entail deductive predictability, cannot be plausible or scientific.

Critical Realist Research Methodology

After demonstrating the inappropriateness of the use of positivist methodology to the study of society, and its over-extended use of empirical inquiry that is inherent to methodological individualism, and as well as laying down the ontological and epistemological imperatives of critical theory or model building, I will now sketch out the imperatives of critical realist methodology and define the proper place of empirical inquiry within it. In doing so, I largely rely on the work of Keat and Urry who have, in my view, made an important contribution to critical realist methodology by sketching out the connections between multiple levels of inquiry which represent respectively the different levels of ontological depth that Bhaskar points to.

Critical Realist Methodology in Social Science

The pivotal principle of the critical realist view is that the process of comprehension or knowledge production must move, at any one level, from the analysis of phenomena to an analysis of the mechanisms and structures that generate the phenomena. But is this principle also applicable to the domain of social sciences? How can one approach this issue without committing the errors of reductionism (which denies any ontological difference between natural and social objects, reducing the latter to the former) or scientism (which denies that there are any significant differences in the methods appropriate for the study of the two, whether they are ontologically reducible or not)?

The purpose of science is to lay bare the structures and mechanisms that produce the empirically evident phenomena, both in the natural and social domains. Although there are real differences between these domains, (and this has epistemological or methodological but no ontological significance as shall be explained below in the section on Critical Naturalism), in both cases the process of production of scientific knowledge is essentially similar. Bhaskar explains this process as follows:

Typically, then, the construction of an explanation for, that is, the production of the knowledge of the mechanism of the production of, some identified phenomenon will involve the building of a model, utilizing such cognitive materials and operating under the control of something like a logic of analogy and metaphor, of a mechanism which if it were to exist and act in the postulated way would account for the phenomenon in question (a movement of thought which may be styled retroduction). The reality of the postulated explanation must then, of course, be subjected to empirical scrutiny. (For, in general, more than one explanation will be consistent with the phenomenon explained.) Once this is done, the explanation must then in principle itself be explained. And so one has in science a three-phase schema of development in which, in a continuing dialectic, science identifies a phenomenon (or range of phenomenon), constructs explanations for it and empirically tests its explanations, leading to the identification of generative mechanisms at work, which now becomes the phenomenon to be explained, and so on. In this continuing process, as deeper levels or strata of reality are successively unfolded, science must construct and test its explanations with the cognitive resources and physical tools at its disposal, which in this process are themselves progressively transformed, modified, and refined. . .

Knowledge of deeper levels may correct as well as explain, knowledge of more superficial ones. In fact one finds in science a characteristic pattern of description, explanation and redescription of the phenomena identified at any one level of reality. But only a concept of *ontological depth* (depending upon the concept of real strata apart from our knowledge of strata) enables

us to reconcile the twin aspects of scientific development, viz. growth and change (1989, pp. 12-13).

Keat and Urry Schematic

Keat and Urry outline three such functions in the "Postscript to the Second Edition" of their book *Social Science as Theory* (1981):

- (a) to provide evidence of what is to be explained--the explicandum (for example the distribution of different categories of housing (private/public, owned/rented, etc.));
- (b) to provide evidence *for* the blocking of, or the partial, or the full realization of, the causal powers of a particular entity (for example, of the spread of capitalist social relations in Third World economies, as given by the various indicators of commodification, wage-labour, monetized relationships, etc.);
- (c) to provide evidence that a particular entity is providing certain conditions which are necessary *for* the partial/full realization of the powers of some other entity (for example, of the increased range of activities of the state, which are in part necessary for the further realization of the powers of the CMP [capitalist mode of production]). (p. 248).

Keat and Urry (1981, p. 248) also represent their ideas in a useful schema that summarizes in a simplified form, the connection between the various levels of theory and the type of scientific practice in realist social scientific practice. This schema is reproduced below with some necessary formal modifications in text.

	LEVELS OF THEORY	RESULTING SCIENTIFIC PRACTICE
I.	General ontological and trans-historical claims	Almost entirely philosophical/methodological--e.g. general nature of the social world, possibility and limits of a social science, etc.
II.	Theoretical descriptions of specific entities and of their potential causal powers (most such entities will be historically specific)	Mostly conceptual/theoretical. Empirical evidence mainly pertinent through the evidence on III, IV, and V feeding back to this level.

III.	Theoretical descriptions of how the causal powers of different entities are/are not realized and how these do/do not provide conditions of each other.	Theoretical debate informed by...[evidence of full/partial blocking or full/partial realization of causal powers of entities, and evidence supporting the influence of entities on others in providing conditions for the full/partial realization/blocking of their powers.
IV.	Descriptions of mechanisms which generate empirical events	Guided by III, empirical evidence of full/partial blocking or full/partial realization of causal powers of entities, and evidence supporting the influence of entities on others in providing conditions for the full/partial realization or blocking of their powers.
V.	Explanation of empirical events	Theoretical and empirical work to show the explicandum as the 'unity of diverse aspects'

Multi-Level Analytical Framework for Policy Analysis

From the preceding discussion on critical naturalism and Keat and Urry's schema presented above, one can delineate the full scope of policy analysis. It includes four dimensions (a) investigation of a particular issue or problem in relationship to political, economic, and social factors (level II). Theories at this level are, for example, such as those put forward by Cardoso (1979), Evans (1979), Petras (1982, 1992), Wallerstein (1987), etc.; (b) identification and description of governmental policy pertaining to that issue or problem (level V). Theories at this level are, for example, such as those put forward in the book by Holloway and Piccotto (1978), Poulantzas (1973, 1975); (c) investigation of how policies or their modification come into being and what social groups these cater to (level III). An example at this level is Lindberg, et al (1975): and (d) evaluation of the effectiveness of policies in addressing the relevant issues or amelioration of social problems the understanding of which has been structured by the three preceding levels, and what social effects or changes were brought about in society (levels III, IV, and V). This is the level where empirical research efforts need to be focused and new knowledge of the social forces produced by the researcher. This is indeed the task of critical policy analysis.

The task of policy analysis is thus very broad. In this task, the analyst has to deal with numerous social entities and the complex interaction between these within an open system. Among these entities, and their inter-relations, that are necessarily involved as objects of study of policy analysis are the State and its institutions, Government and the political system, the Economy and Social structure, i.e., relations between social classes or groups of people with similar or opposing interests, the administrative system, etc. Further, these social entities and the affects of their inter-relations on the

problem(s) at hand must be studied within a specific cultural and historical context, for, as mentioned above, the space-time dimension is one of the important properties of social objects.

The undertaking of such a task would be forbidding, if not impossible, without adopting some starting point, some a priori way of relating social entities and attaching cause-effect directions to these relationships. In other words, a priori theoretical framework is necessary not only for making sense of facts and data pertaining to intransitive social entities, that is, dealing with the empirical level, but, and this is of even greater importance, it is necessary for identifying what kind of social entities and what kind of relations between these may be of significance from the point of view of creating valid knowledge and therefore must be investigated, as opposed to others which may be excluded from study. Simultaneously, it must be kept in mind that the theoretical framework, or the particular way in which information regarding the intransitive is combined with the transitive dimension to produce a meaningful account of public policy (just as in other areas of social science), is contingent on the philosophy of science or paradigm (in the sense used by Burrell and Morgan (1979)) that the analyst subscribes to.

An Exemplar: Analyzing Pakistan's Energy Policy

I will now provide an example of how to construct a specific analytical framework for the analysis of Pakistan's energy policy. This outline example is merely to show how to concretize a research framework on the basis of critical realist philosophy of science in general, and specifically on the basis of the analytical schema provided by Keat and Urry (1981). It is simply an exemplar, an exercise to practically demonstrate how to proceed on the path of critical research. I believe that the logic of the development of the example discussed below can be readily adapted to the study of other areas of society.

Let us say that the object of study of our study is to understand and analyze the changes in the energy policy in Pakistan in the 1980s. At a general abstract level, two interrelated dimensions that comprise this subject can be identified: The nature and development of the energy sector, and government policies designed to affect it. Manifestly, the first dimension is part of the dynamics of the Economy and the second, that of the dynamics of the State. These two categories of society thus form the primary objects of analysis for us.

Now, both the Economy and the State in Pakistan (and other countries belonging to the South) are recognized to suffer from "underdevelopment" or aberrant development and are part of the larger problem of development. Further, the problem of development involves not just the developing country but also the developed world. More precisely, since the current world economy evolved and was forged of during the long period of mercantilism, colonialism, and later capitalism, the developed as well as the under-developed worlds emerged as a result of the same historical forces—these are but the two sides of the same coin. Thus an

understanding of either during any relevant historical period would immanently involve paying attention to the *nature of relations* between the two. In literature, the problematic underlying this relationship is captured by numerous terms such as core-periphery, satellite-metropolis, North-South, Third World-First World, developing countries-developed countries, primary producers-industrial producers, backward-advanced countries, underdeveloped-developed countries, etc. Thus, this relationship forms another dimension that is important to our analysis.

So far I have identified three broad dimensions—Economy, State, and Core-Periphery relations—as integral to our object of study. This approach to policy analysis is more or less in agreement with that propounded by Minogue:

“what governments do' embraces the whole of social, economic and political life, either in practice or potentially. Public policy is self-evidently not a narrow field of enquiry, though policy analysts may well focus only on narrow areas of the broad field. Public policies do things to economies and societies, so that ultimately any satisfactory theory of public policy must also explain the interrelations between the state, politics, economy, and society (Quoted by Ham and Hill, 1984, p. 17).”

Ham and Hill endorse Minogue's view of policy analysis (but correctly point out that "economies and societies 'do things' to policies as well as vice versa" p. 17) and they further add:

“It follows that policy analysis should give due consideration to the social, political, and economic contexts within which problems are tackled. It also follows that the student of policy process should stand back from the world of everyday politics in order to ask some of the bigger questions about the role of the state in contemporary society and the distribution of power between different social groups. Unless this is done then policy analysis must remain at best a partial exercise. (p. 17).”

From the critical realist point of view, it is imperative to situate the analysis of a particular policy within the context of political economy and its history. This necessitates the use of substantive theories that can help us to make sense of the virtually limitless events and facts that can reasonably be considered to be a part of any given policy area, for instance, as in our case, the energy sector's development and policies pertaining to it. Theories also tell us how, and in what ways, particular events and/or facts can be said to relate to each other, so that one is able to give an adequate and intelligible account, as well as an explanation, of the phenomena under study. Furthermore, it is only by using a substantive theory, which identifies entities and their relations that are relevant to the problem at hand, that one is able to select (or ignore) social entities worthy of theoretical/empirical analysis from among numerous such entities. It is the analyst's crucial task to pick and choose theories that conform to the ontological and epistemological underpinnings of critical realism and which would provide adequate account of the substantive problem that

is analyzed. The scope of this paper does not allow for a discussion of the substantive theories of energy sector development and I shall leave this for another paper. But for now, I return to a further elaboration of critical realist methodology, the main focus of the current paper.

Now, as mentioned above, our explicandum, i.e., Pakistan's energy policy, can and ought to be analyzed, following Keat and Urry's schema of five levels of theory and the resulting scientific practice, and given the paradigm (in Kuhn's (1970) usage of the term) of dependent development, at the following levels:

1. Philosophical discussion on the questions of ontology and epistemology in social sciences, as has been done above.
2. Discussion regarding theoretical conceptualization of historically specific systems, for example, a theory of the dynamics of the world capitalist system. Specifically, the focus should be on the quintessential conceptualization of the economic system, namely, the mode of production (and reproduction), and concepts of economic surplus, and mechanisms of its appropriation and utilization such as "terms of trade," "capital flows," "investments", etc.
3. This level of analysis would include conceptual/theoretical discussion regarding the phenomenal effects of underlying mechanisms and structures of a specific economic system--the world capitalist system in our case--on a particular society, the historical phases of the development of these effects, the separation and integration of the world into core and peripheral areas, and the historical relations between these two. This level would also include an analysis of class relations in a peripheral society, the congruence or incongruence of interests of dominant national and international classes, the State and its role in economic development, markets and their functions, and the nature of dependent development. Discussion at this level is informed by concepts and explanatory power of the "new" dependency school represented by authors such as Cardoso, Petras, O'Donnell, and Evans (So, 1990).
4. Analysis at this level would involve, *inter alia* a discussion of the consequences of dependent development on energy resources development and utilization; the role of foreign energy firms in the energy sector; the access to modern technology; the position of foreign energy firms viz-a-viz the State/national government; the position of upper classes/factions/families viz-a-viz the institutions of the State.
5. Empirical description and analysis of the various facets of the energy policies and sector including their histories. This would involve two areas: First, The role of domestic factors and international factors in shaping the development of the energy sector such as, availability of domestic funds and foreign capital, availability of energy resources, domestic science and engineering capacity, etc. Second, description and analysis of the governmental energy policies including how these are formulated and implemented, and the institutions responsible for doing so.

Conclusion

The critical realist philosophy of science consists of the general philosophical theory of science and the special philosophy of social science. Those objects of the natural world that are not produced by men are independent of us. We can investigate and create knowledge of these natural objects of knowledge and reveal natural laws through the creation of a pattern of natural events in the closed system of experiment.

The special philosophy of social science, the theory of critical naturalism, as advanced by Bhaskar (1989) recognizes that there are characteristic differences between natural phenomena and social phenomena. While the natural objects and laws exist independently of scientific inquiry the social sciences are internally related to their subject matter and are a part of their own field of inquiry. Social systems are not spontaneously, and cannot be experimentally, closed. Because of the open nature of the social system the causal laws can only be applied and understood as tendencies. Thus social science theories and models can only be validated on the basis of their explanatory power and, therefore, social science theory must be competent to deal with not only quantitative change but also qualitative ones.

The commonly employed quantitative techniques in mainstream social sciences that have spawned by positivism, such as regression analysis, are inappropriate to the study of social forces and issues as these have a reality is that is fundamentally different from that of natural objects. Social objects are always changing, show a high degree of interdependence on each other and on the larger framework in which they are embedded, and therefore do not lend themselves to quantitative measurements in a reductionist framework. Social reality is emergent and dynamic, critical naturalism tells us: it is like a 'movie,' not a 'snap shot'. What positivist methodology gives us at best is a 'snap shot' picture of 'here and now' observable reality: It is not capable of exposing the underlying laws of social change and hence is unable to capture the key dynamics of a social world that is constitutively multi-layered, dialectically interactive, and in constant flux.

In order to understand our ever-changing social world and the forces operative within it, research methodologies based on critical naturalism are clearly superior from the scientific point of view. Critical naturalism makes two crucial assertions: 1) social reality is 'structured'; 2) social reality is 'multi-layered'. Social science methodology must be able to account for both of these dimensions. I have shown above how Keat and Urry's framework, that I assert 'fits' very well with Bhaskar's critical naturalism, helps us to conceptualize these two dimensions and thereby move our analysis of social reality step-by-step to more concrete levels (less abstract 'layers'). This is done by using the general social theory of historical materialism or the Marxist paradigm. And as we consider a particular social question, such as the analysis of a particular public policy, it becomes imperative to situate the discussion in the context of political economy and its history. Here, we must take the help of substantive theories (for example, dependency, world-systems, imperialism, etc.)

which can help us to: 1) select from and structure virtually limitless events and facts that can be reasonably identified to be operative in any given policy area (reflecting the underlying social laws) in a manner that reflects the objectively existing structural, class basis of society; 2) Situate the factors that we consider within a historical context.

Finally, in order to concretely explain the critical approach to policy analysis to the reader, I used the example of Pakistan's energy sector and show, how we can identify and answer key questions in this area. My intention in doing so was to provide 'clues' or discussion points to researchers interested in other policy areas, as well as to encourage them. It is hoped that this example is helpful to them in the development of their research frameworks.

Notes

¹ C. Wright Mills aptly remarked a long time ago that " 'Method' has to do, first of all, with how to ask and answer questions with some assurance that the answers are more or less durable" and further: "To have mastered 'method' and 'theory' is to have become a self-conscious thinker, a man at work and aware of the assumptions and the implications of whatever he is about" (1959, p.120).

² As example an of general presentation of positivist methodology see K.R. Popper, *Objective Knowledge: A Evolutionary Approach* (1972) and *Logic of Scientific Discovery* (1974). For positivist methodology in policy analysis see T.R. Dye, *Understanding Public Policy* (1992), C.K. McKenna, *Quantitative Methods for Public Decision Making* (1980), and E.S. Quade, *Analysis for Public Decisions* (1989).

³ "The tendency in much empirical research has been for methodologies to dominate other assumptions in relation to the ontological, epistemological, and human nature strands of our analytical scheme. The wholesale incorporation of methods and techniques taken directly from the natural sciences needs to be severely questioned. The problem of developing methods appropriate to the nature of the phenomena to be studied remains one of the most pressing issues within the whole realm of social science research" (Burrell and Morgan, 1979, p.399).

⁴ According to Bhaskar, a realist ontological status of social facts, structures and relations can be clarified following Durkheim's (1964) two-fold approach. He first establishes the objectivity or autonomy of social objects by employing the criterion of externality, that is, the fact that social objects pre-exist individuals in the sense that individuals are born into a society that already is comprised of particular social facts, structures, and relations, means that the latter exist outside of them. Thus social objects (once these are produced through human activity) are external and independent of people even though these are produced exclusively through their activity.

Second, by applying the same criterion of externality to human activities, Durkheim asserts that because social objects affect what people are able or not able to do, and in their doing of things face the constraints imposed by social facts, structures and relations, further establishes the reality of social objects.

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