OBSERVATIONS ON THE FRONTIERS AND FRINGES OF THE NEOCLASSICAL PARADIGM

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I. INTRODUCTION

The neoclassical paradigm is viewed by most economists as broadly based in that a wide range of political and ethical views can be incorporated within it. The political spectrum captured by the neoclassical framework includes the socialist writings of Abba Lerner (1934) as well as the libertarian views of Milton Friedman (1979). Similarly, the elitist ethical viewpoint of Edgeworth (1881) and the egalitarian leanings of Pigou (1932) both fit comfortably within neoclassical analysis.

Even more fundamental to the long term robust survival of neoclassical thought is the spirit of 19th Century scientific optimism which is embodied within it. The notion that rational thought, applied through use of the scientific method, will result in genuine social progress is at the core of the neoclassical approach which models each and every consumer as a rational utility maximizer bent on applying these "scientific" principles to achieving greater personal and social well being. One, if not the principal, policy manifestation of neoclassical thought is use of benefit-cost analysis. It is here where "scientific optimism" is most clearly defined. An implicit assumption in benefit-cost analysis is that the income distribution has already been adjusted to some ideal. This, in the view of many economists, serves to remove most normative aspects from any decision. The job

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of the economist is then to simply see that marginal benefits are set equal to marginal costs to achieve efficiency. Another implicit assumption in benefit cost analysis is that all values including, for example, the value of preserving the blue whale, can be measured in dollar terms for inclusion in benefit-cost analysis. Both of these implicit assumptions have created real practical difficulties for the application and acceptance of benefit-cost analysis and have resulted in challenges to use of the neoclassical paradigm for policy purposes from both philosophers and psychologists. For example, philosophers object that benefit-cost analysis focuses only on consequences and ignores process. Psychologists note that values placed on avoiding disasters such as might arise from failure of a dam or an airline accident are inconsistent with expected utility theory. Further, people may simply be unable to value commodities with which they have no learning and experience. Sections II and III of this paper document the historical difficulties in applying benefit-cost analysis while Section IV focuses on the formal theoretical objections to the neoclassical paradigm arising from philosophy and psychology and speculates on the implications of these challenges.

II. THE CONTEMPORARY SETTING FOR BENEFIT-COST ANALYSIS

Neoclassical thought in recent decades cannot be separated from the evolution of benefit-cost analysis procedures. While Albert Gallatin (Secretary of Treasury, 1801-1814) wrote a very incisive treatise on the benefits and costs of public works and while the Flood Control Act of 1936 called for the justification of projects on the basis of an explicit analysis of benefits and costs "to whomsoever they might accrue," it was only in the post-World War II era that benefit-cost

analysis became important in its U.S. applications, primarily in the public water resources sector. The nature of the principles and techniques practiced in the 1950's is manifested primarily in Proposed Practices for Economic Analysis of River Basin Projects (originally issued in 1950 and revised in 1958), commonly called the "Green Book" and compiled by the federal Inter-Agency Committee on Water Resources and in the incisive books by Krutilla and Eckstein, Multiple Purpose River Development, 1958; and Eckstein, Water Resources Development, 1961. The procedures advocated embodied economic efficiency analysis from a national viewpoint. While they fully encompassed the evaluation of multiple purposes (power, flood control, navigation, irrigation), they did not encompass multiple objectives, i.e., they did not provide for the analysis of income distributional effects, environmental impacts, or regional benefits and costs. The procedures were totally consequentialist in nature, placing no emphasis on the processes through which development proposals originated, none on who should participate in the process, nor providing for any tradeoff against efficiency.

The national efficiency benefit-cost criterion became rigidly embodied in federal procedures in the form of Bureau of the Budget Circulation A-47 (1952) which was designed to emphasize private water development and required a B/C ratio of 1 or more for executive branch project approval. The resultant reduction in the federal water development program led to a congressional revolt, culminating in hearings before the House Committee on Interior and Insular Affairs in 1955. Congressional resistance to a strict B/C criterion continued through 1961 when the Bureau of the Budget commissioned a consultant

panel report on "Standards and Criteria for Formulating and Evaluating Federal Water Resources Developments" (Bureau of the Budgets, 1961). In this report one finds for the first time explicit mention of "objectives other than national income", including the importance (and difficulty) of recreation evaluation, preservation of valuable areas, income distribution, and other merit wants.

For reasons never made pubic, the consultants' report was not published or promulgated as a guideline document, but was quickly followed by another policy document drawn up by a task force under the Secretaries of Army, Interior, Agriculture, and H.E.W. entitled "Policies, Standards, and Procedures in the Formulation, Evaluation, and Review of Plans for Use and Development of Water and Related Land Resources" and published by the Senate (87th Congress, 2nd Session) as Senate Document 97. This document was approved by the President for application by each of the Departments and by the Bureau of the Budget in its review of proposed programs and projects. It anticipated nearly all subsequent developments in the benefit-cost field and substantially expanded the scope of analysis to objectives other than national income (called national economic development): preservation and the well-being of people. It was further stated that national, regional, and local viewpoints should be fully considered, but that significant departures from the national viewpoint required to accomplish regional, state, or local objectives should be explicitly set forth in planning reports.

Thus the explicit policy transition was made from single-objective national economic efficiency design to an evaluation procedure with explicit consideration of such items as recreation, fish and wildlife opportunities, preservation of unique areas, and the "well-being of people", even when not quantifiable in economic terms.

III. RESISTANCE TO ADOPTION AND ADVANCES IN BENEFIT-COST ANALYSIS

Two observations help identify the strength and weaknesses of applied neo-classical analysis. The strength was shown in the fact that benefit-cost analysis began to show that many types of projects that had long been touted by government agencies and special interest groups as highly profitable and as great generators of regional growth were in fact losers from the national point of view. Really poor projects were being weeded out through benefit-cost analyses.

The weakness in the application of the paradigm as manifested in benefit-cost analysis was that there were legitimate objectives that could not easily be included in the national efficiency analysis. In the 1950's, some minor recognition was being given to recreation as a consideration in project design and evaluation, but no recognition was given to water quality, wilderness preservation, species survival, etc. One can philosophically accept the possibility of devising ways of deducing persons' willingness-to-pay for some such effects and still admit that such techniques are not sufficiently developed to permit efficiency analysis to be all inclusive, i.e., that responsible social planning requires a multiple-objective framework.

Eonomists and others seriously concerned with the latter point (e.g., Bromley, Lord, and Schmidt; Maass and Major) begin the formal development of multiple-objective evaluation techniques. Unfortunately,

they were joined by agencies and clientelle groups who, worried at the lack of new project starts, saw multiple-objective planning as a way of fuzzing up the analysis and de-emphasizing efficiency analysis. This became the hidden agenda of multiple objective planning.

Many main line neoclassical economists, without adequately weighing the practical advantages and theoretical consistency of multiple-objective planning, stoutly resisted these developments. One basis for resistance was a belief that all benefits and costs were, in fact, monetizable: "However, conceptually all real net project effects are part of economic efficiency. Therefore we think that the new multiple account framework offered by the (Water Resources Council) is redundant and conceptually unsound. . ." (Cicchetti, et al., p. 16). Also, "We would urge renewed efforts to develop and gain concensus on appropriate methodologies for the estimation of Values for these non-marketed outputs. In our judgment, this is the first order of business" (Knetsch, et al., p. 12). These were legitimate professional concerns, although certainly not shared by all economists.

On the other hand, part of economists' resistance to multiple-objective planning was strategic in nature, an attempt to avert the potential dilution of efficiency analysis which was clearly an intention of some groups. The neoclassical agenda became the complete monetization of all benefits and costs based on a naive optimism that this is in fact possible. The concept of efficiency was in effect expanded to take into account all sources of benefits and costs previously excluded. Survey methods were developed to allow measurement even of option, existence and bequest values (see for example Schulze et al., 1983 and Greenley et al., 1981).

IV. FORMAL CHALLENGES TO THE NEOCLASSICAL APPROACH

Resistance to the application of benefit-cost analysis has been based on more than purely political motivations. Philosophers argue that economic analysis is effectively mired in 19th Century thought and has never escaped its utilitarian roots. Like utilitarianism, neoclassical analysis focuses entirely on consequences. Thus, in evaluating a public policy, benefit-cost analysis only takes into account the initial state of the world and the final state of the world, putting a dollar value on each. If the final state of the world has a higher dollar value, the policy is judged to be acceptable. No value is placed on the process used to move from the initial state to the final state. Philosophers argue that process is at least as important as consequences. Although a majority vote may yield inefficient results, losers are likely to accept the outcome, i.e., feel better off even though they lost, because the process is perceived as fair. Alternatively, if an efficient outcome is imposed on individuals, because benefits exceed costs, with no vote, individuals who are losers will feel greatly harmed; as much by the "unfair" process as by the actual financial loss. Thus, philosophers criticize benefit-cost analysis for ignoring process.. A second philosophical objection to the neoclassical viewpoint arises from the narrow humanistic ethical viewpoint embodied in it. Man is the measure of all things in economic analysis, the source of all value. The value of a blue whale is only the sum of the willingness to pay of human beings for its existence. The whale has no other source of value. In contrast, a naturalistic ethic holds that values in nature are derived external to mankind, i.e., the whale has an inherent right to exist and, if the blue whale is

driven to extinction,that right has been violated. Thus some philosophers argue that neoclassical analysis ignores rights derived outside of a humanistic ethical viewpoint. (For an extensive discussion of these issues see Kneese and Schulze, 1985).

Psychologists similarly have a number of significant objections to neoclassical economics, principally based on laboratory experiments examining how individual decisions and choices are made. Individuals are generally much less rational than most economists suppose. Several manifestations of this irrationality may be important for the application of benefit-cost analysis. First, people seem to value losses much more highly than gains. Thus, if a public project has winners and losers, economic analysis may seriously underestimate the perceived costs to losers. Economic experiments by Knetsch and Sinden (1985) have verified this phenomenon and shown that a loss may be valued in dollar terms three to five times more highly than a gain (a result which can in no way be explained by the income effect). A second objection from psychologists relates to the assumption that people make smooth tradeoffs between all commodities. Studies of actual decisionmaking show that individuals in fact make hierarchical decisions. Thus, a family may decide to go out to a movie for the evening as opposed to staying home and using the swimming pool. Then the choice may sequentially be made between going to a comedy or an action film. No three way choice between swimming, a comedy film or an action film is ever made. Many possible marginal rates of substitution are simply not defined in this hierarchical decision process. Complex economic models of recreation decisionmaking between alternative sites

used to develop recreation values may be theoretically ill founded. A final and especially devastating criticism is the argument that the expected utility model uniformly fails to predict behavior. Since many social decisions involve risk, application of traditional benefit-cost analysis in this area may be inconsistent with values held by the public. For example, the current public dread towards toxic waste sites which is reflected in a large commitment of public funds for clean up cannot be justified by traditional benefit-cost analysis based on expected utility models. Rather, psychologists argue that people place very high values on avoiding any type of perceived potential disaster as well as on risks which are involuntary in nature. Further, small risks (such as those from toxic wastes) tend to be overestimated while large risks (such as those from driving a car) tend to be underestimated. (For a summary of recent developments in the psychology of decisionmaking see McKean, 1985). Finally, psychologists argue that learning has a major impact on behavior. Experimental economists have shown that many of the difficulties outlined above are greatly reduced with learning through repeated trials in a market environment. Coursey, Hovis and Schulze (1985) have shown that the disparity in valuing gains versus losses disappears with repeated experience in a Vickrey auction. Plott and Sunder (1982) have shown that violations of expected utility are reduced with repeated market experience and that behavior asymptotically approaches that predicted by expected utility.

Unfortunately, this recent research supports the notion that people may not be able to provide meaningful values for benefit-cost analysis for commodities with which they have had little or no market experience. Models of choice applied outside of organized markets may need to be different from those used to predict behavior within such markets. Many people do seem to care about process and feel that rights extend beyond human beings alone. None of this necessarily implies rejection of the neoclassical paradigm. Rather, at least in our view, a broadening of the values captured within benefit-cost analysis is necessary. This suggests that a new look at multiple-objective planning is in order.

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