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VALUE JUDGMENTS AND EFFICIENCY IN PUBLICLY SUPPORTED RESEARCH

George W. Ladd

This paper is concerned only with research that is intended to guide, influence, or illuminate public policy choices. As professionals, we economists exhibit an unfortunate contradiction in values. Economists insist on making value judgments because they are needed to do research on public policy issues, and, simultaneously, insist on not discussing them, thereby keeping ourselves ignorant about what we are doing. Professional dialogue about value judgments—their role, alternative value judgments, and the consequences of alternatives—is needed. Usually one set of values is used to evaluate consequences of alternative policies. Alternative sets of values should also be applied to evaluate consequences of each policy.

VALUE JUDGMENT DEFINED

Kluckhohn (p. 395) presents an accepted definition of a value as "a conception of the desirable . . . which influences the selection from available modes, means, and ends of action." It is a conception of the desirable, rather than of the desired. "The desirable is what it is felt or thought proper to want" (Kluckhohn, p. 396). Beal, Bohlen, and Warland (p. 162) present a similar definition. "Values serve as normative standards upon which alternative means and ends may be evaluated. Values are normative statements, whereas beliefs are existential statements."

A value judgment is a judgment based upon or reflecting one's values. An economist who assumes that an owner-operated firm maximizes profits is attributing a particular value judgment to the owner. We may think of levels of values. When values at one level are in conflict, a higher (or prior) set of values must be used to resolve the conflict.

Usage of the words "efficient," "optimum," "productive," and "rational" reflects value judgments. These words are not purely descriptive, but prescriptive and persuasive; they have honorific denotations and connotations, and their antonyms have pejorative meanings. They are used to mean "a desirable state of affairs." To call something "efficient" or "optimum" is to express a value judgment: a judgment based upon some normative standard.

Personal values enter into the selection of problems for study. A problem exists if what is differs from what ought to be. Deciding what ought to be requires a value judgment. Few economists work on all perceived problems, only the most important ones are studied. Values determine the most important problems. Economists will not voluntarily do any research unless the expected beneficiaries are believed to be worthy people. The economists' values decide who is worthy. And, of course, economists are all worthy people, so we want our research to benefit ourselves.

Values are not synonymous with ethics. Dewey (p. 540) wrote that ethics is "that branch of the theory of conduct which is concerned with . . . right and wrong. . . . Such terms as "good" and "evil" . . . might be used in the definition as substitutes for the terms "right" and "wrong," but good and evil are somewhat too wide in scope. . . ." Johnson discussed ethical issues at the Association's 1982 meeting.

NO FREE VALUE JUDGMENTS AND NO VALUE-FREE JUDGMENTS OF EFFICIENCY

In one study of grain distribution systems, the objective was a system that maximized net revenues of grain producers (Ladd and Lifferth). Hilger, McCarl, and Uhrig made a similar study, but their objective was to develop a system that minimized grain-distribution costs. These studies used different criteria to determine desirability, hence, different values. Which definition of efficient (or optimum) is superior? Answering this question requires us to make a higher, or a prior, value judgment. There is no value-free way to answer it.

One measure of efficiency cannot be proven superior to another measure without some (perhaps implicit) prior assumption about criteria for desirable efficiency measures (see Nagel, pp. 373-374).

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QUALIFIED MEANING OF EFFICIENCY

"Efficiency," then, means no more than "efficient according to the criterion used." It also has a second qualification: "efficient under the constraints imposed." When economists assert that something is inefficient, all I know is that they disapprove; I don't know what else they mean until they tell me their criterion and constraints. Then I am free to argue that they used the wrong criterion or constraints.

Public policy issues involve identifying desirable and undesirable results and means. Until these are identified, it is impossible to develop a yardstick for measuring the efficiency of a policy. When economists presume to tell society, or its elected or appointed officials in government, what is efficient, they over-value their contribution, being at most qualified to say "I have chosen to measure results in this way and costs in that way and have imposed these constraints. Under these limiting specifications, this outcome is superior and I use "efficient" to describe this superior outcome. Society may be interested in other results and costs or may want to impose more or fewer restrictions. I do not know the best outcome under these alternative public choices."

I have strong objections to taking the same accounting rules that proprietary firms use to measure pecuniary costs and revenues and using the rules alone and unaltered in public policy studies. Part of the job of such research is to measure outputs and inputs, costs and benefits beyond the ones that businessmen consider.

Suppose Cargill owned the Mississippi River. Then the fish and bird habitats would have economic value because sport fishing and bird-watching rights could be sold. In a study of efficient grain transportation systems, we would have to take account of any loss of fish and bird habitats due to barging and dredging, and of the resulting loss of revenue to Cargill. But the Mississippi River is not privately owned. So the economic value of fish and bird habitats are not defined. So economists frequently ignore the effect of barge traffic upon dredging and the effect of piling dredge spoil upon bird- and fish-breeding areas.

Now please don't tell me that "enjoying fish and wildlife is only a sentiment." Desire to maximize profit is "only a sentiment." So is desire to maximize utility. So is love.

Public policy is a concern of the body economic and of the body politic. Public policy must be sensitive to national values, goals, commitments, and restraints. It must consider things that economists usually leave to the political scientists. What things? One place U.S. economists can look for answers to this question is in our nation's fundamental documents. In our *Declaration of Independence* and the preamble to our Constitution, we find these lofty aims: equality, life, liberty, pursuit of happiness, union, justice, tranquility, defense, general welfare. Can a public policy that ignores these be an efficient policy? If efficient, can it be desirable? Do we dare to tell a public policy maker that any policy that ignores all these is an efficient policy?

I argue that efficient behavior of an economic agent cannot be identified without a knowledge of the agent's objectives. Because we do not know society's objectives, we cannot identify efficient public policies.

PREFERENCES FOR MEANS AS WELL AS ENDS

Ackoff (1975, pp. 214-215) wrote

> Choosing the course of action which maximizes expected relative value is what many economists mean by "rationality." This I believe is an irrational concept of rationality because it omits a major type of value. . . . We have preferences for means as well as ends, for we know that ends and means are relative concepts. . . . Every end is a means to a further end and every means is an *end-in-itself*. . . . Means have two kinds of value: *extrinsic* or instrumental, and *intrinsic* or stylistic. The extrinsic value of a means has to do with its efficiency relative to an end; intrinsic value of a means has to do with the satisfaction its use produces independently of its outcome."

He later (1979, p. 98) wrote of a similar misuse of the word "optimality."

Economists do not assume that economic agents are indifferent toward the means used to attain their ends, but assume that people prefer some means over others. Economists do this implicitly, but so obviously that it stays a secret. Economists assume that people abhor illegal means of attaining their goals, consumers satisfy their wants by buying, not by stealing, the goods they consume, and firms obtain their inputs by purchasing or hiring, not by stealing or enslaving them. If people do not even consider some means to be acceptable, why do they not consider some acceptable means to be less acceptable than others?

Economists ought to feel comfortable with the idea that people prefer means as well as ends. For example, some people prefer extension over resident teaching as a means of earning salary and some people prefer academic jobs over industry jobs.

IS PARETO EFFICIENCY DESIRABLE?

To answer this question we must first determine the criteria used to decide desirability. This takes us back to the issue of criterion used.

Imagine an Edgeworth box diagram for production by two profit-maximizing firms. The width and height of the box represent the total amounts of inputs x and y available to the firms. The lower left-and upper right-hand corners are the origins for measuring the two firms' inputs. The box diplays the firms' isoquants and the contract curve, which is the locus of points of tangency between the firms' isoquants.

Now suppose that both firms are utility maximizers whose utility depends on output and the amount of input y used. The firms view x strictly as a means to an end, but they view y as a means to an end and also enjoy the challenge of using y. Isoquants are now replaced by isoutility curves. In general, a firm's isoquant

and its isoutility curve through a point have different slopes. Different points on the same isoquant represent different levels of utility. We can now draw the utility contract curve, which passes through the points of tangency of the isoutility curve. This curve does not coincide with the contract curve. Take a point, say EC, on the contract curve. On the utility contract curve there is a point, say EU, at which one firm is better off and the other as well off—by their own standards—as at EC. Point EC is Pareto efficient (PE) and EU is not. But one firm prefers EU to EC and the other is indifferent between them. Isn't non-PE point EU preferable to PE point EC? To determine whether PE is desirable, some higher-level values are needed for comparing the desirability of EC and EU.

The contract curve is referred to as the locus of points of efficient production. This label is correct only if "production" is interpreted narrowly. Points on the contract curve are points of efficient production *if inputs x and y are used only to produce product.* But if the firms use these 2 inputs to produce product *and to produce utility,* the contract curve is not a locus of points of efficent production of product *and of utility.*

This discussion excludes one likely possibility: that isoutility curves are not everywhere convex to the origin. It is possible that firm 2's isoutility curves are nowhere tangent to firm 1's isoutility curves in the convex range of the latter.

This analysis might be more intuitively compelling if it is assumed that a firm's utility depends upon the amount of input y used and the amount of profit. This would not change the form or conclusion of the argument.

The strong appeal of PE rests on the premise that its use allows us to make statements about welfare without making interpersonal comparisons of utility. This premise is false. The position that PE points are superior to non-PE points make an interpersonal comparison in the form of an assertion that people who value only ends should get what they want but people who value means and ends should not get what they want. According to PE criteria, the most desirable outcomes are on the contract curve. This is consistent with the desires of firms that value only ends. But firms that value means and ends would rather not be on this curve. They would prefer to be on the utility contract curve. To assert that points on the contract curve are superior to points on the utility contract curve is to assert that it is undesirable for these firms to get what they want: they should get what economists decide is good for them.

Almost invariably PE conditions are derived under the assumption that people are indifferent toward the use made of their resources: utility depends upon levels of consumption and is independent of the way resources are employed to finance consumption. In the section on preferences for means as well as ends, I argued that people do have preferences concerning the kind of work that they do. And some investors prefer some kinds of investments over others; for example, local businesses over multinational corporations. Deriving PE conditions under the assumption that people are indifferent to the use made of their resources, is equivalent to assuming that it is desirable that people who are indifferent should get what they want but people who prefer some uses of their resources over others should not get what they want. My argument can be easily generalized. Whenever all people are assumed to have type X preferences and PE type criteria are applied, a value judgment is made: It is desirable that type X people get what they want but that non-type X people not get what they want. (For the argument when "type X people" are "people who experience merit wants" see Pazner, p. 467.) The PE conditions are necessary conditions for the maximization of a Bergson-Samuelson Social Welfare Function (see Mueller, pp. 174, 183). If we use such a function, our argument asserts that maximizing welfare requires discriminating against people who value means.

Let us not confuse Pareto efficiency with ethical desirability. Pareto-efficient points are determined by existing values as reflected in demand functions for marketed goods and by existing distribution of factor-ownership. The latter is determined by market forces and by income tax and inheritance tax laws. If you have ethical objections to existing market-expressed values, to existing distribution of factor ownership, to existing tax laws, then you can logically conclude that Pareto efficiency deviates from ethically desirable.

Because of the existence of a high income-elasticity of demand and a high wealth-elasticity of demand for political influence, the wealthy make substantial expenditures in contributions to political action committees and hiring of lobbyists. They finance efforts to influence the laws that determine distributions of income, factor-ownership, and property rights—that determine PE—in ways favorable to themselves. Basing public policy decisions on existing income distribution grants the winners in the economic arena the right to set the rules in the political arena that determine the next outcome in the economic arena.

IS PARETO EFFICIENCY USEFUL?

One frequently used justification for our assumptions is that they are useful or provide useful results. How do we decide what is useful? What values do we use in deciding? A combination of functional form and independent variables that yields a negatively sloped demand curve is more useful than a combination that yields a positive slope. Why? It enables you to report what your major professor or a journal editor expects you to report. A set of assumptions is useful if it allows the user to prove to others what he already knows to be true.

Assumptions may be useful as a source of amusement. Two common assumptions are (a) absence of public goods and (b) informed and rational people. Do you realize that by these assumptions economists do not exist? The first implies that there is no public information forthcoming from the USDA, experiment stations and extension service. Our informed and rational taxpayers, therefore, refuse to pay taxes to support these institutions. Because these institutions lack public fi-

nancial support, they do not exist, and there exist no people employed by them. So, we do not exist.

In this paper, this is my favorite discovery: the proof that we do not exist. I can only recall one discovery that has given me more pleasure than this one. That was a discovery I made as an 18-year-old Marine, when the big boys introduced me to the joys of indulging in cigarettes, whiskey, and wild women.

I don't understand how we economists can take ourselves seriously and expect others to when two of the favorite assumptions imply that we do not even exist. Do we deserve to be taken seriously? How many other embarrassing implications could be obtained from economists' assumptions?

Akerloff and Dickens used cognitive dissonance theory to study economic behavior. I want to use it to study economists' behavior. They summarize the theory (pp. 308–309)

> Cognitive dissonance theory is one application of cognitive consistency theory. In practice most cognitive dissonance reactions stem from peoples' view of themselves as "smart, nice people." Information that conflicts with this image tends to be ignored, rejected, or accommodated by changes in other beliefs. Among other applications, persons who have made decisions tend to discard information that would suggest such decisions are in error because the cognition that the decision might be in error is in conflict with the cognition that ego is a smart person.

My argument is that one reason for belief in the usefulness of a theory is that the belief bolsters our view of ourselves as "smart people." The argument consists of two propositions, a condition and a conclusion.

Proposition 1: I, an economist, am one of the smart people.

Proposition 2: Smart people do not waste their time learning things that are not useful.

Condition: I have devoted much time and effort to learning theory X and its applications.

Conclusion: Theory X must be useful.

Thus we see that "useful" is like "efficient." Both are meaningless until we know the criterion used.

IS PARETO EFFICIENCY EFFICIENT?

Many public policy questions concern imposition or relaxation of constraints to achieve public goals. PE criteria are generally not sufficient to determine the efficiency or desirability of such constraints because a PE solution exists in the presence of the constraints and a different PE solution exists in their absence. And the two PE points are not comparable on Paretian criteria. This leads me to doubt that a complete, exhaustive set of conditions for Pareto efficiency can ever be identified.

If some optimality conditions cannot be satisfied, a first best solution is not possible. Optimizing subject to constraints provides a second-best solution. If some first-best optimality conditions cannot be satisfied, requiring the others to be satisfied, is not desirable because it does not provide a second-best solution. It provides at most a third-best solution.

What about sectors whose outputs cannot be measured? If government provided no life and property protection to firms, each firm would set aside some of its own resources for its protection against fire, theft, and fraud. How much should it set aside? Now additional PE conditions must be considered. They relate to marginal rates of substitution in production and consumption of protection. Because the amount of protection cannot be measured, whether these additional PE conditions are satisfied cannot be determined. Also, it can be argued that PE conditions for protection do not exist because protection and its marginal rates of substitution cannot be measured.

The protection of this analysis is an example of many privately provided goods whose quantities cannot be measured, such as R and D, selling, advertising, and political campaigns. If protection is publicly provided, it is also an example of fire and police protection, national defense, court system, law making, education, public R and D, public roads and airports, federal grades and standards: Rausser's PERTS—political economics resource transactions. Thus the conclusion: because there are large sectors of the economy in which PE can not be known to be satisfied, or even to exist, it is an open question whether (piecemeal) PE is desirable in other sectors. One's answer to the question depends upon one's values. Theory of second best does not help here because it deals with nonsatisfaction, not nonexistence, of PE conditions.

EFFICIENT ACCORDING TO UNDEMOCRATIC MEASURES

Many studies of public policy use maximization of net social benefit, consumers' surplus (CS) minus producers' surplus, as their objective. I argue that the measures of CS are inappropriate for evaluation of public policies in a liberal democracy because they are based on two antidemocratic value judgments; judgments that are inconsistent with the ideal of a liberal democracy as a representative government where law assures the equality of all individuals. I interpret this equality to hold "both in the passive sense of the treatment of individuals by the law, and in the active sense of their equal participation in 'making' the laws (equality of voice or vote)" (Knight, p. 300).

These studies typically measure CS as the area under the consumer demand function and above the solution price, and they concern commodities having positive income elasticities of demand. At each price the area above the price and below a high-income consumer's demand function exceeds the area below a low-income consumer's demand function. At each price a high-income consumer enjoys more CS than a low-income consumer. When total CS is computed by adding the surpluses of the two consumers, our measures of total CS assign greater weight to a high-income than to a low-income consumer, and their use carries the value judgment that a wealthy consumer should count for more than a poor consumer.

Treating every dollar as equal treats people un-

equally; it allows the preferences of a rich consumer to have more influence on public policy than the preferences of a poor consumer. This is certainly equality of dollar rights, but is hardly equality of human rights, and is an antidemocratic value judgment. Whether you and I approve or disapprove of this choice, the fact remains that by choosing to measure CS in this way, economists have made a value judgment that is not ours to make. Whenever economists decide how to compute CS, we make a second antidemocratic value judgment: the judgment that *we* are the proper ones to determine each person's social worth or public merit. This decision belongs in the public, social, political sphere in a liberal democratic society.

It seems to me that economists are in an uncomfortable box. Inability to make interpersonal comparisons of utility makes it impossible to aggregate utility. It is easy to aggregate dollars to compute CS. But aggregating dollars involves a worse error than aggregating utilities: a comparison of individuals' social worth or public merit. Economists are better equipped to compare persons' utilities than to compare their social worth or public merit.

Measures of CS can be based on value judgments other than equality of dollars. My favorite is the prohibitionist's second choice: Before computing each person's CS, his demand function will be shifted to the left by the amount he spent an alcoholic beverages.

VALUES DETERMINE AGGREGATES AND DISTRIBUTIONS

Writers on economic surplus do recognize the need for value judgments, but they recognize it too late, so to speak. They recognize that value judgments are needed to determine the desirability of the *distribution* of the aggregate. They miss the present point, that value judgments in the form of interpersonal comparisons are needed to determine the *magnitude* of the aggregate. Measures of CS are used in making public policy decisions. But measures of CS are themselves the result of policy decisions: decisions on each person's public value or social merit.

Harberger asked economists to accept three postulates "as providing a framework for use of applied welfare economics," that is, for use of consumer and producer surplus. He argued that "the postulates can readily be used to define a set of policies that characterizes a full optimum" (p. 795). Now "optimum" means no more than "optimum according to criterion used." Because every measure of CS contains value judgments, Harberger's "full optimum" is no more than "optimum according to the value judgments incorporated into the measure of CS." Different measures of CS based on different value judgments lead to different optimum policies.

INEFFICIENCY OF EFFICIENT SOLUTIONS

I propose a law of suboptimality of optimal solutions: the optimal solution to the investigator's model is not the best solution to the decison-maker's problem. His behavior is aimed at achievement of some objectives different from or in addition to the one specified in the study, and he faces some restrictions not included in the study.

The results of a survey made by Pioneer Hi-Bred International are illustrative. Pioneer polled elevator managers on grain transportation problems. Pioneer summarized responses as follows:

> Grain transportation is a problem.
>
> But if improving the efficiency of grain transportation were to result in hardships for local elevators and small communities, however, only one-third (33%) of the managers would make efficiency the grain transportation system's primary goal. Slightly more than half believe that the welfare of elevators and communities is more important than efficiency of grain movement. Another 12% were undecided about how to balance efficiency of the transportation system with welfare of local elevators and small communities.
>
> The upshot, at least from elevator managers' responses, is that grain transport efficiency cannot be considered in isolation from many other competing concerns. Anyone seeking to redraw the rail system map will have to take these factors into account.

EFFICIENT REPORTING

Policy makers are liable to have some unarticulated objectives and a study may well be used by several people—several congressmen or congressional aids, a number of people in a public agency—who have different objectives. This raises some questions about reporting research results. Leath and Martin (p. 906) wrote

> The fact that multiple solutions do exist means that the minimum-cost shipment pattern for the industry will not, in general, yield a minimum cost shipment pattern for each individual segment of the industry under consideration. Thus, various segments of an industry may have very real preferences for a particular solution among the set of solutions which are optimal for the entire industry.

Different public policy makers may also have strong preferences for different solutions among the optimal solutions. If a problem has several optimal solutions, then all should be reported. When only one solution is reported, the choice is consistent with the (unknown) values of the (unknown) persons who would favor the reported solution over the others if he knew all the solutions, but not with the values of the persons who would favor the other solutions. Reporting one optimizing solution favors one set of values over others. It commonly happens that the value of the objective function for optimizing solutions is only slightly better than its value for several other solutions. A decision-maker might actually prefer one of the next-best solutions. If the next-best solutions are not reported, he cannot exercise his own set of values; he is constrained

by the report. In addition, economists don't report everything implied by the solutions. How can the economist be sure of reporting the information the decision-maker needs? I suspect that the present answers to these questions reflect the economists' values as much as anything else. This issue of efficient reporting is closely related to what Randall called "impact distortion" in his excellent paper.

WHERE TO FROM HERE?

One thing we must do is identify and report our own values. We need empirical studies of firm's goals (as made recently by Harper and Eastman; and by Barnett, Blake, and McCarl) and studies of determinants of goals. I found that a firms' rank orderings of its goals were related to its environment and perhaps even to its past levels of goal achievement (Ladd). We also need empirical studies of people's values (See Beal, Bohlen, and Warland; Inglehart; Burke).

Measurement of people's value and goal systems will change the nature of the profession's problems but will not eliminate them. I recently pretended that we knew everyone's utility function and considered the value and ethical choices that we would then have to make in using that knowledge. I came up with a list of approximately 30 questions and will present a few of them here.

What time period should be used? Should we maximize the current years utility or the present value of all current and future utilities? If the latter, what discount rate? Does it even make sense to discount future utility? Perhaps it is only lack of imagination on my part, but discounting utility makes no sense to me: 10 disutils of pain from an operation now = 11 disutils from having the operation next year? How do we reconcile the view that discounting utility is meaningless with the view that it makes sense? Discounting means virtually ignoring the next generation and literally ignoring all generations after the next. I remember one philosopher's view that (as nearly as I recall), we achieve the highest level of ethical behavior when we make decisions that future generations will approve.

Another set of questions arises because no one can contemplate his own mortality. One's utility function does not contain "my life" nor "my spouse's life" as variables; the function presupposes "our living." Consequently, my utility of our lives is meaningless, as is utility of probability of our living.[1] How then do we scientifically compare benefits and costs of actions that affect mortality rates? How do we decide whether to allow use of a livestock-feed additive that will reduce meat prices but will also increase each person's risk of fatal cancer? Does one's personal health enter one's utility function in a way that will help to decide on allowing use of a food additive that will reduce food prices but will have harmful effects on health?

Writing out this list made me frighteningly aware of the value and ethical questions that we never ask but regularly answer. It is time to ask them.

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[1] If we do not adopt this position on utility of living, we can prove that you can pay me $X million now, kill me two minutes from now, and three minutes from now I will be as well off as I am now. The conclusion may be true but I am not willing to test it. If we do not adopt this position on probability of living our axioms will lead us to "the troubling conclusion that the certainty of death can be compensated" (Brook and Peach, p. 311) or to the conclusion that the possibility of being shot in the head can be compensated by a candy bar (Alchian, pp. 36–37).

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