AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

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

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

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

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

ETHICAL ISSUES AND ENERGY POLICIES

Glenn L. Johnson, Professor
Department of Agricultural Economics
Michigan State University

For the past 15 years or more, there has been an increased interest in the "ethics" of a great number of things. I have given papers on bio-ethics at the American Association for Biological Sciences, on energy before the Western Farm Economics Association, and have had a contract to study the normative and prescriptive content of the Department of Energy's (DOE) Project Independence Energy System (PIES). [Johnson and Brown, forthcoming] I have also conducted a seminar on agro-ethics for the department chairman in the College of Agriculture at Texas A&M, and have participated in various seminars, conferences, and commissions involving food and medical ethics.

In a review of the philosophic foundations of agricultural economics research since World War II, which I have done for the American Agricultural Economics Association (AAEA), I found 1967 to be something of a watershed in agricultural economics. [Johnson, forthcoming] Prior to that date, agricultural economists had been concentrating more and more upon answering disciplinary questions of the "mother" discipline, economics, to the neglect of current issues and problems. The social unrest and student disturbances which burst upon us in the late '60's changed that.

Though we now try harder to work on the relevant issues and problems of our time, we stand confused when trying to deal with the ethical aspects of the issues pressed upon us by society. We, and particularly our students, are partially disillusioned with what the academic establishment and science, as an institution, has to offer on the normative side in helping reach solutions to various problems involving energy, food as a particular form of energy, and our rapidly advancing technology.

As a teacher of a research methodology course for graduate students and as one who interacts almost continuously with students, I am keenly aware of student disillusionment with economics, with science and, for that matter, with the academic establishment. As an

economist who has done extensive counseling and problem solving and issues-oriented research for decision makers of the U.S. and around the world, I am also acutely conscious of the skepticism with which social science is regarded.

Though, as indicated above, agricultural economists and society in general are still largely confused about how to deal with normative and prescriptive knowledge, I believe some of the pieces are beginning to fall in place.

In this paper, I will first look at difficulties experienced in four recent attempts to deal with "ethical aspects of various things." I have been engaged or am engaged in three of these efforts. After examining these three concrete examples, I will look briefly at policy extension and then take a deeper cut, in the second main section of the paper, to try to indicate the fundamental, underlying difficulties. In the second section I will also be more specific about the relationships between ethics, as an overriding important part of philosophy, on one hand, and the prescriptive disciplines, on the other hand — economics, law, engineering, medicine, architecture, political science and military science.

In the third section I will deal with some ethical issues of crucial importance in energy policies. I do not apologize for devoting two major sections of the paper to laying the groundwork for the third section where I will finally get down to the topic assigned to me. I believe that the confusion of the past 10 to 15 years is such that it is reasonable to devote one half of this paper to unraveling some of the underlying confusion before turning to ethical issues and energy policies. In the fourth section I will discuss opportunities for the Cooperative Extension Service to serve vis-a-vis ethics and energy.

Experiences in Dealing with Ethics of Various Things

When society, students and others hold researchers, teachers, and advisors responsible for helping to solve problems involving energy, food, the environment, etc., serious difficulties are encountered. Some believe it is impossible to have objective knowledge about good and bad on which to base decisions as to what ought to be done. Some believe that it is not the business of teachers and scientists either to have opinions about goodness and badness or about what ought to be done [Heady, 1956]. Even those who believe that it is appropriate to have such opinions can seldom present an objective approach for developing such opinions.

Others do not differentiate between concepts of goodness and badness on one hand and decisions about what ought to be done on the other and, hence, become hopelessly confused. Still others fail to deal with the roles of political, military, social, market, and police power apparently believing either that knowledge is all powerful or that power is unimportant and easily changed. I will illustrate some

of these difficulties in discussing three experiences which I have had in this area and by discussing, as well, the experiences of persons doing policy extension work in the Land Grant system.

The Texas National Energy Modeling Project (TNEMP): — In early 1977, officials in the Texas government became concerned about the policy conclusions being reached by the Department of Energy (DOE), particularly as reflected in President Carter's speech and the position he took on the energy crisis. After various attempts to understant the DOE's Midrange Energy Forecasting System (MEFS) then referred to as PIES, the Project Independence Energy System, they exercised the Freedom of Information Act to obtain the computerized models making up the "system" of models used by DOE. Portions of the system were then farmed out to the four major state supported universities in Texas for examination and evaluation. A prestigious National Advisory Board (NAB) was set up to guide this work [Holloway, 1980]. Included on the Board were Walt Rostow, Robert Thrall, C. West Churchman, George Danzig, Albert N. Halter, William W. Hogan, John Bonner and David Wood. At about the time the four Texas universities were completing their studies of the different components of PIES, it became clear to the NAB that they had ignored the normative and prescriptive content of PIES' and DOE's activities and indeed of the Texas Energy Advisory Board (TEAC) and of TNEMP itself.

Hence the project director, Milton L. Holloway, scurried around for someone to study the normative and prescriptive aspects of these activities and agencies. He contacted me, but I was unable to take the assignment on short notice. After negotiating successively and unsuccessfully with Lewis K. Zerby, a philosopher, and Warren Samuels, an institutional economist, he re-contacted me offering additional time in which to initiate and complete the assignment. Because the assignment involved fundamental questions in the ethics of energy in which I was deeply interested, I accepted a contract to study the normative and prescriptive content of both, DOE's PIES and of the TNEMP. Judith Brown became my associate in doing this work.

The difficulties involved in doing such a study involve specifying an "objective way" of researching the normative and prescriptive and, very importantly, convincing the NAB that there was, indeed, such a way of answering normative questions about goodnesses and badnesses with respect to energy and in appraising the prescriptive policy decisions reached by TNEMP, about PIES by TEAC which established TNEMP, as well as by President Carter and Secretary of the Department of Energy who used PIES results in making policy decisions concerning energy.

Such decisions are a basic part of the "ethics of energy." Ethics has to do with the correctness of decisions about what "*ought or ought not to be done.*" In doing our work at Michigan State

University, we were faced with long-standing conclusions on the part of many researchers that it is unobjective to research values and that there was something basically inappropriate about trying to reach conclusions as to what ought or ought not to have been done.

Even the NAB which advised on our project was far from being in complete agreement as to whether we should be doing the work. However they did not seem to mind seeing someone "flounder around" trying, in the view of some "to answer unanswerable questions." The procedures followed are not outlined here as they are discussed in the second section. It is suffice to state that we did write a report which will be published by Academic Press as one of three volumes dealing with the work of TNEMP, ODE, NAB and TEAC. [Johnson and Brown, forthcoming] The report was refereed, criticized, and approved by the National Advisory Board.

The President's Food and Nutrition Study: — President Ford requested the National Academy of Sciences (NAS) to make a study of world food and nutrition problems and to develop recommendations as to how U.S. research on food, agriculture and nutrition could best be organized and supported financially to contribute to the solution of problems involving food and nutrition around the world. Though the study was led by an economist and agricultural economist — Joel Bernstein and Charlie French — it was staffed predominantly by physical and biological scientists. The economists in leadership roles were influenced considerably by logical positivism, a philosophy which purports to describe and explain the activities of scientists seeking answers to non-normative or positive questions concerning characteristics of the physical and biological world. They shared the positivistic thinking of the biological and physical scientists and hence were not philosophically equipped to deal critically with the philosophic preconceptions of the dominant group of physical and biological scientists.

As should have been expected for reasons to be made clear later, it was the prescriptive objectives of the study which created difficulties. The study was to develop recommendations to the President concerning how to best organize American research on food, agriculture, and nutrition so as to help solve problems involving food, agriculture, and nutrition around the world. A sub-objective was to assign budget priorities among different kinds of research. In short, study personnel were charged with responsibility for tentatively prescribing policies, programs, and projects yet the philosophic and methodological equipment of most of the dominant participants was specialized on the generation of answers to non-normative questions primarily in the physical and biological sciences.

A majority of the participants in the exercise believed that concepts about goodness and badness and about what ought and ought not to be done are unobjective, emotive and essentially, arbitrary.

The result was great difficulty in even conceiving of, let alone making, objective assessments of, and budget priorities for, different kinds of research.

Throughout the exercise, a sort of license was encountered — because it was an exercise in setting priorities which was regarded as inherently unobjective, the axes of nutritionists versus agronomists and of biological and physical versus social scientists, etc. and vice versa were freely ground. As social scientists were regarded as dealing unobjectively with normative and prescriptive research all of the time, they were regarded as unqualified for research budgets to help provide the objective normative knowledge essential for reaching objective solutions to problems involving food, agriculture, and nutrition around the world. Less than 0.3 percent of the total research budgets recommended by that study went to the social sciences. There was little vice versa for the social versus the biological and physical scientists. As we used to say in the U.S. Navy — it was "one way" — uphill for the social scientists. They were not really regarded as scientists by the logical positivists anyway!

One can only conclude that if answers to normative questions are unobjective matters of arbitrary assumption then there can be no hope for objective advice to the President of the United States on matters of food and nutrition research. Basically, the biological and physical scientists who dominated the world food and nutrition study and the two economists who led it were too positivistic to conceive of dealing objectively with the normative questions which have to be answered in order to assign research priorities. Logical positivism had tied at least one hand (the normative one) of the members of the study group behind their backs. They were incapable of using philosophies and associated methods and methods for dealing objectively with the normative and were free to engage in ethically questionable budget padding and empire building.

Planning Committee for a Conference on World Hunger of the National Council of Churches of Christ: — I serve on this planning committee along with two economists well known to agricultural policy extension workers, Eber Eldridge and Phil Raup. In addition to the three of us, the planning committee includes a political economist, agronomists, nutrition activists, theologians, and a number of persons trained in ethics and in other fields. While the group is far better balanced than was the President's Food and Nutrition Study with respect to the humanities and religion versus the sciences, it may not be any more objective.

The group includes people whose "minds are made up" about prescriptions with respect to the roles of such multinational corporations as Nestle in world nutrition and those who are convinced that world food production is significantly reduced by failure to pay "enough" attention to the role of women in producing food in the

less developed world. Fortunately, the group includes a number of rather careful theologians, ethicists, and others who are not leaping to conclusions but are trying to find a way to bring together information and ways of thinking from a wide group of people with respect to the solution of problems involving hunger around the world. Logically positivistic thinking does not dominate the planning committee as it dominated the world food and nutrition study. To the contrary, there are reactions or biases against science on the part of some. Some tend to reject the scientific, perhaps in an unconscious attempt to protect their normative knowledge from the logically positivistic implication that it is arbitrary and meaningless.

In society at large, it is clear that logical positivism has caused those with humanistic and theological leanings to be estranged from those with scientific leanings. In fact the whole conference is being set up in order to bridge the gap between the theologians and religious persons, on one hand, and logically positivistic scientists on the other hand, in the hopes that more appropriate policy conclusions will be reachable. The conference draws upon humanists and students of ethics in the hopes that they will be able to make the conference, when it is conducted, more productive of "objective policy conclusions" where objectivity has a meaning which applies to normative and prescriptive knowledge rather than just to positive knowledge as among biological and physical scientists.

Policy Extension Activities of the Cooperative Extension Service: — My own university has a long history of active extension programs with respect to public policy. Our policy extension work has suffered from the difficulties encountered in the above examples involving TNEMP, the World Food and Nutrition Study and the National Council of Churches proposed conference. Some policy extension workers have "aped" their biological and physical science colleagues and have tried to "stick to the facts" (positive ones) and theories about positive facts to the exclusion of information about values and prescriptions. Others have made assumptions about answers to normative questions but have not attempted to be objective about the empirical truth of the assumptions. On the basis of unresearched arbitrary assumed answers to normative questions, such workers have been able to indicate equally arbitrary prescriptions as to "what ought to be done".

It is mainly the pragmatic institutional economists [Commons, 1934; Parsons, 1949 and 1958; Salter, 1948] and industrial organization economists [Farris, 1964] who have been willing to jump into extension programs designed to actually reach solutions to various policy issues. Abroad, they have been joined by general systems simulators who have played active roles in advising and consulting with governments on policy problems. The industrial organization analysts have tended to follow the pragmatic lead of the institutionalists. Pragmatists find the truth of a concept in its consequences

[Runes, 1961, pp. 245f]. The truth, therefore, of both positive and normative concepts depends on the prescriptions they help generate for solving problems.

Prescriptions are judged, in turn, on how well they work. Thus, the truth of both positive and normative concepts is judged by the test of workability and the truth of both kinds of knowledge is regarded as interdependent in the context of the problem they are being used to solve. The institutionalist and industrial organization approaches are complicated and holistic. In the view of this writer, this is sometimes but not always necessary [Thayer, 1952]. The general systems simulators have been eclectic enough to face pragmatic interdependence between positive and normative knowledge if and when necessary [Rossmiller, ed., 1978]. One thing must be noted — all three approaches are at least capable of addressing questions about the empirical truth of normative concepts and prescriptions.

Fundamental Underlying Difficulties Encountered in Dealing with the Ethics of Any Subject or Issue

The difficulties to be identified in the paragraphs to follow are culture and time specific. They are the difficulties faced in the United States in the 1970s and '80s. They are unique to the culture of our society at this point as the other countries and societies which encounter these difficulties are really part of our culture or we are part of theirs. Many other cultures are not now encountering these same difficulties at this point.

The Role of Logical Positivism: — Over the last century or so, western biological and physical scientists have made great progress by combining logic and experience to answer positive or non-normative questions about the nature of the biological and physical worlds. Their accomplishments have been impressive.

About 1920 or so, philosophers began to formalize and describe the procedures used by such scientists. They named the resultant description "logical positivism." While logical positivism is a philosophic description of what some philosophers thought biological and physical scientists do, it is not necessarily completely accurate. Some scientists, in turn, have adapted logical positivism as their guide to research methods in which case logical positivism becomes a determinant rather than a description of what science is. In general, logical positivism has held that there are no normative experiences and that, hence, neither experience nor the test of experience are available to normative researchers to ensure the descriptive "objectivity" of normative concepts.

Because the biological and physical sciences have been so successful, there was a tendency to worship science and logical positivism as the source of all objective knowledge. Because of the public

acceptance of science and of its philosophy — logical positivism — there has been much more support for research to increase our stock of positive than of normative knowledge. Another consequence is that normative knowledge has fallen into general disrepute. It is regarded as unobjective, arbitrary and descriptively useless, in part because of the dominance of logical positivism and the productivity and reputation of the biological and physical sciences. A result has been the unfortunate artificial separation of religion and the humanities from science.

As normative knowledge has lost respect but as decisions have been required concerning science policy, energy, food, and environmental quality, advocates have been freed from objective evaluation. In effect they have been licensed to advocate prescriptions on the basis of arbitrary, normative assumptions [Myrdal, 1944 and 1969]. It is but a short step from arbitrariness to selecting assumptions which will lead to conclusions which increase salaries and build unscientific "scientific" empires in various disciplines and to research various subjects such as energy, food, and nutrition and environmental quality. Logical positivism led to a loss of criteria to use to measure the objectivity of either our concepts of goodness and badness or prescriptive conclusions as to what ought or ought not to be done [Parsons, 1958].

A Note of Hope: — Fortunately, the current dominance of logical positivism and science and the bifurcation between science, on one hand, and humanism and theology, on the other hand, should not be expected to last.

Logical positivism is now passe as a movement in philosophy. Philosophers place the beginning of the end of logical positivism at the dispersement of the members of the Vienna Circle at the beginning of World War II to escape persecution from Hitler [Kaplan, 1968]. In the United States, they found an environment in which they prospered. Perhaps, the philosophic naivete of Americans permitted logical positivism to survive uncriticized and undiminished longer than it would have survived in Europe had the events of the late '30s and '40s not taken place there.

The dispersal of members of the Vienna Circle, however, did not delay the attackers indefinitely. A book edited by Achinstein and Barker [1969] is entitled *The Legacy of Logical Positivism.* It puts logical positivism in the past tense. Another book by Feyerabend [1975] is entitled *Against Method.* Apparently Feyerabend identifies science with logical positivism. He opposes the methods of the logical positivists and hardly conceives of alternatives for science; hence, he "throws the baby out with the wash water," to quote an old cliche by becoming what he terms a methodological anarchist.

Logical positivism came apart philosophically because philosophers could not fully accept the distinctions maintained by the

logical positivists between the analytical or logical and the synthetic or descriptive. It also came apart because many philosophers and others simply do not believe that there are no normative experiences to use in converting logical statements into descriptive statements. Respectable philosophers believe that the normative and hence the prescriptive can be researched objectively in essentially the same manner as the biological and physical scientists investigate positive phenomena [Scriven, 1969; Moore, 1956 (1903)].

The fact that logical positivism has fallen into disrepute and is now looked at in the past tense by many philosophers opens the door for objective normative knowledge and provides a means for checking up on the normative misrepresentations of various policy advocates including political activists and lobbyists as well as academicians searching for "causes" to increase budgets for their work and the size of their personal empires.

Another reason for hope is to be found in the activities of the German historical school of economists, the American institutionalists, students of industrial organization and general systems simulators. While both the German historical school and the American institutionalists formerly centered at Wisconsin tended to go into eclipse following World War II, they are now experiencing a resurgence. Pragmatism and both the German and institutional schools have concentrated upon solving practical problems with objective prescriptive research. In J. N. Keynes [1963 (1890)] terms, they have been "inductive realistic and ethical," not "deductive abstract, and positive." The general systems simulators have modeled the positive and normative multidisciplinary domains of problems and practical subjects. Further, they have done so iteratively and interactively with decision makers and affected people.

The Contribution of the Prescriptive Disciplines — Disciplines such as economics, law, engineering, medicine, architecture, and military science are to be distinguished from the so-called hard sciences and some of the humanities in that they are fundamentally concerned with prescribing or designing changes which will solve particular problems. Economists employ maximizing procedures to define optima to prescribe as solutions to problems. Law — especially the creation of law — is concerned with prescribing what actions ought to be done in view of the values and positive facts involved. Engineers, operating in a design mode, have as their objective, the creation of a physical design which will solve a problem faced by decision makers. The same is true of architects. Doctors prescribe treatments to solve various health problems encountered by their clients. All of these disciplines are characterized by the need to acquire both positive and normative knowledge and to process it, in turn, into prescriptions to solve problems.

Ethics or Decision Making, the Main Concern of the Prescriptive Disciplines: — All of the prescriptive disciplines are concerned with

"what ought to be" — with reaching decisions or designs which will solve problems. Ethics is the branch of philosophy which is concerned with the determination of right and wrong goals and actions. There is a close relationship between economics and ethics. Both are closely related to axiology — the answering of questions about goodness and badness — and to deontology which deals specifically with the goodness and badness of a particular decision rule, action or design regardless of its consequences. The decision disciplines are, in a sense, applied ethics. Perhaps economics is the "queen" of the decision disciplines. It has a highly developed theory of decision making and many of its classical writers are also classicists in the ethical and philosophic value theory literature.

Prescriptions — Decisions About What is Right and Wrong: — It is important to draw a sharp distinction between the normative and prescriptive [Machlup, 1969]. Failure to do so results in difficulty when communicating about ethical issues. We must distinguish, following C. I. Lewis [1955], between goodness and badness which are normative, on the one hand, and rightness and wrongness which are prescriptive, on the other hand. It does not matter much whether this terminology is followed or not. It is important though that the distinction be made and maintained. A moment's reflection will indicate to you that it is not always right to do that which is good. It may be possible to do something that is better with the same or even fewer resources. Similarly, it is not always wrong to do that which is bad, if it is the least bad which can be done in the circumstances faced. Clearly, rightness and goodness are not identical; neither are wrongness and badness.

Concepts of goodness and badness are inputs into decisions about what is right and wrong — about what ought or ought not to be done. A prescription about what ought or ought not to be done can be regarded as a function of normative and positive knowledge. The function relating positive and normative knowledge to prescriptive knowledge about what is right and wrong can be regarded as a decision rule. Economists and ethicists employ both maximizing and minimizing rules to define right and wrong on the basis of normative and positive knowledge. Sometimes the normative knowledge is purely monetary as when maximizing profits. At other times the normative knowledge is not monetary as when maximizing utility or satisfaction.

G. E. Moore, in his *Principia Ethica* [1956], argues convincingly that we do have normative experiences and that these experiences provide a basis for developing primitive undefined descriptive terms to use in converting analytical sentences into disciplinary normative ones subject to the objective test of correspondence with experiences as well as coherence (logic). This puts normative knowledge on the same footing as positive knowledge. The basis for positive knowledge is well explained by Carnap [1953].

It is important to note that perfect knowledge on either the normative or positive side is infinitely expensive. It is not given to man to have perfect knowledge. He who pretends to have perfect knowledge, or asserts that he has, is excommunicated from both scientific and humanistic societies. In some Christian denominations, such behavior is regarded as the "original sin" of playing God instead of being willing to be a mere human. Because perfect knowledge is infinitely expensive, knowledge is never all powerful in making decisions. Decision rules must involve some distribution of power to make decisions in the absence of perfect knowledge. When this is not true, decisions cannot be reached because knowledge is never perfect.

The distributions of power include, in addition to the power of knowledge itself, distributions of market power which comes from one's ownership of income producing resources (rights) to produce the income used to affect values in exchange in a market, and of political, military, police and social power all of which are used in order to reach decisions in the absence of perfect knowledge. In a sense, power plays the role in a decision rule of filling in for the absence of objective knowledge. In connection with decision rules there are also the deontological questions about the goodness and badness of each possible decision rule. Oftentimes the goodness of a decision rule turns on the power distribution embedded in it. For example, we approve decision rules which give voters equal power as more democratic than those which give them unequal power.

Policy decisions, or for that matter decisions about programs and projects — public or private — are functions of both positive and normative knowledge with the functional relationship being expressed as a decision rule. Policy educators, advocates, consultants and extension workers, therefore, have to deal with normative as well as positive knowledge. Advocates, consultants, educators, and extension workers need objective normative as well as objective positive information. They also need objective normative knowledge about goodness and badness of different characteristics of decision rules, the latter being referred to as deontological knowledge.

Logical Positivism is Inadequate for Policy Advocates, Consultants, Educators, and Extension Workers: — Logical positivism creates great mischief for policy advocates, consultants, educators, and extension workers. It denies them objective normative knowledge to bring to bear on policy issues and questions. If they take logical positivism seriously, it forces them to regard all normative and prescriptive analysis as arbitrary. The result is that policy workers have one hand tied behind their backs. Fortunately, many policymakers, advocates, educators and extension workers ignore logical positivism. The tragedy is that too many remain constrained by it. I would hazard a guess on the basis of extensive experience as a policy consultant

and from observing lobbyists, other policy advocates, extension workers, and classroom professors that the majority of our policy educators are substantially constrained by logical positivism.

The advocates, decision makers themselves, and the consultants with credibility are less constrained. Among the classroom professors who did not sell out to logical positivism is Geoffrey Shepherd. I have recently reviewed his writings on values and policy research [Johnson, forthcoming]. He simply refused to be constrained by the respectable logical positivists of academia.

Ethical Issues and Energy Policies

In summary, we have seen that ethics has to do with determining whether decisions and acts based on decisions are right or wrong. Decisions can be right or wrong depending on whether the normative and positive information which goes into them is true or false. Decisions can also be right or wrong depending on the correctness of the decision rule used to process the positive and normative information into a prescription or decision as to what ought to be done.

The rightness of a decision also depends on the accuracy of the analysis which uses a given decision rule to produce a prescription. Decision rules also possess deontologocal characteristics of goodness and badness in and of themselves. Distributions of power are essential characteristics of decision rules and the goodness or badness of a decision rule depends importantly on the goodness or badness of those power distributions. From this summary, it is clear that the ethical issues involving energy have to do with the accuracy of normative and positive information about energy and related matters, the appropriateness of the decision rules used in making policy decisions with special attention to the rightness of the power distributions involved and the correctness of the analyses leading to decisions.

Fundamental to decision making in the U.S. are the changes in distributions of decision power which have occurred in the last decade. After examining these changes in the next subsection, the remainder of this main section will be devoted to various policy issues involving energy.

Changes in the Distribution of Decision Making Power as They Affect Decisions About Energy: — There have been important changes in the distribution of decision making power with respect to problems involving energy (1) within the U.S. government, (2) outside of government in the U.S. and (3) outside of the U.S.

Changes in the distribution of power in the U.S. government have taken place in both the legislative and executive branches. The structure of the U.S. Congress has changed fundamentally. Congress is younger. Seniority rules have been changed on the important powerful committees. Congressional staff workers have

gained considerable influence, experience and seniority relative to those they serve. These staffs are larger, more influential and handle more important questions than formerly. Lobbyists are now learning that they must work with staffs, not just Senators and Congressmen. Whether congressional decision making is more democratic, because it now involves proportionally more younger people and minorities, is not clear because of increased roles of staffs, executive agencies with their employees and other constituents, and of lobbyists for special interests.

One thing is clear, however. The congressional process is more chaotic and decision making is slower than a few years ago. This affects decision making on energy. On the executive side of the U.S. government, the situation is also chaotic and slow. The executive branch has increased in size and complexity with the bureaucracy itself becoming an important controlling constituency. There is a need for improvement of the decision rules — we need decisions on new decision rules and there are few public policy areas in which this is more evident than for energy.

Outside of government in the U.S., it is somewhat difficult to judge whether decision making power has become more or less concentrated. The major political parties have lost ground relative to special interest groups. Even though there are now more competing special interest groups, it still may be that power to influence public decisions on energy has concentrated in big business — the oil companies, the auto-makers, the steel companies, etc. — because they also operate as special interest groups and effective lobbyists. However, the record here is not clearcut, especially when one considers the increased roles of EPA, OSHA, DOE, HEW and of activists advocating more controls. In addition to the increases in governmental control over the private sector there are (1) the chaos and slowness of decision making in government, and (2) the increased vulnerability of Congress to pressure groups and lobbies, many of which are anti-business.

Outside of the U.S. decision making with respect to energy has become more concentrated in more powerful hands while decision making has become more chaotic and slower inside theU.S. government. OPEC decision making power is concentrated and OPEC's success is increasing both the power of the OPEC countries and the importance of their decisions. Also Western European countries and Japan are becoming more powerful and self-seeking yearly. The decisions of these governments and private businesses with respect to energy are more important to the U.S. than formerly.

It is also to be noted that Eastern Bloc countries have increased their military and political and economic power, however chaotic their own decision making remains. And, it is decisions of these Eastern Bloc countries which pose the greatest threat to U.S. energy

security. In the United Nations, the number of member countries has increased substantially, a development which tends to disperse power at the expense of the decision making power of the U.S. and other large countries. The power of the Security Council remains substantially undiminished though the change in Chinese representation on the Security Council has affected the U.S. favorably, given Sino/Soviet tensions, as well as unfavorably.

With the above discussion of dispersal and concentration of decision power with respect to energy, we now turn to U.S. policy issues with respect to energy.

A Major Policy Issue Involving Energy: — Probably the most important energy policy issue before the U.S. involves improvement of our accepted rules and processes for generating information to make energy related decisions. How can and should our decision rules be changed? We suffer from unknown and unstable distributions of power which make it difficult to decide on decision rules and processes. Our difficulties here involve: (1) the various information systems which feed the decision process including at least the following subsystems: political, markets and prices, the communication media, and the research and information generating and gathering system, (2) the unknown strength of various distributions of power both abroad and at home which now play or which have potential roles to play in energy decision making, *per se*, and (3) uncertain knowledge of the goodnesses and badnesses of various kinds of decision rules and processes.

The information systems which feed our energy decision processes include the political system which is often more of a transmitting than an information generating system. The political process transmits prescriptive as well as both positive and normative information. When the system transmits significant amounts of normative and positive information, the interactive iterative nature of the democratic U.S. political process generates some additional knowledge, particularly on the normative side, which it uses in reaching prescriptive decisions about energy.

The lack of reliable positive and normative information combines with imperfect knowledge of changing power structures in Congress and the executive branch to reduce the effectiveness of this particular information system. Power substitutes for knowledge in speeding decisions and also in improving them if urgency is crucial. As we have lost concentration of political power and are short on knowledge (particularly normative knowledge) it should not surprise us that political decision processes are slow and confused.

The price and market system is another important part of the U.S. information system. It transmits normative information from consumers to producers who combine it with positive information and other normative information from input suppliers to make

decisions on energy production. Cost and quantity information are then transmitted to consumers and resource owners who use them to allocate consumer expenditures and the use of resources. This iterative interactive process goes on and on to transmit information and produce prescriptive decisions on resource use, production levels, consumption and prices. This information system also suffers several current ailments including being burdened by both its friends and critics with responsibility for determining a "just" distribution of the ownership of income producing rights and privileges, a function it cannot do well and, generally, cannot do except haphazardly unless burdened with regulations which seriously interfere with its information transmitting and allocative functions.

The price and market system also suffers from being distrusted and misunderstood. When its friends try to justify its haphazard influence on the distribution of resource ownership (more correctly, rights and privileges), they discredit its information transmittal and allocative strengths. Its enemies do not study it objectively to see what it can and cannot be expected to do because they dislike it as a decision mechanism; hence, they hamper it with allocative regulations and price controls to help the poor, the aged, the workers, ADC mothers, the central cities, the East, the West, producers and consumers to mention only a few examples. Most of these regulations and controls aim at primary effects as their creators and advocators typically know so little about how markets and prices work that they generally fail to consider important secondary and tertiary impacts.

Persons who raise questions about these effects are dismissed by the enemies of the market and price system as conservatory reactionaries and laissez-fairists. Typically, the result is market interventions which seldom help and sometimes harm those they are supposed to benefit while reducing the allocative and information transmitting capacities of the market and price system. For example, a man too poor to own an automobile "benefits" from a regulation preventing the price of gasoline from rising ten cents a gallon but is not helped to acquire permanent ownership of income producing rights or privileges. At the same time, the lower price sends the false message to middle class and well-to-do that gasoline for their two or three cars is ten cents cheaper than it really is. This is unethical, nonsensical, and opposed to those who advocate (1) helping the disadvantaged and (2) energy conservation.

One of the needs is to keep the price system honest. The relative values or exchange prices it should convey deal with values in exchange as determined by (1) relative scarcity or cost of production and (2) demand based on intrinsic value and purchasing power. It seems better to keep the tasks of pricing goods and services and of allocating resource and product use separate from the task of redistributing the ownership of income producing rights and privileges

because (1) it is more honest to do so, (2) it helps preserve the allocative efficiency of the price mechanism, and because (3) direct redistributions of resource ownership without resorting to price regulations are likely to be more effective and more permanent in helping the disadvantaged.

The *communication media* — newspapers, news weeklies, radio and television — make up the third information system considered herein. This system primarily gathers and disseminates information. It is not seriously prevented from dealing with normative information by positivistic philosophies and does fairly well on that kind of information. It would do better if (1) we as economists had done better when educating personnel serving in communication media systems and (2) if the research and information systems which serve it were unconstrained by logical positivism and were more honest. While one can tear out one's hair listening to, reading and hearing media nonsense about energy, prices, inflation and energy price subsidies which allegedly help the disadvantaged, there seems to be less blatant dishonesty from the communication media about energy than from those in the research and information system and those who mess up the price and market system.

The research and information generating system which feeds public and private decision makers exists in many forms in the governmental and private sectors of the U.S. It is crucial that this system work well if we are to have decisions about energy which are ethically correct. Decision makers need objectively tested positive and normative information about energy and about decision rules for making energy decisions. While all information, positive or normative, is best regarded as fallible and subject to error, it should be tested for logical consistency (coherence), for consistency with experience (correspondence), clarity or lack of ambiguity (falsifiability in Popper's [1959] terms), and workability when used to solve problems.

Presently, our research and information generating systems suffer grievious ailments, particularly with respect to their normative and prescriptive content. They are hamstrung with logically positivistic restrictions on the generation of badly needed normative and prescriptive knowledge. Partially as a consequence of this hamstringing, the system overemphasizes positive disciplinary knowledge at the expense of subject matter and problem solving knowledge germane to solving problems about energy. It also suffers from the dishonesty of researchers and research administrators who seek financial support to further their disciplines, specialties and personal empires with little worry that the inappropriateness of their unobjective, self-seeking values will be objectively revealed.

Decision rules have good and bad characteristics regardless of their consequences. Philosophers refer to judging decision rules on

the basis of their goodness or badness, *per se*, as deontological ethics in contrast to axiological ethics which judges decisions on the goodness and badness of their consequences.

In general, goodness is ascribed to greater and more equal representation of concerned persons, agencies and groups in a decision process. Also goodness is ascribed to and efficiency in reaching decisions provided the quality of decision does not suffer unduly. Further goodness is ascribed to decision processes which acquire and utilize knowledge effectively. Unfortunately, these three goods are competing in many instances. Learning slows decision making — so does broader representation of concerned people.

Our decision rules and accepted processes for making energy decisions suffer from uncertain knowledge about the strengths of power distributions. Power is power. If it really is power, it cannot be redistributed. Tests of power are expensive as they involve military, political, social, legal, market, and intellectual shootouts. When knowledge of power distributions is poor, it is difficult to include power distribution in decision rules and processes in a realistic manner. Ethically, decisions on energy policy can be improved by recognizing power distributions with formal representation, advisory roles, and special voting procedures. It is cheaper to test power by ballots, in the courtroom and in the market than by fighting, rioting, demonstrating, and burning or otherwise destroying lives and property. Major ethical issues revolve around how the various groups with interests in energy will become part of the decision processes.

One of the most vexing ethical questions about energy decisions has to do with how to represent the interests of future generations. This difficulty is at the heart of all intergenerational conservation questions. Who should represent future generations and how much power should they have? Congress? The President? Activists? Intellectuals? Voters? The oil companies? OPEC? Engineers? Economists? Obviously all lack competence and objectivity — yet future generations are powerless in the now!

A necessary prerequisite for making ethical decisions about decision rules for solving problems involving energy is to get our thinking straight and accurate with respect to the goodness and badness of different alternative decision rules.

Inflation and Energy Ethics: — The main difficulties here are lack of information about how the economy operates, politics, and dishonesty. The connection between rising energy costs and inflation is long and tenuous, not direct to the consumer price or wholesale price index. Inflation results from an increase in the supply and velocity of money arising primarily from two sources: (1) the fiscal activities of government (deficit financing) and (2) the operation of the credit system (loose monetary policies). In order for increases in the prices of energy and energy related products to generate more

money and/or higher velocity, there must be a political connection between the price increases and the control of monetary and fiscal policies as there is no economic one. When this basic relationship is ignored, undue blame for inflation is placed on increases in the price of energy to the neglect of controlling the political processes which approve and/or originate the monetary and fiscal policies which inflate the U.S. economy.

The dishonesty arises when increasing energy costs are blamed for inflation by those who know better and the inflation is used, in turn, as a reason for instituting other programs, some only remotely involving energy, to be financed by combinations of deficit spending and loose monetary policies thereby further fueling the inflation they supposedly combat. While this sometimes gets politicians re-elected, it generates still more inflation. The secondary and tertiary impacts often hurt the beneficiaries of the original programs more than they were originally benefitted.

When increases in the price of energy are used as reasons for what are really programs to help the poor, the northeastern states, and commuting laborers, etc. (as examples) with energy subsidies, it becomes unprofitable to conserve energy in response to price increases. We do not get energy conservation from subsidizing fuel consumption by the elderly or by keeping gasoline prices low so that laborers can afford to drive 40 miles to work instead of either moving closer to their work or taking jobs closer to home but we do get inflation if we finance these programs with deficits and loose credit policies.

Ethical Issues Involving Nuclear, Oil Shale, Coal, and Solar Sources of Energy: — The ethics of these subjects are all clouded by advocacy, adversative relationships and lack of knowledge. Much of the data and information used is of questionable accuracy. Further, the logically positivistic way of thinking which has permeated our whole society tends to promote use of arbitrary normative knowledge. This gives proponents and opponents ample opportunity to befuddle the decision processes — the result is poor and, hence, unethical decisions the development of alternative energy sources.

Our positive and normative knowledge bases with respect to nuclear energy have been and remain unsatisfactory. The same is true with respect to oil shale development, coal liquidation, and gasification. There are serious unresolved positive questions in connection with the breeder reactor proposal and with the storage of nuclear wastes. As these answers come in they will raise normative questions. Both are needed to produce the prescriptive knowledge required to chart our energy development. Though no-growth opponents in these areas seem to be unobjective in assigning very low value to maintaining and/or increasing energy supplies and in assigning high values to different reductions in environmental quality,

neither our normative nor our positive knowledge is good enough for us to be sure. However, it is easy to observe failures to recognize the differences between (1) values in exchange and intrinsic values and (2) knowledge of good and bad, on one hand, and right and wrong on the other. Ethical decisions have to determine how much of what kind of environmental damage it is right to incur in order to get more energy.

In order to determine what is right to do with respect to oil shale development, the value of alternative uses for the large amounts of water which will be used must be determined. These, as well as the negative environmental values generated with oil shale mining and processing must be determined. Three dimensions involving non-monetary values include the availability of liquid fuel needed for national military security, agricultural production, and to fuel our transportation system.

There are serious ethical questions involved in gasohol decisions. Presently gasohol production is subsidized substantially by the forgiveness of state gasoline taxes on not only the alcohol which goes into gasohol but on the gasoline as well. In some states the subsidy is in the neighborhood of a dollar a gallon. The ethics of the decision to use food and feed grains or sugarcane to produce alcohol for fuel is further complicated by the fact that the process reduces large amounts of grains and sugars fit for human consumption to a fuel to be consumed mainly by automobiles in a world where substantial numbers of persons suffer from malnutrition. Are we ethically justified in using foodstuffs which could feed hungry, malnourished people in order to obtain fuel for our automobiles?

From the standpoint of both the monetary and non-monetary values involved, it looks as if the decision to produce gasohol is an unwise one which should be labeled ethically wrong. However, before taking this position, the subject should be investigated objectively by persons capable of researching both normative and positive questions and processing the answers through reasonably well agreed upon decision rules to find out whether it is right or wrong to convert human foodstuffs into alcohol for producing gasohol.

When fuel is produced from nonedible biomass, the direct ethical question about conversion of edible feedstocks into fuel does not arise. However, there are still indirect tradeoffs concerning food in using inedible biomass to produce fuel. My wife's farm in western Illinois includes 60 acres of relatively rough land which can be kept in continuous corn without danger of erosion provided (1) the cornstalks are chopped after combining and left on the surface to protect the soil from erosion and (2) minimum tillage practices are used. On the leveler part of the farm, the same practices promote soil tilth and builds up yields through time.

If the nonedible biomass produced on this farm were to be converted to energy, the farm would have to produce grains on a rotation

basis. The result would be reduced production of grain without a corresponding increase in the production of other products. Again, tradeoffs are involved. There is no free lunch on that farm. Gasohol cannot be produced from either grains or nonedible biomass without substantial reductions in grain available for human consumption or for feeding animals to feed people.

Reducing the Dependence of American Agriculture on Fossil Fuels and Fertilizers Based Upon Petroleum Products: — In terms of land farmed per person, U.S. farms are some of the largest in the world. In terms of acreage per farm, many countries have proportionately more really large farms. Most of our farms remain family farms despite the increase in acreage per farm and per farmer. The last time I checked up, the proportion of U.S. agricultural output produced by farms based upon the labor of one family had not changed significantly from earlier years. One sees this when he drives through an area of the Cornbelt which he has known well over the years. The so-called "tenant houses" which housed year-round hired men in the 1920s have mostly disappeared. The farms have been enlarged in acres but reduced in size if measured in terms of labor used.

The tenant houses, horses, and year-round hired hands of the 1900-35 period have been replaced by four-wheeled drive tractors, trucks, hay balers, field hoppers, silo unloaders, milking parlors and large combines some of which are operated by the wife as well as the husband or independent custom operators. The farmwife's former heavy household duties having been reduced over the years with energy consuming household equipment to make her time available for less arduous work operating tractors, combines and trucks.

Those who advocate a return to a less energy intensive agriculture need to realize that this means either smaller farms or more hired labor per farm and, hence, a movement away from the family farm. While it is difficult to make a strong objective case for the family farm, the earnings of both farm operators and hired farm laborers would probably be reduced considerably under a less energy intensive agriculture unless we increased food prices to politically unacceptable levels while increasing farm employment of nonfamily laborers. It is not at all clear that those advocating a return to a less energy intensive agriculture have explored and understand these relationships well enough to justify their prescription as to what it is right to do. I suspect that the American society and American consumers are willing to reduce their consumption of fossil fuels in many other ways rather than experience substantial reductions in food production along with substantial increases in food prices.

Ethics (Economics) of Becoming Poorer as a Result of Exhausting Fossil Energy Resources [Pinstrup-Anderson, forthcoming]: — If

we do indeed have to get poorer as the result of depleting our supplies of fossil energy while failing to find sufficiently cheap replacements, there will be many adjustments which will have to be made. President Carter has spoken about "fairness" in adjusting to energy shortages without defining what is meant by fairness. The unanswered question is both normative and prescriptive. Do we mean by fairness a proportional reduction in the real incomes of everyone or do we mean a much greater reduction in the real incomes of the wealthy in order to maintain or even increase the real incomes of the poor? What fair means is an important normative or prescriptive question which has to be answered if we are going to get poorer.

While I doubt we are going to have to get poorer in "real" terms, some concepts of fairness may interact with the distributions of power in our society to make our present middle class poorer in order to improve the lots of poorer classes while the upper classes use their power to maintain their wealth positions. In any event, there are serious ethical questions in deciding on how the burden of becoming poorer or the benefits of getting richer will be distributed in our society, whatever is our future lot. I think values and positive knowledge will change iteratively with increases in the price of energy and that we will learn (perhaps again) to extract more pleasure (real income) from less energy intensive goods, services and activities.

Opportunities for the Cooperative Extension Service Vis-a-vis Ethics and Energy

A situation as confused and disorganized as U.S. decision making must offer important, honest opportunities for an educational organization such as the Cooperative Extension Service. More knowledge and understanding are desperately needed.

Keeping ethics identified with right decisions is basic to energy education. Right decisions require that correct normative and positive knowledge be processed through right decision rules to reach correct prescriptions.

In order to provide normative knowledge and contribute to decision processes, it is necessary for extension personnel to be philosophically eclectic.

1. They must free themselves from outmoded logically positive restrictions on working objectively with knowledge of goodness and badness (normative knowledge).

2. They must deal objectively with normative knowledge and assure themselves of its objectivity by testing it logically (for coherence), against experience (for correspondence), for clarity and for workability.

3. They must be pragmatic when positive and normative knowledge are interdependent. Ways of being operational are to be found in the methods of

a. institutional economists
b. industrial organization analysts, and
c. general systems science simulators.

4. Items 1 to 3 above require an eclectic philosophic stance. In practice, and in its common sense, if not in its methodological pronouncements and creeds, the Cooperative Extension Service has long been eclectic. What I am saying is, do not let pseudo-intellectual arguments keep you from continuing to be eclectic or from returning to an eclecticism which permits you to work with the normative in helping society and individuals find solutions to their energy problems.

One thing further, some researchers have become so focused on disciplinary (basic) research that they do not do problem solving research and participate only reluctantly in subject matter research. This means that extension is dependent on (1) the few researchers who will address practical problems involving energy and subjects germane to energy or (2) your own "extension investigations" (a euphemism for practical research).

If researchers neglect their opportunities in this area, then go ahead on your own, though I'm sure your resources are so limited that you should mobilize all the support you can get. Whether you do it alone or with the help of researchers, do not forget — add the normative without unduly reducing attention to the positive. Positive knowledge is essential. We need balance — not a different imbalance.

REFERENCES

Achinstein, P. and S. F. Barker (Eds.). *The Legacy of Logical Positivism: Studies in the Philosophy of Science.* Baltimore, MD: The Johns Hopkins Press, 1969.

Carnap, R. "Formal and Factual Science." In *Readings in the Philosophy of Science,* H. Feigl and M. Brodbeck (Eds.). New York: Appleton-Century Crofts, 1953.

Commons, J. R. *Institutional Economics.* New York: Macmillan, 1934.

Farris, P. L. (Ed.). *Market Structure Research.* Ames: Iowa State Univ. Press, 1964.

Feyerabend, P. *Against Method.* Great Britain: Redwood Burn Limited Trowbridge and Esher, 1975.

Heady, E. O. "The Basic Logic of Farm and Home Planning," *Journal of Farm Economics,* Vol. 38, 1956.

Holloway, Milton L. (Ed.). *Texas National Energy Modeling Project: An Experience in Large-Scale Model Transfer and Evaluation.* New York: Academic Press, 1980.

Johnson, G. L. "Philosophic Foundations of Agricultural Economics Thought," Paper prepared for Volume III of the Literature Review series to be published by the American Agricultural Economics Association, forthcoming.

———. "An Extension to 'What Can a Research Man Say About Values'." In *Economic Analysis and Agricultural Policy,* Richard H. Day (Ed.). Los Angeles: Univ. of Southern California, forthcoming.

———and J. L. Brown. "An Evaluation of the Normative and Prescriptive Content of the Department of Energy Mid-Term Energy Forecasting System (MEFS) and the Texas National Energy Modeling Project (TNEMP)," Texas Energy Advisory Council, Austin, TX. New York: Academic Press, forthcoming.

Kaplan, A. "Positivism." In *International Encyclopedia of the Social Sciences,* Vol. 12, D. L. Sills (Ed.). New York: Macmillan and Free Press, 1968.

Keynes, J. N. *The Scope and Method of Political Economy.* 4th Ed. New York: Augustus M. Kelley, 1963 (originally published in 1890).

Lewis, C. I. *The Ground and Nature of the Right.* New York: Columbia Univ. Press, 1955.

Machlup, F. "Positive and Normative Economics." In *Economic Means and Social Ends,* R. Heilbroner (Ed.). Englewood, NJ: Prentice-Hall, 1969.

Moore, G. E. *Principia Ethica.* Cambridge, England: Cambridge Univ. Press, 1956 (originally published in 1903).

Myrdal, G. *The American Dilemma.* New York: Harper Brothers, 1944. Appendix II.

_____. *Objectivity in Social Research.* New York: Pantheon Books, 1969.

Parsons, K. H. "The Logical Foundations of Economic Research," *Journal of Farm Economics,* 31:565-686, November 1949.

_____. "The Value Problem in Agricultural Policy." In *Agricultural Adjustment Problems in a Growing Economy,* E. O. Heady, et al. Ames: Iowa State Univ. Press, 1958.

Pinstrup-Anderson, P. "Economic Theory Needed in Studying the Economics of Getting Poorer While Redistributing." In the Proceedings of the 17th Conference of the International Association of Agricultural Economists, Banff, Alberta, Canada, England: Gower Publishing Co., forthcoming.

Popper, K. R. *The Logic of Scientific Discovery.* New York: Harper and Row, 1959.

Robbins, Lionel. *An Essay on the Nature and Significance of Economic Science.* London: The Macmillan Co. Ltd. Second Edition.

Rossmiller, G. E. *Agricultural Sector Planning: A General System Simulation Approach.* East Lansing: Dept. of Agric. Economics, Michigan State Univ., 1978.

Runes, D. A. (Ed.). *Dictionary of Philosophy.* Paterson, NJ: Littlefield, Adams & Co., 1961.

Salter, L. *A Critical Review of Research in Land Economics.* St. Paul: Univ. of Minnesota Press, 1948.

Scriven, M. "Logical Positivism and the Behavioral Sciences." In *The Legacy of Logical Positivism,* Achinstein and Barker (Eds.). Baltimore, MD: The Johns Hopkins Press, 1969.

Thayer, H. S. *The Logic of Pragmatism.* New York: Greenwood Press, 1952.

Dispersed vs. Concentrated Agriculture