

DOCUMENT RESUME

ED 303 280

RC 016 694

AUTHOR Freudenburg, William R.; McGinn, Barbara
TITLE Rural-Urban Differences in Environmental Concern: A Closer Look.
PUB DATE 87
NOTE 53p.; Revised version of a paper presented at the Annual Meeting of the Rural Sociological Society (50th, Madison, WI, August 12-15, 1987). Some tables contain small print.
PUB TYPE Speeches/Conference Papers (150) -- Reports - Research/Technical (143)
EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS Agricultural Occupations; *Community Attitudes; Community Surveys; *Conservation (Environment); Economic Development; Energy Occupations; Environmental Standards; Farmers; Land Use; Local Issues; *Rural Areas; *Rural Urban Differences
IDENTIFIERS Colorado (West); *Environmental Attitudes; Environmental Protection

ABSTRACT

This paper presents survey results from rural areas having significant levels of employment both in agriculture and in extraction industries (coal mining). Although a review of the literature suggests that rural residents may express lower levels of environmental concern than urban residents, one study proposed that rural residents in farm-related industries might have different attitudes than those in extractive industries. The survey includes items dealing with specific local concerns over environmental protection and technological development. The data come from a study of four communities in western Colorado that were facing the prospect of large scale development of coal and other fossil fuel energy resources. Aside from the issues of planning and zoning, farmers and ranchers in this sample were more concerned about environmental protection than persons in any other occupational category. The least environmental concerns were expressed by persons in coal mining and rapidly growing business and professional occupations. Qualitative interviews with area residents suggest that persons in agriculture valued environmental preservation in general, but were opposed to constraints of land use that might prevent them from obtaining high prices from the sale of their land. This study concludes that people in agriculture express higher levels of concern for environmental issues than do other rural persons living in the same community. The paper contains 71 references. (DP)

* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *

RURAL-URBAN DIFFERENCES IN ENVIRONMENTAL CONCERN:
A CLOSER LOOK¹

by
William R. Freudenburg
and
Barbara McGinn

Department of Rural Sociology
University of Wisconsin

1. This is a revised version of a paper prepared for presentation at the 50th Annual Meeting of the Rural Sociological Society, Madison, WI, August, 1987. Comments, suggestions and additional sources of data would be greatly appreciated.

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION
CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.
 Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

William R.
Freudenburg

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

ABSTRACT

The significance and validity of urban-rural distinctions have long been the focus of contention in sociology. The debate extends even to an area where there appears to be reason to expect a difference, namely, in levels of environmental concern. On average, rural residents live in physical environments that are less heavily modified by human actions, depend more directly on employment in the extraction or use of natural resources, and experience the kind of weakness in local economies that may lead them to favor economic development even at the expense of environmental protection. While past studies have found some support for the expectation that rural residents would therefore express lower levels of environmental concern, several authors have found that what appear to be low levels of "rural" environmental concern may actually be low levels of concern among farmers in particular. Results also appear to be affected by methodological factors, including the degree to which survey items focus on local environmental concerns, plus the need to separate the effects of living in polluted areas from the effects of working for "polluting industries." This paper presents survey results from rural areas having significant levels of employment both in agriculture and in extraction (coal mining); the survey includes items dealing with specific local concerns over environmental protection and technological development. Contrary to earlier studies, our results show persons in agriculture to express higher levels of concern than do other rural persons, who in this case live in the same communities. The results suggest that the widespread nature of high levels of support for environmental protection may make it difficult to isolate occupational or residential groups having "low" levels of environmental concern, in general, without careful analysis of the specific aspects of development and preservation having the greatest salience to the persons involved.

INTRODUCTION

One of the most long-lasting controversies in sociology, at least in the United States, concerns the degree to which it is appropriate to conceive of "rural" social systems as being conceptually and empirically distinct from urban ones. On one hand, a number of authors argue that, whatever relevance the urban-rural distinction might once have had, recent changes (such as the effects of the mass media and the extension to rural areas of what were once "urban" conveniences) have led to the elimination of most of the important differences (Fischer, 1972; Bealer et al., 1973; Van Es and Brown, 1974). On the other hand, other authors point to remaining differences in levels of economic development (Dillman and Tremblay, 1977), control over resources (Lovejoy and Krannich, 1982), levels of interpersonal acquaintanceship (Freudenburg, 1986), and even the rate of cultural change, as indexed for example by crime cycles (Fischer, 1980) as warranting further attention (see also Lowe and Peek, 1974; Glenn and Alston, 1974).

If differences between types of people can be expected to reflect at least in part the "objective" differences between the places in which they live, then it would be reasonable to expect that, if urban-rural differences are to be found anywhere, they would appear in people's attitudes toward their physical environmental settings. Indeed, Tremblay and Dunlap (1978: 476) report that there does appear to be a degree of correlation between levels of environmental concern and the actual levels of pollution (see also DeGroot, 1967; Dillman and Christenson, 1975). In addition to any "objective" differences in the degree of exposure to environmental degradation, at least three other reasons have been advanced for expecting rural residents to have lower levels of environmental concern than persons in urban areas. One is that rural residents are more likely to make direct or extractive use of the environment in their employment, while urban residents are more likely to "use" the environment for appreciative or recreational purposes (Hendee, 1969). Another is that the tenuous economic position of many rural residents may lead them to be more likely to favor local economic growth over environmental protection (Murdock and Schriener, 1977; cf. Molotch, 1976). Still another is that

socialization in a metropolitan environment is likely to lead people to see human activities as being responsible for creating environmental disruptions--but also as being capable of correcting them (Lowe and Pinhey, 1982). Despite all of these plausible arguments, however, the data to support the notion of urban-rural differences in levels of environmental concern have been mixed.

In this paper, we attempt to summarize the existing literature on the topic and to shed additional light on the question by taking a somewhat different approach. One of the problems with the existing literature may be that rural people, like urban people, are anything but homogeneous, and that it may thus be necessary to examine more closely the people who make up the "rural" category (cf. Van Es and Brown, 1974). Another may be a methodological factor. As Tremblay and Dunlap have shown, "studies focusing on environmental problems at the state or national level tend to report negligible relationships, while those focusing on problems at the local or community level generally report substantial relationships (with rural residents less environmentally concerned than urban residents)" (Tremblay and Dunlap, 1978: 474).

What appears to be missing from the literature to date, and what we attempt to provide in this paper, is an analysis that deals with truly local environmental problems and challenges, and focusing more closely on the responses of the differing groups of people who live in "rural" localities. A national survey, even if it includes a heavy oversampling of rural residents, is forced to rely on relatively vague and generic issues such as "the level of water pollution in your area." If we are truly to look at attitudes toward "local" environmental issues, we need to realize that the specific environmental issues that may be of concern to rural residents in Vermont are likely to be quite different from those that are of concern in West Virginia, the upper peninsula of Michigan, the desert areas of Nevada, or even mountainous areas of Colorado or Washington state, let alone the rural areas of other nations. The disaggregation of rural responses is far short of being a panacea, in that the findings from one area may or may not be

generalizable to another, but given the lack of closure and clarity in the literature to date, the time has clearly come for an in-depth focus on the "rural" residents of an area that is smaller than the nation at large. Accordingly, after reviewing the literature that has accumulated to date, we will present an analysis of the results from a study of four communities in western Colorado, all rural, and all facing the prospect of a similar type of development--rapid, large-scale development of energy resources.

Urban-Rural Differences in Environmental Concern: The Basic Literature

Studies of the relationships between environmental concern and residence (i.e., living in rural or urban locations) have long found mixed results. Milbraith's (1975) study, for example revealed no differences in environmental concern between one county that was highly industrial and another that was largely nonindustrial, partly wilderness, and Lowe et al. (1980) also reported no rural-urban differences (see also Koenig, 1975). On the other hand, at least some positive association between urban residence and level of environmental concern has been reported by Althoff and Grieg (1977), Buttell and Flinn (1978a, 1978b), and Van Liere and Dunlap (1981).

Studies explicitly considering the attitudes of the rural residents who are farmers have become increasingly important in this literature; indeed, considerable evidence suggests that the mixed results may relate in part to the varying significance of "farmers" in the rural samples. In their early surveys of farmers and city dwellers, Salcedo et al. (1971) found little direct relationship between rural-urban residence and pesticide use, but they also found that Illinois farmers were more favorable toward the pesticide industry than were nearby urban residents (see also Kronus and van Es, 1976:22). Buttell and Flinn (1974) explicitly conceptualized the relationship as being a two-dimensional residence-and-occupational relationship. Their study found no apparent zero-order relationship between an urban-rural variable and environmental concern, but when rural residents were separated into farm and nonfarm segments, the rural farm

group was found to be much less concerned about environmental problems than either the rural nonfarm group or the urban group. These results led Buttel and Flinn to offer the suggestion, which has been followed in only some of the studies that have been done since that time, that the rural-urban variable be dropped and that future studies focus instead on farm-nonfarm differences in levels of environmental concern.

In their comprehensive review, Tremblay and Dunlap (1978) argued that the failure of Buttel and Flinn to find significant differences between urban and rural residents may have been related in part to methodical factors, specifically including a focus on national or state-level concerns, rather than on community or local-level concerns. Their examination of the available literature led Tremblay and Dunlap to conclude that studies focusing on environmental problems at the state or national level (including the Buttel and Flinn study) tended to find minor or negligible relationships, while those focusing on local- or community-level environmental problems generally found that rural respondents reported substantially lower levels of environmental concern than did urban residents. Even so, the Marsh and Christenson (1977) report of higher support for environmental protection among the urban respondents does not clearly distinguish between farmers and "rural" residents more generally, and even Tremblay and Dunlap (1978) lend support to the Buttel and Flinn findings; the Tremblay and Dunlap data showed rural farmers to rank lowest in levels of pollution concern, followed by rural non-farmers, and then by urban residents.

Complicating the matter further, Lowe, Pinhey and Grimes (1980) reported that, while rural respondents expressed less environmental concern than urban residents, multivariate analyses showed that urbanism did not have significant independent effect on environmental priority scores; using data from the National Opinion Research Center (NORC) general social survey, Lowe and Pinhey (1982) concluded that socialization in a metropolitan environment--not current residence in a rural or urban environment--was the factor having the greatest explanatory power. The Lowe and Pinhey data show that

the independent effect of being in an agricultural family was statistically significant, while persons in other nature-exploitative occupations, such as miners and persons working in polluting industries, were found to be no less likely to support environmental protection than were those in non-exploitative occupations. In addition, persons whose fathers were in agriculture showed slightly less support for environmental protection than those whose fathers were in mining or other "polluting" industries.

These conclusions, however, have been called into question by Mohai and Twight (1986), based on a national survey sponsored by the U.S. Soil Conservation Service and conducted by Louis Harris and Associates. Unlike Lowe and his colleagues, Mohai and Twight find no statistically (or substantively) significant effects of residence during age of socialization (whether in farm, non-farm rural, urban, or metropolitan locations), but like several earlier authors, they find a significant difference associated with employment of the head of household in farm or nonfarm occupations. This study also finds no urban-rural differences once the effects of farm-nonfarm occupation (and residence) are controlled. (As Mohai and Twight point out, the effects of farm residence may differ from the effects of farm employment; a separate U.S. Department of Agriculture study found that 70% of the persons residing on farms did not list farming as their occupations, while 39% of the respondents who listed their occupations as farming did not reside on a farm--Mohai and Twight, 1986: 7. In this case, however, both farmers by residence and farmers by occupation showed significantly lower levels of environmental concern than did persons in other categories, including nonfarm rural persons.)

Mohai and Twight also differ from many of the previous authors in this literature in calling attention to the large literature on farmers' consistent endorsement of "stewardship," noting that the apparent strength of this orientation among American farmers would call into question the conclusion that the farmers have a disregard for the environment. Mohai and Twight (1986: 15) see their data as indicating that farmers have "a lack of perception of a threat" to the environment, perhaps not only because they live

in relatively unspoiled environments, but also because they see their occupation as working with nature, not "exploiting" it. Perhaps farmers' direct experiences with nature cause them to see it as resilient and adaptable, and to see human activities as contributing to natural productivity, not necessarily impairing it. Accordingly, Mohai and Twight call for drawing a distinction between the nature-manipulative occupation of farming and the other occupations that are often grouped together as nature-exploitative, such as logging and mining. The results of the Mohai and Twight analysis, in short, also indicate the need for closer attention to the differences that may exist within the overall categories of "rural" people and occupations.

Overall, the accumulated findings seem to support the suggestion first put forward by Buttel and Flinn more than a dozen years ago (1974)--that urban-rural differences in environmental concern, to the degree to which they can be said to exist at all, might more accurately be seen as farm-nonfarm differences. The picture, however, is not entirely clear; in addition, it is necessary to consider the possibility that what appear to be urban-rural differences (or farm-nonfarm differences) in environmental concern could actually prove to be due to sociodemographic or other underlying differences in the populations in question, such as differences in age or sex.

The possibility of significant sociodemographic differences is reduced somewhat by the high levels of support for environmental concern that continue to be found among the U.S. national public. Although support for environmental protection has risen and fallen to an extent over the years and is not always the first priority among the public for allocation of government funds (Dunlap and Dillman, 1976), the support levels are generally quite high. In fact, a number of national opinion polls indicate an increasing percentage of the public feels that we are spending too little for environmental protection and that our laws do not "go far enough" (Dunlap, 1985). Such evidence has led one study to conclude there is "no broad-based opposition to the idea of environmental protection" (Lowe, Pinhey, and Grimes, 1980: 41) and another to add that "environmental

consciousness has 'trickled down,' i.e. that support for environmental reforms has now diffused well below the stratification position occupied by the core environmentalists, and that there is neither a clear, nor consistent pattern of support" for the assertion that environmental concern is limited to elites (Morrison, 1986: 189).

Even so, the search for predictable patterns of support for the environment among specific social and demographic groups continues to be a major focus of the literature. In their review of studies done up to that time, Van Liere and Dunlap (1980) concluded that "age, education and political ideology are consistently (albeit moderately) associated with environmental concern, and thus we have confidence in concluding that younger, well-educated, and politically liberal persons tend to be more concerned about environmental quality than their older, less educated, and politically conservative counterparts" (p. 192). Weaker and less consistent correlations have been reported for political party identification and occupation. Democrats exhibit significantly greater concern for environmental problems than Republicans, at least among political elites and the college educated. Business, technologically dependent and nature-exploitative occupations may be negatively associated with environmental concern, although there has been little empirical testing of these occupational associations. To the extent permitted by the available data set, all of the above factors will be assessed and controlled in the analyses that follow.

In addition, a closer examination of existing literature suggests there may be a need to devote closer attention to three concerns in the measurement of occupational status that have sometimes not been considered explicitly in past work--the potential for confounding "nature-exploitative" occupations with exposure to degraded environments, the need to consider "growth machine" occupations, and the potential for differences between farming and ranching, which are in many ways dissimilar occupations even if both are "agricultural." We will discuss each of these three considerations briefly before moving on to a discussion of the findings.

Nature-exploitative occupations and exposure to degraded physical environments.

Lower levels of exposure to environmental degradation and a higher tendency to depend economically on the direct extraction of environmental resources were the two primary reasons identified by Tremblay and Dunlap (1978) for expecting rural residents to have lower levels of environmental concern than urban residents. It may not be necessary to disentangle the effects of these two factors when one is examining overall urban-rural differences in orientations, but if one is attempting to compare different categories of nature-extractive occupations, it obviously becomes necessary to distinguish between the effects of polluting employment and the effects of living in environments that are more or less polluted. It is all too plausible, unfortunately, that a substantial portion of the persons working in agriculture could be living in areas that are predominantly agricultural and relatively "unspoiled," while substantial portions of those working in mining, oil development, etc., would live in areas that are more heavily industrialized and more heavily altered by the effects of the very industries that provide employment to the workers being interviewed. In a national or even a statewide survey, therefore, it can be difficult if not impossible to determine whether any differences in attitudes between persons working in agriculture and those working in other nature-extractive occupations would be due to their occupations or to their environmental settings.

This difficulty is overcome by use of the present data set. As a number of previous authors have pointed out (e.g. Mohai and Twight, 1986; Tremblay and Dunlap, 1978), one of the occupations most clearly representing not only a direct use but also a depletion of nature would be mining. The coal being developed in these study communities within the past decade has been known to exist for the better part of a century, and each of the study communities has been surrounded by ongoing coal mining activities nearby for most of that extended time period. This makes possible a direct comparison between persons in what Mohai and Twight call nature-extractive and nature-manipulative occupations, doing so where the persons in both sets of occupations work

in the same communities and live in the same environmental settings. Indeed, direct firsthand fieldwork in the study communities (see [identifying reference]) indicates that the agricultural and the mining workers in these study communities had generally similar recreational and even cultural patterns, and in a number of cases the miners themselves were the offspring or the siblings of persons who were still working in agriculture in the same communities. A number of the miners also indicated that one of the reasons for seeking employment in mining is that it allowed them to continue enjoying the environmental amenities of the area. The analyses below, accordingly, will separate out the responses of persons in households headed by persons employed in coal mining.

Growth-Machine Orientation. As Murdock and Schriener (1977) noted, another of the reasons for expecting rural residents to express lower levels of environmental concern may be that relatively weak economies may cause them to emphasize economic development even at the expense of environmental protection. On the other hand, as Molotch's discussion of the growth machine concept (1976) notes that not all residents of a community would normally be expected to adhere to the same degree to a pro-growth orientation. In particular, persons who are directly involved in local businesses, and who therefore stand to have significantly more to gain than most from the presence of additional customers in a community might be expected to be some of the most vocal proponents of the growth machine orientation. Again here, one of the advantages of a locally focused data set is that it allows us to focus on the relatively specific subset of the population potentially having the most to gain from development. In the analyses below, accordingly, we will also focus on responses from households headed by persons employed in a growth-related business or technical profession such as engineering.

Farming and Ranching. These communities contained a number of households engaged not only in farming (defined here simply as the raising of crops, ranging from apples to wheat) but also a number engaged in ranching (defined here, as by the persons involved, as the raising of livestock, principally cattle and sheep). As Gold

(1974), in particular, has pointed out, the ranchers in western U.S. communities faced by energy development may have been more negatively affected by such developments than other community residents, and thus might be expected to have more negative attitudes toward such development (see also Freudenburg, 1979, 1982). Partly because some of the common complaints relate specifically to ranching rather than farming (e.g., the difficulties created when new residents of an area leave gates open, allowing livestock to scatter over an area that literally covers many square miles), partly because ranching may involve less "manipulation" of the physical environment than does farming (the animals themselves do most of the "manipulating" when they graze), and partly because most of the literature to date appears to have focused on what we are here calling "farming" rather than "ranching," our analyses below will also present the results for ranchers separately from those for farmers.

DATA

As noted above, the data for this paper come from a study of four communities in western Colorado that were all facing the prospect of large-scale development of coal and other fossil-fuel energy resources. In three of the communities, relatively little development had taken place at the time when the study's survey was performed, and the dramatic decline in energy prices during the 1980s has meant that the prospects for such development seem to have declined significantly today, although the issue was a very lively one at the time of the survey. In the fourth community, the issue of energy development was even more pronounced, because significant energy-related growth was already beginning to take place at the time of the survey, although this fourth community has since suffered a substantial decline in population and economic vitality as the "bust" in energy development has been experienced firsthand. All four communities were distinctly nonmetropolitan, having populations between one and seven thousand persons even when persons living in the surrounding countryside were included; all were well-

removed from interstate highways, and all were well over a hundred miles away from the nearest metropolitan area. Given the significant growth that was already taking place in one of these communities, however, we will include a dummy (0-1) variable for "boomtown residence" in each of the analyses to be summarized below. In all four communities, interviewers covered a significant range of truly rural territory (generally extending roughly half the distance to the next community in any direction, up to a limit of twenty miles, thus including farmers and ranchers in the sample in numbers that, while smaller than ideal, still permit statistical analysis.²

Our analysis has proceeded in several stages. First, we have examined the questionnaire from the original study to identify the items having the greatest face validity as indicators of environmental concern, paying particular attention to the advantages provided by a data set that focuses closely on a set of specific rural localities. Second, we subjected these items to a series of factor analyses, which identified four subsets of items that grouped together consistently, even when different methods were used for identifying and rotating the factors. Next, the factor score coefficients from these factor analyses were used to construct a set of four scales that have been subjected to further, multivariate analysis. The following discussion will describe each of these three steps in greater detail.

Selection of Controls and Dependent Variable Items

The use of a data set that is more focused in its locality and rurality than in most previous analyses also makes possible the use of a more focused and fine-grained analysis in terms of occupational groups, thus permitting a closer examination of some of the underlying conceptual issues. Given that the occupation of a head of household could be expected to exert a significant influence over the orientations toward environmental protection and/or the regulation of technology of other adults in the household,

we will follow the practice of Tremblay and Dunlap (1978) and others of categorizing respondents in terms of the occupation of the household head.

The selection of items to form the dependent variable of "environmental concern" entails a good deal more complexity. One of the first difficulties, as already noted, is that concern over environmental issues and support for environmental protection are both so widespread, at least in the contemporary United States, that scales will tend to show virtually all respondents as having "high" levels of environmental concern/support. Another problem is that the situation calls for close attention to the task of operationalization, but that past research efforts have approached the operationalization of "environmental concern" in a number of different ways.

Perhaps the approach that is most straightforward, at least on the surface, is to ask people how worried or upset they are about a series of environmental problems, whether on the local or national level (see e.g. Constantine and Hanf, 1972; McEvoy, 1972; Dunlap et al., 1974; Milbraith, 1975). Other approaches strive for greater concreteness and specificity by asking respondents to weigh tradeoffs, sometimes implicitly, e.g. by asking whether the country ought to spend more or less money on environmental protection (Dillman and Christenson, 1972; Erskine, 1974; Dunlap and Dillman, 1976; Lowe et al., 1980; Mohai and Twight, 1986), and at other times asking for explicit tradeoffs of environmental protection against increased employment or industrial development (Sharma et al., 1975; Marsh and Christenson, 1977; Buttel and Flinn, 1976a; Mohai and Twight, 1986). Still other authors have taken the opposite approach, measuring agreement with items that are more abstract rather than more concrete, such as the belief that "Mankind was created to rule over the rest of nature," or that "The earth is like a spaceship with only limited room and resources" (Dunlap and Van Liere, 1978: 13).

To some extent, this multiplicity of approaches may reflect the inherent difficulty of attempting to measure a variable that is intended, in the words of Van Liere and Dunlap (1981:668), to represent "a fairly broad concept." As Neiman and Loveridge

(1981:761) have pointed out, however, the broad or global nature of the variable can create problems in "assessing the correlates of support for environmental protection when it is measured at a very abstract, hypothetical level rather than in the context of specific real proposals affecting those people being studied." The present paper's approach, because its community-specific approach allows it to focus on the very kinds of "specific real proposals" advocated by Neiman and Loveridge, should be less subject to such problems than the more "abstract, hypothetical" approach.

On the other hand, one of the apparent reasons for taking the more abstract approach, as Van Liere and Dunlap (1981) have noted, is that as we become more sophisticated in our ability both to create and to detect environmental pollution, "new" issues rise to awareness, and many of them need to be added to the more specific environmental concern scales if those scales are to measure the concerns that are salient at the time of the survey. This continues to be true. One or two decades ago, a "typical" scale might have focused exclusively on air and water pollution; current scales would be more likely to include ground water contamination, toxics in the workplace, the disposal of radioactive wastes, the creation of genetically engineered organisms, the loss of genetic variability through the destruction of tropical rain forests, and so forth.

In short, there appears to be no one "best" way to measure environmental concern, and neither does it appear likely that the field is on the verge of developing any such definitive index. The absence of a "preferred" approach, however, clearly does not make it advisable for researchers to take a casual or lax approach to the operationalization of the concept. While it may be that "environmental concern" is sufficiently broad to be measured successfully in a variety of ways, it may also be that one approach to operationalization will lead to different results than will another. It is definitely the case that researchers on given study need to be both clear and explicit in describing their scale(s) and methods if other researchers are to be able to replicate their findings--making it possible for the field as a whole to move forward in a cumulative fashion.

The questionnaire from the present study is sufficiently extensive that it is possible to find items paralleling those used in many, if not most, of the previously published studies. Rather than simply selecting any one such approach as being somehow superior to the others, however, we have decided instead to start with all of the items having face validity as measures of environmental concern under one or more of the approaches employed in previous studies, subjecting these items to a series of factor analyses and using for our further analysis only the most robust of the scales so identified. The specifics of this approach will be spelled out in greater detail in the following section.

The Factor Analyses

We began with a set of 40 items having the desired face validity; these items were subjected to a set of roughly 200 factor analyses, using a variety of rotation, factoring and weighting techniques. Over the course of our analyses, we consistently found a set of four factors to emerge, and with the deletion of the items having the lowest loadings on these four factors, the results became even clearer and more directly interpretable.

For our final analysis, generating the scales to be analyzed in the present paper, we selected a four-factor solution generated by the use of principal component analysis and equamax rotation, where all four factors have Eigenvalues over 1.0, all are clearly interpretable, all variables have factor loadings above .50, and only four of the 22 variables have loadings of .30 or greater on the factors on which they are not included (with none of these non-included loadings being as high as .40). The greatest weakness of the scales so identified is that nonresponses to certain items lead to a significant number of missing cases for some of the scales, a problem to which we will respond by reporting two sets of analyses below, one with the missing cases excluded from the analysis, and the other with the missing cases recoded to the means of the specific items involved. The final set of rotated factor loadings is reported in Table 1.

TABLE 1 ABOUT HERE

The full sets of items for the factor-analyzed scales are reported in the appendix, but briefly, the four factors can be described as follows. The first factor consists of items measuring respondents' orientations toward the energy developments already occurring in their communities; an example would be provided by agreement with the item, "If significant development takes place, the people around here will benefit (for example, from increased employment and an expanded tax base) more than suffer (from damage to the environment or our way of life)." The second set of items all measure levels of distrust toward the industries and companies actually carrying out the development. Examples include "The coal companies have no compassion for our land, air, and water quality; all they will do is what's required by law," and "There is a lot of effort going on by coal, power, and construction companies, to try to bluff, coerce, and even intimidate local residents into doing their bidding" (Jobes and Parsons, 1975).

The third set of items, by contrast, appears to reflect a general distaste for regulation of industrial and economic activity. Examples include, "None of us has the right to interfere with the Nation's need for western coal," or "One person's right to a clean environment is not as important as another's right to gainful employment." The fourth and final set of items measures attitudes toward zoning and land-use planning. This scale includes items measuring the respondent's own orientation and the perceived orientations of "most of the people around here" toward zoning, plus an agree/disagree item holding that "A person who owns land ought to be able to do what he pleases with it."

All four of the scales were found to have good reliability, as measured by the coefficient alpha. With missing data removed from the analyses, the four scales had alphas of .759, .748, .685, and .621, respectively. With the missing data recoded to the means of each of the items involved, the alphas were comparable in magnitude, at the values of .713, .738, .679 and .607, respectively.

As noted above, these scales contain a number of items having similarity to those employed in prior scales. Perhaps the approach from previous work that is least well

represented in the resultant four scales is the approach recommended to the authors by Riley Dunlap (1987) in a personal communication. As Dr. Dunlap noted, each of the four scales represents one aspect or another of the respondent's orientation toward the environmental and developmental issues that were most salient in the area at the time of the survey. He suggests that, perhaps partly as a consequence of this focus, none of the four scales could be said to represent "overall" environmentalism or environmental concern. On the other hand, we have also considered carefully the arguments of others, such as the the Neiman and Loveridge (1981: 761) admonition on the need to focus on "specific, real proposals affecting those people being studied." Overall, and particularly given our earlier discussion of the need for greater specificity in operationalizing "environmental concern," we see the specificity of our scale items as offering more of an advantage than a disadvantage.³ The larger issue, as we and others have noted, may be that very breadth of the "environmental concern" concept may have limited cumulative advancement in this area to date; at a minimum, the concept is so broad that it has at least the potential of including several relatively distinct factors, rather than being "one thing." In the words of Van Liere and Dunlap (1981: 670), "further research is needed to establish clearly the 'boundaries' of the concept of environmental concern." Extensive factor analyses of items that have been designed around the specific environmental and developmental concerns of given communities would surely qualify as being among the research that is required.

In an effort to respond more directly to Dr. Dunlap's concerns, however, the following section of this paper will present the results of analyses that include not only the four scales just described, but also the one item in the questionnaire taking the most straightforward approach to measuring environmental concern. This item, following the format of Andrews and Withey (1976), asks respondents to indicate on a 1-7 scale (where 1 = "terrible" and 7 = "delighted), "How do you feel about the condition of the local natural environment--the air, land, and water in this area?" This item, while

included in the majority of the 200 factor analyses summarized above, failed consistently to load with other items. This fact that may be taken to indicate either that the more specific scales measure constructs that differ at least somewhat from "overall" environmental concern or that previous authors have been wise in urging caution in interpreting "overall" concern and in stressing a more careful analysis of the various components that make up the overall concept. The empirical reason for the failure of this item to load with any of the other scales, incidentally, was quickly revealed by an examination of the correlation matrix: only one of the 22 items that emerged from the factor analysis as making up the four scales has a correlation with this additional item that exceeds .20.⁴ Nevertheless, given the importance of this approach to measuring environmental concern, in at least a subset of the existing literature, and given also the straightforward nature of this single item, the analyses below will report the results for this single item along with the results from the four scales.

Multivariate analyses of Resultant Scales.

Like previous researchers who have looked at national or statewide data sets, and also like those who have looked at other communities in the rural West (Murdock and Leistritz, 1979; Thompson and Blevins, 1983), we find high levels of overall concern for environmental quality. While respondents also express strong support for economic development, as will be noted below, there are no indications in this data set that they support economic development at the expense of environmental protection. For example, on an item asserting that "one person's right to a clean environment is not as important as another's right to gainful employment," only 21.2% agreed, while just over 60% disagreed. Other items showed similar patterns.

The primary focus of this paper, however, has to do with the effects of agricultural occupations on the levels of environmental concern. We have chosen to analyze the occupational differences by using multiple classification analysis (MCA) because it

permits the simultaneous use of categorical variables, such as occupational category and religious affiliation, along with interval-level variables such as years of residence in the community and dummy (0-1) variables such as whether or not a respondent lives in the growing community or belongs to a church, all in a regression-type format. Because the MCA feature in the SPSS-X program available to us allows for only a limited number of variables to be included in each analysis, the tables that follow will provide information on a varying set of independent or explanatory variables. We have analyzed each of the dependent variables using the full set of explanatory variables, although this has required additional computer runs in each case; for the tables that follow, we have then chosen the subset of variables having the greatest effects. As will be seen, the "greatest" effects are relative; in most cases, only a minority of the explanatory variables achieve statistical significance. Even so, we will report as many of the "greatest" effects as allowed in each case, given the number of occasions on which colleagues reading earlier drafts of this paper have expressed an interest in seeing statistical controls for the effects of many of the variables involved.⁵

A word about missing data is also in order. As noted above, this was a drop-off, pick-up questionnaire, meaning that the respondents themselves filled it out. Not surprisingly, there were a number of items that some respondents did not fill out, often presumably because they felt the question did not apply to them or because they were unsure of the answer. The highest levels of nonresponse, by far, were found on the item measuring religious denomination, which was left blank by 216 of the 595 respondents; over 80 respondents failed to provide responses on their fathers' and/or mothers' levels of education. Clearly, such a large number of missing cases could provide significant problems for an analysis that includes these specific items, as our analyses do. On the other hand, except for the large number of missing cases for religious denomination, the pattern of missing data appears to be reasonably random, with minor exceptions that will be noted below, meaning that the cases having missing data on one or

more items generally should have little effect other than to lower the proportion of variance explained so long as the missing data are recoded in a way that does not distort the overall patterns. To provide readers with the highest reasonable level of relevant data, accordingly, each of the next five tables will be presented in two forms--once with listwise deletion of missing data, and the other with the missing-data cases included, but with the missing data recoded to means (for interval-level data) or to a special "missing/other" category for categorical data. As will be seen, the changes in Ns (and sometimes in the proportion of variance explained) are significant, but the changes in coefficients and interpretations generally are not.

Turning first to our simplest measure of "environmental concern"--the single item asking for the respondent's feelings about the current condition of the local environment--Table 2 shows that the effects of occupation are not what would be expected on the basis of prior literature. This and the next four tables will all be presented in the same format, with the left half of the table showing results when missing values are recoded to means and the right half showing results when missing values are omitted from the analysis. On both sides of each table, the sample or "grand" mean is presented at the upper-left corner; the top half of the table shows two columns of "effects" for categorical variables, both expressed in terms of deviation from this mean, with the first column representing zero-order effects and the second showing effects after controlling for all other variables noted; regression coefficients for continuous and dummy variables are presented at the bottom. If we confine ourselves to the first column of effects on either side of the table, which are comparable to simple or "no-controls" correlations in a regression analysis, we see that ranchers do appear to feel slightly better about the condition of the environment, indicating a lower level of "concern," but farmers feel worse, thus expressing greater concern. But when we turn to the second column, showing the effects of occupation after controlling statistically for all the other variables in the table, we see that even this weak "support" for the expected finding

(i.e., that at least some agriculturalists will have low levels of concern about local environmental conditions) is not sustained. After other factors are controlled, farmers clearly feel worse about the condition of the local environment than any other occupational group, while persons in businesses/professions and in coal mining, who might be expected to have more to gain financially from further development, feel better; ranchers and persons in the "other" category are roughly at the group mean. The overall effect of occupation is clearly significant in the analysis that excludes missing cases ($p < .02$) but achieves only a substandard level of statistical significance ($p < .20$) the analysis that includes the recoded missing values. Religious denomination is marginally significant in both analyses summarized in Table 2, although the large number of missing cases on this variable means that the two sides of the table suggest slightly different conclusions for some denominations. Residence in the boomtown and higher levels of income were both associated with significantly lower levels of perceived environmental quality. Overall, the analysis that excludes missing cases explains 26.6% of the variance, while the analysis that includes the recoded missing cases explains a lower 14.4% of the variance.

TABLE 2 ABOUT HERE

As noted above, our own judgment is that the four factor-analyzed scales are deserving of greater confidence than this individual item. Each of the four scales, however, also fails to show the expected occupational effects; in no case do the farmers or ranchers show significantly lower levels of concern than the community mean; in fact, both the farmers and the ranchers show higher-than-average levels of environmental concern on three of the four scales--and these results hold whether missing cases are recoded to means or excluded from the analysis. In the case of the scale showing support for local development (Table 3), both farmers and ranchers show levels of support that are lower than the mean, once other variables are controlled, with the overall effects of occupation being clearly significant statistically, whether missing data

are excluded or recoded to the means. Indeed, farmers show the lowest level of support for any occupational group, whatever the fate of cases involving missing data, while ranchers show the second-lowest level of support in the analysis including missing data and narrowly miss the second-lowest status in the analysis excluding cases that have missing data. Most other variables had only insignificant effects, although persons whose mothers had high levels of education and who were judged by interviewers to have high levels of cognitive capacity expressed significantly lower levels of support for local development, as did persons living in the boomtown (in the analysis that excludes missing data) and those in lower age brackets (in the analysis including missing values recoded to the means). The findings with respect to religious denomination again depend on whether the numerous missing cases on this variable are excluded from the analysis or recoded to the means; the overall analyses explain 12.0% and 28.0% of the variance, respectively, when missing values are recoded or excluded from consideration.⁶

TABLE 3 ABOUT HERE

Table 4 also fails to show low levels of environmental concern among persons in agriculture. Both farmers and ranchers show higher-than-average levels of distrust of industry, with the effect of occupational category again being statistically significant whether the missing values are recoded to means or excluded from the analysis. Again in this table, farmers express the highest levels of distrust of industry, whether missing data are recoded or excluded from the analysis, while ranchers show the second-highest levels in the analysis that recodes missing data and come in a close third in the analysis that excludes missing data. The effect of occupational category is clearly significant in both analyses. Self-identified Republicans and older persons show lower levels of distrust of industry in the analysis that includes recoded missing values, although both effects fall short of statistical significance in the analysis that excludes the missing values from the analysis. Persons identifying urban areas as the places they had lived that they had "enjoyed the most" show the greatest levels of mistrust of in-

dustry while those who had most enjoyed small towns show the lowest levels on that item, although this variable achieves statistical significance only for the analysis that excludes the missing data. The two MCAs explain 12.3% and 18.5% of the variance, respectively, in the analyses that recode and exclude the missing data.

TABLE 4 ABOUT HERE

Table 5 shows that both ranchers and farmers express lower levels of opposition to governmental regulations for environmental protection than do other community residents, with the effects of occupational category being statistically significant in the analysis that includes recoded missing values ($p < .02$), but not in the analysis that excludes all missing values from consideration. The agriculturalists rank first and second in expressing low levels of opposition in both analyses, although their rankings with respect to each other are switched between the two. The table shows higher levels of opposition to governmental regulations among persons who report Republican party affiliation, are older, have lower levels of education, and have fathers who were high school graduates (and trade-school graduates, in the case of the analysis that excludes missing values). The MCAs explain 24.1% and 20.8% of the variance, respectively, when missing data are recoded to means or dropped from the analysis.

TABLE 5 ABOUT HERE

It is only when we turn to the fourth and final scale, which measures attitudes toward local planning and zoning, that we see something like support for the expectation that farmers and ranchers will be low in environmental concern. As can be seen from Table 6, this scale indicates there may be low levels of support for planning and zoning among ranchers, but not farmers, when missing data are excluded from the analysis--but the effect is clearly nonsignificant ($p > .9$). If missing data are recoded to means, and if we accept a substandard level of statistical significance ($p \cong .10$, with a sample size of 595), we begin to approach a significant finding in the "expected" direction, with ranchers and farmers expressing a level of support for planning and zoning that is

slightly lower than the community mean. Persons judged by interviewers to have higher levels of cognitive capacity and lower levels of interest and helpfulness toward the survey show higher levels of support for planning and zoning; the two MCAs explain 9.1% and 15.3% of the variance, respectively, across the two analyses.

TABLE 6 ABOUT HERE

DISCUSSION

Although the magnitudes and the levels of significance vary across tables, the farmers and ranchers in this sample generally do not express lower levels of environmental concern than the other persons in the same communities. Indeed, if we set aside for the moment the issue of planning and zoning, the agriculturalists in this sample would need to be seen as more concerned about environmental protection than persons in any other occupational category. Tables 2 - 5 can be seen as providing eight "tests" of environmental concern--four measures of concern, with two ways of dealing with missing data in each table. The two groups of agriculturalists rank first and second in four of the eight tests, ranking first and third in the other four--and in each of the other four tests, the ranchers miss a second-place ranking by less than three-tenths of a point. In all eight of these tests, the lowest levels of environmental concern are found instead among persons in coal mining and in growth-related business/professional occupations, as would be expected from a "growth machine" perspective (Molotch, 1976; Logan and Molotch, 1987).

The results of our analysis thus support the Mohai-Twight argument that farmers are not anti-environmental in their orientation, as well as supporting the Tremblay-Dunlap argument that there is a need to include a focus on local as well as more generic environmental concerns. In all other respects, however, the results of this more fine-grained analysis run counter to, rather than extending, the existing literature on levels of environmental concern among persons in agriculture. When the farmers and

the ranchers in this sample are compared with other rural residents from the same communities--thus providing a degree of statistical "control" for residence that is far greater than has appeared in this literature to date--these persons employed in agriculture actually prove to be more concerned about environmental protection, in general, than do the other residents of the same communities. The one possible exception appears to concern attitudes toward land-use planning and zoning.

A likely reason for this potential exception is suggested by qualitative interviews with area residents (summarized in [identifying reference]). The persons engaged in agriculture in these study communities were sometimes in tight financial situations, and some of them considered it vital for their survival that they maintain the ability to sell their land for the higher prices that residential development could bring. Given that "zoning," in these communities, often referred specifically to the zoning of rural areas with the intention of "preserving agricultural land," it is easy to understand how persons who were in agriculture could value environmental preservation in general, but still express at least some opposition to the idea of land-use constraints that might prevent them from obtaining high prices from the sale of their land. Previous literature (e.g. Nellis, 1980; Bultena et al., 1982) lends additional credibility to this interpretation.

Given that the clear preponderance of our findings is so directly contradictory to what would have been expected on the basis of prior literature, and given as well the modest size of the sample, there is a need to ask whether this particular group of farmers and ranchers might be highly unusual. Few direct tests of this possibility are available to us, but it is possible to examine at least the political orientation of the agriculturalists in this sample.

As noted above, previous studies in the U.S. have tended to identify political orientation as one significant correlate of environmental concern, with Republicans tending to express lower levels of concern than Democrats. This tendency appears to hold both among Congressional personnel (Dunlap and Gale, 1974; Dunlap and Allen,

1976) and among members of the general public (Dunlap, 1975; Mitchell, 1979; Tognacci et al., 1972), although Buttel and his colleagues have reported less clear-cut findings (Buttel, 1975; Buttel and Flinn, 1976b; Buttel and Johnson, 1977). While the primary focus of this article is on the effects of agricultural occupation rather than on the effect of political affiliation, a re-examination of Tables 2 - 6 suggests an intriguing line of potential explanation for the differences among prior findings, particularly when one recalls our earlier discussion on the importance of careful operationalization of the "environmental concern" concept. On the single item summarized in Table 2 and on two of the four scales summarized in Tables 3 - 6, self-identified Republicans in this sample sometimes but not always showed lower levels of environmental concern than did self-identified Democrats. Differences were found on the scales measuring mistrust of industry and opposition to governmental regulation--issues on which the two major parties may be more likely to differ than in the case of the remaining two scales, which measure support for local development and for planning and zoning.

To examine the question of whether the agriculturalists in this sample might somehow possess unusually pro-environmental values, it is instructive to consider the findings in Table 7. Independent of the fact that the MCAs reported above all controlled statistically for the effects of party affiliation, political orientation does not appear to provide an explanation for the unexpected findings in this study. As can be seen, the farmers and ranchers in this sample actually are somewhat "more Republican" than the persons who make up the remainder of the sample--and the overall sample, like the communities from which it is drawn, leans more heavily themselves in the Republican direction than did the nation as a whole at the time of this survey.

TABLE 7 ABOUT HERE

Despite the straightforward finding that the farmers and ranchers in this sample were neither "more Democratic" nor "more independent" than the other persons in this rural sample, the study's findings still clearly need to be interpreted with caution. As

noted above, the data come from a single set of communities that were facing generally comparable scenarios for environmental change. Different places and times might have presented issues and concerns that would lead to different distributions of findings. In particular, we have been able to identify two factors that might have had some degree of influence upon our findings. First, development in at least the "boomtown" of the current sample was associated with certain levels of social disruption (see [identifying references]) and even persons in the comparison communities may have become sensitized to concerns about large-scale energy development from the discussions of boomtown problems that were beginning to appear in the regional media at the time when this study's survey data were being collected. It is not clear how or why the potential for boomtown disruptions might have affected agriculturalists more than persons in other occupations, but the possibility cannot be ruled out by using this data set alone. Second, at least some literature suggests that large-scale energy development of the sort being considered in the present communities may have the potential to lead to changes in the cultural status of agriculturalists, who might lose at least some of the recognition they had previously enjoyed by providing a key economic base in their communities (Gold, 1974; Freudenburg, 1979).

It also appears, however, that it is appropriate to add emphasis to the observation of Mohai and Twight (1986) that farmers may indeed have a significant level of concern for the environment. At least in this locality-focused sample, in fact, it has proved to be impossible to attribute the "low" levels of environmental concern among rural residents in some previous studies to the markedly low levels of concern among farmers. After controlling for location and operationalizing "environmental concern" in a way that focuses on issues that were indeed of local concern, the present study has found farmers to have levels of concern over environmental issues and of support for environmental regulation that are consistently among the highest, not the lowest, of those for

any occupational groups in the communities involved. This finding holds across several differing measures of environmental concern.

At the same time, it is also important to maintain a certain level of skepticism about farmers' (or any other groups') propensity to express abstract support for "stewardship" or other environmental principles, particularly if actual behaviors fail to reflect similar levels of support for such principles in more concrete form. Research on the relationship between attitudes and behaviors indicates that correlations tend to be lower in cases where the attitudes considered are broad ones but the behaviors of interest are more specific (Ajzen and Fishbein, 1977; Heberlein and Black, 1976); it appears likely that the same logic would tend to hold when examining the stated attitudes of specific groups, be they farmers or corporations. Indeed, given the consistently high levels of support for environmental protection that continue to be found among the public at large (Dunlap, 1985), it would appear that even those who are creating significant levels of pollution--or perhaps especially such actors--would find it in their interest to project a public image of concern for the environment even in cases where their actual behaviors suggested little such concern.⁷ Similarly, policymakers whose pragmatic actions tend to be damaging to the environment might find it to be helpful in defusing potential opposition if they were to proclaim themselves publicly as "environmentalists," particularly if they were able to offer at least some examples of their environmental concern that were high in symbolic value without imposing significant constraints on the economic interests that are of particular concern to the policymakers. (One current example is provided by elected officials from timber-producing regions who have taken a lead role in drawing attention to the problems of deforestation in the Amazon basin.) Expressions of support for "stewardship," in short, may or may not reflect the kind of concern for the environment that will translate into specific environmentally helpful behaviors--just as "abstract, hypothetical" statements of environmental concern may

sometimes offer lower discriminatory power than a focus on "specific real proposals" (Neiman and Loveridge, 1981:761).

Overall, it appears that future studies of environmental concern will need to devote continued attention to methodological factors. In particular, when one attempts to operationalize a concept as complex as "environmental concern," either a broad and global approach or one that focuses on the specific issues of local salience is likely to involve a mixture of advantages and disadvantages. For understanding the differences between persons in agriculture and other persons in rural areas, we have argued, it may be preferable to focus on relatively specific and explicitly local concerns. In the case of national samples, a more global measure may still prove to be superior. In either instance, however, we need to measure environmental concern in a way that is appropriately inclusive yet at the same time appropriately precise. In short, methods do matter; in the words of Van Liere and Dunlap (1981), apparently "it does make a difference" how we measure the construct.

FOOTNOTES

2. Survey data were obtained by means of a drop-off, pick-up technique; the sample included the random selection of adults from within a probability sample of households in each of the four communities. In each community, interviewers gathered a small amount of background information while dropping off questionnaires at households that were selected for inclusion in the survey. An adult from within the household was then chosen by means of a random number table to complete the longer questionnaire, which the interviewer returned later to retrieve. The total sample size, including 597 usable questionnaires, reflects a response rate of approximately 81%. For further details, see [identifying reference].

3. Our review of the existing literature has been able to identify only one publication that clearly supports Dr. Dunlap's suggestion that we maintain a clear distinction between "environmental concern" and "attitudes toward land-use planning and growth management," at least in terms of community-level analysis. Connerly's factor analysis of environmental and growth attitudes (1986) found three dimensions of growth management concerns--costs of controlling growth, support for specific growth-control techniques, and support for increased environmental protection. Connerly's resultant call for environmental protection and growth management to be treated as "two fairly distinct areas of citizen attitudes," however, appears not to be supported by most of the available literature. Both empirically and conceptually, land-use and growth controls tend to be seen as a subset of the broader range of factors that make up "environmental concern." Empirically, even the authors who have separated land-use and growth-planning concerns from other aspects of environmental concern have found the differing measures to be significantly correlated--including not only Dr. Connerly's later work with Frank (Connerly and Frank, 1986), but also Gottdiener and Neiman (1981), Dowall (1980), Geisler and Martinson (1970), and Christenson (1978: 53), who reported, "In short, persons most likely to be supportive of landuse planning had higher incomes, advanced education, urban residence, some knowledge of landuse planning, and/or a politically liberal orientation. These findings parallel the findings of past research on support for environmental preservation." At least as importantly, most of the authors who have discussed the topic appear to have conceptualized growth management as an index of environmental concern. Examples range from Carter's early observation (1973: 692) that "many people have come to regard local development as just another form of pollution," to the recent commentary from Logan and Molotch (1987: 95-96) that "Growth has obvious negative consequences for the physical environment," affecting air, water, open space, esthetic qualities, and ecological variety, "with a consequent threat to the larger ecosystem....Perhaps nowhere are the effects of environmental decline more dramatically displayed than in those places with the most rapid growth experience" (the relevance of this observation to a study of energy boomtown growth scarcely needs to be emphasized here; but see also Geersten and Beylund, 1975; Albrecht et al., 1986). Even Dr. Dunlap's own work in developing his "New Environmental Paradigm" scale (Dunlap and Van Liere, 1978) has included questions about industrial growth, with items such as "To maintain a healthy economy we will have to develop a 'steady-state' economy where industrial growth is controlled," and "There are limits to growth beyond which our industrialized society cannot expand."

On the other hand, the heavy concentration of agriculturalists' investments in land gives some plausibility to the expectation that farmers and ranchers, in particular, may have different views of land-use controls than of environmental protection more generally. The literature contains some suggestions that agriculturalists might view land-use controls with particular distaste (see e.g. Bultena et al., 1982; Nellis, 1980), and as will be seen below, the three items in our study most clearly tapping attitudes toward land-

use controls were found by our factor analysis to form a factor of their own. This scale is correlated with potential explanatory factors in a way that is broadly similar to the findings from the other three scales and from an item that approaches the issue of environmental concern in a way that appears to be more closely in line with the approach that Dr. Dunlap has advocated. The analysis will show, however, that the findings for agriculturalists on this scale will indeed differ somewhat from the findings for the other scales. In short, our approach reflects the conclusion not that growth and land-use controls should be excluded from the analysis of environmental concern, but rather that careful empirical and conceptual analysis should be used to obtain an improved understanding of the broader complex of factors that contribute to public concerns about the environment and technological development in different contexts.

4. The item, which is in the second of the four scales, is the agree-disagree item, "Industrial interests in this area are too powerful."

5. As would be expected on the basis of the literature review reported above, the full set of variables includes measures of age, education, occupation, religious persuasion, and places of previous residence, among others, along with interviewer assessments of interest/helpfulness and cognitive capacity and coder assessments of written self-expression.

6. As can be seen, this is the only one of the four scales for which the scale mean is considerably lower in one analysis (the one that excludes missing values) than the other. The difference is due to the fact that this is the scale with the largest number of cases with missing data--particularly on the open-ended items asking how the interviewee "generally [felt] about coal/energy development" (MEFOR in the appendix; 256 missing cases) and "how much development" he/she would "personally like to see in this area in the years to come" (DEWANT in the appendix, 136 missing cases). Given our concern about the potential for drawing insufficiently cautious conclusions, we reran the entire factor analysis with these items removed from the analysis. When this was done, we still encountered almost identical results from the factor analysis--identifying the same four factors, again with all Eigenvalues over 1.0 and with no ambiguous items--and the difference between the means of the two versions of the scale became insignificant, as is already the case with the other scales. On the other hand, this increase in scale value consistency was purchased at the cost of a significant decline in the reliability of the scale. The values of alpha declined from those reported in the text above (.759 and .713, respectively, for the scales removing or recoding the missing data) to the values of .533 and .521 for the "same" two scales that had the items removed from the analysis. After careful consideration, we reached the conclusion that the versions of the scales reported in Table 3 are clearly superior in all respects except for this inconsistency in magnitude--a shortcoming that can be dealt with by straightforwardly reporting both sets of results, which is the course we have followed here.

7. It is intriguing to consider the contrast provided by activities such as mining and oil drilling, which depend on the depletion of resources that are inherently non-renewable. Few such references to "stewardship" or "sustainability" are found in the statements of purpose for such industries, which tend instead to emphasize other socially approved goals, such as "independence from unreliable foreign sources," or their "contributions to the national good" that can be quantified with respect to their contributions to the Gross National Product. Alternatively, it may prove to be equally intriguing to analyze more carefully the official statements of those who speak for institutions of higher learning--and who in many cases appear to speak with something approaching passion of the significant returns to national economic vitality that can be expected to follow, through causal mechanisms that are often not made specific, from larger "investments" in the institutions of higher learning that such persons represent.

REFERENCES

- Albrecht, Don E., Gordon Bultena and Eric Hoiberg
1986 "Constituency of the Antigrowth Movement: A Comparison of the Growth Orientations of Urban Status Groups." Urban Affairs Quarterly 21(June):607-616.
- Ajzen, I., and Martin Fishbein
1977 "Attitude-Behavior Relations: A Theoretical Analysis and Review of Empirical Research." Psychological Bulletin 84: 888-918.
- Althoff, P. and W.H. Greig
1977 "Environmental Pollution: Two Views from the General Population." Environment and behavior 9:441-456.
- Andrews, Frank M. and Stephen Withey
1976 Social Indicators of Well-Being: Americans' Perceptions of Life Quality. New York: Plenum.
- Bealer, Robert C., Fern K. Willitis and William P. Kuvlesky
1973 "The Meaning of 'Rurality' in American Society: Some Implications of Alternative Definitions." Rural Sociology 38(Spring):255-266.
- Bultena, Gordon, Eric Hoiberg, Don Albrecht and Peter Nowak
1982 "Land Use Planning: A Study of Farm and City Perspectives." Journal of Soil and Water Conservation 37 (Nov.-Dec.): 341-44.
- Buttel, Frederick H.
1975 "Class Conflict, Environmental Conflict, and the Environmental Movement: The Social Bases of Mass Environmental Beliefs, 1968-1974." Unpublished Doctoral Dissertation, University of Wisconsin, Madison.
- Buttel, Frederick H. and William L. Flinn
1974 "The Structure of Support for the Environmental Movement, 1968-1970." Rural Sociology 39(Spring):56-59.
1976a "Economic Growth Versus the Environment: Survey Evidence." Social Science Quarterly 57(September):410-420.
1976b "Environmental Politics: The Structuring of Partisan and Ideological Cleavages in Mass Environmental Attitudes." Sociological Quarterly 17:477-490.
1978a "The Politics of Environmental Concern: The Impacts of Party Identification and Political Ideology on Environmental Attitudes." Environment and Behavior 10:17-36.
1978b "Social Class and Environmental Beliefs: A Reconsideration." Environment and Behavior 10:433-450.
- Buttel, Frederick H. and Donald E. Johnson
1977 "Dimensions of Environmental Concern: Factor Structure Correlates, and Implications for Research." Journal of Environmental Education 9:49-64.
- Carter, Luther J.
1973 "Land Use Law (I): Congress on the Verge of a Modest Beginning." Science 182:691-697.

- Christenson, James A.
 1978 "Individual Versus Public Rights: Implications of Support for Landuse Planning and Control." Journal of Environmental Education 9:50-57.
- Connerly, Charles E.
 1986 "Growth Management Concern: The Impact of Its Definition on Support for Local Growth Controls." Environment and Behavior 18(November):707-732.
 1986 "Predicting Support for Local Growth Controls." Social Science Quarterly 67:572-586.
- Constantini, E. and K. Hanf
 1972 "Environmental Concern and Lake Tahoe: A Study of Elite Perceptions, Backgrounds, and Attitudes." Environment and Behavior 4:209-242.
- DeGroot, Ido
 1967 "Trends in Public Attitudes Toward Air Pollution." Journal of the Air Pollution Control Association 17(October):679-81.
- Dillman, Don A. and James A. Christenson
 1972 "The Public Value for Pollution Control," Pp 237-256 in William R. Burch, Jr., Neil H. Creek, Jr., and Lee Taylor (Eds.), Social Behavior, Natural Resources and the Environment. New York: Harper and Row.
 1975 "The Public Value for Air Pollution Control: A Needed Change of Emphasis in Opinion Studies." Cornell Journal of Social Relations 10(1):73-95.
- Dillman, Don A. and Kenneth R. Tremblay, Jr.
 1977 "The Quality of Life in Rural America." Annals, AAPSS 429(January):115-129.
- Dowall, David E.
 1980 "An Examination of Population-Growth-Managing Communities." Policy Studies Journal 9(3):414-427.
- Dunlap, Riley E.
 1975 "The Impact of Political Orientation on Environmental Attitudes and Actions." Environment and Behavior 7:428-454.
 1985 "Public Opinion: Behind the Transformation." EPA Journal 11(July/August):15-17.
- Dunlap, Riley E. and M.P. Allen
 1976 "Partisan Differences on Environmental Issues: A Congressional Roll Call Analysis." Western Political Quarterly 29:384-397.
- Dunlap, Riley E. and Don A. Dillman
 1976 "Decline in Public Support for Environmental Protection: Evidence From a 1970-1974 Panel Study." Rural Sociology 41(Fall):382-390.
- Dunlap, Riley E. and Richard Gale
 1974 "Party Membership and Environmental Politics: A Legislative Roll-Call Analysis." Social Science Quarterly 55(December):670-690.

- Dunlap, Riley E., and Richard Gale and Brent M. Rutherford
 1974 "Concern for Environmental Rights Among College Students." Pp. 115-130
 in Arvin W. Murch (Ed.), Environmental Concern: Personal Attitudes and
 Behavior Toward Environmental Problems. New York: MSS Info Corp.
- Dunlap, Riley E. and Kent D. Van Liere
 1978 "The 'New Environmental Paradigm.'" Journal of Environmental Education
 9(Summer):10-19.
- Erskine, Hazel
 1974 "The Polls: Pollution and Its Costs." Pp. 345-360 in Arvin W. Murch
 (Ed.) in Environmental Concern: Personal Attitudes and Behavior Toward
 Environmental Problems. New York: HSS INF Corp.
- Fisher, Claude S.
 1972 "Urbanism as a Way of Life: A Review and an Agenda." Sociological
 Methods and Research 1(November):187-242.
 1980 "The Spread of Violent Crime from City to Countryside, 1955 to 1975."
Rural Sociology 45(Fall):416-434.
- Freudenburg, William R.
 1979 "People in the Impact Zone: The Human and Social Consequences of
 Energy Boomtown Growth in Four Western Colorado Communities."
 Unpublished Doctoral Dissertation, Yale University.
 1982 "The Impacts of Rapid Growth on the Social and Personal Well-Being of
 Local Community Residents," Pp. 7-170 in Bruce A. Weber and Robert E.
 Howell (Eds.), Coping with Rapid Growth in Rural Communities. Boulder,
 Colorado: Westview Press.
 1986 "The Density of Acquaintanceship: An Overlooked Variable in Community
 Research?" American Journal of Sociology 92(July):27-63.
- Geertsen, H. Reed and H. Bruce Bylund
 1975 "Land Use and Related Environmental Issues in Utah." Cornell Journal of
 Social Relations 10:97-109.
- Geisler, Charles C. and Oscar B. Martinson
 1976 "Local Control of Land Use: Profile of a Problem." Land Economics
 52:371-381.
- Glenn, Norval D. and Jon P. Alston
 1977 "Rural-Urban Differences in Reported Attitudes and Behavior." The
 Southwestern Social Science Quarterly 47(March):381-400.
- Gold, Raymond L.
 1974 "A Comparative Study of the Impacts of Coal Development on the Way of
 Life of People in the Coal Areas of Eastern Montana and Northeastern
 Wyoming." Denver, Colorado: Northern Great Plains Resources Program.
- Gottdiener, M. and Max Neiman
 1981 "Characteristics of Support for Local Growth Control." Urban Affairs
 Quarterly 17(September):55-73.

- Heberlein, Thomas A. and J. Stanley Black
 1976 "Attitudinal Specificity and the Prediction of Behavior in a Field Setting." Journal of Personality and Social Psychology 33: 474-479.
- Hendee, John C.
 1969 "Rural-Urban Differences in Outdoor Recreation Participation." Journal of Leisure Research 1(Autumn):333-341.
- Jobes, Patrick and Milton G. Parsons
 1975 "Satisfaction, Coal Development, and Land-Use Planning: A Report of Attitudes held by Residents of the Decker-Birney-Ashland Study Area." Helena MT: Montana Energy Advisory Council
- Koenig, Daniel J.
 1975 "Additional Research on Environmental Activism." Environment and Behavior 7(4):473-485.
- Kronus, Carol L. and J.C. Van Es
 1976 "The Practice of Environmental Quality Behavior." Journal of Environmental Education 8(Fall):392-420.
- Libby, Donald L.
 1987 "A Stratification Model for Social Impact Assessment: Assessing the Relation Between Growth Rates and the Effects of Social and Economic Status on the quality of Life." Unpublished Master's Thesis, Washington State University, Pullman, Washington.
- Logan, John R. and Harvey L. Molotch
 1987 Urban Fortunes: The Political Economy of Place. Berkeley, CA: University of California Press.
- Lovejoy, Stephen B. and Richard S. Krannich
 1982 "Rural Industrial Development and Domestic Depending Relations: Toward an Integrated Perspective." Rural Sociology 47(Fall):475-495.
- Lowe, George D. and Charles W. Peek.
 1974 "Location and Lifestyle: The Comparative Explanatory Ability of Urbanism and Rurality." Rural Sociology 39(Fall):392-420.
- Lowe, George D. and Thomas K. Pinhey
 1982 "Rural-Urban Differences in Support for Environmental Protection." Rural Sociology 47(Spring):114-128.
- Lowe, George D., Thomas K. Pinhey and Michael D. Grimes
 1980 "Public Support for Environmental Protection: New Evidence From National Surveys." Pacific Sociological Review 23(October):423-445.
- Marsh, Paul C. and James A. Christenson
 1977 "Support for Economic Growth and Environmental Protection, 1973-1975." Rural Sociology 42(Spring):101-103.

- McEvoy, James III
 1972 "The American Concern with Environment." Pp. 214-236 in William R. Burch, Jr., Neil H. Cheek, Jr. and Lee Taylor (Eds.), Social Behavior, Natural Resources, and the Environment. New York: Harper and Row.
- Milbraith, Lester W.
 1975 "Environmental Beliefs, Perceptions, and Actions." Cornell Journal of Social Relations 10(Spring):139-149.
- Mitchell, Robert Cameron
 1979 "Silent Springs/Solid Majorities." Public Opinion 55(Aug/Sept):1-20.
- Mohai, Paul and Ben W. Twight
 1986 "Rural-Urban Differences in Environmentalism Revisited: Nature Manipulative Vs. Nature Exploitative Orientations." Paper Presented at the Annual Meeting of the Rural Sociological Society, Salt Lake City, August.
- Molotch, Harvey I.
 1976 "The City as a Growth Machine: Toward a Political Economy of Place." American Journal of Sociology 82(5):309-332.
- Morrison, Denton E.
 1986 "How and Why Environmental Consciousness has Trickled Down," Pp. 187-220 in Allan Schnaiberg, Nicholas Watts and Klaus Zimmerman (Eds.), Distributional Conflicts in Environmental Resource Policy. England: Gower.
- Murdock, Steve H. and F. Larry Leistritz
 1979 Energy Development in the Western United States: Impact on Rural Areas. New York: Praeger.
- Murdock, Steve H. and Eldon Shriner
 1977 "Social and Economic Determinants of the Level of Support for Environmental Protection and Economic Growth in a Rural Population." Presented at Annual Meeting of the Rural Sociological Society, Madison, WI.
- Neiman, Max and Ronald O. Loveridge
 1981 "Environmentalism and Local Growth Control: A Probe into the Class Bias Thesis." Environmental and Behavior 13 (November):759-772.
- Nellis, Lee
 1980 "Planning with Rural Values." Journal of Soil and Water Conservation 35 (Mar.-Apr.):67-71.
- Salcedo, Rodolfo N., Hadley Read, James F. Evans and Ann C. Kong.
 1971 "Rural-Urban Perspectives of the Pesticide Industry." Rural Sociology 36(December):554-562.
- Sharma, Navin C. Joseph E. Kivlin and Frederick C. Fliegel
 1975 "Environmental Pollution: Is There Enough Public Concern to Lead to Action?" Environment and Behavior 7(4):455-471.

- Thompson, James G. and Audie L. Blevins
1983 "Attitudes Toward Energy Development in the Northern Great Plains."
48(Spring):148-158.
- Tognacci, Louis N., Russel H. Weigel, Marvin F. Wideen and David T.A. Vernon
1972 "Environmental Quality--How Universal is Public Concern? Environment and Behavior 4(March):73-86.
- Tremblay, Kenneth R., Jr., and Riley E. Dunlap
1978 "Rural-Urban Residence and Concern with Environmental Quality: A Replication and Extension." Rural Sociology 43(Fall):474-491.
- Van Es, J.C. and J.E. Brown, Jr.
1974 "The Rural-Urban Variable Once More: Some Individual Level Observations." Rural Sociology 39(Fall):373-391.
- Van Liere, Kent D. and Riley E. Dunlap
1980 "The Social Bases of Environmental Concern: A Review of Hypotheses, Explanations and Empirical Evidence." Public Opinion Quarterly 44(Summer):181-197.
1981 "Environmental Concern--Does it Make a Difference How It's Measured?" Environment and Behavior 13(November):651-676.

Table 1: RESULTS OF FACTOR ANALYSIS

	LOCAL DEVELOPMENT	FACTOR 2: DISTRUST OF CORPORATIONS	FACTOR 3: OPPOSITION TO GOVERNMENT REGULATION	FACTOR 4: SUPPORT FOR PLANNING AND ZONING
HOUSEFOR	0.76145	-0.05356	0.10841	0.00186
MEFOR	0.74560	0.08492	0.05582	0.02767
BETIOFF	0.65459	-0.36852	0.29031	-0.07479
GOODBAD	0.62172	-0.16214	0.28802	-0.09466
EBENEFTT	0.59109	-0.32807	0.11084	-0.05820
DEWANT	0.57007	-0.20162	0.20434	-0.04961
ENOTDES	-0.53162	0.37917	-0.07833	-0.07423
EQUALIMP	0.51822	-0.12404	0.07159	-0.07809
DOBIDG	-0.16547	0.70221	-0.16179	-0.04869
NOINFO	0.05245	0.68104	0.08523	-0.01069
NOCOMPAS	-0.21806	0.66207	-0.14207	-0.01224
SOCOCOSTS	-0.1592	0.63391	-0.06404	0.04466
STDSWEAK	-0.06418	0.55076	-0.21230	0.01338
IND2POWR	-0.30396	0.54798	-0.23835	-0.04548
NOINTR	0.14239	-0.10499	0.68891	-0.0035
ECONONLY	0.14467	-0.01789	0.63868	-0.12755
ENVOREMP	0.03634	-0.02852	0.63482	-0.06368
MOVEOUT	0.27585	-0.19355	0.61709	-0.11488
UNFRTELL	0.01808	-0.14165	0.58098	-0.03576
ZONINGME	-0.01594	0.01349	-0.07388	0.85349
ZONING2	-0.01667	-0.00055	0.03691	0.77570
DOASPLS	0.02884	0.04540	0.14375	-0.56052
EIGENVALUES:	5.64	1.96	1.64	1.38
RELIABILITIES (ALPHAS) OF SCALES: WITHOUT MISSING DATA	0.759	0.748	0.685	0.621
WITH MISSING DATA	0.713	0.738	0.679	0.607

Table 2: HOW DO YOU FEEL ABOUT THE LOCAL ENVIRONMENT?

Missing Values Recoded to Means						Missing Values Excluded from Analysis									
Grand Mean = 5.73						Grand Mean = 5.82									
CATEGORICAL VARIABLES	Ns:	Unadjusted (Zero-Order) Deviation From Mean	Deviation From Mean, Adjusted for Categorical Variables	Deviation, Adjusted for Categorical & Continuous Variables	F:	Significance of F:	CATEGORICAL VARIABLES	Ns:	Unadjusted (Zero-Order) Deviation From Mean	Deviation From Mean, Adjusted for Categorical Variables	Deviation, Adjusted for Categorical & Continuous Variables	F:	Significance of F:		
OCCUPATION						1.677	0.154	OCCUPATION						3.152	0.015
(Head of Household)								(Head of Household)							
Farming	21	-0.15	-0.10	-0.34			Farming	10	-0.82	-0.69	-1.01				
Ranching	60	0.27	0.20	0.05			Ranching	24	0.51	0.34	-0.04				
Business/Professional	85	0.01	-0.01	0.14			Business/Professional	41	0.06	0.08	0.33				
Coal Mining	60	0.28	0.31	0.30			Coal Mining	14	0.75	0.82	0.67				
Other	369	-0.08	-0.08	-0.07			Other	147	-0.11	-0.11	-0.08				
RELIGIOUS DENOMINATION						2.325	0.032	RELIGIOUS DENOMINATION						2.167	0.059
None/Agnostic/Atheistic								None/Agnostic/Atheistic							
Liberal Protestant (1)	63	-0.29	-0.25	-0.07			Liberal Protestant (1)	40	-0.5	-0.45	-0.67				
Moderate Protestant (2)	99	0.21	0.22	0.20			Liberal Protestant (2)	71	0.26	0.24	0.28				
Conserv. Protestant (3)	63	0.14	0.14	0.13			Moderate Protestant (2)	41	-0.04	-0.04	-0.07				
Catholic	50	-0.29	-0.28	-0.25			Conserv. Protestant (3)	25	-0.22	-0.11	0.02				
Mormon	64	-0.11	-0.11	-0.02			Catholic	33	-0.13	-0.15	-0.02				
Other/Unknown/Missing	40	0.44	0.42	0.39			Mormon	26	0.49	0.40	0.41				
FATHER'S EDUCATION						0.56	0.692	FATHER'S EDUCATION						0.631	0.596
Less than High School								Less than High School							
High School Graduate	267	0.07	0.07	0.10			High School Graduate	125	0.03	0.04	0.04				
Trade School	129	-0.09	-0.12	-0.12			Trade School	52	0.12	0.03	0.11				
More than High School and Trade School	20	0.07	0.09	0.18			More than High School and-Trade School	10	-0.52	-0.51	-0.47				
Other/Unknown/Missing	96	-0.07	-0.06	-0.15											
CONTINUOUS VARIABLES								CONTINUOUS VARIABLES							
		Raw Regression Coefficient			F:	Significance of F:			Raw Regression Coefficient			F:	Significance of F:		
(Republican) Party		0.113			6.361	0.012	(Republican) Party		0.084			0.955	0.330		
Boomtown Residence		-0.824			40.282	0.000	Boomtown Residence		-0.952			22.258	0.000		
Age Bracket		-0.082			1.752	0.189	Age Bracket		-0.120			1.450	0.230		
Belong to Church		-0.035			0.297	0.586	Belong to Church		-0.333			1.721	0.191		
Income Bracket		-0.063			10.883	0.001	Income Bracket		-0.087			13.248	0.000		
Other Place Most Enjoyed		0.016			9.285	0.594	Other Place Most Enjoyed		-0.098			2.000	0.159		
Respondent's Education (Interviewer Assess. of)		0.012			0.208	0.648	Respondent's Education (Interviewer Assess. of)		-0.009			0.048	0.926		
Written Self-Expression		0.038			0.142	0.706	Written Self-Expression		0.102			0.433	0.511		
Interest & Helpfulness		0.004			0.460	0.498	Interest & Helpfulness		0.007			0.355	0.458		
Cognitive Capacity		0.005			0.404	0.525	Cognitive Capacity		-0.008			0.350	0.555		
Multiple R-Squared: 0.144								Multiple R-Squared: 0.266							

Table 3: SUPPORT FOR LOCAL DEVELOPMENT

Missing Values Recoded to Means					Missing Values Excluded from Analysis								
Grand Mean = 45.14					Grand Mean = 50.87								
CATEGORICAL VARIABLES	Ns:	Unadjusted (Zero-Order) Deviation From Mean	Deviation From Mean, Adjusted for Categorical Variables	Deviation, Adjusted for Categorical & Continuous Variables	F:	Significance of F:	CATEGORICAL VARIABLES	Ns:	Unadjusted (Zero-Order) Deviation From Mean	Deviation From Mean, Adjusted for Categorical Variables	Deviation, Adjusted for Categorical & Continuous Variables	F:	Significance of F:
OCCUPATION					9.382	0.000	OCCUPATION					3.760	0.006
(Head of Household)							(Head of Household)						
Farming	21	-13.89	-12.12	-11.32			Farming	10	-15.22	-12.62	-12.72		
Ranching	60	-8.46	-8.87	-7.30			Ranching	24	3.26	-0.55	-1.91		
Business/Professional	85	3.57	4.58	5.53			Business/Professional	42	4.97	6.83	8.96		
Coal Mining	60	8.71	8.27	8.28			Coal Mining	13	10.80	13.67	8.53		
Other	369	-0.07	-0.27	-0.79			Other	147	-1.87	-2.19	-2.14		
RELIGIOUS DENOMINATION					1.122	0.348	RELIGIOUS DENOMINATION					5.433	0.000
None/Agnostic/Atheistic							None/Agnostic/Atheistic						
None/Agnostic/Atheistic	63	-5.26	-4.94	-3.26			None/Agnostic/Atheistic	40	-13.36	-12.89	-14.71		
Liberal Protestant (1)	99	0.84	2.13	1.17			Liberal Protestant (1)	70	5.57	5.47	4.37		
Moderate Protestant (2)	63	-0.94	-1.51	-1.96			Moderate Protestant (2)	42	-2.44	-3.39	-2.79		
Conserv. Protestant (3)	50	1.99	2.55	1.64			Conserv. Protestant (3)	25	6.75	8.70	9.53		
Catholic	66	1.00	0.49	1.00			Catholic	33	-2.38	-2.12	0.86		
Mormon	40	-0.63	0.27	-0.78			Mormon	26	6.03	4.90	5.11		
Other/Unknown/Missing	216	0.74	0.12	0.45			MOTHER'S EDUCATION					4.084	0.018
MOTHER'S EDUCATION					2.572	0.053	MOTHER'S EDUCATION						
Less than High School							Less than High School						
Less than High School	214	1.31	1.15	0.41			Less than High School	94	3.35	3.74	3.06		
High School Graduate	181	0.29	0.04	1.19			High School Graduate	85	1.37	0.09	0.44		
More than High School and Trade School	116	-4.92	-4.2	-3.05			More than High School and Trade School	57	-7.57	-6.30	-5.70		
Other/Unknown/Missing	84	2.85	2.78	0.62			CONTINUOUS VARIABLES						
Raw Regression Coefficient							Raw Regression Coefficient						
CONTINUOUS VARIABLES					F:	Significance of F:	CONTINUOUS VARIABLES					F:	Significance of F:
(Republican) Party		-0.507			0.545	0.461	(Republican) Party		1.500			1.074	0.301
Boontown Residence		-2.673			1.820	0.178	Boontown Residence		-15.791			20.722	0.000
Age Bracket		2.622			7.533	0.006	Age Bracket		0.58			0.514	0.736
Belong to Church		0.390			0.155	0.694	Belong to Church		-5.101			1.398	0.238
Income Bracket		0.110			0.140	0.708	Income Bracket		0.284			0.500	0.480
Other Place Most Enjoyed		0.766			2.793	0.095	Other Place Most Enjoyed		0.698			0.340	0.561
Respondent's Education (Interviewer Assess. of)		-0.116			0.083	0.773	Respondent's Education (Interviewer Assess. of)		0.281			0.146	0.703
Written Self-Expression		-0.962					Written Self-Expression		-1.822				
Interest & Helpfulness		0.037			0.392	0.531	Interest & Helpfulness		0.117			0.459	0.499
Cognitive Capacity		-0.376			0.150	0.699	Cognitive Capacity		-0.691			0.493	0.483
					8.440	0.004						9.352	0.003
Multiple R-Squared: 0.120							Multiple R-Squared: 0.280						

Table 4: MISTRUST OF INDUSTRY

Missing Values Recoded to Means					Missing Values Excluded from Analysis										
Grand Mean = 46.53					Grand Mean = 45.44										
CATEGORICAL VARIABLES	Ns:	Unadjusted (Zero-Order) Deviation From Mean	Deviation From Mean, Adjusted for Categorical Variables	Deviation, Adjusted for Categorical & Continuous Variables	F:	Significance of F:	CATEGORICAL VARIABLES	Ns:	Unadjusted (Zero-Order) Deviation From Mean	Deviation From Mean, Adjusted for Categorical Variables	Deviation, Adjusted for Categorical & Continuous Variables	F:	Significance of F:		
<u>OCCUPATION</u> (Head of Household)						6.499	0.000	<u>OCCUPATION</u> (Head of Household)						2.819	0.026
Farming	21	6.42	7.08	6.54			Farming	10	5.37	6.56	5.94				
Ranching	60	1.18	1.35	2.34			Ranching	24	-1.44	-0.38	1.10				
Business/Professional	85	-3.25	-3.96	-3.77			Business/Professional	42	-3.87	-4.84	-5.43				
Coal Mining	60	-2.43	-2.08	-3.53			Coal Mining	13	-2.58	-2.29	-3.40				
Other	369	0.58	0.63	0.69			Other	145	1.22	1.22	1.29				
<u>FATHER'S EDUCATION</u>						2.119	0.077	<u>FATHER'S EDUCATION</u>						1.482	0.220
Less than High School	267	-1.02	-1.26	-0.98			Less than High School	124	-1.08	-1.48	-0.90				
High School	129	1.01	1.39	0.97			High School	52	0.65	1.28	1.27				
Trade School	20	-1.65	-0.73	-1.57			Trade School	10	-2.42	-0.55	-1.48				
More than High School and Trade School	96	1.55	1.65	1.30			More than High School and Trade School	48	2.59	2.56	1.48				
Other/Unknown/Missing	83	0.31	0.15	0.53			Other/Unknown/Missing								
<u>OTHER PLACE LIVED</u> <u>RESPONDENT ENJOYED MOST</u>						1.315	0.256	<u>OTHER PLACE LIVED</u> <u>RESPONDENT ENJOYED MOST</u>						2.565	0.039
Lived Current Community Entire Life	114	-0.73	-0.82	-1.07			Lived Current Community Entire Life	48	-1.48	-1.38	-0.01				
Rural Area	92	0.05	-0.31	0.24			Rural Area	51	-1.06	-1.00	-0.35				
Small Town	184	-0.39	-0.29	-0.52			Small Town	89	-0.71	-0.82	-1.72				
Suburban	37	-0.75	-0.42	-0.31			Suburban	17	-0.73	-0.15	0.10				
Urban	50	3.33	3.50	3.82			Urban	29	6.91	6.65	5.86				
Other/Unknown/Missing	118	0.10	0.13	0.14											
<u>CONTINUOUS VARIABLES</u>					<u>CONTINUOUS VARIABLES</u>										
		Raw Regression Coefficient			F:	Significance of F:			Raw Regression Coefficient			F:	Significance of F:		
(Republican) Party		-1.638			19.382	0.000	(Republican) Party		-1.445			2.914	0.089		
Boontown Residence		1.002			0.896	0.345	Boontown Residence		1.734			0.723	0.396		
Years Current Residence		0.054			0.538	0.464	Years Current Residence		-0.101			2.395	0.123		
Belong to Church		0.170			0.172	0.679	Belong to Church		1.782			1.608	0.206		
Income Bracket		-0.170			1.143	0.285	Income Bracket		-0.018			0.006	0.939		
Mother's Education		0.481			0.642	0.423	Mother's Education		1.734			1.907	0.169		
Age Bracket		-1.653			10.222	0.001	Age Bracket		-1.030			0.652	0.420		
Religious Denomination (Interviewer Assess. of)		-0.158			0.614	0.434	Religious Denomination (Interviewer Assess. of)		-0.878			2.290	0.132		
Written Self-Expression		-1.477			3.197	0.074	Written Self-Expression		-1.125			0.513	0.475		
Cognitive Capacity		-0.075			1.366	0.243	Cognitive Capacity		-0.184			2.535	0.113		

Multiple R-Squared: 0.123

Multiple R-Squared: 0.185

Table 5: OPPOSITION TO GOVERNMENT REGULATION

Missing Values Recoded to Means					Missing Values Excluded from Analysis								
Grand Mean = 36.85					Grand Mean = 34.57								
CATEGORICAL VARIABLES	Ns:	Unadjusted (Zero-Order) Deviation From Mean	Deviation From Mean, Adjusted for Categorical Variables	Deviation, Adjusted for Categorical & Continuous Variables	F:	Significance of F:	CATEGORICAL VARIABLES	Ns:	Unadjusted (Zero-Order) Deviation From Mean	Deviation From Mean, Adjusted for Categorical Variables	Deviation, Adjusted for Categorical & Continuous Variables	F:	Significance of F:
OCCUPATION (Head of Household)					3.109	0.015	OCCUPATION (Head of Household)					1.354	0.188
Farming	21	-5.69	-6.23	-4.16			Farming	10	-3.58	-4.05	-0.93		
Ranching	60	-0.92	-0.58	-0.80			Ranching	25	-2.16	-3.19	-3.59		
Business/Professional	85	-2.36	-1.20	0.06			Business/Professional	42	-1.61	-1.27	0.24		
Coal Mining	60	2.03	1.60	3.73			Coal Mining	13	3.35	2.20	2.91		
Other	369	0.69	0.46	-0.25			Other	145	0.79	1.00	0.35		
FATHER'S EDUCATION					9.228	0.000	FATHER'S EDUCATION					3.509	0.016
Less than High School	267	0.69	0.74	-0.75			Less than High School	125	0.46	0.41	-0.82		
High School	129	-1.41	-1.41	0.20			High School	52	2.19	2.02	2.81		
Trade School	20	-1.84	-1.73	-0.22			Trade School	10	3.39	3.88	4.92		
More than High School and Trade School	96	-4.11	-3.87	-0.75			More than High School and Trade School	48	-4.27	-4.08	-1.92		
Other/Unknown/Missing	83	5.15	4.70	3.02			Other/Unknown/Missing						
OTHER PLACE LIVED RESPONDENT ENJOYED MOST					1.122	0.347	OTHER PLACE LIVED RESPONDENT ENJOYED MOST					0.733	0.570
Lived Current Community Entire Life	114	-0.26	-0.70	-0.59			Lived Current Community Entire Life	48	1.31	1.23	0.58		
Rural Area	92	0.78	0.96	0.40			Rural Area	52	0.63	0.33	-1.01		
Small Town	184	-0.75	-0.71	-0.56			Small Town	89	-0.37	-0.43	0.26		
Suburban	37	0.04	0.50	1.28			Suburban	17	1.75	1.97	3.11		
Urban	50	-1.98	-1.18	-0.77			Urban	29	-2.84	-2.44	-1.76		
Other/Unknown/Missing	118	1.64	1.38	1.06									
CONTINUOUS VARIABLES	Raw Regression Coefficient	F:	Significance of F:	CONTINUOUS VARIABLES	Raw Regression Coefficient	F:	Significance of F:						
(Republican) Party	0.909	6.726	0.010	(Republican) Party	1.673	5.178	0.024						
Boomtown Residence	0.346	0.122	0.727	Boomtown Residence	0.288	0.027	0.870						
Age Bracket	3.981	67.952	0.000	Age Bracket	3.241	13.43	0.000						
Belong to Church	0.103	0.071	0.790	Belong to Church	-0.638	0.269	0.605						
Income Bracket	-0.300	4.036	0.045	Income Bracket	-0.316	2.343	0.127						
Mother's Education	-1.068	3.561	0.060	Mother's Education	-0.984	0.773	0.380						
Respondent's Education	-0.644	10.098	0.002	Respondent's Education	-0.746	4.013	0.046						
Religious Denomination (Interviewer assess. of)	0.123	0.411	0.522	Religious Denomination	0.123	0.058	0.810						
Interest & Helpfulness	0.016	0.101	0.750	(Interviewer Assess. of) Interest & Helpfulness	0.089	1.082	0.299						
Cognitive Capacity	-0.078	1.379	0.241	Cognitive Capacity	-0.110	0.883	0.348						
Multiple R-Squared: 0.241				Multiple R-Squared: 0.208									

Table 6: SUPPORT FOR PLANNING & ZONING

Missing Values Recoded to Means					Missing Values Excluded From Analysis								
Grand Mean = 17.56					Grand Mean = 16.93								
CATEGORICAL VARIABLES	Ns:	Unadjusted (Zero-Order) Deviation From Mean	Deviation From Mean, Adjusted for Categorical Variables	Deviation, Adjusted for Categorical & Continuous Variables	F:	Significance of F:	CATEGORICAL VARIABLES	Ns:	Unadjusted (Zero-Order) Deviation From Mean	Deviation From Mean, Adjusted for Categorical Variables	Deviation, Adjusted for Categorical & Continuous Variables	F:	Significance of F:
<u>OCCUPATION</u>					1.948	0.101	<u>OCCUPATION</u>					0.200	0.938
(Head of Household)							(Head of Household)						
Farming	21	-1.45	-1.60	-1.85			Farming	11	0.44	1.07	0.18		
Ranching	60	-0.22	-0.59	-1.16			Ranching	25	0.70	-0.53	-1.00		
Business/Professional	85	3.35	2.68	1.40			Business/Professional	46	2.05	1.35	-0.42		
Coal Mining	60	-2.67	-1.88	-0.93			Coal Mining	14	-1.50	-0.13	2.25		
Other	369	-0.22	-0.12	0.12			Other	152	-0.63	-0.39	0.07		
<u>RELIGIOUS DENOMINATION</u>					1.937	0.073	<u>RELIGIOUS DENOMINATION</u>					1.075	0.375
None/Agnostic/Atheistic	63	0.23	0.25	0.54			None/Agnostic/Atheistic	43	-2.30	-2.63	4.41		
Liberal Protestant (1)	99	3.58	3.10	2.08			Liberal Protestant (1)	72	2.39	2.23	0.53		
Moderate Protestant (2)	63	0.94	0.53	0.45			Moderate Protestant (2)	43	0.53	0.48	-0.44		
Conserv. Protestant (3)	50	-0.93	-0.82	-1.02			Conserv. Protestant (3)	27	-3.08	-2.76	-3.53		
Catholic	64	-0.90	-0.98	-1.73			Catholic	37	-0.01	-0.03	-1.29		
Mormon	40	-0.76	-0.57	-0.52			Mormon	26	-0.49	0.29	-1.10		
Other/Unknown/Missing	216	-1.36	-1.06	-0.40									
<u>MOTHER'S EDUCATION</u>					0.616	0.605	<u>MOTHER'S EDUCATION</u>					2.433	0.090
Less than High School	214	-0.31	-0.08	0.05			Less than High School	96	-1.22	-0.99	-0.20		
High School Graduate	181	-0.07	-0.33	-0.67			High School Graduate	88	-0.96	-1.08	-1.41		
More than High School and Trade School	116	1.78	1.14	0.73			More than High School and Trade School	54	3.16	2.98	2.23		
Other/Unknown/Missing	84	-1.51	-0.67	0.31									
CONTINUOUS VARIABLES		Raw Regression Coefficient			F:	Significance of F:	CONTINUOUS VARIABLES		Raw Regression Coefficient			F:	Significance of F:
(Republican) Party		0.159			0.178	0.673	(Republican) Party		0.949			1.239	0.267
Boontown Residence		1.699			2.474	0.116	Boontown Residence		4.682			5.381	0.021
Age Bracket		0.193			0.136	0.713	Age Bracket		-0.495			0.228	0.634
Belong to Church		0.678			1.547	0.214	Belong to Church		5.954			5.534	0.020
Other Place Most Enjoyed		0.153			0.369	0.544	Other Place Most Enjoyed		-0.166			0.056	0.814
Father's Education		-0.303			0.525	0.469	Father's Education		-0.042			0.002	0.962
Respondent's Education (Interviewer Assess. of)		0.478			4.705	0.030	Respondent's Education (Interviewer Assess. of)		0.368			0.746	0.389
Written Self-Expression		0.964			1.314	0.252	Written Self-Expression		1.593			0.996	0.319
Interest & Helpfulness		-0.103			3.842	0.050	Interest & Helpfulness		-0.205			4.498	0.035
Cognitive Capacity		0.224			4.936	0.002	Cognitive Capacity		0.375			7.911	0.005
Multiple R-Squared: .0091					Multiple R-Squared: 0.153								

Table 7: Party Identification by Occupational Group
[N in brackets]

Occupation	Political Party					Total
	Strong Democrat	Democrat	Independent	Republican	Strong Republican	
Farmers (%)	4.8 [1]	28.6 [6]	28.6 [6]	33.3 [7]	4.8 [1]	3.8 [21]
Ranchers (%)	0.0 [0]	16.7 [9]	27.8 [15]	46.3 [25]	9.3 [5]	9.7 [54]
Business/ Professional (%)	4.8 [4]	23.8 [20]	33.3 [28]	33.3 [28]	4.8 [4]	15.1 [84]
Coal Mining (%)	5.2 [3]	48.3 [28]	41.4 [24]	5.2 [3]	0.0 [0]	10.4 [58]
Other (%)	4.1 [14]	34.2 [116]	31.9 [108]	25.4 [86]	4.4 [15]	61.0 [339]
Total (%)	4.0 [22]	32.2 [179]	32.6 [181]	26.8 [149]	4.5 [25]	100.0 [556]

Chi square=40.60692
D.F.=16
Significance=0.0006

- NOINFO:** Not enough information concerning coal and other developments is being made available to the public.
(5 = strongly agree; 1 = strongly disagree)
- SOCOSTS:** Too little attention is being paid to the social costs of coal development, which accompany whatever economic benefits development may bring into the region.
(5 = strongly agree; 1 = strongly disagree)
- STDSWEAK:** Governmental pollution standards are simply not strict enough to suit me.
(5 = strongly agree; 1 = strongly disagree)
- IND2POWR:** Industrial interests in this area are too powerful.
(5 = strongly agree; 1 = strongly disagree)

FACTOR 3: OPPOSITION TO GOVERNMENTAL REGULATIONS

- NOINTFR:** None of us has the right to interfere with the Nation's need for Western coal.
(5 = strongly agree; 1 = strongly disagree)
- MOVEOUT:** People who object to coal development in this area should move some place else.
(5 = strongly agree; 1 = strongly disagree)
- UNFRTELL:** Because industries have to be competitive, it is unfair to expect them to tell the public about their plans.
(5 = strongly agree; 1 = strongly disagree)
- ENVOREMP:** One person's right to a clean environment is not as important as another's right to gainful employment.
(5 = strongly agree; 1 = strongly disagree)
- ECONONLY:** Decisions about coal-related development should be made on economic grounds only; considerations need not be given to effects on life styles and values of people in this area.
(5 = strongly agree; 1 = strongly disagree)

FACTOR 4: SUPPORT FOR PLANNING AND ZONING

- ZONINGME:** How do you personally feel about zoning?
(5 = totally in favor; 1 = totally opposed)
- ZONING2:** How do most people around here feel about zoning?
(5 = totally in favor; 1 = totally opposed)
- DOASPLS:** A person who owns land ought to be able to do what he pleases with it.
(5 = strongly agree; 1 = strongly disagree)

APPENDIX: SCALE ITEMS

FACTOR 1: SUPPORT FOR LOCAL DEVELOPMENT

- HOUSEFOR:** Generally, would you say people living in your house are in favor of or against further coal/energy developments in this area, or haven't you discussed it much?
(9 = unqualified support; 1 = unqualified opposition)
- MEFOR:** How do you generally feel (about coal/energy development)?
(9 = unqualified support; 1 = unqualified opposition)
- BETTOFF:** In the long run, I'm sure that people in this area will be better off if our energy resources are developed.
(5 = strongly agree; 1 = strongly disagree)
- GOODBAD:** Is that good or bad? (refers to how much development you think will take place here in the next 3 or 4 years) Would you prefer to see more or less development than that, or about that amount?
(8 = more, as much as we can get; 1 = less, not nearly that much)
- EBENEFIT:** If significant development takes place . . . the people who live around here will benefit (for example, from increased employment and an expanded tax base) more than suffer (from damage to the environment and our way of life)
(1 = true; 0 = false)
- DEVWANT:** How much development would you, personally, like to see in this area in the years to come? (Feel free to say as much about this as you would like, even if you use more paper. But please don't take any more time on this item than you wish to take.)
(8 = more, as much as we can get; 1 = less, not nearly that much)
- ENOTDES:** If significant development takes place . . . this will no longer be a desirable place for me to live.
(1 = true; 2 = false)
- EQUALIMP:** If significant development takes place . . . the quality of my life will certainly improve.
(1 = true; 2 = false)

FACTOR 2: DISTRUST OF INDUSTRY

- DOBIDG:** There is a lot of effort going on by coal, power, and construction companies to try to buff, coerce, and even intimidate local residents into doing their bidding.
(5 = strongly agree; 1 = strongly disagree)
- NOCOMPAS:** The coal companies have no compassion for our land, air, and water quality; all they will do is what's required by law.
(5 = strongly agree; 1 = strongly disagree)