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PREVIEW

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**Environmental regulations and industrial location: Testing
the relationship between state environmental regulations and
changes in state manufacturing employment**

Aske, David Richard, Ph.D.

The University of Nebraska - Lincoln, 1992

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PREVIEW

ENVIRONMENTAL REGULATIONS AND INDUSTRIAL LOCATION:
TESTING THE RELATIONSHIP BETWEEN STATE
ENVIRONMENTAL REGULATIONS AND CHANGES IN STATE
MANUFACTURING EMPLOYMENT

by

David R. Aske

A DISSERTATION

Presented to the Faculty of
The Graduate College in the University of Nebraska
In Partial Fulfillment of Requirements
For the Degree of Doctor of Philosophy

Major: Economics

Under the Supervision of Professor F. Gregory Hayden

Lincoln, Nebraska

June, 1992

DISSERTATION TITLE

Environmental Regulations and Industrial Location: Testing the Relationship
Between State Environmental Regulations and Changes in State Manufacturing

BY

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TESTING THE RELATIONSHIP BETWEEN STATE
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David R. Aske, Ph.D.
University of Nebraska, 1992

Advisor: F. Gregory Hayden

This study examines the relationship between policies designed to protect the environment and economic growth. Examined specifically is the relationship between state environmental regulations that were in place by 1980, and changes in state manufacturing employment during the 1980s. The hypothesis is that states with more stringent environmental regulations should have been associated with a decrease or smaller increase in the percentage change in manufacturing employment than states with lax environmental regulations.

To test the hypothesis a state environmental regulatory climate index is developed. The index is based on ten variables that reflect a state's concern for environmental protection. The weighting of these variables is based on survey responses from state environmental protection offices and state economic development offices.

Two empirical techniques are used to test the

relationship between state environmental regulatory climates and changes in state manufacturing employment. First, a simple rank correlation coefficient is calculated to test the relationship within a *ceteris paribus* framework. The second empirical technique employed is regression analysis. Within the regression analysis framework, the states are divided into three and four stringency groups according to the states' index scores. The groups are represented in the regression equation by dummy variables. Other state characteristics such as wage rates, labor force unionization and taxes are also included in the regression analysis.

The results of the empirical tests suggest that there is not a tradeoff between stringent environmental regulations and manufacturing employment. Results from the regression analysis indicate that the states with the most stringent regulations were associated with a greater increase in manufacturing employment than any other group.

A possible explanation for the statistical results is that the framework for analyzing the relationship between the environment and economic activity based on "tradeoffs" is not appropriate. Perhaps a framework that emphasizes the sustainability of resources and a codevelopment process is necessary for understanding the relationship between environmental regulations and industrial location.

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Chapter I

FRAMEWORK OF ANALYSIS

. . . the principle messages of environmentalism - the reconciliation between self-seeking beliefs and actions and the necessity for some self-denial in the community interest, and the resolution of the arrogance of a man-oriented view of the world with the humility of accepting man's dependence upon the offerings of nature.¹

Introduction

The necessity of self-denial in the community interest is the essence of public policy. In no other area of public policy has the need for self-denial in the community interest been more controversial than environmental policy. The reconciliation between environmental integrity and self interest is the challenge of environmental policy. It is the inability to understand the relationship between the community interest and environmental integrity that leads to the belief that environmental policy requires tradeoffs. In

¹T O'Riordan, Environmentalism (London: Pion Limited, 1981), p. vii.

an economic system that emphasizes the use of prices to allocate resources, this belief usually takes the form of "jobs vs. the environment."

Recently the spotted owl was placed on the threatened species list. To protect the spotted owl the United States Fish and Wildlife Service proposed designating 11.6 million acres of old-growth forest in the Pacific Northwest as critical habitat. This designation would prevent the logging industry from cutting timber in the area. Logging industry sources estimate that this designation could cause up to 100,000 jobs to be lost.² For many it is difficult to see the importance of weighing the existence of one species over thousands of jobs; this may be especially difficult when the average rate of specie extinction is estimated to be between 17,000 and 50,000 per year.³

Another example of a perceived tradeoff between jobs and the environment is the conflict between policies designed to lure industry to a specific region and policies designed to protect the regional environment. An example of this conflict is the variation of state laws concerning environmental protection. In 1970, California passed the first and most comprehensive State Environmental Policy Act

²Barry Noreen, "Species Preservation: At What Cost?" The Margin, (Spring, 1992), Vol. 7, pp. 34-35.

³John C. Ryan, "Conserving Biological Diversity," in State of the World, 1992: A Worldwatch Institute Report on Progress Toward a Sustainable Society, (New York: W.W. Norton & Company, Inc., 1992), p. 9.

(SEPA).⁴ California's SEPA was modeled after the 1970 National Environmental Policy Act (NEPA). NEPA requires that all federal agencies report on any federal activity that affects the quality of the environment.⁵ California's SEPA requires that all state and private activities that affect the environment must file Environmental Impact Statements (EIS) and obtain various construction and zoning permits.⁶ The comprehensiveness of the California SEPA is seen as a reflection of the California legislature's concern for the environment. California led the way for state environmental policy and by 1982, twenty-seven states had adopted SEPA's, but none as comprehensive as California's.⁷

In February 1975, Dow Chemical company announced plans to build a \$500 million petrochemical complex thirty-five miles northeast of San Francisco.⁸ In January 1977, Dow Chemical company canceled the plans to build the complex.⁹

⁴Robert B. South, "Environmental Legislation and the Locational Process," The Geographical Review, (1986), Vol. 76, pp. 23-24.

⁵Neil Orloff and George Brooks, The National Environmental Policy Act: Cases and Material, (Washington, D.C.: The Bureau of National Affairs, Inc., 1980), pp. 12-13.

⁶South, "Environmental Legislation and the Locational Process," p. 24.

⁷Ibid.

⁸Christopher J. Duerksen, Dow vs. California: A Turning Point in the Envirobusiness Struggle, (Washington D.C.: The Conservation Foundation, 1982), p. 5.

⁹Ibid., p. 1.

According to officials at Dow, this cancellation was a direct result of the roadblocks and red tape put up by California's SEPA. Concerning the cancellation a vice president at Dow was quoted as saying: "We will not build in California or any other state with a permit procedure that's as cumbersome. We'll go where we are welcome."¹⁰ San Diego mayor Pete Wilson criticized Governor Jerry Brown stating:

Brown's stringent regulatory policies are causing business and industry to avoid location here. . . . This decision will probably cost California thousands of jobs once Dow's decision becomes common knowledge around this country and other business and industries are further discouraged from locating to our state.¹¹

Soon after Dow's announcement to cancel construction plans, Governor Brown, a leader in the development of California's progressive environmental laws, began to change his tune. Brown, partly because of California's 9.4% unemployment rate, but also in response to the Dow incident, began to court business and even wore a button stating, "California Means Business."¹²

The Dow vs. California struggle is a classic example of

¹⁰Howard A. Stafford, "Environmental Protection and Industrial Location," Annals of the Association of American Geographers, Vol. 75, p. 228.

¹¹Duerksen, Dow vs. California: A Turning Point in the Envirobusiness Struggle, p. 112.

¹²Ibid., p. 1.

the conflict between policies designed to create jobs and policies designed to protect the environment. This study examines the relationship between environmental protection policies and jobs within a regional context, specifically addressing the question of how state environmental laws affect the location of industry. Assuming states are concerned with both economic development and environmental integrity, the possibility of conflict becomes apparent.

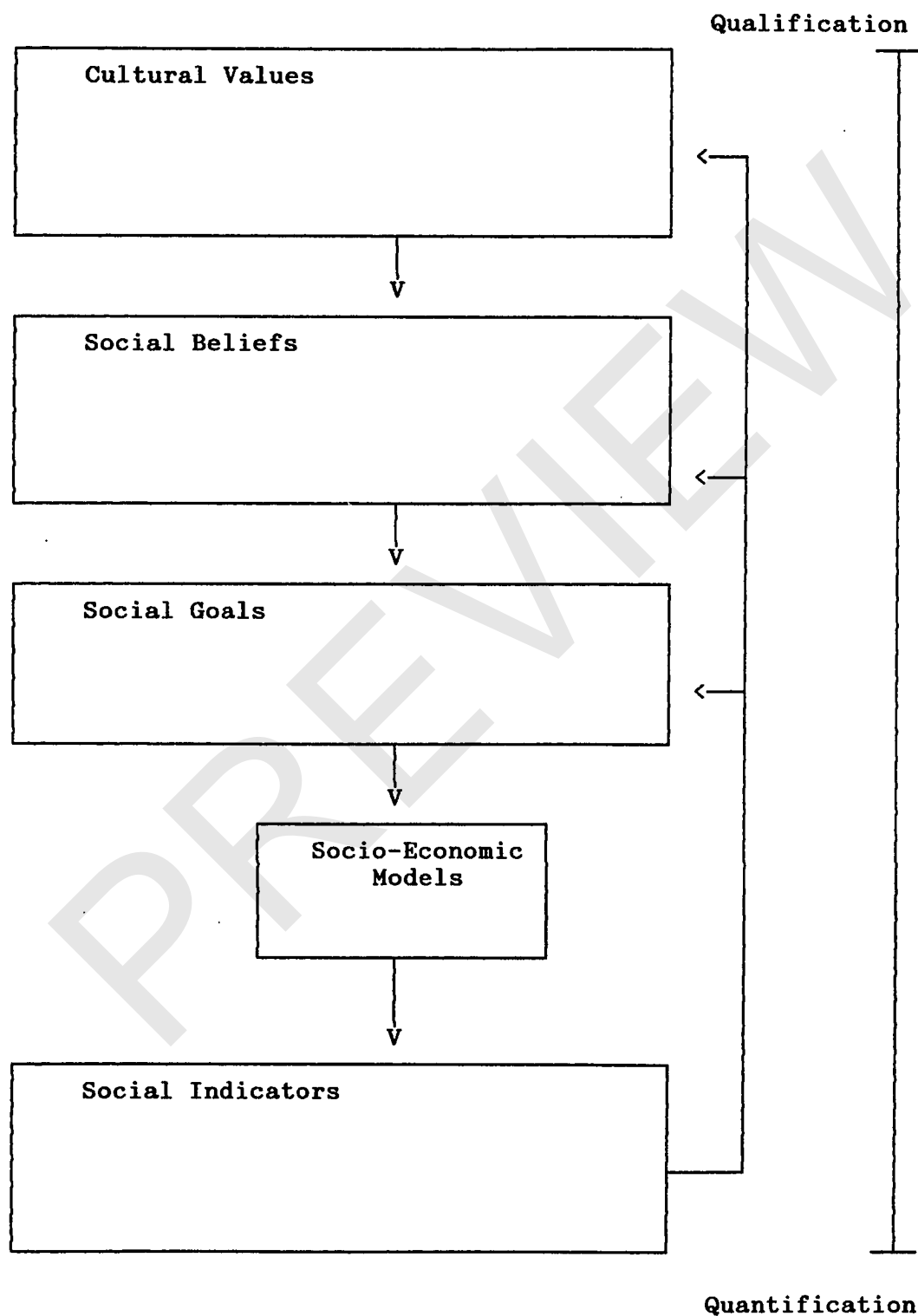
Policy Analysis Paradigm

Policy is a discretionary tool designed to alter a component or components of a socioeconomic system. To understand public policies, it is necessary to understand cultural values, social beliefs and social goals. Figure 1.1 represents a paradigm for examining public policies.¹³

Culture is a system of abstract ideas or ideals held by a group of individuals. Values are cultural criteria to judge what is ideal. Culture is created by humans and it is cultural values that are reflected in human behavior. It is the continuation of culture that ultimately becomes the source of value. Examples of Western cultural values are (1) atomistic conceptualization, (2) domination of nature,

¹³F. Gregory Hayden, "Public Pension Power for Socioeconomic Investments," Journal of Economic Issues, (December, 1989), Vol. 23, pp. 1035-1038.

Figure 1.1 Policy Analysis Paradigm.



(3) dualistic thought and (4) flowing time.¹⁴

Culture cannot be changed or manipulated by discretionary policy decisions; however, since the continuation of culture is the source of value, all policies must be consistent with cultural values.

Society is a set of relationships. Social relationships are determined by institutions. According to Walter Neale, institutions can be identified by three basic characteristics, where there are: (1) patterns of activity, (2) rules giving the activity repetition, and (3) folkviews explaining or justifying the activities and the rules.¹⁵ Social beliefs are found in the third characteristic of institutions. Beliefs explain and/or justify social relationships.

Beliefs are social criteria for determining what is good or bad. Concerning the relationship between cultural values and social beliefs, F. Gregory Hayden states:

Whereas cultural values are transcendental, social beliefs are activity- and institution specific. The connection between values and beliefs provides the bridge between culture and society.¹⁶

¹⁴F. Gregory Hayden, "Values, Beliefs, and Attitudes in a Sociotechnical Setting," Journal of Economic Issues, (June, 1988), Vol. 22, pp. 415-417.

¹⁵Walter C. Neale, "Institutions," Journal of Economic Issues, (September, 1987), Vol. 21. pp. 1181-1185.

¹⁶Hayden, "Values, Beliefs and Attitudes in a Sociotechnical Setting," p. 416.

Thus, social beliefs become the battleground for policymaking. Altering components of a socioeconomic system requires changing beliefs.

The primary criteria or social goals express the intended outcome of discretionary policy. Social goals must be consistent with the social criteria (beliefs) regarding what is good and bad.

Socio-economic models are any methods used to attain information with regard to the fulfillment of the primary criteria. The secondary criteria, or performance indicators, provide information concerning the extent to which the primary criteria have been realized.

Figures 1.2 and 1.3 represent the analysis of two types of policies. Figure 1.2 represents the analysis of a policy designed for environmental protection and figure 3.1 represents the analysis of an economic development policy. For both policies, cultural values remain the same, however the beliefs associated with what is considered good or bad regarding each policy differ. Differences in beliefs result in differences in policy goals and differences in the indicators of policy realization.

Within this context of analyzing public policies the conflict between policies designed to protect the environment and policies designed for economic development can be seen as a conflict between social beliefs.

Figure 1.2. Paradigm for Analyzing Environmental Policies

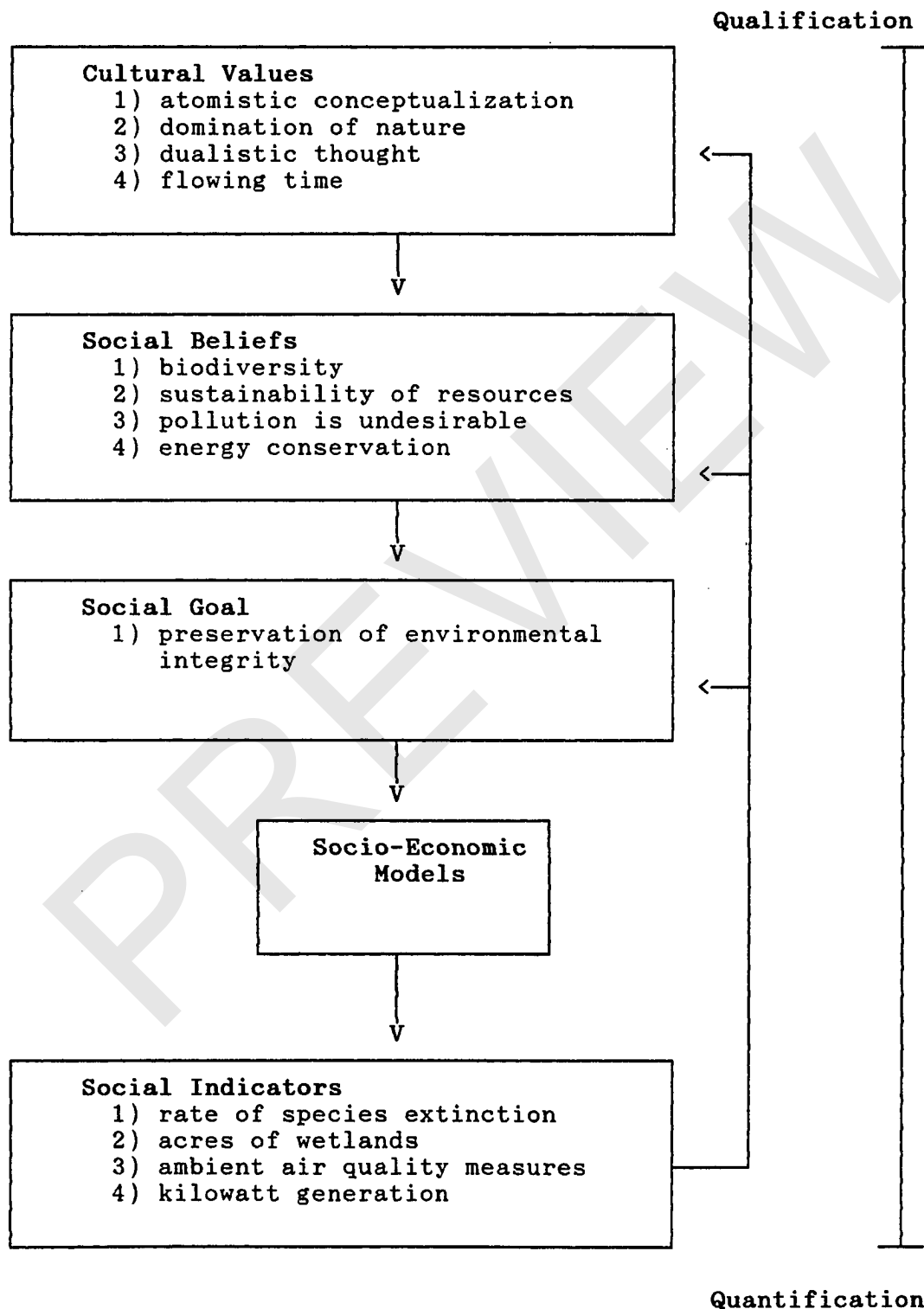


Figure 1.3. Paradigm for Analyzing Development Policies

