D. BROOKSHIRE AND J. CHERMAK

BENEFIT AND INFORMATIONAL TRANSFERS

1. INTRODUCTION

The use of benefit transfers for policy analysis has increased dramatically during recent decades. This has been, in large part, due to the required use of benefit-cost analysis for many government projects[1]. Furthermore, the complexity of problems has increased in recent years as factors such as population growth and migration, forecast climate changes and increased use of depletable resources make resource management ever more important. These have all contributed to increased data needs. In many cases it is not practical or feasible to gather primary data, resulting in the use of data transfer studies. Desvousges *et al.*, (1998) note that:

"Transfer studies are the bedrock of practical policy analyzes…" and thus adopt a broader definition of the transfer method as "…the use of existing information designed for one specific context to address policy questions in another context." (p1)

They further state:

Strictly speaking, all analysis involves transferring some information, whether the information is data such as census counts, the intuition and tools of economics and other disciplines, or the analysts' prior knowledge, assumptions and language. (p4)

Smith (1992, p 544) notes the focus of a benefit transfer study:

"…benefit transfers focus on measuring (in dollars) how much people affected by some policy will gain from it. They are not forecasts, and they usually do not attempt to predict other exogenous influences on people's behavior. Instead, a predefined set of conditions is assumed to characterize the non-policy variables. Then benefit estimates are derived by focusing on the effects of the conditions assumed to be changed by the policy."

it is Desvousges *et al.*'s observation of information from other than economics, coupled with Smith's observation of assuming a predefined set of conditions that represent the non-policy variables (predefined set of conditions) that provide a basis for this paper. Specifically what is the information we take from other disciplines in our economic analyses? Does this information itself rely on some type of transfer? What predefined conditions, if any, is the policy analyst to assume? Traditionally, within economics, we assume economic conditions such as preferences, utility, and market structure. However, what non-economic, predefined conditions are directly or indirectly presumed, and on what models and related information are those based? Are the pre-defined conditions appropriate for the problem being investigated? If not, does the use of the information bias the result to the extent of

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altering the policy prescription? It is these types of questions that go to the heart of the value of information.

While economic transfer studies are widely accepted, we rarely consider the sheer magnitude of the totality of model and data transfers that are actually included in such studies[2]. We explore the use of the informational transfers from across the spectrum of scientific disciplines that are incorporated into analyses.

2. ISSUES IN INTEGRATING BEHAVIORAL AND SCIENCE INFORMATION

Ever increasing populations, regional migration, and changing regional demands on resources, concerns about climate change, as well as changing regulatory environments contribute to an ever increasing need for policy analyses of resource allocations. This places increasing demands on models and data from all branches of the physical, natural, and behavioral sciences that are used in policy decisions.

For example, in semi-arid environments this has resulted in new inquiries into how to manage water resources using data transfers in an integrated setting. Continued population growth challenges the current institutional and regulatory structure in the provision of water resources. Also, studies focusing on climate are pointing to further potential challenges in the expected availability of water resources. The result is the need to evaluate alternative institutional frameworks, further the physical and natural understanding of the environment, and ascertain the magnitude of the impact from such changes within an integrated setting. For behavioral scientists this might include efforts to clarify through an adjudication the water property rights structures coupled with an investigation of more efficient allocation systems such as the practicalities of water banking. Clearly, preferences in more information rich settings would also be explored. For the natural and physical sciences this could include further efforts in the nature of linkages of groundwater systems to surface systems, prediction of snowpack run-off and long-term climatic changes. These effects, again understood in a more information rich setting, would serve as an engine of "reduced uncertainty" in an integrated policy framework. In that there are interactions, or impacts from one branch of scientific knowledge to another, we argue that policy cannot consider these separately, but rather requires the simultaneous consideration of the physical, the natural, and the behavioral sciences and, indeed, we see a need for such integrated research. While economists have focused on the assumptions and integration aspects from the behavioral components, less focus has been placed on the components from other science venues. The impact of the assumptions is, however, of paramount importance. For the policy analyst confronting an immediate policy decision the following questions become relevant:

- Is the current information from the physical, natural, and behavioral sciences of sufficient precision overall to warrant a policy statement or the corollary;
- Is there some specific aspect of the existing models and data that will challenge the applicability, usefulness, and/or appropriateness of the eventual policy statement?