

Methods Assessment of Conservation Valuation

Introduction:

The Vermont Policy Institute (VPI) is an undergraduate club at the University of Vermont that researches pressing local and state issues and develops nuanced recommendations to address them. Through collaboration with field experts, UVM faculty, and community stakeholders, VPI seeks to empower students to pursue group research and advocacy on topics that they have vested interests in. In the future, VPI hopes to research for the Vermont State House on key bills and legislation, such as improving Vermont's outdated tax structure and conserving land for Act 59.

Background:

Previous studies, such as the "Imagining Vermont: Values and Vision for the Future" (2009) and the "Pulse of Vermont Study on Quality of Life" (2010), have had varying successes using methods such as telephone surveying and community-based public forums. Vermont presents a challenging landscape for survey-based research to be completed. This is because of the wide-ranging beliefs that many Vermonters hold. Vermont has a small population, and Vermonters place a high value on small-scale methods as connection to land, environment, and community are frequently emphasized. Directly regarding conservation, Vermonters highly value environmental protection, particularly in the agricultural and working landscape. Broadly, researchers have found that Vermonters' primary interest is in lowering and preventing increases in the cost of living (Vermont Council on Rural Development, 2009).

Act 59 aims to conserve 30% of Vermont's landscape by 2030 and 50% by 2050. To meet these mandates, Vermont state agencies need up-to-date, localized data on residents' values and concerns, particularly around conservation, cost of living, and environmental protection. This research helps inform agencies' strategies for implementing Act 59 in a manner that supports equitable and community-informed conservation planning.

Methods:

We identified three potential methods to conduct a comprehensive survey of Vermonters' attitudes toward conservation; namely conjoint analysis (CA), Likert-scale based on personal agreement, and phone interview questions with a mix of agreement and open-ended questions.

Conjoint analysis (CA) procedures are used to determine how a specific actor would act when presented with certain situations. From this general framework, a choice modeling approach can be taken to understand a respondent's preferences in the context of other options. Choice

modeling is designed to provide a set of options for the respondent. The respondent is then tasked with selecting their favorite option from the options provided. Utilizing choice-based methods has shown promise in the field of environmental research, specifically when it comes to ecosystem management practices (Alriksson & Öberg, 2008).

The Likert-scale is a psychometric scale that is used to gauge respondents' level of agreement with a statement or set of statements. In Likert-scale surveys, respondents are asked to indicate their level of agreement with a statement, usually on a 5-7 point scale. Most Likert-scale surveys contain related sets of statements to measure each attitude, the results of which are then aggregated into indices.

Phone interviewing was the primary methodology used in previous Vermont surveys on conservation attitudes. Respondents were asked closed-ended questions where respondents were asked to state their level of agreement with a series of statements related to values and their level of concern about a series of statements related to challenges. Respondents were then asked open-ended questions and respondents were free to answer in any way they liked (Moser, Hyman, and Schmidt, 2008).

Discussion:

CA, specifically choice experiments, uniquely allow surveyors to assess non-use values – meaning how much one values the existence of a natural resource or landscape, regardless of whether they will use it or not. This is because the structure, employing more than two alternatives per question, elicits “responses that allow the estimation of preferences over attributes of an environmental state” (Adamowicz et al, 1996). Other value assessment methods, such as Willingness to Pay (WTP) surveys, are limited in measuring non-use values as opposed to use values, uses which include ecosystem services, recreation, or development. CA provides the ability to assess use and non-use values of natural landscapes for Vermonters, and thus creates the opportunity for a comprehensive assessment of conservation values in Vermont. The main weakness of a CA approach is that surveys may be subject to systematic biases that are difficult to test for and correct. Luckily, this drawback has long been studied, and academics have compiled ways to avoid this potential bias. Johnston et al's (2017) best practices compilation is endorsed by federal environmental agencies like the EPA, and it offers helpful recommendations that can be applied to strengthen the validity and accuracy of the assessment. In general, key factors of a successful implementation include a large, informed audience (randomized and representative), a pre-survey, and a carefully designed survey (not having one attribute be most prevalent).

The Likert-scale method provides ease of use for respondents and ease of comparison for surveyors. Respondents can straightforwardly express their attitudes using the 5-7 point

Likert-scale, unlike qualitative questionnaires, which have previously been used to assess attitudes in Vermont. Likert-scale attitudes, when aggregated among groups, can be compared relatively easily, giving researchers the ability to evaluate how attitudes vary between policies and groups. One concern surrounding the use of the Likert Scale is that it provides ordinal data, given it is difficult for researchers to ensure that the distance between scale categories is equal in the minds of each respondent. This prevents Likert-scale data from being used in parametric methods, in which the sentiments of respondents can be compared and modeled within a continuous data scale. This weakness can be mitigated if Likert-scales are constructed with sets of statements which approximate interval data (Carifio and Perla 2008, Boone and Boone 2012). Another drawback of Likert Scale surveying is that scale categories sometimes do not perform as intended (i.e. the categories 'Disagree' and 'Strongly Disagree' may be viewed by respondents as one category).

On phone interviews, a core advantage is the unique ability a phone conversation has to build rapport with marginalized communities. Findings from Drabble et al. (2016) underscore both the viability and value of telephone interviews as a method for collecting extensive narrative data on sensitive subjects. Yet, phone Interviews have a number of disadvantages. One concern is the quality of the survey for respondents and surveyors. Qualitative answers are difficult to categorize and compare. Style, honesty, length, and detail of responses may dramatically shift based on the conductor of the individual survey. This leaves room for variability in the survey experience and results that are difficult to analyze and draw conclusions from. Another concern is the likelihood of a non-response bias or sampling error. Some groups of people are significantly less likely to pick up the phone and answer a survey. These groups' lack of inclusion can potentially be a significant threat to the integrity of results.

Categorizing Information after Surveying:

Value-based segmentation allows organizations to better reach their target audiences through categorized, specific messaging. As opposed to applying a singular land conservation campaign based on the most popular results from a survey, this strategy proposes that the organization break populations into smaller homogenous sects based on beliefs relating to conservation (Halkos and Matsiori, 2022). These subgroups will be more prominent in certain towns or counties and less so in other areas. The goal is to find conservation-denying subsets of the population and create targeted campaigning strategies for these subgroups. This helps reduce overall alienation from a proposal or a policy effort. Ultimately, campaigning methods are tailored to the subset to maximize response and support for conservation. The drawback of value-based segmentation is its resource-intensive nature. Creating different campaign responses to different value-based sects of the population requires more time to produce specific materials and training to successfully interact in these areas. However, this campaign strategy will be the most effective in persuading previous adversaries of conservation towards its endeavors.

Recommendation:

The survey method we recommend is CA, specifically a choice experiment approach. A multiple choice format is accessible and allows respondents to reveal their preferences to surveyors. CA best practice recommendations are well-researched and clearly compiled for ease of access to potential surveyors. This method is best suited for a comprehensive assessment of conservation values among Vermonters that can inform decision-making and highlight target areas. To complement CA, we recommend that results be organized through value-based segmentation. This method will allow for an efficient allocation of resources by precisely targeting areas for conservation campaigns to improve attitudes and generate a better understanding of the subject. Value-based segmentation may also highlight geographic areas with positive conservation values and potentially conservable land to focus on. CA surveying with value-based segmentation of results will generate the highest quality data to inform actions necessary to achieve Act 59's conservation goals.

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Appendix A

Guides for Using Proposed Methods

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Appendix B

Examples of Proposed Methods

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