Exploring the Accuracy of Travel Cost Method for Nonmarket Valuation: Econometric Challenges and the Impact of Behavioral Factors on Self-Reported Data Quality

The need to assign "prices" to public goods, the value of which cannot be determined through demand and supply relationships, is not new. Although the benefits derived from goods such as a clean lake, a forest clearing from which one can watch sunsets or a playground can be described as priceless, the costs associated with their creation and maintenance are usually clearly defined and must be regularly incurred. Therefore, it is important to estimate what portion of public funds should be allocated for this purpose. Economists have developed various methods for valuing non-market goods, many of which are based on surveys. Over the years, non-market valuation methods have been extensively studied for their accuracy, but little attention has been paid to revealed preference methods. One of these methods is the travel cost method, which is the focus of this project. The method allows for the estimation of the benefits that non-market goods provide to society based on people's past choices (the number of trips to certain places and their costs).

The project aims to make the travel cost method more reliable and accurate by addressing problems related to the quality of data reported by respondents, examining the stability of estimates over time, and proposing new ways to incorporate the value of time into modeling. The improved method will help decision-makers and researchers better understand the value of public goods and better allocate public funds.

The quality of data reported by respondents can depend on many factors, such as memory. People often do not remember the exact number of trips and overestimate them, leading to an overvaluation of the public goods. Various tools, such as reminders of previously given answers and scripts encouraging the use of calendars or photos, will be tested in the study to improve memory.

The study will also focus on previously unexamined factors that may affect the quality of data reported in surveys, such as behavioral factors related to motivation. Currently, the travel cost method studies assume that respondents try to provide the most accurate and truthful answers, but this might not always be true. Surveys can be tiring, leading respondents to rush through them or give less thoughtful answers, a behavior known as “satisficing." The project will examine how the order of questions, survey length, and rewards for participation in the survey influence this behavior. Techniques such as "trap questions" will be used to check respondents' attentiveness. Additionally, the study will try to differentiate between respondents who try to provide truthful answers and those who deliberately provide false information to maximize their gain. This problem arises because respondents are often materially rewarded for the time spent participating in surveys, provided they are in the group targeted by the survey. In travel cost method studies, this usually applies to people who have made trips to the surveyed places within a specified period (e.g., the last 12 months). Unfortunately, this may encourage some to lie about their past behavior, making the data they provide useless. The study will propose new tools to solve this problem, such as allowing respondents to skip some survey questions while still receiving full rewards. This practice will align respondents' motivations with the research objectives of scientists and ensure better data quality.

The project will also examine the stability of travel cost method estimates over time by comparing data collected at different times, controlling for time-varying factors that may influence people's travel (such as weather). This will help determine whether the method can be effectively used for long-term decision-making. Finally, the project will improve the way the value of travel time is considered in modeling, taking into account individual differences in how people value their time.

The research will be conducted in several phases: developing the project structure, developing and testing the survey, and then conducting it in collaboration with a research firm. The collected data will be analyzed using econometric models and statistical tests. The results and conclusions will be published in scientific articles in high-quality journals and presented at international conferences.