

Public goods, for example, parks such as Pieniny National Park, monuments such as those in Łazienki Park in Warsaw, and cultural sites such as UNESCO-listed wooden tserkvas of the Carpathian region, bring benefits to society, but also generate costs (e.g., maintenance). Understanding how valuable these goods are to people is important for determining how much money governments should spend on their provision. The values, expressed in money, that public goods provide to society inform what quantities and characteristics of public goods are most desired. For example, they can reveal whether people like a nearby park being developed with more hiking or biking trails. The challenging task, however, is to calculate the values that public goods deliver in monetary terms. For many goods, price can help estimate their value. But public goods are not bought or sold in markets (they are so-called non-market goods), so they do not have prices that could be used for determining their value. This leads to challenges in understanding the benefits people receive from public goods.

Economists have developed several methods for estimating the value of goods that are not traded in markets, such as public goods. Among them, the travel cost method is one of the most popular approaches. The main idea behind this method is that to access public goods, people travel and need to bear the costs of the travel. These costs include various out of pocket expenses, such as the cost of gas and wear and tear on the vehicle, as well as the cost of time spent on the travel, among others. A person will decide for a travel to a site only if the benefits from accessing the site are at least as great as the costs. In the travel cost method, we use the travel cost information in a behavioral model to estimate what value people gain from visiting a site, which is linked to a public good. For example, if someone travels past a park with a dirty lake to visit a nearby identical park with a clean lake, this may suggest that a clean lake is more valuable. The increase in the costs because of travelling to the clean lake can be used to value a better lake water quality to people. **While travel cost studies have been used in policy contexts around the world, hardly any research has examined if the travel cost value estimates are accurate--if they measure well the actual value.** This project aims at filling this research gap.

**The novel contribution of this project to the existing knowledge will be a comprehensive and systematic assessment of the accuracy of value estimates derived from the travel cost method.** The fundamental research question is: does the travel cost method deliver accurate estimates of the value of public goods? The accuracy will be examined along two aspects—reliability and validity. Reliability assessments measure whether the value estimate is precise or imprecise. Validity assessments inform whether the value estimate is biased or unbiased in any systematic way, such as always overestimating or underestimating the true value. In the face of paucity of scientific work in this area, we will develop a novel framework and tools for assessing the accuracy of travel cost value estimates and apply them to empirical studies. This way, the project will address an essential research gap in the existing literature on valuation of public goods.

Specifically, the research project will contribute to state-of-the-art knowledge and literature with novel insights by answering the following questions, which hitherto studies have not addressed in a comprehensive and systematic manner:

- (1) How should travel cost studies be evaluated for reliability and validity?
- (2) Do travel cost studies provide reliable value estimates of public goods?
- (3) Which steps of a travel cost study are the most important for generating valid value estimates?
- (4) Are value estimates from travel cost data consistent with value estimates from other non-market valuation methods?

To address the questions empirically, we will conduct two travel cost surveys, in which respondents from the population of Poland will be asked about their visitation behavior to a selected public good, such as a nature reserve or a memorial site. Two surveys will be administered a year apart, which will allow for a test-retest reliability investigation. Several versions of the questionnaire will be used to assess potential bias in value estimates. For example, questionnaires will differ in the response format to questions to verify if this can bias the value estimates.

The ground-breaking result of the project will be the improvement of the travel cost method and enhanced accuracy of value estimates of public goods derived from the method. It is a cutting-edge step in advancing tools for valuing public goods, especially given that the travel cost method has been employed in many policy contexts, but has been subject to scarce assessments of reliability and validity. Practical solutions developed within this project can, thus, translate into policies concerning the provision of public goods being better adjusted to society's preferences, where travel cost value estimates are used for policy advising. Insights from the project will be of large practical meaning to non-market valuation practitioners, by providing clear guidance how travel cost studies should be conducted for generating accurate value estimates. The results will be shared through presentations at academic conferences and publications in top scientific journals devoted to the economics of public goods and non-market valuation.