

A Generalized Corner Solution Model for Recreation Demand: The Integer Programming Approach

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Abstract

We developed an integer programming approach that takes into account the integral character of recreation behavior data and that has the same advantages as the Kuhn-Tucker continuous demand approach, which is consistent with utility theory, and provides a single structural framework for simultaneously modeling site selection and the participation decision while allowing for the possibility of a corner solution. We then used the local search algorithm and the greedy method to estimate the parameters of the utility function and to calculate welfare changes. The results of our empirical study, which uses beach recreation data for the region of Southern California, suggest that the integer programming approach provides a better fit to our data than does the continuous demand approach; moreover, the continuous demand model may underestimate welfare losses.

KEY WORDS:

welfare analysis, demand system, approximate algorithms, beach recreation

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