

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search
http://ageconsearch.umn.edu
aesearch@umn.edu

Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.

Measuring Welfare Effects of Substitute Recreation Sites Using Spatial Travel Cost Model



S.G. Kim, S. Cho, R.K. Roberts, and D.M. Lambert Agricultural & Resource Economics University of Tennessee



J.M. Bowker
D.B.K. English
U.S. Forest Service



C.M. Starbuck
Economics & International Business
New Mexico State University

Introduction

- The objective is to estimate welfare effects of substitute recreation sites
- by incorporate spatial interdependencies in the number of visits that are positive integers and truncated at zero



Spatial Travel Cost Model

• Spatial heteroskedastic autocorrelation consistent (HAC) covariance estimators extended to the negative binomial-2 heteroskedastic robust covariance estimator (Conley, 1999, Kelejian and Prucha, 2007, Lambert and McNamara, 2009)

Case Study: Allegheny National Forest

• 2001 and 2005 National Forest Visitor Use Survey



Detect Outliers

Existing tools used in the travel cost literature

- 1,000 miles away from a recreational site to visitors' origin
- Outside the state (Pennsylvania)
- Top 5% of most frequent visitors

Approaches typically used in statistics

Cook's D and Dfbeta

Cluster analysis

• *k*–means clustering

