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

**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

**Measure Substitutability of Park and Forest**