

Application Of The Model

The dependent variable (Y) is defined as the number of visitor days a recreational group spends at the recreation site per trip. Thus, $Y = ny$, where y is the number of days per person per visit and n is the size of the recreation group. Since Y is determined by two separate variables, a per capita equation to utilize a single dependent variable is needed:

$$y = y(t, c, m, n, D_1, D_2, D_3) \quad (13)$$

Where,

$$\begin{aligned} t &= \text{travel costs per person} \\ c &= \text{daily on-site costs per person} \\ m &= \text{income of the recreationist} \\ n &= \text{number of persons in the recreation group} \\ D_1 &= \begin{cases} 1 & \text{for each observation in season II} \\ 0 & \text{for all other seasons} \end{cases} \\ D_2 &= \begin{cases} 1 & \text{for each observation in season III} \\ 0 & \text{for all other seasons} \end{cases} \\ D_3 &= \begin{cases} 1 & \text{for each observation in season IV} \\ 0 & \text{for all other seasons} \end{cases} \end{aligned}$$

Due to prior evidence that the demand function may not be linear, a semi-logarithmic regression equation was estimated where the dependent variable, y , was in natural log form and the independent variables were non-logarithmic. The estimated demand relationship is given as:¹³

$$\begin{aligned} \ln y = & 2.183 + .0260 t^{**} - .051 c^{**} + .00001 m^* \\ & (.0014) \quad (.010) \quad (.000005) \\ & - 1.399 \frac{1^{**}}{n} + .229 D_1^* - .258 D_2^* - .368 D_3^{**} \quad (14) \\ & (.172) \quad (.114) \quad (.120) \quad (.129) \end{aligned}$$

$$R^2 = .351 \quad F = 72.7 \quad \text{Degrees of freedom} = 942$$

The D_1 , D_2 , and D_3 variables represent zero-one variables to account for the differences among time periods. For example, D_1 explains how the demand relationship would be different between time periods one and two. This indicates that one could expect recreationists to spend an additional 1.3 days (derived by taking the antilog of .229) per visit in time period two over time period one. Similarly, the length of stay would decrease in both periods three and four compared to one.

¹³Standard deviations are presented in parentheses under the coefficients. Significance of the coefficients are indicated by ** (1 percent level) and * (5 percent level).