

411/27/02/17

Name of the Research Scholar: Mohammad Younus Bhat

Name of the Supervisor: Prof. M.S. Bhatt

Name of the Department: Department of Economics, Jamia Millia Islamia

Title of the Thesis: Valuation of National Parks: A Case Study of Dachigam National Park

Abstract

Biodiversity confers wide range of direct and indirect benefits to humans by providing diverse ecological, socio-economic, educational and principally aesthetic services. Understanding biological diversity needs recognition of our interdependencies, accountability to rectify the rates of biodiversity loss and factors threatening durability, stability and continuity of ecosystems on the earth, and minimize indiscriminate anthropogenic interventions in the natural ecosystems. Since humans depend on faunal and forest resources for daily sustenance, fibers and livelihood security; current biodiversity loss limits future development options. Ecosystems are being constantly transformed, irreversibly degraded and a number of species have gone extinct or threatened with extinction, reductions in populations are widespread and genetic diversity is broadly on the wane. Against this backdrop of rampant biodiversity loss, in recent years several researches have been conducted to explore into biodiversity and biodiversity loss.

However, economics can be of much assistance to guide the design of biodiversity policy through eliciting public preferences on different attributes of biodiversity. While quantifying the economic value associated with the protection of biological resources, several environmental valuation techniques can provide valuable evidence to support such policies. Against this backdrop present study is an attempt to estimate economic value of Dachigam National Park in terms of annual recreational value to onsite visitors, direct benefits from its provisional services and conservation values of the park.

We employed widely preferred methods for achieving the set objectives. Travel Cost Model (TCM) was used to estimate recreational value. A recreational demand function (or Trip Generation Function) was created to determine impact of various socio-economic characteristics and factors like travel cost, travel distance from home to site, time cost on number of visits. For estimating recreational demand function two econometric models were used viz. Poisson Regression Model with Pseudo-MLE (PMLE) and Truncated Poisson Regression Model. These models were employed to determine association between number of visits and various socio-economic characteristics and factors like travel cost, travel distance from home to site, time cost etc. By using estimated parameter of Round Total Travel Cost (RTTC) consumer surplus of a visitor was estimated which was ultimately used to determine aggregate welfare (aggregate consumers surplus).

For estimating tourists' willingness to pay for conservation or improvement of park, Contingent Valuation Method (CVM) was employed. Multiple Regression Model was used for estimation of equations and factors determining willingness to pay.

Choice Experiment Method (CEM) was designed to elicit willingness to pay of 323 randomly selected households for biodiversity conservation. Data was analysed using the conditional logit model.

Recreational value was obtained by estimating recreational demand function. It shows an association between number of visits and specified determinants. Results revealed that travel cost and travel distance have significantly negative relationships with number of visits. This indicated that lower the travel cost and distance to site higher the probability of visiting the site. Using estimated coefficient of RTTC (β_{RTTC}) of Poisson PMLE and Truncated Poisson Regression Models, consumer surplus per-visitor per-visit worked out to be Rs. 64267 (US\$1020)¹ and Rs. 12470 (US\$197) respectively. Therefore, total consumer surplus for all visitors (12754), was estimated at Rs. 81, 96, 61,318 (US\$1, 30, 10, 49) and Rs.15, 90, 42,380 (US\$81,455) per-annum for Poisson PMLE and Truncated Poisson Models respectively. Using Truncated Poisson Models, total annual recreational values approximately figured out to be Rs.24,76,14,828 per-year (US\$39,30,395) for given number of visitors (12754 visitors).

By using CVM mean WTP as park fee for conservation or improvement of the park was estimated as Rs. 125 per-year. It was found that majority (84%) of visitors were willing to pay for its improvement. It had a positive and significant relationship with income, education and earning members in family.

CEM results infer that people are willing to pay Rs 123.98 per annum for enhancing the population of endangered species, Rs. 65.45 per annum for planting more trees and vegetation and Rs. 84.28 per annum to foster research and education opportunities Park withholds. CEM results also show that urban populace were willing to pay Rs. 302 per annum for enhancing the population of Endangered Species, Rs. 121per annum for planting more trees and vegetation and Rs. 171 per annum to foster research and education opportunities the park withholds which is higher than the rural people who are willing to pay Rs. 72 per annum for enhancing the population of endangered species, Rs. 51per annum for planting more trees and vegetation and Rs. 61 per annum to foster research and education opportunities the park withholds.

¹US \$ = Rupees 63 on the basis of exchange rates on May 2015