



Recreational Benefits of Consocep Mountain Resort in Tigaon, Camarines Sur, Philippines



ABSTRACT

The study quantified the recreational benefits of Consocep Mountain Resort for the current and hypothetical improvement of the area. Recreation sites revealed their economic value through the services that they provide. However, these services do not command a price, which leads to an underestimation of their value. The travel cost method is one of the methods for estimating recreational values by converting physical and social benefits into monetary terms. The travel cost method was used to estimate the economic use value of Consocep Mountain Resort in its present condition by using visitors' actual expenditures. Contingent behavior was added to compute the change in welfare, assuming that an improvement will occur and an additional access fee will be implemented. Given the current site condition of the area, the consumer surplus of a single visit per tourist is PhP 2,136.75 (US\$ 41.41), while the consumer surplus for an improved visit is PhP 3,539.82 (US\$ 68.60). visitors give high value to the site. Therefore, these information can be used as guide for managing the area. Conservation of resources is also important so that the benefits received by the present population can be enjoyed by generations to come.

Keywords: mountain resort, travel cost method, recreational value, consumer surplus, Poisson

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INTRODUCTION

Traditionally, people tend to value forest resources mainly for their utility. It was only recently that the beauty of nature was given parity over utilization. Nowadays, people give more importance to leisure, time and recreation (Wang *et al.* 2021). People, for instance, find pleasure in visiting public parks (Park and Song 2018), mountains, and lakes for painting, trekking, hiking, and fishing, respectively. This accounts for the increase in demand for outdoor recreation experiences (Willibald *et al.* 2019).

Outdoor recreation activities develop cultural (Fish *et al.* 2016), physiological (Boyadjiev *et al.* 2020), psychological, sociological (Evans and Rollins 2015), educational, and spiritual values (Keniger *et al.* 2013). They influence people to develop desirable behaviors, improve physical fitness, and broaden their knowledge and understanding about nature. According to Lima *et al.* (2014), people involvement in outdoor recreation activities is continuously increasing, however, it seems that financial resources are limited for the management of such. There is, therefore, a need for reliable measures to derive the economic value of environmental resources (Mendelsohn and Binder 2013) which can be used to estimate the economic benefit of recreational sites for

optimum allocation. This value can then be used by policy makers to prioritize government projects and be a guide to determine changes in environmental amenities, introduction of fees to regulate the number of visitors or develop new recreation sites (Mohammadi 2014).

Valuing natural resources using the traditional economic methods is difficult because some of the services they offer such as scenic beauty cannot be priced in the market. Most people think that the value of these public goods is small that it is often taken for granted or even lost. In the case of the study area, Travel Cost Method (TCM), a non-market valuation method was used. The main concept of TCM, according to Grunigen (2016), is the transport costs and the opportunity costs of the time consumed traveling to a recreational site. TCM determines the recreational value of a natural site by linking demand (number of visits) to its price (transport costs and opportunity costs of time used).

The scenic view and potential adventures offered by Consocep Mountain Resort have made it one of the tourist destinations in the municipality of Tigaon, Camarines Sur, Philippines. Local and foreign visitors

enjoy the nature tripping, picturesque view, and fresh air going to the waterfalls by traversing a trail that can lead them into three portions, namely, Tumaguaiti (the upper part), Bulalacao (the middle part), and Kawakawa pool. Although the area is seen to be divided into three sections, they are considered as one because they are linked by the single waterfall that flows in the site. Swimming and site-seeing are the activities offered by the recreational site. The collected entrance fee is good for all the three portions. This study aims to evaluate the recreational benefits of Consocep Mountain Resort in Tigaon, Camarines Sur, Philippines.

MATERIALS AND METHODS

Personal interviews were used to collect primary data from March to April 2019. Random sampling of respondents was conducted using a pre-tested questionnaire to gather information about the visitors' revealed preferences and contingent behavior towards the improvement of the area. The questionnaire includes questions on the socio-demographic characteristics and general information of the respondents, tourists' travel time and costs, awareness of the status of the area, and contingent behavior questions such as how many times they will visit the area again if rehabilitation or improvement is implemented and if they are willing to pay an additional entrance fee.

As well assumed in literature, Travel Cost Method (TCM) is widely used to value the demand for outdoor recreation (*Haab and McConnell 2002; Bateman et al. 2002*). The fundamental principle of TCM is that the time and travel costs that one incurs to visit an area indicates the "price" of access to the area, so the willingness of an individual to pay to visit the area may be assessed based on the number of trips that they take at various costs. To provide more indication on how a potential condition can affect a tourist's behavior, the contingent behavior (CB) model was added.

This study used a count data model because the dependent variable has a non-negative integer distribution. The Poisson specification of the count data model was used and endogenous stratification was corrected by deducting one trip from the independent variable (*Haab and McConnell 2002*). The correction essentially lowers the dependent variable, eliminating the effect of oversampling from the on-site survey.

To estimate the average benefit that the users enjoyed per visit to the study site, the individual user's demand function was computed. This was estimated

by taking the number of visits (V) to the recreational site (c) by the individual (n) in the last 12 months, expressed as a function of the acquired costs to make the trip (TC) and a range of other factors (Xn) that affect the frequency visit. This is given by the equation:

$$V_{cn} = \beta_0 + \beta_1 TC + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + \beta_n X_n$$

Trip (TC) is the total roundtrip expenses of the respondents, including other related costs (e.g., food). Using the variables, private or public transportation costs, opportunity cost of travel, and other expenses incurred during the trip, the cost of travel was estimated. Using distance in km and fuel fee, private transportation costs for each group of visitors were estimated. For the fuel costs, the average cost per kilometer based on the Land Transportation Franchising and Regulatory Board (LTFRB) was multiplied by the distance traveled. This was multiplied twice to get cost of the round trip. For public transportation costs of an entire group, the distance between the home of respondents and the mountain resort and the length of their trip were regressed. Applying this to the sample and multiplying it twice accounted for the round trip. Using the study of *Parsons (2003), Lew and Larson (2005)*, the opportunity cost was estimated at thirty-five percent of the average daily wage rate. With a PHP 310.00 minimum wage rate per day in Region V - Bicol based on the Department of Labor and Employment (DOLE), the opportunity cost of travel is estimated at PHP 109.00.

To represent the willingness to pay or the benefit of individual access to the site, average consumer surplus was calculated. The consumer surplus per trip is the inverse of the travel cost parameter coefficient as determined in the estimation of demand model (*Mwebaze and Bennett 2012*) given as:

$$CS = - \frac{1}{\beta_{TC}}$$

For the dependent variables, current and improved visits were listed (**Table 1**). These were the number of trips taken by the visitors in the Consocep Mountain Resort in the last 12 months and the proposed number of trips to be assumed by the visitors under hypothetical improvement. The independent variables were the following: travel cost (TC), traveling with child, gender, age, employment, income, environmental-related work, member of environmental organization, education, civil status, awareness of Consocep Mountain Resort, solo or group, distance and location. In order to estimate the models, stata software was used.

Table 1. Variable coding and description for the evaluation of the recreational benefits of Consocep Mountain Resort in Tigaon, Camarines Sur, Philippines.

Variable	Description
Dependent Variable	
Current Visits (CV)	Number of visits per person (n) per year
Improved Visits (IV)	Contingent number of visits per person (n) in the next year upon the hypothetical improvement of the site condition
Independent Variables	
Travel Cost (TC)	Average roundtrip travel cost per person (PhP)
Traveled with Child (TW)	0=no child, 1=traveled with child
Gender (Gen)	0=male, 1=female
Age	age of the respondent in years
Employment (Emp)	0=not working, 1=working
Income (Inc)	Salary in PhP
Environmental-related work (ERW)	0=no, 1=yes
Member of environmental organization (MEO)	0=not a member, 1=member
Education (Educ)	Years in school
Civil Status (CS)	0=single, 1=not single
Awareness of Consocep Mountain Resort (AC)	0=not aware, 1=aware
Solo or Group (SG)	0=solo, 1-group
Distance (Dis)	Kilometers from home address
Location (Loc)	0=within Tigaon, 1=another town

The town of Tigaon is located in the province of Camarines Sur, Philippines. It is composed of 23 barangays wherein Consocep is the farthest among all others (**Figure 1**). It is 14 km away from the central market located at the foot of Mt. Isarog at 548.64 m above sea level, best known for the cool mountain air, refreshing Tumaguiti and Bulalacao waterfalls and a man-made swimming pool called Kawa-kawa which measures 0.6 to 1.2 m deep (*NSIC 2008*). It is one of the tourist destinations in the 4th district (Partido) of Camarines Sur. It is a 15 to 20-minute trip via motorcycle from Hanawan, Ocampo, Camarines Sur, junction to Consocep Mountain Resort. During the conduct of the study, an entrance fee of PhP 15.00 per person is being collected from tourists visiting the area.

Based on the resort's record, the average number of visitors is 100 during weekdays and about 350 during weekends. Slovin formula was used to determine the sample size of the tourist-respondents.

Recreational Benefits of Consocep Mountain Resort

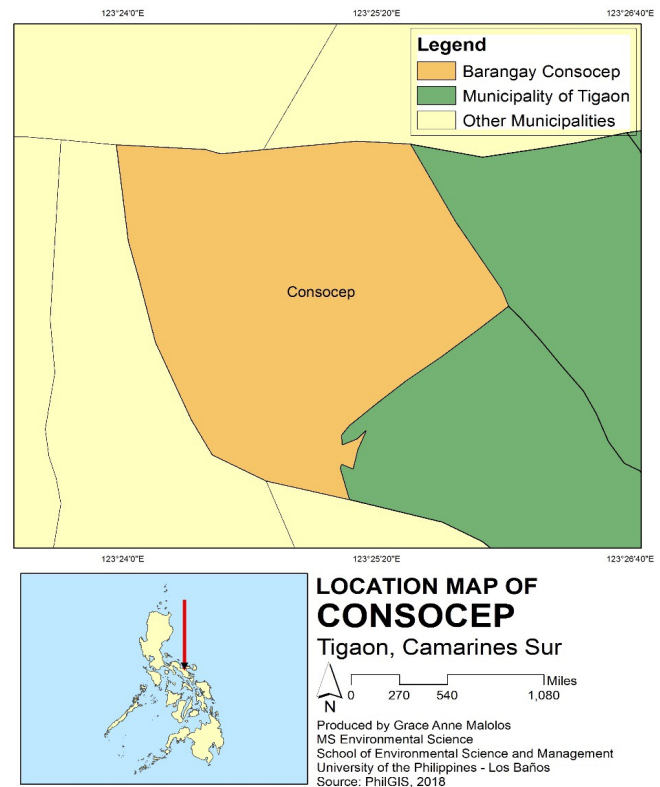


Figure 1. Map of Consocep, Tigaon, Camarines Sur, Philippines.

$$n = \frac{N}{1 + Ne^2}$$

In the above equation, n is the number of samples, N is the total population and e is the margin of error. The computed sample size for weekday respondents was 80, for weekend respondents was 187, for a total of 267 respondents.

RESULTS AND DISCUSSION

The average age of the respondents was 29 years old with a monthly income of PhP 7,865.00 (US\$ 152.42). These mean that the average visitors in the Consocep Mountain Resort were young, educated and moderately affluent because their monthly income was higher than the mean monthly household income in the region of PhP 6,820.00 (US\$ 132.17) (*DOLE 2018*).

For the current model, the negative coefficient of the travel cost (average roundtrip travel cost per person) variable indicates that people are more willing to visit the area if travel cost decreases. This means that the rate of visitation is negatively correlated with the travel cost per visit. Visitors with their children, female visitors,

Table 2. Result of the Poisson Estimation.

Dependent Variables	Current Visit	Improved Visit
Constant	-14.50796 (-0.02)	-12.55165 (-0.02)
Travel cost	-0.000468** (-2.20)	-0.0002825** (-1.95)
Travel with child	0.2173036* (1.77)	-
Gender	0.2303879* (1.89)	-
Age	-	-0.0080409* (-1.93)
Income	-	0.0000812*** (12.59)
Education	0.0747608** (3.00)	0.0434575*** (-3.05)
Civil status	-	0.165038* (1.74)
Location	-0.4338094*** (-2.94)	-
No. of observations	267	267
Log likelihood	-451.18618	-621.11334
LR chi ² (15)	60.73	332.72
Pseudo R-squared	0.0631	0.2113

Note: (1) Figures in parentheses are z-value; (2) Sign codes: ***1% or better; ** 5% or better; *10% or better.

and visitors with more years of schooling (higher educational attainment) show a positive sign coefficient. These indicate that these tourists have high visitation rates in the mountain resort. In terms of location, a significant negative result revealed that most of the tourists who visited the site were from within the area. This means that the locals have higher visitation rates.

For the improved model, the negative coefficient of the travel cost, or average roundtrip travel cost per person, indicates that people are more willing to visit the area if travel cost decreases. A negative coefficient in age means that younger tourists will have higher visitation rates. A positive coefficient in income means that as the salaries of the visitors increase, visitation rates also increase. Visitors who are more educated have higher visitation rates. A positive coefficient in civil status implies that visitors are not single. This means that visitors with partners or couples have higher visitation rates.

The Consumer Surplus estimates the benefits of maintaining access to the recreational site. Given the current site condition of Consocep Mountain Resort, the consumer surplus of a single visit per tourist was PhP 2,136.75 (US\$ 41.41), while the consumer surplus of an improved visit was PhP 3,539.82 (US\$ 68.60). Despite the price increase for the improved condition, visitation rates increased, leading to an increase in consumer surplus. These results revealed that visitors give high value to the site and are more willing to visit the area, especially when improvements are to be implemented. Assuming that there are 5,400 visits per year, the aggregated consumer surplus was estimated to be PhP 11,538,461.54 (US\$223,613.60) for its current condition and PhP 19,115,044.25 (US\$ 370,446.59) for its improved condition. These estimates represent the value of the mountain resort as appraised by the visitor respondents.

CONCLUSION AND RECOMMENDATIONS

Visitors clearly provide a high value to the Consocep Mountain Resort located in Tigaon, Camarines Sur, Philippines. This assumption applies only to the sample population of the current users of the mountain resort during the given timeframe. High demand or increased visitation rates to the recreational site, especially in the hypothetical improvement (improved model) of the area, justifies the need for proper conservation and utilization of the resource. Conservation of resources is important so that the benefits received by the present population can be enjoyed by generations to come. Revealed results can be used as a guide by policymakers and managers in managing the mountain resort. Furthermore, additional research for the conservation of the area is recommended.

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