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ESTIMATION OF THE RECREATIONAL VALUE OF TOURIST DESTINATIONS IN CAMOTES ISLANDS USING TRAVEL COST METHOD

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Determining the recreational value of tourist destinations is important because natural resources provide services that possess non-market values. They are considered as public goods, whereby society tends to overexploit and overconsume. In this regard, the valuation of four selected tourist destinations in Camotes Islands, Cebu, Philippines was determined. This study specifically aims to (1) estimate the demand function and consumer surplus of tourists, (2) determine the factors affecting the number of visits of tourists in every destination, (3) determine the tourists' willingness to pay for entrance fee for each destination and (4) provide policy implications for local policy-makers and resource managers. On-site surveys were conducted to gather primary data. A total of 125 respondents were interviewed after selection through consecutive sampling. Using pseudo Poisson maximum likelihood estimator, results reveal that the recreational value of Buho Rock Resort, Lake Danao Park, Santiago Bay White Beach and Bukilat Cave in a year is PhP 617,468,921.00; PhP 199, 094,291.80; PhP 113, 304, 987.20 and PhP 408,021,345.90, respectively. These values can be considered as high recreational values implying the relevance of preserving and protecting these sites from overexploitation. Given these high recreational value estimates, the local government units and resource managers are suggested to formulate scientifically sound policies that will ensure the preservation and protection of the tourist destinations from overexploitation.

Keywords*:* travel cost method, recreational value, pseudo Poisson maximum likelihood estimator

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1. INTRODUCTION

The Philippines, being an archipelago, is blessed with seven thousand six hundred forty-one islands (7,641), which are rich in natural resources like white sand beaches and magnificent coral reefs (Traveloka, 2018). Four of these islands are the Camotes Islands situated in the Visayas. These four islands are Ponson, Pacijan, Tulang and Poro. These are considered part of Cebu province. Camotes is a group of islands consisting of four municipalities, namely Pilar, San Francisco, Tudela and Poro. It is known for its abundance in natural resources and especially known for its fine and white sand beaches. Owing to these, tourists flock to visit the Camotes islands. Many tourists from neighboring municipalities like Ormoc, Baybay and Cebu have visited these islands.

Tourism has been a major player in the economy of these four municipalities, especially in the municipalities of San Francisco and Poro. The most visited and well-known tourist destinations in Camotes are Buho Rock Resort in Poro, Bukilat Cave in Tudela, Lake Danao Park and Santiago Bay White Beach in San Francisco. On the one hand, Buho Rock Resort is known for its rock formations and cliff-diving facility. On the other hand, Bukilat Cave is known for its picturesque view, while Lake Danao is the largest lake in Cebu province. Meanwhile, Santiago Bay White Beach is a public beach managed by the Local Government Unit (LGU) of San Francisco. It is the widest beach in the entire islands of Camotes, consisting of three beach resorts, namely Santiago Bay Beach Resort, Masamayor Beach Resort and Payag Beach Resort.

With today's rapid development of tourist destinations, the issue of sustainable tourism becomes more vital. According to Phewmau (2013), tourism has been proven to be one of the keys to the growth and development of rural areas. This is one of the reasons why there is a need to estimate the recreational value of the tourist destinations in Camotes. However, the natural resources of these tourist destinations can be endangered and depleted. The preservation and conservation of natural resources are vital for the current and future generations. Since these resources provide services that have no market values, valuation is used in environmental economics to determine the economic value. Nowadays, valuation is considered as a tool in policymaking in developed countries**.** For instance**,** Zhang et al. (2014) determined the recreational value of Australia's Gold Coast beaches using the total cost method (TCM). In particular, they aimed to know the characteristics of beach users and their recreational use values for decision-making by using the number of visits to the beach as the dependent variable, while travel cost and socio-economic characteristics as independent

variables. They also employed the consumer surplus to derive the net benefits of visitors in using the recreational site, in which the consumer surplus per trip was estimated as the negative inverse of the coefficient of the travel-cost variable. They found that residents incurring higher travel costs in going to the beach had visited the beach less often. Their results also showed that travel costs and education were significant variables, whereby visitors with education degrees had frequently visited the beach. Moreover, Gold Coast beaches have a total recreational value of more than $500 million per year, thereby necessitating beach and forest protection to ensure that tourists continue to be attracted to Gold Coast and increase the income from tourism for Queensland (Zhang et al., 2014).

In another case study conducted by Navarro, Paca and Rimas (2005), Individual Travel Cost Method (ITCM) was used to estimate the value of national park eco-tourism in the Philippines. They estimated an aggregated consumer surplus of PhP 47, 062, 560 and recreational value of PhP 56, 335, 590. These values are consequential in resource management decisions at the government and community levels, allowing a more significant role of community areas in the protection and provision of the site that can enhance or assure the communities' income security and equity.

At present, studies using TCM or ITCM on estimating the recreational value of tourist destinations in Camotes are very limited. To fill this gap in the literature, this study aims to determine the recreational value of these tourist destinations (Buho Rock Resort in Poro, Bukilat Cave in Tudela, Lake Danao Park and Santiago Bay White Beach in San Francisco) for resource management and policy implications. Specifically, this study aims to determine the factors affecting the number of visits of tourists in every destination and obtain the tourists' willingness to pay for entrance fee for each destination. This study also aims to provide baseline information that would be significant in providing directions in conservation efforts and resource utilization. In turn, such baseline information will be vital in planning and decision-making for tourist developments in Camotes.

2. FRAMEWORK OF THE STUDY

Figure 1 simply shows how the cost method (TCM) works. With TCM, all costs incurred during the trip starting from home to the destination are being accounted. Costs from the destination back to home are also measured to get the roundtrip cost. In Nde's study (2011), to account for all the costs from home to

the destination, then back to home, travel cost from home to the site is multiplied by two to get the roundtrip travel cost. However, in the current study, the accounted costs are from home to the destination and the cost of going back home was not included.

Figure. 1 An illustrative model of the Travel Cost Method
(Adapted from Nde, 2011)

3. METHODOLOGY

Estimation of the recreational value

Based on TCM, the number of visits per year is used as the dependent variable. The travel cost and other socio-economic variables are used as independent variables. In this method, the demand curve is derived through the number of visits and travel costs. Based on the Law of Demand, as travel cost increases, the number of visits decreases, implying an inverse relationship. In Prayaga's study (2016), he used the model utilized by Freeman III (2003) which showed that an individual maximizes utility (u) based on the number of visits to the site ($Visits$), the quality of the site (q) and the vector of the individual's socio-economic and demographic variables (z). These socio-economic and demographic variables that are likely to influence trips to the recreation site (z) are age, recreational activities available at the current site, proximity to substitute sites and costs of travel to substitute sites. The individual maximizes utility as follows:

$$\text{maximize: } u(Visits, q, z)$$
$$\text{subject to: } M + p_w^* t^* = tc^* Visits \qquad (1)$$

where M is income, p_w is wage rate, t^* is total discretionary time which includes travel time and time spent on-site, tc^* is travel costs of a visit. The solution to this problem would result to the individual demand for visits to the recreation site.

$$Visits = f(tc, M, q, z) \quad (2)$$

Consumer surplus (CS) is the area under the demand curve between the individual's current price and their choke price (the price at which visits fall to zero). This can be mathematically represented as in Equation (3) and applies to any functional form (Parsons, 2003).

$$CS = \int_{tc0}^{tcchoke} f\ (tc, M, q, z)\ dtc \quad (3)$$

Moreover, according to Prayaga (2016), if the models estimated are log-linear as in the case of count data models, then consumer surplus (CS) per trip is estimated as the inverse of the coefficient of the travel cost variable. This was also used and mentioned by Kim et al. (2008), Zhang et al. (2014), Dehlavi and Adil (2011), Tang (2009), Fixon and Pangapanga (2016), Nde (2011) and Alam et al. (2017). In the application of count models like the truncated or zero-inflated Poisson and negative binomial models, the individual consumer surplus per trip is calculated as (Kim et. al, 2008):

$$CS_i = -1/\beta_{travelcost}, \quad (4)$$

where $-1/\beta_{travelcost}$ is the reciprocal of the travel cost coefficient.

Sampling Procedure and Data Collection

Primary data were collected through an on-site survey. A survey questionnaire, with 37 questions, was used in the collection of data. Respondents were given a choice between a self-administered survey or a face-to-face interview. Most of the respondents (96.40%) opted for a face-to-face interview that took an average of 10 to 20 minutes. Due to budget and time constraints, only 30 respondents were interviewed in each site except for Lake Danao Park with 35 respondents. Consecutive sampling method was used in the selection of 125 respondents. It is a non-probability sampling technique that includes all accessible subjects which meet the criteria of inclusion until the required sample size is achieved (Student Learning Center, 2013). In support of the primary data and provide more general information, secondary data were obtained from the

tourism office of the three municipalities. In this study, the pseudo-Poisson maximum likelihood estimator (PPML) is employed to determine the factors affecting the number of visits on each site. Descriptive statistics is also obtained to know the profile of respondents.

Econometric Model

The general ITCM takes the form (Willis and Garrod, 1990):

$$Visits_{ij} = \beta_0 + \beta_1 TotalTC_{ij} + \beta_2 Inc_i + \beta_3 Age_{ij} + \beta_4 NumSchool_{ij} + \beta_5 SubsCost_{ij} + \beta_6 SameProv_{ij} + \beta_7 Female_{ij} + \beta_8 Single_{ij} + \beta_9 Employed_{ij} + \mu_{ij} \quad (5)$$

where:

$Visits_{ij}$ = number of visits made by individual i within a year (12 months) to tourist destination j. This is the dependent variable

$TotalTC_{ij}$ = total travel cost incurred by individual i in visiting tourist destination j. This includes accommodation cost, food cost, opportunity cost of time and transportation cost

Inc_{ij} = monthly income of individual i in tourist destination j

Age_{ij} = age of individual i in tourist destination j

$NumSchool_{ij}$ = the number of years schooling of individual i in tourist destination j

$SubsCost_{ij}$ = cost of travel to the nearest substitute sites of tourist destination j by individual i.

$SameProv_{ij}$ = dummy variable of home address with 0 being home address from different provinces with Camotes and 1 being the same province with Camotes.

$Female_{ij}$ = dummy variable of gender with 0 being males and 1 being females

$Single_{ij}$ = dummy variable of marital status with 0 being married and 1 being single

$Employed_{ij}$ = dummy variable of employment status with 0 being not employed and 1 being employed.

μ_{ij} = error term

Scope and Limitation of the Study

This study mainly focuses on obtaining the recreational value of four tourist destinations in Camotes. Other values of the selected sites are not estimated. The on-site survey was conducted from February 9 to March 17, 2018, giving a possibility that the results would vary if the information was obtained in different time periods such as April, May and December, which are peak

seasons. This could not be avoided because of the limited time frame and meager budget of the study.

4. RESULTS AND DISCUSSION

In this section, the descriptive statistics and regression results are presented. The socio-demographic profile of the respondents, travel cost, changes on the sited that respondents want to see, willingness to pay, consumer surplus and recreational values are also discussed.

Socio-Demographic Profile of Respondents

Majority of those who traveled to the surveyed tourist destinations in Camotes Islands are college graduates. This is because they have jobs and can afford the cost of the trip. Specifically, 66.4% of the respondents have regular jobs and almost three fourths (72.2%) of them are non-government employees, as shown in Table 1. Since traveling is costly, it is expected that those who travel have regular jobs and monthly salary that will help cover the costs incurred during the trip. Out of 125 respondents, only 11.2% are government employees, 16.8% are students, unemployed and have already retired from work.

Majority of the respondents originate from Cebu (67.2%), as presented in Table 2. This shows that there are more visitors who come from the same province with Camotes Islands than those from other provinces. This is possibly due to close proximity and accessibility of these tourist destinations in the province. Other Filipino tourists come from Leyte, Manila, Bacolod, Negros Occidental, Iloilo, Misamis, Iligan and Mindoro. The respondents from Leyte are mostly from Ormoc, Baybay and Tacloban. Besides the local tourists, foreign tourists come from Europe, South Korea, Japan, Canada and Australia. In particular, tourists from Europe originate from Switzerland, Sweden, Spain and France. These suggest the diversity of tourists who have visited the identified sites.

Table 1. Socio-demographic profile of the respondents in four tourist destinations of Camotes Islands, 2018

	Frequency	Relative Frequency (%)
Gender		
Male	45	36.0
Female	80	64.0
Civil Status		
Single	86	68.8
Married	35	28.0
Widowed	3	2.4
Live-in	1	0.8
Level of Education		
Elementary Graduate	0	0.0
High School Graduate	5	4.0
College Level	27	21.6
College Graduate	88	70.4
Master of Science Graduate	5	4.0
Occupation		
Student	11	8.8
Self-Employed	9	7.2
Regular	83	66.4
Retired	2	1.6
Temporary	12	9.6
Others	8	6.4
Type of Employment		
Government Employee	14	11.2
Non-Government Employee	90	72.0
Others	21	16.8
Nationality		
Filipino	117	93.6
Foreigner	8	6.4

Table 2. Respondents' place of origin

Place	Frequency	Relative Frequency (%)
Cebu	84	67.2
Leyte	16	12.8
Manila	8	6.4
Bacolod	3	2.4
Misamis	1	0.8
Iloilo	1	0.8
Iligan	1	0.8
Mindoro	1	0.8
Negros Occidental	2	1.6
South Korea	1	0.8
Japan	1	0.8
Europe	4	3.2
Canada	1	0.8
Australia	1	0.8
Total	125	100.0

Travel Cost

The total travel cost is composed of the cost of going to the site, opportunity cost of travel time and the on-site expenses. However, the value of going to the site is not multiplied by two to estimate the roundtrip cost like what Nde (2011) did in his study. In this study, the cost of going to the site is only included in the total travel cost since the roundtrip cost could not be captured by the survey questionnaire. Moreover, opportunity cost of travel time is obtained through multiplying one-third of the wage by the time spent traveling and on-site. However, only a few respondents have included the opportunity cost of time in their total travel cost since they have no work during weekends. Hence, there is no opportunity cost of travel time. In addition, foreigners' opportunity cost of time of travel is not also accounted. As depicted in Table 3, the average total travel cost in Buho Rock Resort, Lake Danao Park, Santiago Bay White Beach and Bukilat Cave is PhP 3,686.53; PhP 2,872.37; PhP 4,251.93 and PhP 3,583.30, respectively. Respondents who have a total travel cost of around PhP 500-650 are those who are from nearby places like Danao and those with friends who shoulder their travel costs. Other respondents who incur a maximum of PhP 15,000-59,000 total travel cost originate from far places like Manila and

international tourists, mostly from Europe. This suggests that the total travel cost highly depends on the place of origin of the tourist/respondent.

Table 3. Respondents' total travel cost (in Pesos)

Tourist Destination	N	Minimum	Maximum	Mean	Std. Dev.
Buho Rock Resort	30	651	18990	3686.53	3878.91
Lake Danao Park	35	565	15515	2872.37	2989.84
Santiago Bay White Beach	30	610	59420	4251.93	10571.24
Bukilat Cave	30	520	15680	3583.30	3179.60

The relationship between the number of visits and total travel cost is shown in Figure 2. Conforming to the Law of Demand, the number of visits and total travel cost are negatively related, which implies that as the total travel cost increases, the number of visits decreases, ceteris paribus. Hence, as the total travel cost of going to a site increases, a tourist would not likely return. This result is similar to the findings of the study of Tang (2009), Muryani and Prabugati (2016) and Nde's (2011).

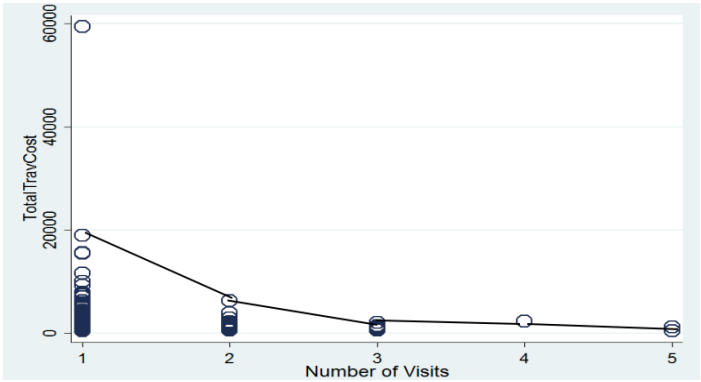

Figure 2. Relationship between the number of visits and total travel cost

Changes respondents want to see on the tourist sites in their next visit

The respondents want to see several changes on the tourist sites in their next visits, as shown in Table 4. In Buho Rock Resort, respondents want to see food stalls where they can have their snacks and meals, a souvenir shop where they can buy souvenirs for them and their friends, better path and tracks, cleaner and better comfort rooms and more lifeguards especially during peak seasons

and holidays. When this study was conducted, the site had only one lifeguard. Hence, respondents see the need to add more lifeguards. Meanwhile, respondents in Lake Danao Park want to see more water activities, zipline and a lifeguard on-site. In Santiago Bay White Beach, respondents want to see more water activities such as banana boats. They also want the beach to have a maintenance crew to keep the site clean. On the other hand, respondents want to see cottages outside Bukilat Cave where tourists can take a rest and can have a picnic. They also want to see food stalls where they can take their snacks and meals. Respondents in Bukilat Cave does not want to see many changes inside the cave because they want its natural beauty to be preserved. These imply that the destinations are still not yet well-developed and the respondents would like to see some changes in each site according to their needs (e.g., food stalls).

Table 4. Changes respondents want to see on the sites in their next visit

Tourist Destination	**Changes Respondents Want to See**
Buho Rock Resort	food stalls, souvenir shop, better path and tracts on site, better comfort room, more lifeguards
Lake Danao Park	more water activities, zipline, lifeguard
Santiago Bay White Beach	more water activities like banana boats, cleaner beach, maintenance crew
Bukilat Cave	cottages outside the cave and food stalls

Stated Willingness to Pay (per visit)

On average, respondents are willing to pay PhP 60.00 per visit for the changes in Buho Rock Resort, as shown in Table 5. Some respondents are willing to pay as much as PhP 200 and those who are unwilling. For the changes in Lake Danao, the average willingness to pay is PhP 58.14 per visit. When this study was conducted, activities available in Lake Danao were kayaking, pedal boating and boating to the islet. Respondents are willing to pay for more activities like zipline and other water activities in Lake Danao Park. In Santiago Bay White Beach, the average willingness to pay for the changes in the site is PhP 171.50. In Bukilat Cave, the average willingness to pay for changes is PhP 5.50 per visit. Among the four tourist destinations in Camotes, respondents had given Bukilat Cave the lowest amount of willingness to pay for the changes they wanted to see. Respondents are unwilling to pay for the changes since they want to preserve the natural beauty of the cave, which is consistent with their response to the changes they want to see in their next visit. Those who are willing to pay as high as PhP

50.00 want to see food stalls outside the cave where they could eat, but at the same time not altering the natural beauty of the cave.

Table 5. Respondents' willingness to pay for changes (in pesos)

Tourist Destinations	N	Minimum	Maximum	Mean	Std. Deviation
Buho Rock Resort	30	0	200	60.00	58.013
Lake Danao Park	35	0	500	58.14	93.053
Bukilat Cave	30	0	50	5.50	12.889
Santiago Bay White Beach	30	0	5000	171.50	911.993

Table 6 shows the respondents' willingness to pay for improvement and preservation through entrance fees. On average, respondents in Buho Rock Resort are willing to pay an entrance fee of PhP 51.50 per visit. This is higher by PhP 30.00 than the prevailing entrance fee of only PhP 20.00, at the time this study was conducted. Meanwhile, respondents in Lake Danao are willing to pay an entrance fee of PhP 32.17 per visit. When this study was conducted, entrance fees were not collected, but parking fees were collected. The parking fee for cars and multi-cabs is PhP 20.00 and PhP 15.00 for motorcycles, which are collected by the barangay officials of Brgy. Unido in San Francisco. In Santiago Bay White Beach, the average willingness to pay for entrance fee is PhP 38.17 per visit. This is quite high since the prevailing entrance fee is PhP 0. This clearly shows that respondents are willing to pay for the preservation and improvement of the site. Lastly, in Bukilat Cave, the average willingness to pay for an entrance fee is PhP 35.00 per visit which is higher by PhP 15.00 compared to the prevailing entrance fee of PhP 20.00. The improvement they are willing to pay is exactly the changes they wanted to see at the site on their next visit. The high willingness to pay for an entrance fee on these sites implies that respondents are willing to pay for reasonable amounts as long as they will see the improvement and preservation of the sites. Respondents believe that as these sites will be improved (e.g., construction of food stalls), the natural and non-manmade beauty should also be preserved. They want activities in the site, not alterations on its natural beauty.

Table 6. Respondents' willingness to pay for improvement and preservation through entrance fees (in pesos)

Tourist Destination	N	Minimum	Maximum	Mean	Std. Deviation
Buho Rock Resort	30	10	150	51.50	36.58
Lake Danao Park	35	10	150	32.17	26.42
Santiago Bay White Beach	30	10	200	38.17	40.16
Bukilat Cave	30	20	100	35.00	24.28

Factors affecting the number of visits of respondents to the tourist destinations

Based on the results of the pseudo-Poisson maximum likelihood estimator, the coefficients of total travel cost in four tourist destinations are negatively related to the number of visits. This result denotes that as the total travel cost (TTC) of respondents increases, their number of visits to the site declines. Specifically, the coefficients of TTC in Buho Rock Resort, Lake Danao Park, Santiago Bay White Beach are statistically significant at 1% significance level. Moreover, the coefficient of TTC in Bukilat Cave is statistically significant at 5% confidence level. All the coefficients of TTC are statistically significant. This indicates that when tourists pay more to go to the site, they are not likely to go back again. This result is consistent with the economic theory of Law of Demand that as price increases, quantity demanded decreases. This is also consistent with the studies of Nde (2011), Fixon and Pangapanga (2016), Alam et al. (2017) and many more studies in this field. Meanwhile, income is only statistically significant in Buho Rock Resort and Santiago Bay White Beach at 5% confidence level. However, in all three sites except in Bukilat Cave, income is positively related to the number of visits. This implies that as income increases, the number of visits to the sites also increases. The result conforms to the hypothesized relationship of the two variables because visiting tourist destinations basically incur cost. Hence, visitors who have higher income have the capability to visit the site again. This result is consistent with the findings of Tang (2009), in which the higher income the visitor earns, the more trips they will take to the site.

In terms of the age and number of school years of the respondents, statistical significance at 10% level is not observed in all four sites. This entails that both factors do not influence their number of visits to the sites. By contrast, substitution costs are all statistically significant, which implies that it affects the number of visits of the respondents to a specific site. Substitution cost is positively related to all sites, which is consistent with what is expected. This demonstrates that as substitution cost to another site increases, the number of visits to the specific site also increases (Zhang et al., 2014). When the cost of

going to a substitute site or if site B is high, people will tend to revisit site A due to its lower travel cost. Hence, people would tend to revisit the site if the cost of the substitute site is high. At 1% level of significance, substitution cost is highly significant in Buho Rock Resort and Bukilat Cave, while it is significant in Lake Danao Park and Santiago Bay White Beach at 5% level of significance.

In Bukilat Cave, respondents coming from places of the same province with Camotes are more likely to go back to these sites. Since these respondents' places of origin are within the same province with Camotes, they are located closer to Camotes, entailing a lesser travel cost; hence they are more likely to go back to these sites. Notably, the coefficient is statistically significant at 10% level of significance, showing that the place of origin has a direct influence on the respondent's number of visits in Bukilat Cave. By contrast, places of origin of the respondents do not influence the number of visits of the respondents in Buho Rock Resort, Lake Danao Park and Santiago Bay White Beach.

Further, being female is not significantly affecting the number of visits of the respondents in Lake Danao Park, Santiago Bay White Beach and Bukilat Cave. However, in Buho Rock Resort, being female is significantly influencing the number of visits of respondents. This indicates that females are more likely to go back than males on this site. It can be seen that in this study, female respondents are more adventurous than male respondents, given the characteristics of Buho Rock Resort. Conversely, in all sites, being single is not significantly affecting the number of visits of respondents. Similarly, being employed is not significantly affecting the number of visits of respondents in Buho Rock Resort and Bukilat Cave, but is notably significant in Lake Danao Park and Santiago Bay White Beach. This implies that those who are employed tend to go back to these sites than those who are unemployed. This is expected since those who are employed have salaries that can let them afford the cost of traveling.

Table 7. Pseudo Poisson Maximum Likelihood Result with Visits as dependent variable

Variables/Site	Buho Rock Resort	Lake Danao Park	Santiago Bay White Beach	Bukilat Cave
Total Travel Cost	-0.000122*** (4.26e-05)	-0.000106*** (3.74e-05)	-0.000141*** (4.43e-05)	-5.61e-05** (2.84e-05)
Income	6.04e-06** (2.60e-06)	3.11e-06 (3.83e-06)	1.56e-05** (6.66e-06)	-5.89e-08 (5.56e-07)
Age	0.000835 (0.0131)	0.00420 (0.00892)	-0.0168 (0.0129)	0.00937 (0.00704)
Number of School Years	0.0377 (0.0651)	0.0549 (0.101)	-0.0189 (0.0469)	0.0265 (0.0271)
Substitution Costs	0.00165*** (0.000517)	0.00136** (0.000658)	0.00100** (0.000508)	0.000961*** (0.000178)
Same Province	0.249 (0.210)	-0.531 (0.361)	-0.0193 (0.149)	0.228* (0.117)
Female	0.292* (0.154)	-0.265 (0.284)	-0.0359 (0.101)	-0.125 (0.126)
Single	-0.285 (0.195)	0.162 (0.293)	0.121 (0.153)	-0.0801 (0.214)
Employed	0.226 (0.190)	0.331* (0.195)	0.571*** (0.0805)	-0.00557 (0.0834)
Constant	-0.724 (1.358)	-0.329 (1.456)	0.540 (0.687)	-0.667 (0.599)
Observations	30	34	29	29
R-squared	0.499	0.370	0.699	0.484

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Consumer Surplus

Consumer surplus is the difference between the total amount that the consumers are willing and able to pay for a good and the total amount they

actually pay. It is used to measure the welfare or the benefits gained by a person from consuming a good or service. As shown in Table 8, the consumer surplus of the respondents is PhP 8, 196.72 in Buho Rock Resort, PhP 9, 433.96 in Lake Danao Park, PhP 7,092 in Santiago Bay White Beach and PhP 17, 825.31 in Bukilat Cave. Among the four sites, respondents in Bukilat Cave have the highest consumer surplus per trip.

Table 8. Tourists' consumer surplus (in pesos)

	Buho Rock Resort	**Lake Danao Park**	**Santiago Bay White Beach**	**Bukilat Cave**
Consumer Surplus	8,196.72	9,433.96	7,092.20	17,825.31

Diagnostic Test

In assessing the validity or acceptability of the model, the regression models are subjected to diagnostic tests (i.e., omitted variable test, heteroskedasticity, non-normality, multi-collinearity and model specification error). It is consequential for the regression model to undergo certain diagnostic tests to prevent misleading results and conclusions. Each regression model in each site has undergone diagnostic test.

Results show that the regression models of Buho Rock, Lake Danao Park, and Bukilat Cave are heteroskedastic, which means that the errors have different scatter. Hence, these three models are corrected through robust standard error. Consequently, the regression models of Buho Rock, Santiago Bay White Beach and Bukilat Cave have specification error since the values of hatsq are less than 5%. Meanwhile, the problem of omitted variables is found in the model of the Santiago Bay White Beach since the p-value is less than 5%. Non-normality of residuals is also found in the model of Lake Danao Park since p-value is significant at 10%. On the other hand, all four models do not suffer the problem of multicollinearity. The problem of omitted variables is not seen in the models of Buho Rock, Lake Danao Park and Bukilat Cave. Additionally, non-normality of residuals is not found in the models of Buho Rock, Santiago Bay White Beach and Bukilat Cave. Lastly, the model of Santiago Bay White Beach is homoskedastic and the model of Lake Danao Park has no specification error.

5. CONCLUSION AND POLICY IMPLICATIONS

For resource management and policy implications, this study determines the recreational value of four tourist destinations in the Camotes Islands of Cebu, Philippines. Based on the annual number of tourist arrivals in each site, it can be concluded that the recreational value of Buho Rock Resort, Lake Danao Park, Santiago Bay White Beach and Bukilat Cave in a year is PhP 617,468,921; PhP 199, 094,291.8; PhP 113, 304, 987.2; and PhP 408,021,345.9, respectively. Given the high recreational values of these sites, it is beneficial to preserve and protect these tourist destinations from overexploitation. Therefore, this study recommends the three municipalities to develop scientifically sound management policies for the preservation of tourist destinations.

Moreover, this study suggests that respondents want to have food stalls, a souvenir shop, more lifeguards and more water activities, better paths and tracks, and better comfort rooms in Buho Rock Resort. In Lake Danao Park and Santiago Bay White Beach, respondents want to experience more water activities and at the same time, maintain the cleanliness of the site. Since respondents are willing to pay for an entrance fee in Santiago Bay White Beach, it is recommended to set an entrance fee to maintain the cleanliness of the site. Lastly, in Bukilat Cave, respondents want to keep the natural beauty of the site and as much as possible, no man-made interventions should be done. Meanwhile, other respondents want to see food stalls and cottages outside the cave. Hence, this study is recommending to the private owners and LGU of Tudela to make cottages outside the cave where visitors can rest. They should also encourage the residents of Brgy. Mac-Arthur, where Bukilat Cave is situated, to put up food stalls where visitors can eat.

6. RECOMMENDATIONS

For future studies, the author recommends taking into account the multiple-destination trips by letting the respondent rank all the destinations they have visited. Through the ranking of the site, the researcher would know the weight of each site to the respondent. Additionally, it is recommended to have a larger sample size as well as separate local and foreign respondents for better results. It is suggested to take into account the two-time period and also consider peak seasons such as summer periods and December. It is recommended to do a package level analysis wherein all costs of respondents who went to all sites (from site 1 to site 2 to site 3 to site 4) are accounted to get the number of visits and the total travel cost. Lastly, a study that determines the carrying capacity of the island is also recommended.

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