Valuing non-market goods, services & leisure time analysis of tourists of Coxsbazar beach, Bangladesh: Hybrid Travel Cost method

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Abstract

The main attractions of sea beaches include their scenic beauty, entertainment, security, and nature. An appropriate pricing policy can be used to preserve and maintain sea beaches. The current study uses the Hybrid travel cost method (HTCM) as a non-market valuation technique to value the Coxsbazar beach in Bangladesh. In this developing country, few or no previous works of this kind have been conducted. The paper's main objective was to understand the willingness to pay (WTP) and analyse the socio-demographics and the characteristics of visits. Another primary aim of this paper is to analyse time spent on the site concerning income.

Using the HTCM excluding shopping costs, the study revealed that the amount respondents were willing to pay was 3129.15 Bangladeshi Taka (bdt), and the yearly consumer surplus was 13477182683 bdt. Using the HTCM, including shopping costs, the study showed that respondents were willing to pay 3519.975 bdt and the annual consumer surplus was 15160533122 bdt. Furthermore, from the Leisure time analysis, it was found that Leisure time spent on the site was strongly positively related to family and personal income. The consumer increased the demand for spending more leisure time on the site (luxury items) more than proportionately as his family money income rises. Additionally, it revealed that the consumer increased the total leisure time spent for the total yearly trip to Coxsbazar less than proportionately as his money income rises (normal good).

Keywords *Consumer Surplus · Travel Cost Method (TCM) · Willingness to Pay (WTP) · Hybrid Travel Cost Method*

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1.   Introduction

Bangladesh has introduced and revitalised its nature-based tourism in its protected areas in cooperation with local people to conserve biodiversity. Coxsbazar is the most popular tourist destination in Bangladesh. **Cox's Bazar** is a seaside town, a fishing port and district headquarters in Bangladesh with the longest unbroken sea beach in the world (Bangladesh Parjatan Corporation). Due to its free accessibility and associated attractions like sunrises/sunsets, sea-food restaurants and street-side Burmese markets, many people visit the area. The beach of Coxsbazar performs ecological functions and provides recreational facilities to those who visit this area. Millions of foreigners and Bangladeshi natives visit this city every year. Tourism of Coxsbazar is contributing significantly to the economy of Bangladesh. Besides, many non-market goods and services are associated with it. The current study applies the hybrid travel cost method as a non-market valuation technique to value the Coxsbazar beach in Bangladesh as it is necessary to measure the consumer surplus (CS) of the tourism in Coxsbazar and the willingness to pay (WTP) of the tourist to visit this beach.

Although there is no entry fee for Coxsbazar beach, tourists spend a significant amount of money visiting and staying there. Thus the economy of Bangladesh primarily benefitted through the tourism of Coxsbazar. The local people of Coxsbazar immensely benefit from tourism in many ways. Such as, they benefit through growing economic and educational opportunities in that area and cultural exchange, which would not be otherwise possible (Siddique & Jamil, 2013). Researchers have also stated that developing countries can earn significant revenue from recreational activities used for their development purpose. In a paper by Dikgang et al. (2017), it is reflected that sharing conservation revenue with communities surrounding parks could demonstrate the link between ecotourism and local communities' economic development and promote a positive view of land restitution involving national parks.

Furthermore, it was found that improved facilities and infrastructure are likely to lead to both increased visitation and higher revenues in recreational places (Guha & Ghosh, 2009). The natural beauty of Coxsbazar can produce enormous income through tourism if improved facilities are provided to the tourists along with safety and other necessities (Siddique & Jamil, 2013). However, in a developing country like Bangladesh, it is crucial to preserve ecologically critical areas and beaches to preserve the area by maintaining biodiversity, regulating recreational activities and controlling unregulated tourism. Unregulated tourism creates problems for environmental resource preservation in developing countries (Bharali & Mazumder, 2012). Researchers have found that the water of the Bay of Bengal and the beaches are getting polluted by the debris the tourists throw away. The tendency of Bangladeshis to use plastic materials and the single-use or throw-away culture worsens the problem of pollution (Amin, 2019; Islam, 2019).

Bangladesh is a country of heterogeneous socioeconomic conditions; this research presents significant results by reflecting the relationship between leisure time spent on the site and the population's income. Bangladesh is graduating from Least Developed Countries (LDCs) to Least Middle-Income Countries (LMICs) by 2024. Furthermore, as the socioeconomic condition of the people of Bangladesh improves significantly and Bangladesh becomes a more prosperous country, the demand for leisure and visiting Coxsbazar will likely increase in future. This study will indicate the nature of future travel demand to this site.

This research will analyse leisure time by considering leisure as non-market goods and services. Leisure is considered a good, and most goods can be purchased with income, but they cannot be purchased in the case of non-market goods and services. Leisure is also a non-market good. Goods are a source of consumer satisfaction, whether purchased on the market or produced and consumed at home. Leisure time is also an essential component of life quality and influences life satisfaction (Walega & Walega, 2017). Many research determined the relationship between leisure and income (Walega & Walega, 2017; Saksirituthai, 2012). Thus in this research, leisure time analysis is done concerning income.

The need for policy intervention to restore the environment is growing substantially as people in developing countries exploit the environmental resources for different purposes. Thus the need for internalisation of externalities valuation research and conservation-based management policy frameworks arises as the lack of these has caused the degradation of several of the world's natural resource-rich sites, such as marine beaches of developing nations (Dixon et al., 1994). Policies to address environmental problems rely on non-market valuations (Karen et al., 2007). In this research, non-market valuation techniques were used to determine Consumer surplus, consumers' willingness to pay, and leisure time analysis. The study will explain people's perception of the leisure time spent and travelling to Coxsbazar: whether it is a normal, inferior or luxury good. The specific objectives of this study were: 1) to identify the socio-demography of visitors, 2) to identify the characteristics of the visits made by visitors, and 3) to calculate consumer surplus (CS) from the perspective of the travel cost method (TCM), 4) to identify the willingness to pay (WTP) from TCM, 5) To analyse Leisure time for income; 6) To understand the perspective of tourist in terms of the condition of the beach.

2.   Study Area

Cox's Bazar is a city, fishing port, tourism centre and district headquarters in south-eastern Bangladesh. The beach in Cox's Bazar is sandy and has a gentle slope; with an unbroken length of 120 km, it is the longest natural sea beach in the world. It is located 150 km south of the divisional headquarter of Chittagong. Cox's Bazar is one of Bangladesh's most visited tourist destinations, although not a major international tourist destination. In 2013, the Bangladesh Government formed the Tourist Police unit to protect local and foreign tourists better and look after the

nature and wildlife in the tourist spots of Cox's Bazar. As one of Bangladesh's most beautiful and famous tourist spots, the primary source of economy in Cox's Bazar is tourism. For this research, the sample was randomly collected from three major beaches in Coxsbazar city: Laboni, Kolatoli and Shugondha. The rationale behind selecting these three areas as the study area is that these are the most popular beaches for tourists of Coxsbazar. In Figure 1, the study area is depicted.

Figure 1: Study Area and location, Coxsbazar, Bangladesh

3. Literature Review

This article contains an overview of the few primary methods/tools, namely the Hybrid Travel cost method, willingness to pay, the relationship between income and expenditure through the Engel Curve and leisure time analysis and the validation of their use for this research to reach a non-market value for Coxsbazar beach. There are some rationales behind why leisure time analysis is taken into account, which is mentioned in this section.

3.1 Hybrid Travel Cost Method

This study is based on a hybrid approach where the zonal approach of the travel cost method was combined with individual information. TCM was used to capture the economic value of natural resources as an integral part of designing financial incentives and a proper allocation for better management (Islam & Majumder, 2015). There is much research concerning the valuation of recreational sites (forest parks, national parks, beaches etc.) using TCM such: Chen et al., 2004; Herath & Kennedy, 2004; Dwyer et al., 1983; Knapman & Stanley,1991; Rolfe & Gregg, 2012; Stevens & Allen, 1980.

Furthermore, only a few researches were found regarding the valuation of recreational sites in Bangladesh (forest parks, national parks, beaches etc.) where TCM was used (see, Kawser et al., 2015; Shammim, 1999, Tahzeeda et al., 2018). On the other hand, the valuation of beaches in Bangladesh is scanty and only very few researches are found addressing the valuation of beaches, such as Nde (2011), Komahan & Gunaratne (2017). The paper of Islam & Majumder (2015) provided a brief overview of natural resources' economic valuation, including the travel cost method with a case study from Foy's Lake, Chittagong, Bangladesh. Thus there is a need for research related to the beach of Bangladesh. Shammin'S (1999) paper used the TCM to determine willingness to pay for the services of the Dhaka Zoological Garden. Kawser et al. (2015) focused on Lawachara National Park for quantifying the recreational value and the functional relationship between travel costs and visiting a national park. The work of Tahzeeda et al. (2017) had targeted the National Botanical Garden of Bangladesh for determining revenue by maximising entrance fees by quantifying the consumer surplus.

In the hybrid method, a combination of the individual and per capita approaches is used where the number of trips by each user in a sample is scaled up to represent the total zonal use and then divided by the zonal population adjusted to user "shares" that is the population of the zones divided by the number of users (Ward & Beal, 2000). The hybrid travel cost model considers the individual visitor as a unit of observation and allows for maintaining the personal travel cost, travel time, and demographic variables. Additionally, the dependent variable is calculated by dividing that individual's visits by their share of the zones' population to calculate trips per capita. The share of the population depends on how many visitors came from that zone of origin (Loomis et al., 2008).

3.2 Welfare Calculations

The utmost important objective of the recreation-demand analysis is to compute welfare measures that can be fed into policy analysis (Yen & Adamowicz, 1993). Both willingness to pay and the consumer surplus are crucial to measuring welfare. Willingness to pay (WTP) has been applied extensively to measure non-marketed goods and services in many research (Markantonis et al., 2013, Ghanbarpouret et al.,2014, Islam et al., 2016).

TCM is based on calculating the Marshallian consumer surplus (Bateman, 1995). Consumer surplus (CS) is the difference between the total travel costs or expenses incurred by a visitor to a recreational site and the maximum amount they were (or would be) willing to spend to make the visit or trip (Timah, 2011). The consumer surplus is brought out based on the assumption that the benefits of the same public goods or services are equivalent for every visitor. The further they travel, the more they pay. When travel costs exceed the benefit, the travel behaviour will not happen (Tang, 2009).

3.3 Engle Curve

The Engel curve describes how the expenditure on a commodity varies with household income. Engel curves are crucial in estimating the impact of demographic changes on demand. Ina growing economy, these estimates assist in forecasting the demand for some necessary items like food and energy. The formulation of government policy heavily relies on the Engel curve. Assessment of events' welfare impacts depends on the Engel curve's shape. The welfare impact on individuals or households with low income is underestimated if the shape of the Engel curve is quadratic but assumed linear (Hasan, 2012).

The shape and structure of the Engle curve are used for identifying and making an assumption and identifying the nature of the goods, such as whether it is standard, inferior or luxury goods, in a few research (Babu et al., 2014; Chiappori & Meghir, 2015). For luxury items, the Engle curve is upward sloping and convex downwards, showing that the consumer increases the demand for that good more than proportionately as income rises. For a normal good, the Engle curve is upward sloping and convex upwards, and the consumer increases the demand for the good less than proportionately as his money income rises. For inferior goods, the Engle curve has a negative gradient. That means that as the consumer has more income, they will buy less of the inferior good because they can purchase better goods. There are some items for which the expenditure would increase proportionately with rises in money income; in this case, the Engle curve would be a straight line.

3.4 Leisure Time Analysis

Leisure can provide satisfaction like other goods and services. As leisure cannot be brought into the market, it falls under non-market goods and services. People spend considerable time on leisure activities, whereas they spend only eight (8) hours, one-third (1/3) of their daily time working. Thus, the utility maximising function must focus on non-marketed goods and services, including leisure. In the study of Saksiriruthai (2012), it was mentioned that according to the utility maximisation theory, individuals maximise utility by consuming goods, services, and leisure time. The study also emphasises the importance of leisure by stating that people spend about 16 hours daily on non-market activities, including leisure.

Leisure gives people satisfaction. The satisfaction derived from leisure time is another component of the usability function. The consumption of leisure time is one of the elements of household choice theory. It is acknowledged that consumers derive satisfaction from consuming goods and services and from leisure time at their disposal. Sharing time for work and relaxation is an economic choice like any other. Households devote their time to market work, housework and leisure time (Walega & Walega, 2017).

Leisure time analysis is done to understand the vital relationship between leisure and demographic information. Demographic information of respondents is used to determine the relationship between leisure time and different groups of

people. Saksiriruthai's (2012) research mentions that comparing leisure time use across other groups is possible if combined with demographic information.

As there is a strong relationship between leisure time and money, it is crucial to find the relationship between these. A strong relationship is found between time budget and cash budget. Along with cash budget management, time budget management is an important aspect of human behaviour (Walega & Walega, 2017). There is a need to understand the crucial relationship between leisure time and income. Moreover, there are researches where the authors attempt to assess the diversification of time devoted to leisure depending on the level of income among working people (Walega & Walega, 2017; Saksirituthai, 2012). In this research, the relationship between leisure time and income group is done to analyse how people perceive leisure time and how they will behave if their income increases.

3.5 The Need for Environmental Valuation at Coxsbazar

Although many non-market valuation studies have been widely carried out in the developed world, including studies related to sea beaches, very few non-market valuation studies have been conducted in the developing world. In contrast, the studies on sea beaches are very scanty (Timah, 2011). Additionally, there is a dire need to conduct research focusing on developing countries (Henrich et al., 2010).

There is no previous research on the valuation of Coxsbazar beach, particularly on tourism, where the tourists' perspective was taken into account. Coxsbazar is considered one of the most popular tourist destinations in Bangladesh. Scanty documents are found related to the area of tourism and tourist except for travel brochures, Bangladesh Parjatan Corporation, Centre for Injury Prevention and Research (CIPRB), and hotel communication. Thus there is a need for further research in this area. Very few studies are found related to the tourist's perception of Coxsbazar. Therefore, observing the nonexistence of the available data and predicting the tourist place's future demand, there was a clear need to carry out an environmental valuation method to protect the environmental public good.

4. Methods and Methodology

4.1 Questionnaire Design

A semi-structured interview questionnaire was designed to gain information on WTP in this study. The survey questionnaire was chosen because it encourages a high response rate and is suitable for complex questions. The questionnaire was divided into three sections: Socio-demographic characteristics, characteristics of the visit, amount of leisure time spent travelling and on the site.

The first section of the questionnaire gathered information on visitors' demography, such as nationality, age, and education. This section included the visitors' geographical area, such as the city and district they came from. This section focuses on the family and personal income in detail. The second section was designed to obtain information on characteristics associated with the Coxsbazar

visit, such as mode of transport and cost associated with that, the total cost of visiting the place, travel cost, shopping cost on-site, out-of-pocket expenses such as food consumption and other utilities used in the area, cost related to sports in the area, visiting rate (number of visits per year) and reasons for visiting. In this section, the focus is also given to the nature or the purpose of the visit. The final section focused on time spent travelling and the total time spent on the site.

4.2 Sampling and Data collection

The first step was to undertake the field work and collect data from visitors. During the first fieldwork phase, a systematic random sampling method was applied where every fifth visitor who entered the beach area was chosen as a sample. Seventy-four samples were collected in four days (from 22 March to 25 March 2019). This method was selected for its simplicity, and the results derived from this method were likely to be representative. All respondents were above 18 years of age. However, all the tourists were Bangladeshi nationals. The sample was randomly collected from three major beaches in Coxsbazar city: Laboni, Kolatoli and Shugondha. In the second data collection phase, 31 respondents were chosen for in-depth interviews (18 August- 22 August 2019) to deeply understand their perception of Coxsbazar beach. A purposive sampling method was used where sixteen (16) foreigners and fifteen (15) Bangladeshis were selected for in-depth interviews. However, in the second data collection stage, only qualitative tools are used, including in-depth interviews and observation methods. Thus a total of 105 in-depth interviews were taken, whereas 74 samples were taken for quantitative analysis.

For data collection in the first phase, the survey consisted of a mixture of closed and open-ended questions followed by a semi-structured in-depth interview. The observation method was also used for this purpose. Then the actual number of visitors was determined. It is pretty popular to use the on-site survey to estimate recreation-demand models. Mukanjari's (2018) paper estimated recreation-demand models for KNP using on-site survey data derived from consumer surplus estimates. Next, a regression analysis was carried out on the zones with the actual number of visitors as dependent variables. We assumed that the number of visitors would be inversely related to the travel cost. Data related to gender, age group, monthly family income, monthly personal income, academic education, characteristics of the Coxsbazar, reasons for visiting, transportation mode and travelling cost and time, and leisure time spent on the site were analysed. SPSS and Microsoft Excel were used to analyse the data. Consumer surplus and aggregate consumer surplus were calculated. For measuring the Travel Cost method, information related to all transport-related costs, including local transportation cost, transport cost from the origin of the visitor to the location, accommodation cost, and food cost on both the site and during travel, were included. Additionally, all out-of-pocket expenses such as sports and food costs, including snacks on the site, were included. However, three separate analyses are done using the shopping cost on the site, one-third of the shopping cost on the site and no shopping cost on the site.

4.3 Hybrid TCM Analysis

This research applied a hybrid travel cost method where both zonal and individual travel cost methods were used. The zonal model of the TCM is applied, whereas geographic divisions were used by calculating the distance from the site. Thus, a total of 12 zones were identified based on the distance from the site, Coxsbazar. First, districts are arranged based on the traveller's home or location. The difference of distance of 50 km was used to distinguish each zone. Then the number of visits is determined, basically the number of people who have visited the area from the location.

The observed number of visits, the actual number of visits (Vr), visits per population (Vrp) for (1 million), travel cost, and travel cost adjusting for multiple site visits were mentioned during the analysis. Vrp is calculated by considering an actual number of visits divided by the total population of that particular area. The actual number of visits was calculated by multiplying an observed number of visits and 157. The total number of visitors to the site over the four days was 46400 (as per CIPRB communication). Therefore, the sample can be converted to actual data by multiplying the number of visitors by (46400/4)/74=156.8 ~ 157. Travel cost was calculated as the average travel cost from that zone which was adjusted by considering the multipurpose visit. The individual travel cost method is used where travel cost is determined by adding the observed number of visitors and their number of visits in the last year.

4.4 Consumer Surplus and Willingness to Pay

The area finds daily Consumer surplus under the demand curve. Yearly consumer surplus is found by using Riemann Sum for the area of the trapezoid. Yearly Consumer surplus is derived by multiplying the daily consumer surplus by 365 (Tahzeeda et al., 2018). Willingness to Pay (WTP) is calculated by dividing the Yearly Consumer surplus by the number of visitors in a year.

5. Result Analysis

5.1 Demographic Information

In the first data collection phase, 74 samples are chosen through random sampling. Among them, thirty-two (32) were female, and forty-two (42) were male. However, one (1) of the male participant was physically challenged. Among the male, five (5) of them are students. Among the 32 females, 12 are homemakers, and 2 are students.

The majority of the respondents, twenty-five (25), have a maximum master's or equivalent educational level. Sixteen (16) have a maximum bachelors or equivalent education. Six (6) of them have maximum education of diploma. Sixteen (16) have maximum education up to high school completion. Seven (7) of them have completed secondary school exams. One (1) of them have studied until primary school, and three (3) respondents have very little or no institutional education.

By analysing the age group, it was found that almost 80 % of the respondents (59 respondents) are young, and their age range is between 18 to 35 years. Twenty-eight (28) of the respondents are between 18 to 25 years. Thirty-one (31) respondents are aged between 26 to 35 years. Twelve (12) of them are aged between 36 to 45 years. Two (2) of them are aged between 46 to 55 years old. Only one (1) of the respondent is over 55 years old. It is not surprising that most of the respondents are young, as the travel time is very long (around 12 hours) and the distance is very long from most major cities. Thus it is physically exhausting to travel to the site.

One of the most critical elements of this analysis is the family income per month. Thus it was analysed in the paper. Only two (2) have less than 5000 Bangladeshi Taka (bdt) family income. Nine (9) have family income between 5000 to 20000 bdt. Twenty-four (24) of them have a family income between 20001 to 50000 bdt. Eighteen (18) have family income above 50001 to 100000 bdt. Twenty-one (21) have a family income above 100000 bdt per month. Additionally, monthly personal income was analysed, and the result was striking compared to the monthly family income analysis. It was found that almost 34 % of the respondents belong to the lower or lower-middle-class group, as twenty-five (25) have income less than 5000 bdt. Twelve (12) have personal income between 5000 to 20000 bdt. Twenty-four (24) have personal income between 20001 to 50000 bdt. Twelve (12) have personal income above 50001 to 100000 bdt. One (1) respondent has a personal income of over 100,000 bdt.

Furthermore, the purpose of the visit was analysed. Most respondents visited the place for entertainment, either with their family or friends, as thirty-seven (37) of them visited the site for a family visit and entertainment. Twenty-six (26) of them visited the place with their friends. Next, six (6) of them visited the place for their official purpose, and five (5) visited it for work and other reasons.

The purposive sampling method was used in the second data collection phase, where sixteen (16) foreigners were interviewed. Four (4) of them are Srilankans, seven (7) of them are Indians, one (1) and four (4) of them are Nepalese, and one (1) of them are Afghanistani by Nationalities. Ten (10) of them are working and are job holders, whereas 6 (six) of them are postgraduate students. All these foreigners are there for job purposes or training. Ten (10) of them are between the age range of 18- 35 years, and five (5) are between the age range of 36-45 years. On the other hand, among all Bangladeshi nationalities, six ranged between age 18 to 35, 7 ranged between 36 and 45; and two (2) were over 65 years old. All of them have at least a master's. Their income and other related variables are not used for the quantitative analysis as purposive sampling was used. These people were targeted to understand their perception of the beach, and their suggestions were considered.

5.2 Hybrid Travel Cost Method

Travel cost is measured in three states. In the first case, only travel costs were calculated by ignoring shopping costs. In the second case, only one-third of the

shopping cost was included in measuring consumer surplus. In the last case, shopping cost adjacent to the beach area was included apart from travel costs. The rationale behind adding shopping costs was that most people who travel long distances tend to buy souvenirs from Coxsbazaar beach, dried fish, etc., from the beach or shops adjacent to beaches, contributing to the overall economy.

First, all 12 zones were arranged based on lowest to highest Vrp. Next, the relationship between the travel cost and Vrp was computed.

For determining travel costs apart from all relevant travelling costs, on-site, food and accommodation, and shopping costs were also considered. However, three states were identified for measuring travel costs related to shopping costs. The first state showed the relationship between Travel costs without considering shopping costs; the second state depicted the relationship between Travel costs without considering one-third of the shopping cost. The final state incorporated total shopping cost into the travel cost and showed the association with Vrp.
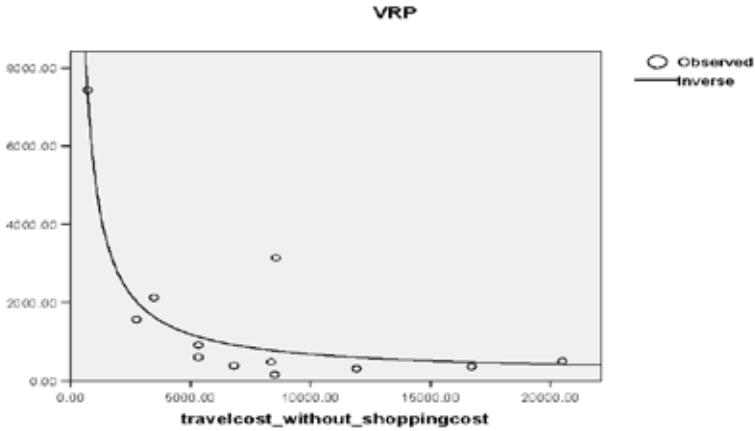
State 1: In-state 1, Travel cost without considering shopping cost was derived. Table 1below the relationship between travel cost without shopping cost and Visitation rate per 1 million population.

Table 1: Zonal model of the Hybrid travel cost method analysis

Zone	Vrp/.000001	Travel Cost without shopping (BDT)
I	160.48	8500
L	313.73	11910
K	367.55	16697.50
E	388.96	6800
H	481	8347
N	502.50	20495
J	603.85	5327.50
C	912.92	5314.31
B	1573.62	2740
F	2126.05	3465.83
M	3146.67	8550
A	7439.28	708.56

The relationship between travel costs without shopping costs and the Visitation rate per population is depicted in Figure 2. It was found that the R square is 0.846. Adjusted R Square is 0.831. It was calculated that the Yearly consumer surplus is 13477182683 bdt. Willingness to pay is 3129.15 bdt.

Figure 2: Travel cost without shopping cost and VRP

State 2: In-state 2, Travel costs considering one-third of the shopping cost, were shown. Table 2 below the relationship between travel cost considering one-third of shopping cost and the Visitation rate per 1 million population.

Table 2: Travel cost considering one-third of the shopping cost

Zone	VRP/.000001	Travel Cost with 1/3 shopping cost in BDT
I	160.48	8750.65
L	313.73	12576.67
K	367.55	21214.16
E	388.96	6800
H	481	9861.33
N	502.50	20495
J	603.85	5661
C	912.92	6043.87
B	1573.62	2740
F	2126.05	4131.89
M	3146.67	9000
A	7439.28	753.40

The relationship between travel cost considering 1/3 of the shopping cost and Visitation rate per 1 million population is depicted in Figure 3. It was found that the R square is 0.84, and the adjusted R square is 0.83. Here, it is calculated that the Yearly Consumer Surplus is 14419566992 bdt. Willingness to pay is 3347.94 bdt.

Figure 3: Travel cost considering 1/3 shopping cost and VRP
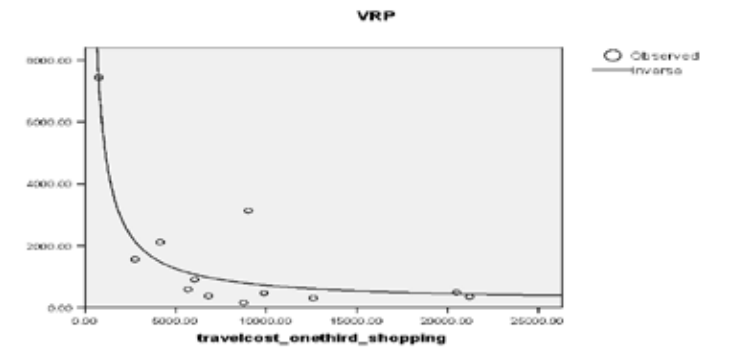
State 3: Travel cost with considering full shopping cost is explained in the state 3. Table 3 below the relationship between travel costs considering total shopping costs and the Visitation rate per 1 million population.

Table 3: Travel cost considering full shopping cost

Zone	Vrp/.000001	Travel cost with shopping cost
I	160.4818	9250
L	313.7292	13910
K	367.5457	30247.5
E	388.9595	6800
H	481	12890
N	502.4987	20495
J	603.8462	6328
C	912.9232	7503
B	1573.616	2740
F	2126.054	5464
M	3146.667	9900
A	7439.28	841.5455

The relationship between travel cost considering full shopping cost and Visitation rate per 1 million population is depicted in Figure 4. It was found that the R square is 0.83, and the adjusted R square is 0.81. Here, the Yearly Consumer surplus is 15160533122 bdt. Willingness to pay is 3519.975 bdt.

Figure 4: Travel cost considering full shopping cost and VRP
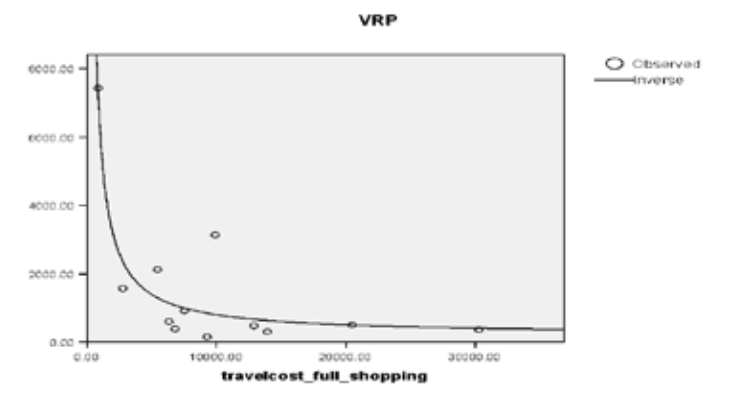
5.3 Leisure Time Analysis Concerning Income

For the study, both personal and family income were identified. Four (4) Groups were decided based on income. Group 1, or the first Group, consists of people whose income is less than 5000 bdt, including homemakers and students. Group 2, or the second group, consists of people whose income ranges between 5000 to 20000 bdt. Group3 or the Third group of people are those whose income range is 20001 to 50000 bdt. Group 4: Fourth range of people are those whose income is 50001 to 1 lac Bdt. The fifth group of people are those whose income range is over 100000 or 1 lac bdt.

By analysing each income group with average time spent on the site, it was found that there is a strong correlation between income and time spent on the site. Higher the income range, the higher the time spent on the site. So, more time is spent on the site when the income is high. So time here was also related to income.

5.3.1 Analysis of Personal Income and Leisure on that Particular Trip

From analysing personal income with leisure time spent on that trip, it was found that more time is spent on the site when the income was higher on a single trip to the site. Polynomial regression was used for analysing the data. It was probably due to the affordability of staying at sight, as expected accommodation and food expenses were another explanation people can afford more leisure with given income or the demand for leisure is higher as income is higher. Thus leisure is an average good here.

Leisure time spent on the site in that single trip and personal income was represented in Figure 5 below where R Sqr is. 776. As shown in the R^2, about 77 per cent of the variation in the visitation rate could be explained by the polynomial regression model. Leisure time spent on the site was strongly positively related to personal income.

Figure 5: Leisure time spent on the site and Personal Income
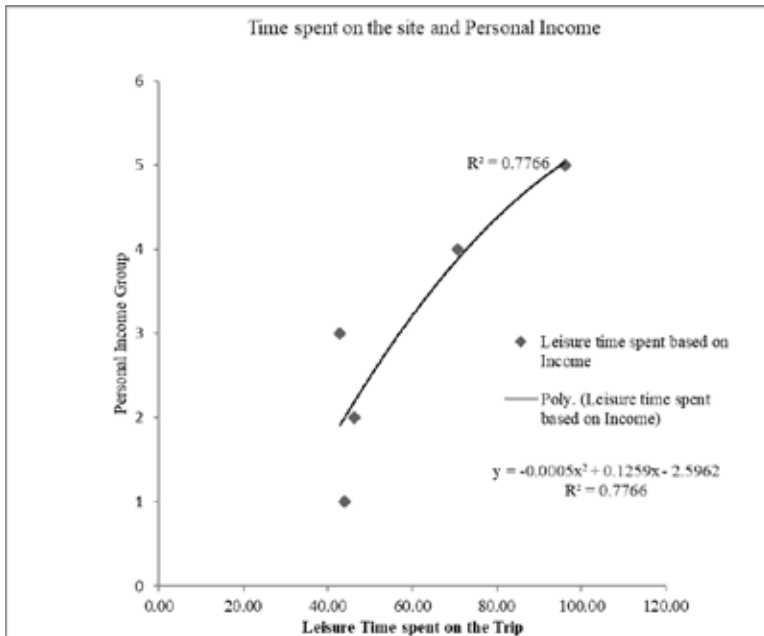
5.3.2 Leisure time Analysis for Family Income

It was found that among the visitors, many women were house-makers. Additionally, many students have a high family income, whereas their income is low. Thus family income was used to determine the only time spent on the site for the trip.

Family Income and Time spent on the site:

First, regression was done between family income and time spent on site. Below Figure 6 is represented where it was found that the R square is higher, which is 0.874. It is found from the Engel Curve of the graph that the consumer increases the demand for spending more leisure time on the site than proportionately as his family money income rises. The Engel curve for this good is upward sloping and convex downwards like the curve given, indicating it is a luxury good.
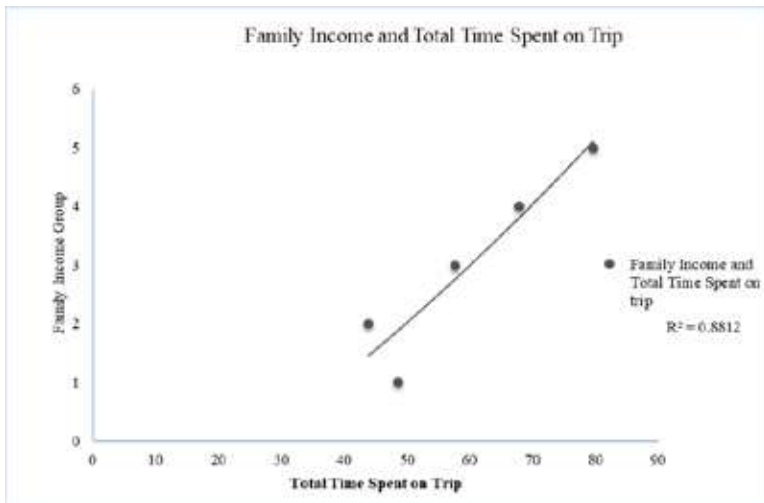
Figure 6: Leisure time spent on the site and Family Income
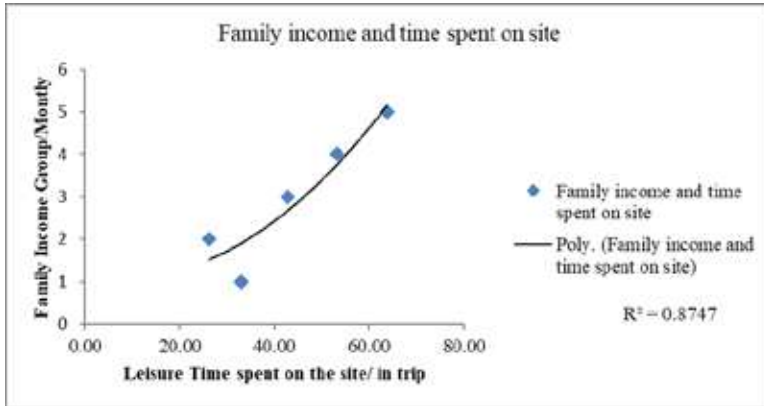
Family Income and Total Time spent on the trip:

Regression was done between family income and total time spent on the site. Total time spent on the visitation is calculated by considering total travelling time and time spent on the trip. Figure 7 shows the relationship between total time spent on the site and family income. It was found that with polynomial regression, the R square is 0.8812. So, there is a strong relationship between these two variables. The graph also found that as the Engle curve was almost linear, the total time spent on the site increased proportionately as family income increased.

Figure 7: Total time spent on the site and Family Income

Next, in this stage, the total yearly visit of the visitors is also incorporated. Figure 8 shows the relationship between the annual total time spent on the site and family income.

It was found that the R square becomes higher with polynomial regression, which is .995. So this relationship was strongly positive. The Engle curve found that the consumer increased the total leisure time spent for the total yearly trip to Coxsbazar less than proportionately as his money income increased. Thus it can be considered a normal good.

Figure 8: Yearly total time spent on the site and Family Income
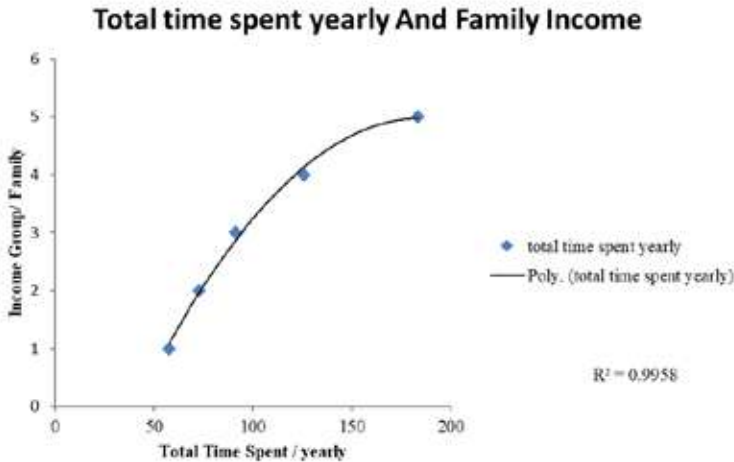
5.3.3 Analysis of Time

As income increases, the leisure time investment for the yearly trip to Coxsbazar would increase at a decreasing rate. Thus it is a normal good. However, as income increases, people tend to stay longer on the trip to Coxsbazar more than proportionately. It indicates that it is a luxury good in terms of time spent on the site. As people's income increases, they tend to increase the duration of the trip more than making frequent trips to the site. It reflects that travel time does not increase significantly with income increase.

5.4 Relationship Between Income and Total Cost

There is a positive relationship between personal and family income groups and the total cost of the trip. In this analysis, the time value of money was ignored as it might overestimate the cost of the trip. Thus, travel time was not considered a monetary cost but was calculated separately. It was found from the regression of the Family Income group, and the total cost that Adjusted R Square was 0.807 and R Square was 0.856. So a strong relationship was seen between increasing income and total cost.

5.5 Observation and Perception of the Tourist: Result of In-depth interview about the perception of the tourist and Observation

To delve into the tourists' perception regarding the beach, a total of 105 in-depth interviews were taken. It was found that most people complained about the beach's cleanliness and lack of facilities, including the shortage of clean public toilets in the area. Many tourists also complain about the security issue of the area, particularly during nighttime. Some expressed their concern related to mugging at night and eve-teasing. However, locals and outsiders are apprehensive about that area's growing drug usage, which threatens the security of the tourists. Thus there is an increasing security concern, and authorities should be more alert about these issues.

The observation method realised that the beach's cleanliness had improved significantly as many dustbins and small buckets for throwing dirt were implemented. It is also observed that the small shopkeepers on the beach are also highly concerned about the pollution of the beach, and thus while selling food (like coconut or nuts), they request the customers to throw the dirt on the bins. However, there is still much non-organic dirt, and such plastic materials are thrown in that area. Most of the international respondents stated that although the beach was beautiful, many noticeable plastic bottles were found on the beach. There was also opinion from international tourists related to that area, stating that the roads or intercity communication in Coxsbazar is not satisfactory. Tourists from Srilanka also mentioned that the goods price is higher in Coxsbazar compared to that of neighbouring countries.

It was also observed that within the last two years, CIPRB had implemented lifeguards on the main three beaches of Coxsbazar, Kolatoli, Laboni and Shugandha. In contrast, they do not maintain other significant beaches, such as Enani beach of Coxsbazar. Another international respondent raised that issue and stated that more lifeguards must be available to ensure the tourists' safety in that area.

5.6 Limitation

For this research, travel time was not considered as a monetary cost. In the modern world, most people shifted to full-time work than wage-based work. Thus, most people who visit the area have full-time work instead of wage-based work. Additionally, some people are students, and some women are housemakers with no wage or monetary income. On the other hand, travel time is also reflected in travel cost itself. Thus, a separate analysis was done to overcome this limitation where leisure time spent travelling and on the site was considered an independent variable.

6. Conclusion

This paper sets out to conduct an economic valuation to accompany a holistic analysis of the prospects of understanding the current demand of visiting the place for tourism and then projecting the future demand of tourism in Coxsbazar as

income will eventually rise in Bangladesh. People with various age ranges and incomes visit the place from the demographic profile.

By analysing the Hybrid Travel cost method, WTP and Consumer surplus were determined. By excluding shopping costs, the study found that respondents were willing to pay 3129.15 Bangladeshi Taka (bdt) and the yearly consumer surplus was 13477182683 bdt. Including full shopping costs, the study found that the amount respondents were willing to pay was 3519.975 bdt, and the annual consumer surplus was 15160533122 bdt. Finally, by including only one-third of shopping costs, the study found that willingness to pay was 3347.938 bdt, and the yearly consumer surplus was 14419566992 bdt.

The time analysis found that Leisure time spent on the site was strongly positively related to family and personal income. The consumer increased the demand for spending more leisure time on the site (luxury items) more than proportionately as his family money income rises. Thus, leisure time spent on the site is considered a luxury item. On the other hand, total leisure time spent yearly on the site can be regarded as normal. It can be rephrased that as people's income increases, they tend to prolong their duration on the trip more instead of making frequent trips to the site. Finally, it can be suggested that as many respondents have shown their concern about their insecurity and cleanliness of the beach, it is essential to take these into account for meeting the demand of increasing tourism in the area, mainly through removing the plastic pollutants from that area. As the demand for tourism in Coxsbazar will increase significantly and it will contribute to the economy of the country, thus there is a dire need to ensure sustainable tourism in Coxsbazar.

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