

VISITORS' WILLINGNESS TO PAY FOR LOCAL TOURIST ATTRACTIONS IN SABANG BASED ON TRAVEL COST METHOD

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Abstract: *This study aimed to find out factors influencing the number of local and foreign tourists' visits and measure the value of willingness to pay for tourist attraction in Sabang using Travel Cost Method. Primary and secondary data were used in this study. The primary data was collected from 40 local tourists using the non-probability sampling technique and analyzed using multiple linear regression. The secondary data was obtained from Statistics Indonesia, Sabang Tourism Office, as well as literature review. The result of the study showed that (1) in the case of local tourist, the independent variables, i.e. travel cost, alternative cost, income, time cost have a significant influence toward the number of local tourist visits, with $R^2= 0,616$. (2) the average amount that the local tourists were willing to pay was above their travel cost. The local tourists were willing to pay IDR 1.883 million. The writers would like to suggest in improving the tourism in Sabang, the government should consider the concept of sustainable development with close relation to environment. Non-market economic valuation is one of the ways to do that.*

Key words: *willingness to pay, local tourist, foreign tourist, travel cost method.*

INTRODUCTION

1.1. Background

1.1.1. Tourist Attractions in Sabang

Weh Island is located on the northwestern tip of Sumatera with Sabang as its capital. Its topographic characteristics include lowland with hills, mountains, and rocky coasts. Weh is the largest island in the group of islands also consisting of Klah Island, Rubiah Island, Seulako Island, and Rondo Island. Sabang Tourism Office recommends a number of tourist attractions to be visited in Sabang, namely:

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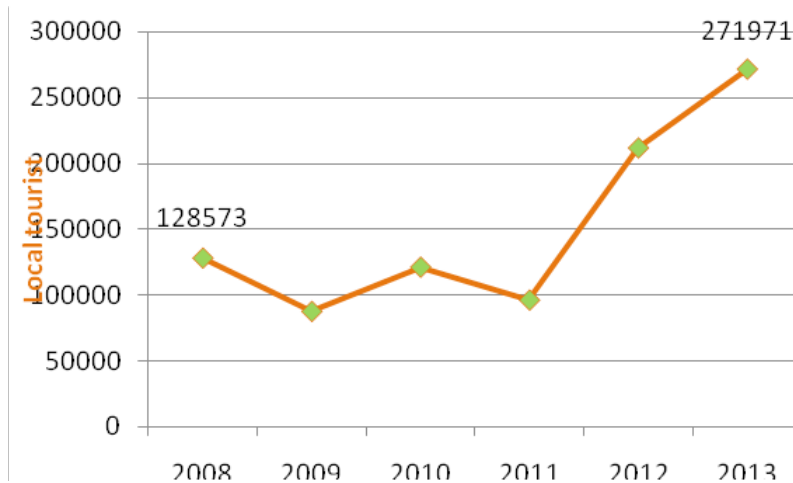
1. The Kilometer Nol Monument; built as the marker of the starting point of Indonesian archipelago. Visitors can get a Kilometer Nol certificate, signed by the mayor of Sabang, when visiting this site. The monument is situated about 29 kilometers from the town of Sabang.
2. The Sabang-Merauke Twin Monument; called so because it has a twin situated in Sota, Papua.
3. Iboih; famous for its marine tourism. There are 20 diving sites in Weh Island which are divided into two zones. The first zone stretches from the west of the peninsula, Rubiah Island and to the east to Paradiso Beach. The second zone covers Sabang peninsula to the west and along the rim of the southern part and up to the eastern part of the island. The diving sites in between the two peninsulas are BateeDua, Gapang Beach, BateeMeuronron, Sea Garden, Iboih Beach, ArusPaleeh, EastSeulako, WestSeulako, BateeTokong, BateeGla, UjongBak U, The Canyon, and PateePeunateung.
4. Jaboi; a site associated with the legend of the origin of the name 'Sabang'. It was believed to have derived from the word 'shabag' meaning erupted mountain, which is evidenced by the Jaboi volcano.
5. Nature exploration such as cycling along the coast or on the mountain trail, diving, snorkeling, taking pictures, fishing, underwater sightseeing from glass-bottom boats, ship dining, ship wedding, Sabang Hill which is known as one of the best places to enjoy a sunset, and a thousand historic Dutch fortresses that strengthen the relationship between Sabang and the Netherlands.
6. Beach attractions: Iboih, Gapang, Kincir, Aneuk Laot, Paradiso, Pantai Kasih, Sumur Tiga, Tapak Gajah, Anoi Itam, Jaboi and Pasir Putih.

A lot of tourists are attracted to the marine tourism in Sabang. The hospitality of the local people towards the visitors also adds to the attractiveness of Sabang.

1.1.2. The Number of Local Tourist Visits in Sabang

There has been an increase in the number of local tourist visits in Sabang which reached the peak in 2012. Sabang Tourism Office has been contributing to the increase by organizing numerous events to attract tourists to Sabang (Figure 1.1).

Figure 1.1: The Number of Local and Foreign Tourists Visiting Sabang from 2008 to 2013 (Person)



Source: Aceh Tourism Office, 2014

There have been numerous studies conducted in Sabang, but the main concern is whether the results can be practically applied. So far, Sabang Tourism Office has just started compiling the research findings on tourism. The globalization era calls for sustainable research on this topic. The comprehensiveness and accuracy of data becomes crucial, including a wide range of research findings on tourism in Sabang and this research in particular.

Furthermore, complication in measuring the value of intangible natural resources has left the value overlooked in the development planning process. A sustainable development process which is closely related to environmental issues and concerns with the interest of the future generation requires a consistent commitment from various parties including the research aspect. Therefore, a measurement of non-market economic valuation of tourist attractions in Sabang is required.

1.2. Problem Formulation

Based on the explanation above, this study aims to answer the following questions: what are the factors influencing the number of visits of local tourists and their willingness to pay for tourist attractions in Sabang? And how much are the local tourists willing to pay for tourist attractions in Sabang based on Travel Cost Method?

1.3. Research Objectives

The objectives of this study are: to identify factors influencing the number of local and foreign tourist visits in Sabang and to measure the local and foreign tourists' WTP (Willingness to Pay) in Sabang using Travel Cost Method.

1.4. Research Significance

The significance of the study is as follows: to broaden the range of studies on economic valuation in ecotourism area and to inform the policymakers and relevant parties of the tourism sector development based on the local and foreign tourists' willingness to pay (WTP) for tourist attractions in the town of Sabang using Travel Cost Method.

REVIEW OF LITERATURE

2.1. Theoretical Foundation

2.1.1. Tourist Demand

The market interaction between buyers and seller is performed with an assumption that the services and goods being traded have values. The same assumption is applied to individuals' need for recreational activities. The need is then followed by the demand for it. The market interaction was brought forward by Alfred Marshall who stated that a demand is a combination of a number of commodities requested by consumers at various levels of prices in a certain period.

Tourism demand is an individual or a group of people intending to travel to Sabang which depends on a number of factors. Foster (1985) mentions several main factors influencing the travel such as : 1) the tourist profiles which can be categorized into: (a) the social and economic characteristics consisting of age, education, and income rate, (b) the behavioral characteristics consisting of motivation, attitude, and aspiration of the tourists, 2) the knowledge to do the traveling consisting of the information on the tourist destination as well as its facilities and services 3) the travel characteristics consisting of distance, length of stay at the destination area, cost, and travel time, 4) the resources and characteristics of the destination consisting of types of attraction, accomodation, availability and quality of services and facilities, environmental condition, and so on.

Clawson and Knetsch (1975) state that the recreational demand is generally shown in the form of a list of volumes or visit rates at various levels of travel cost. They also add that there are several factors influencing the demand for recreation sites, namely:

1. Individual factors or factors associated with potential users which consist of: a) the number of individuals present in the vicinity of the recreation site, b) geographical distribution of the potential consumers in relation to the ease and inconvenience to reach the recreation site c) social and economic characteristics such as age, sex, occupation, number of family members and education level, d) average income and its allocation, e) average leisure time allocation, f) special education, experience and knowledge related to recreation.
2. Recreational factors such as: a) beauty and attractiveness, b) intensity and management system, c) number of alternative recreation sites, d) recreation site's capacity to accommodate visitors e) characteristics of climates and weathers of the recreation site.
3. Factors related to the link between the potential demand and recreation site such as: a) length of time spent traveling from home to a recreation site and back, b) comfort in traveling, c) travel cost, d) travel expenses to visit the recreation site, e) promotion cost.

McEachern (2001) mentions the factors that influence demand other than the price such as income, price of related goods, taste and preference, change in the estimation of future relative price, and people.

There are three types of demand in this study: 1) actual demand, related to the number of people currently traveling who are using and in need of facilities and services in Sabang, 2) potential demand, related to the number of people intending to travel to Sabang but are currently unable due to time and cost constraints, 3) postponed demand, related to the number of people motivated to travel to Sabang.

Tourism development is an effort to encourage individual demand so that a person who initially only wishes to travel finally gets to do so and those who have traveled to or are currently in Sabang will be very likely to make other visits in the future. In addition, non-market economic valuation is part of the consumer demand which can potentially improve the welfare of the people in Sabang.

2.1.2. Consumer Surplus and Willingness to Pay of the Tourists

Willingness to Pay (WTP) is an individual or a tourist's willingness to pay for an environment condition or evaluation of natural resources and natural services in order to improve the quality of environment in Sabang to match the desired standard. According to Samuelson and Nordhaus (1990), consumer surplus is the difference between what consumers actually pay for a product and what they would be willing to pay. Consumer surplus is used to measure the consumers' willingness to pay for the benefit of tourist attractions as proxy. Surplus can be measured from the consumption or production of goods and services by natural

resources as a standard of welfare. The foundation of natural resource economics lies in the management of those resources to provide benefits and welfare for the whole community.

The total of consumer surplus is under the demand curve and above the price line. Consumer surplus occurs when the consumers receive more than what they pay for and it is rooted in Law of Diminishing Marginal Utility. Consumer surplus reflects the benefit gained by the community from its natural resource consumption minus the amount paid for the consumption. It is an intangible concept but too important to overlook because it can provide information on the consumers' desire to pay for a good produced by the natural resources.

Pearce and Turner (1990) classify the methods of economic valuation of natural resources based on two curve approaches: 1) Marshallian and Hicksian demand curve approach, 2) non-demand curve approach. The demand curve approach has two aspects: 1) the demand is measured by observing individual preference for natural resources and it uses a questionnaire as an instrument, 2) the demand is observed through individual payment for natural resources through a market that is related to the consumed natural resources. Hicksian demand curve measures welfare using compensation of income, while Marshallian demand curve measures welfare using consumer surplus.

The demand curve lowered by maximizing satisfaction or utility will result in a Marshallian demand curve. On the other hand, the demand curve lowered by minimizing expenses will result in a compensated demand curve.

An individual will attempt to maximize satisfaction (U) toward the consumption of two goods, namely good X and Y which are bounded by the fixed income (M):

$$M = P_x X + P_y Y \quad (2.1)$$

Therefore, the satisfaction that should be gained by the consumer lies in choosing the X and Y which will produce maximum satisfaction. In a graph, it can be observed from the slope of the budget line that is tangential to the utility function slope, thus resulting in an optimum consumption for X and Y which is the function of price and income.

Sistematically: $\text{Max } U(X, Y)$

With constraint: $M = P_x X + P_y Y \quad (2.2)$

Equation (2.2) is a Marshallian demand function, whereas another alternative to lowering the demand curve is by minimizing expenses with the utility constraint's reaching a certain level of U° . Mathematically:

Min $M = P_x X + P_y Y$

With constraint: $U(X, Y) = U^\circ \quad (2.3)$

The optimal value of x and y is the function of price and utility:

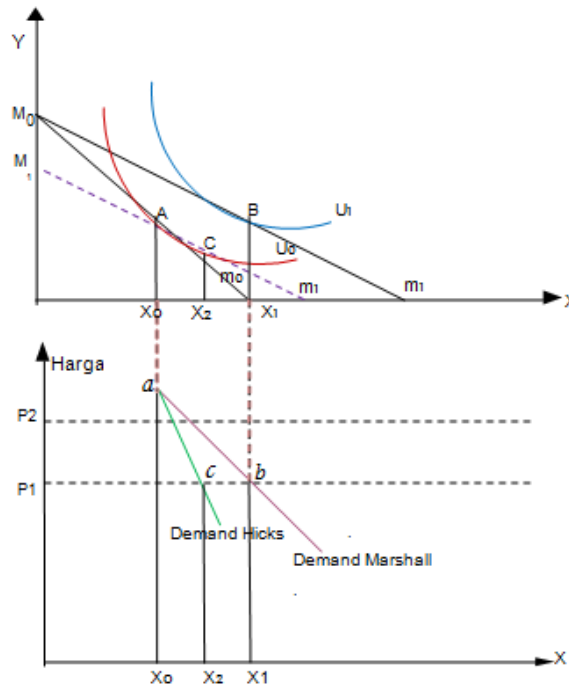
$$X^{H|X^H} = x(P_x, P_y, U^0)$$

$$Y^{H|Y^H} = y(P_x, P_y, U^0) \tag{2.4}$$

Consumer surplus or its changes can be seen on the Marshallian demand curve in Figure (2.1). The areas bounded by the demand curve are P_0 , ab , and $P1$, whereas the areas behind the Hicksian curve namely P_0 , ab , and $P1$ are called Compensating Variation.

Willingness to pay can be more properly measured using Hicksian demand because it is associated with Compensating Variation and Equivalent Variation measurement in the demand theory. Therefore, WTP can also be defined as a maximum amount that an individual is willing to pay in order to avoid diminishing utility.

Figure 2.1: The Marshallian and Hicksian Derived Demand Curves



Source: Fauzi (2006)

2.1.3. *Non-market Economic Valuation and Tourists' Willingness to Pay*

Value is a person's perception of a place at a particular time. Utility, satisfaction, and leisure are other accepted terms that connote value or price. Price is determined by time, good, or money to be expended by a person in order to own or use a desired good or service. Valuation is an activity related to concept development and methodologies to estimate the value of goods and services (Davis and Johnson, 1987).

Economic value is defined as a measurement of the maximum amount of goods and services that someone is willing to sacrifice in order to obtain other goods and services. This concept is formally called the willingness to pay for goods and services produced by natural resources and environment. By using this measurement, the ecological value of ecosystem can be interpreted into economic language using goods and service monetary measurement. For example, if a beach ecosystem is damaged because of pollution, the value lost due to environmental degradation can be measured from an individual's willingness to pay for restoring the environment. The valuation of environmental benefits is based on tourists' willingness to pay for rehabilitation or Willingness to Accept a compensation for environmental quality degradation within a natural system and the quality of surrounding environment (Hufschmidt et al., 1987).

Haab and McConnell (2002) state that an accepted WTP measurement must fulfill several requirements, namely (a) WTP has no negative lower bound, (b) the upper bound of WTP must not exceed the income, (c) there is a consistency between the randomness of assumption and randomness of calculation. Mathematically, $0 \leq WTP \leq M$. The calculation of environmental cost has undergone considerable development. Economic valuation of natural resource utilization has been applied primarily in developed countries whose citizens allocate a budget from households or individuals' incomes for traveling or recreational purposes.

Bateman and Turner (1992) state that when inquiring about WTP to respondents, it is also necessary to ask them about Willingness to Accept (WTA). WTA is respondents' minimum willingness to accept their environmental condition. Considerable samples are usually called for due to high variation of WTP measurements. The standard statistical error of WTP is $WTP_{se} = \sigma/n$ or standard deviation is divided by sample root. Therefore, statistical errors can be minimized by adding the number of samples. The consideration of sample size is important because of two reasons. First, the accuracy of value estimation is very crucial for policy analysis. An estimation with a wide range of errors becomes less credible. Second, statistical precision influences the ability to detect differences between estimation values which will result in difficult validation process. It is more proper to measure economic value using WTP because it is a behavior-based

study (using behavioral model). In practice, WTP is more frequently used than WTA which is not an incentive-based measurement.

According to Garrod and Willis (1999), although the amounts of WTP and WTA are the same, there is always a difference in the measurement where the amount of WTA is typically two to three times larger than that of WTP. There are a number of factors causing this: 1) the inadequacy in designing questionnaire and interviewing technique, 2) WTA measurement is related to endowment effect, where the respondents may refuse to place a value on a natural resource. They may argue that the natural resource being valued is irreplaceable which leads to the rise in its price. It is called loss aversion, where an individual tends to place a higher value on losses, 3) Respondents might respond cautiously to WTP answer by considering their reasons and preferences.

In general, economic valuation of non-market resources is divided into two categories. The first one is the valuing technique that relies on implicit price where WTP is revealed through the developed model which includes Travel Cost, Hedonic Pricing, and Random Utility Model. The second category is Contingent Valuation Method (CVM) and Discrete Choice Method which are survey-based valuation techniques where willingness to pay is obtained directly from the respondents in both oral and written forms.

2.1.4. Travel Cost Method (TCM)

Travel Cost Method (TCM) is the oldest method used to indirectly measure economic value which derives from the notion developed by Harold Hotelling. Two contributions of Hotelling towards resource and environment economics were marked in 1931 in a political economic journal on the topic of resource economics and its limitation, and a letter that he wrote to the director of National Parks Service in 1947 discussing how to measure the economic values of recreational parks. His thought on the model of recreational travel cost demand is still used up to now. Hotelling's idea was formally introduced by Wood and Trice (1958) and Clawson and Knetsch (1996). The method is mostly used to analyze the demand for outdoor recreation such as fishing, hunting, hiking, and so on.

According to Garrod and Willis (1999), there are two techniques used to determine the economic value based on TCM. The first is a simple approach of Zonal TCM (ZTCM) that relies heavily on secondary data and some simple data collected from the respondents during a survey. Therefore, this approach is relatively simple and inexpensive. In applying this technique, a recreational beach site is divided into several visit zones and the data on the number of visits each year is required. This technique will obtain the number of visits per 1000 people. By acquiring such data as well as the data on distance, travel time, and travel cost

(per kilometer), the total amount of Travel Cost and the demand curve for tourist attraction visits can be obtained. The second is Individual Travel Cost Method (ITCM) which mostly uses the data obtained from a relatively more complex survey and statistical technique, thus producing a relatively more accurate result compared to the zonal method.

The value that the consumers place on natural and environmental resources can be examined by understanding their expenditure pattern when sacrificing both time and money to visit tourist attractions in Sabang. TCM can be used to measure the causal cost-utility which includes: (a) changes in access cost such as entrance fee to a recreational site, (b) additional recreation sites, (c) changes in the environmental quality of recreational sites, (d) closing of an existing recreational site.

The main objective of TCM is to determine the usefulness of natural resources using proxy approach. The travel expenses made for the services of natural resources is used as proxy to determine the price of the natural resources. The basic assumption of the TCM approach is that each consumer's utility and his or her activities such as recreational ones are separable, meaning that the demand function of recreational activities such as fishing is not influenced by the demand of other relaxing activities such as watching television and shopping.

Furthermore, Haab and McConnel (2002) state that there are two critical stages in performing a valuation using TCM. The first stage is determining a model behavior relating to whether the preference function of the developed TCM should be hypothetically defined first before developing the model behavior, or the behavioral model can be immediately developed. The second stage is deciding on locations which relates to whether modelling should be conducted for several or all locations. The demand function should be formulated based on the basic assumptions so that the natural resources valuation using TCM is not biased. Those assumptions are, among others: (a) travel cost and time cost are used as proxy of recreational price, (b) travel time is neutral which means that it does not generate either utility or disutility, (c) the travel is a single trip (it is not multi-trips).

2.2. Previous Research

Smith, Desvousges and Fisher (1986) has conducted a comparison of recreational benefit valuation between two valuation methods. For Indirect Method (Travel Cost), Generalized Travel Cost Model (Marshallian and Hicksian) and Simple Travel Cost Model were used. For Direct Method (Contingent Valuation), direct question, payment card and iterative bidding techniques were used. The results indicated an almost similar estimation. Meanwhile, Caulkins, Bishop and Bouwes

(1986) conducted a valuation of water quality improvement in a recreation site using Multiple Logit Model (MNL) and Alternative Travel Cost Method (ATC). The results showed that the use of MNL generated a lower prediction of recreational demand curve increase compared to ATC. MNL used the assumption that there was a shift in tourist visits from one site to another improved site, whereas in ATC, there was no reallocation of visits to other places. That was what caused the difference in the prediction results.

Kling (1988) in his study questioned the reability of benefit estimation of the recreational demand model by testing a number of models. The test found two important factors in benefit estimation, namely the function form selection and model specification.

Sobari (2006) used Travel Cost Method with a sample of 30 Acehese tourists in his study. The findings concluded that the economic value of Ecotourism Park of WehIsland Sea was IDR 30,902,587,657.26. The policy priority of the ecotourism park management was Marine Protected Area (MPA) because it had a higher and more stable utility value of 0.583 compared to the utility value of Market Development (*Pengembangan Pasar*) which was 0.417 and Status Quo (SQ) which was 0.375.

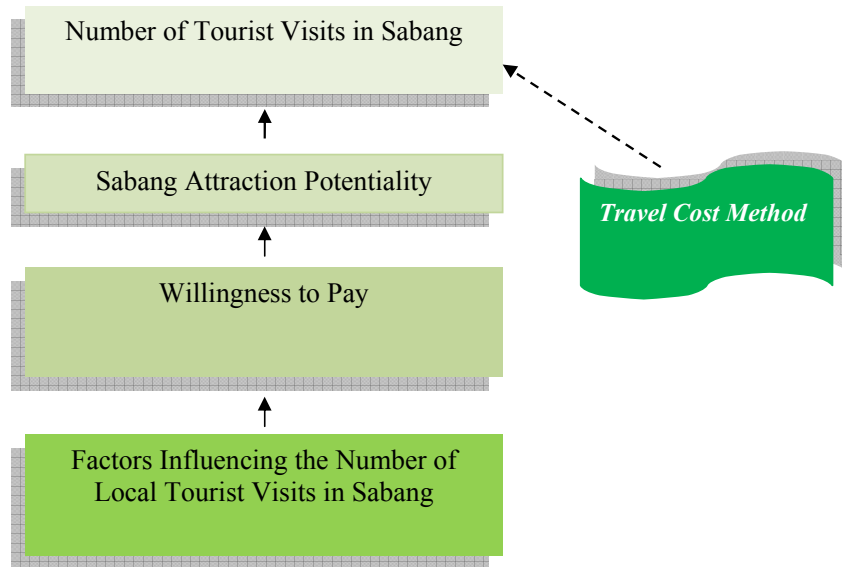
Generally, a higher income of an individual results in a higher demand for recreational products and environmental service. The need for environmental service in the form of recreational sites is influenced by several factors such as travel cost, distance, time, education level, visitors' perception, substitution characteristics, facilities, individual income, and so on.

The research period, number of samples, and research variable development are the main factors distinguishing this study from the previous research. However, the similarity can be found in the research methodology used in this study.

2.3. Conceptual Framework

This study aims to find out factors that influence the number of local and foreign tourist visits in Sabang and to value the tourists' willingness to pay for the benefits of tourist attractions in Sabang. The conceptual framework of this study is shown in Figure (2.3.).

Figure 2.3: Conceptual Framework



Key:
 Straight line \longrightarrow : shows influenced correlation
 Dash line \dashrightarrow : analysis method used

Factors influencing the number of tourist visits are travel cost to tourist attractions in Sabang, travel cost to alternative sites which have the same characteristics as Sabang, distance, and income. By using Individual Travel Cost Method, which is a technique to measure economic valuation indirectly using travel cost proxy, the total value of willingness to pay can be identified. The value describes the potential of tourist attractions in Sabang that affects the number of local tourist visits.

RESEARCH METHODOLOGY

3.1. Scope and Location of the Research

This study took place in Sabang because it has great tourism potentiality and has been visited by a large number of local tourists. This study was conducted in 2014 and the respondents were local and foreign tourists who visited Sabang at the time.

3.2. Data Collection and Sampling Method

Primary and secondary data was used in this study. The primary data was obtained through interview with the tourists using questionnaire. The writer also conducted an observation at the tourist attractions. The secondary data was collected using documentary technique and literature study. The relevant agencies such as Sabang Tourism Office are the sources of data.

The population of this study was all the tourists, both local and foreign, who visited Sabang in the year that this study was conducted. The method used was Non Probability Sampling, where each member of the population does not have an equal opportunity or probability to be selected as sample. The method was chosen due to the limitation of time and budget of the research. A sample of 30 tourists, both local and foreign, was selected considering that a sample of minimum 30 people is needed to perform a regression.

3.3. Analysis Model

A number of methods can be used to formulate a demand function. The first is by using statistical techniques namely regression analysis and smoothing method. The regression analysis will indicate the correlation between the dependent variables and independent variables, resulting in coefficients for the demand function. Since the demand function describes the correlation between price and quantity, which in this study are the travel cost and the number of visits, the assumption of *ceteris paribus* plays an important role. Meanwhile, the smoothing method is used to determine whether or not a function is linear, which can be observed from the scatter plot between the travel cost and the number of tourist visits. The scatter plot describes the correlation between the travel cost and the number of tourist visits which controls the appropriate function formulation. The second way to formulate a demand function is by using a mathematical technique. Based on the calculation of function formulation, the coefficients for the demand function are obtained.

In accordance with the law of demand, price is a function of demand for goods and services that can be written as follows:

$$V_{ij} = f(C) \quad (3.1)$$

Where:

V_{ij} : number of tourist visits to Sabang

C : travel cost

Travel cost is negatively correlated to the number of tourist visits with the linear equation as follows:

$$V_{ij} = a - bC \quad (3.2)$$

where:

V_{ij} : number of tourist visits to Sabang

C : travel cost

a : constant

b : regression coefficient

This study used Individual TCM approach using econometric of Ordinary Least Square technique. Tourist visits to Sabang are highly influenced by the total of travel cost and assumed to be negatively correlated, thus the demand curve has negative slope. A variety of literature for non-market valuation using Individual TCM reveal that there are a lot of other factors influencing the number of tourist visits as follows:

$$V_{ij} = f(C_{ij}, T_{ij}, Q_{ij}, S_{ij}, M_i) \quad (3.3)$$

where:

V_{ij} : number of visits of individual i to site j

C_{ij} : travel cost of individual i to visit site j

T_{ij} : time cost incurred by individual i to visit site j

Q_{ij} : respondent's perception of environmental quality of site j

S_{ij} : characteristics of available alternative site

M_i : income of individual i

The demand function was formed in a linear function to be more operational, thus:

$$V_{ij} = \beta_0 + \beta_1 C + \beta_2 S + \beta_3 M + \beta_4 T + \beta_5 Q \quad (3.4)$$

where:

V : number of tourist visits

C : travel cost per individu

S : characteristics of available alternative site

M : individual income

T : time cost per individu

Q : respondent's perception of environmental quality

β_0 : constant

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$: regression coefficients

In this study, OLS method was used to analyse the model of tourist visits. For local tourist:

$$V_{ns} = \beta_0 + \beta_1 C + \beta_2 S + \beta_3 M + \beta_4 T + e_i \quad (3.5)$$

where:

V_{ns} : number of visits of local tourists i to Sabang

V_{ms} : number of visits of foreign tourists i to Sabang

β_0 : constant

C : travel cost of individual i to visit site j

S : alternative travel cost

M : individual income of tourists i

T : time cost of tourists i to Sabang

$\beta_1, \beta_2, \beta_3, \beta_4$: regression coefficients

e_i : error terms

By identifying the factors influencing the number of tourist visits, the coefficients which include the travel cost coefficient were also identified. Therefore, the function of tourist demand can be formulated.

WTP is approached by calculating the consumer surplus value. Fauzi (2006) used a formula as follows:

$$WTP \approx CS = \frac{N^2}{2 \beta_1} \quad (3.6)$$

where:

N^2 : number of visits of individual i to Sabang squared

β_1 : coefficient value of tourist travel expenses

The maximum amount of WTP can be obtained after the individual WTP is figured out. The average number of visits and WTP value of each of local and foreign tourists can be obtained by using a frequently used statistical formula as follows:

$$MWTP = \frac{1}{n} \sum_{i=1}^n y_i \quad (3.7)$$

where:

- MWTP : mean or average of WTP
 y_i : WTP maximum value of respondent $-i$
 n : number of sample.

3.4. Operational Definition and Variable Limitation

Operational variables in this study can be defined as follows:

1. Number of visits (V), is the frequency or number of local and foreign tourist visits in 2014 (per individual). The formula is $Vis = f(X_1, X_2, \dots, X_n)$.
2. Travel cost (C), is any expenses incurred for the round trip and during recreation in Sabang (in IDR). The formula is $Cis = \text{transportation cost} + \text{accommodation cost} + \text{food cost} + \text{rental cost} + \text{other costs}$.
3. Alternative or substitute travel cost (S), is any expenses incurred for the round trip and during recreation in an alternative marine attraction site (in IDR). The formula is $Sib = \text{transportation cost} + \text{accommodation cost} + \text{food cost} + \text{rental cost} + \text{other costs}$.
4. Income (M), is a monthly earning of the tourist (in IDR). The formula is $Mis = \text{tourist's monthly income}$.
5. Time cost (T), is an income earned if no recreation is performed (in IDR). The formula is $Tis = \text{number of stay} \times \text{daily income}$.

RESULT AND DISCUSSION

4.1. Travel to Sabang

Sabang borders overseas countries such as India, Malaysia, and Thailand. It is an international shipping lane for ships leaving and entering the Indonesian territory from the west. Sabang lies on the geographical coordinates of $05^\circ 46' 28'' - 05^\circ 54' 28''$ N and $95^\circ 13' 02'' - 95^\circ 22' 36''$ E. Sabang is bordered by Malacca Strait on the north and east, Benggala Strait on the south, and Indian Ocean on the west.

Figure 4.1: Sabang Attractions Map



Source: Aceh Tourism Office, 2014

Sabang can only be reached by sea. People refer to the available sea transports as slow and fast ferries in accordance with the length of travel time of each. The trip from UleeLheue port using the slow ferry takes approximately 1 hour and 45 minutes. The fast ferry only needs \pm 45 minutes to reach Balohan port in Sabang, but it cannot carry vehicles. The ferry departure and arrival schedule can be seen in Table 4.1.

Table 4.1
Ferry Departure and Arrival Schedule

No	Description	Ferry					
1.	Name of Ferry	KM. EkspresBahari		KM. Pulo Rondo		KMP BRR	
2.	Owner	PT. PelayananSaktiIntiMakmur		Aceh Gov.		Aceh Gov.	
3.	Seat (unit)	230		236		480	
4.	DEPARTURE						
	UleeLheue – Balohan (WIB)	08.00	08.45	09.30	10.15	08.00	10.00
	ARRIVAL						
	Balohan – UleeLheue (WIB)	16.00	16.45	16.00	16.45	14.00	16.00
5.	TICKET RATE (IDR)						
	Economy class	Adult		60.000		Adult	18,500
		Children		40.000		Children	11,575
	Business class	Adult		75.000		Adult	27,500
		Children		70.000		Children	20,500
	VIP class	Adult		85.000		Adult	36,500
		Children		80.000		Children	26,500
6.	Fixed Route	Everyday				1 trip (Monday, Tuesday, Thursday, Friday)	
7.	Duration	± 45 minutes				± 1 hour 45 minutes	

Source: Sabang Communication and Information Office, 2014

4.2. Characteristics of Local Tourists

The characteristics of local tourists can be found in Table 4.2. The average age of the local tourists was 29 years old and male percentage was 58,3%. The majority of respondents were male due to their position as the heads of households who play a determining role in making decision regarding recreation, although 68,3% of respondents did not specifically allocate funds for holiday purposes. In terms of marital status, 56,7% of respondents were married. As for occupation, 45,7% of the respondents were civil servants, 32,3% were entrepreneurs, and 18,7% were students. More than half of the respondents (63,3%) had acquired a bachelor's degree. The questionnaire revealed that the local tourists' education background had equipped them with the knowledge of marine tourism in Sabang that they obtained from the Internet, friends, or family.

Table 4.2
The Characteristics of Local Tourist Respondents

<i>Characteristic</i>	<i>Classification</i>	<i>Value</i>	
Age (years)	Mean	29	
Sex	Percentage	Male	58,3
		Female	41,7
Education	Percentage	High School	36,7
		Bachelor	63,3
Marital Status	Percentage	Married	56,7
		Single	43,3
Occupation	Percentage	Civil Servant	45,7
		Entrepreneur	32,3
		Student	18,7
		Others	3,3
Holiday Budget	Percentage	Yes	31,7
		No	68,3

Source: primary data, 2014

4.3. Factors Influencing Local Tourist Visits

To identify the factors that influence tourist visits, a sample of 40 individuals were obtained. Using the travel cost method, the analysis of the study included four main variables in the model, namely travel cost, alternative cost, time cost, and income. The recapitulation of the findings can be found in Table 4.3.

The average number of local tourist visits was four times. The maximum income was 11,250 million IDR and the minimum income was 1,000 million IDR. The average travel cost is 1,519 million IDR. The average time cost associated with the respondents' length of stay and household income was 0,271 million IDR. Meanwhile, the average WTP of the total travel cost was 1.883 million IDR

Tables 4.3
The Local Tourist Descriptive Recapitulation

<i>Value</i>	<i>Income</i> (Million IDR)	<i>Travel</i> <i>Cost</i> (Million IDR)	<i>Time Coat</i> (Million IDR)	<i>Alternative</i> <i>Cost</i> (Million IDR)	<i>Number of</i> <i>Visits</i> (Time)	<i>WTP</i> (Million IDR)
Maximun	11,250	7,000	1.800	18,255	15	9,100
Mean	4,229	1,519	0.271	1,820	4	1.883
Minimum	1,000	0,150	0.012	0,080	1	0,240

Source: processed primary data, 2014

4.3.1. Classical Assumption Test

The classical assumption test was required to see whether or not there was a deviation from the assumption of multiple linear regression model in this study. The classical assumption test included normality test, multicollinearity test, heteroscedasticity test, and autocorrelation. The normality classical assumption test on normal P-P plot of regression standardized residual graph showed that the data was spread on and following the diagonal line which reflected a normal distribution pattern. Therefore, this regression model fulfilled the normality assumption and fit to be used

Table 4.4
The Multiple Linear Regression Estimation of Local Tourist Visits

<i>Variable</i>	<i>Coefficient</i>	<i>Std.Error</i>	<i>Tcount</i>	<i>Sign</i>
Constant	3,596	0,641	5,613	0,000
Income	0,936	0,150	6,260	0,000
Travel cost	-0,875	0,229	-3,818	0,000
Alternative cost	-0,479	1,121	-3,639	0,001
Time cost	-0,490	0,224	-2,186	0,035
R ²	0,616	N	40	
Adj R ²	0,577	Ttable	2,021	
α	0,05	Fcount	16,015	
DW	2,352	Ftable	2,61	

Source: processed data, 2014

Next, multicollinearity test showed the value of $R^2 = 0,616$ and Sig. F Change $0,000 < \alpha (0,05)$, therefore the regression model of the number of local tourist visits was influenced by the variables of income, alternative cost, travel cost, and time cost simultaneously. Furthermore, those variables of income, alternative cost, travel cost, and time cost showed that $t\text{-statistic} > t\text{-table}$ with the significance level of $< 0,05$ which indicated that this model was independent of multicollinearity.

Furthermore, the scatter plot showed that the plot was spread randomly above and below zero on the regression studentized residual axis which meant that the regression model was independent of heteroscedasticity. In terms of autocorrelation assumption test, the Durbin-Watson (DW) value was 2,352, which meant that there was no autocorrelation problem in this model.

Overall, the number of local tourist visits is influenced by variables such as income, alternative income, travel cost, and time cost as much as 61,6% as shown by R^2 value. The remaining 38,4% is influenced by other factors not included in the model. The regression model is as follows:

$$Vns = 3,596 + 0,936M (\text{Income}) - 0,479S (\text{Alternative Cost}) - 0,875C (\text{Travel Cost}) - 0,490T (\text{Time Cost})$$

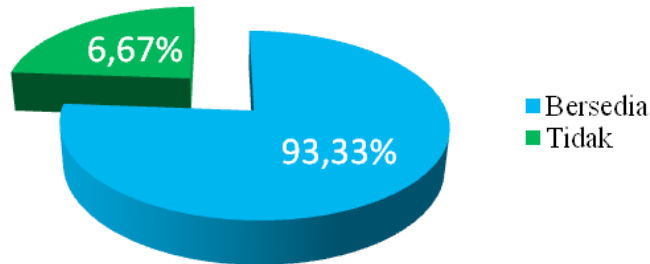
From four variables included in the model, three of them significantly influence the number of local tourist visits to Sabang. They are income, alternative cost, travel cost and time cost.

For example, every time the income undergoes a unit increase, the number of local tourist visits increases 0,936 with the assumption that the other variables remain constant. And when the alternative cost undergoes a unit increase, the number of visits declines 0,479 with the assumption that the other variables remain constant. In terms of the travel cost, every time it increases a unit, the number of tourist visits to Sabang decreases 0,875 with the assumption that the other variables remain constant. As for the time cost, when it undergoes a unit decrease, the tourists will increase their frequency of visits 0,490 with the assumption that the other variables remain constant.

4.4. The Willingness to Pay of Local Tourists

The majority of the local tourists (93.33%) were willing to pay, whereas the other 6.67% were not. The reason for the tourists' unwillingness to pay more was that the travel cost was of appropriate rate or even lower, as shown in Figure 4.2.

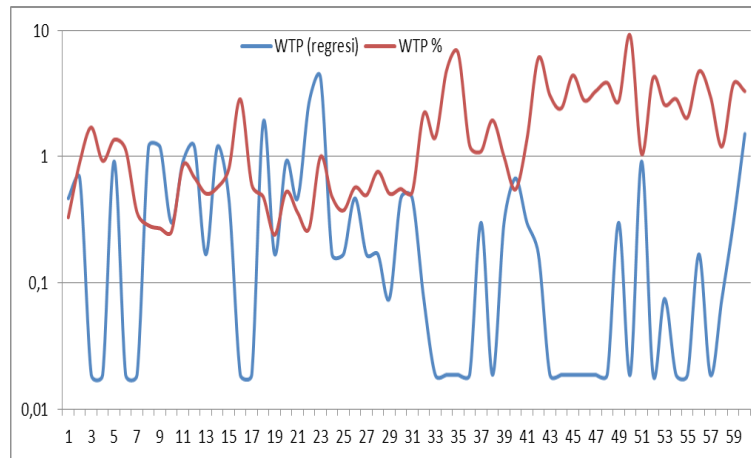
Figure 4.2. The Willingness to Pay of Local Tourists in Sabang



Source: primary data, 2014

The amount of actual WTP is bigger than the amount of estimated WTP, which is shown in Figure 4.4. The estimated value of WTP is obtained from the equation 3.6 (regression), while the actual WTP is obtained from the questionnaire on the percentage of willingness to pay value from the total of tourists' travel cost (percentage WTP). The value of MWTP is IDR 1.883 million.

Figure 4.4: The Willingness to Pay and Travel Cost of Local Tourists in Sabang



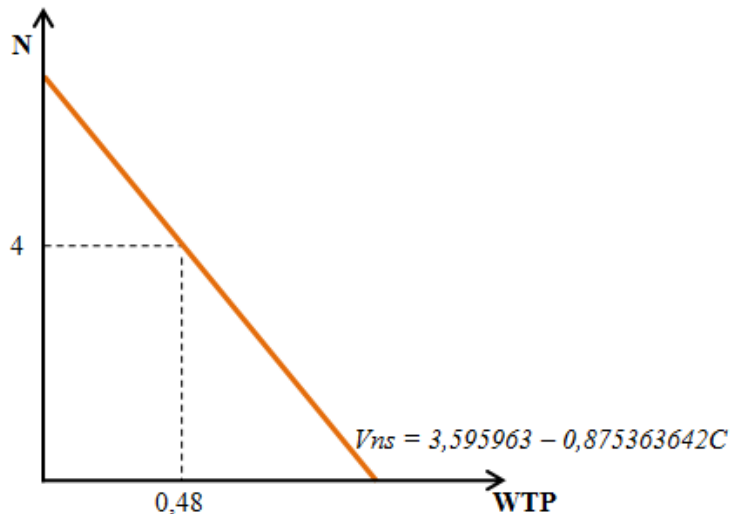
Source: processed primary data, 2014

The maximum value of estimated (regression) WTP is 4,208 million IDR, while the minimum is 0,019 million IDR. The WTP value of local tourists obtained from the equation 3.7 is 0,48 million IDR. The demand curve of local tourists with the

average number of visits of 4 times can be seen in Figure 4.5. The demand function of the tourists is as follows:

$$V_{ns} = 3,596 - 0,875C$$

Figure 4.5: Demand Curve of Local Tourists



Source: processed primary data, 2014

where:

$N = 4$ is the average number of local tourist visits

$WTP = 0,48$ million IDR is the average amount of travel cost spent by local tourists

CONCLUSION AND SUGGESTION

5.1. Conclusion

Based on the result and analysis of data, it is concluded that:

1. The local tourists' willingness to pay was influenced by the variables of income, alternative cost, and travel cost.
2. The travel cost was below the value of willingness to pay of local and foreign tourists in Sabang. The average value of local tourists' willingness to pay was 1,883 million IDR.

5.2. Suggestion

The writers would like to suggest in improving the tourism in Sabang, the government should consider the concept of sustainable development with close relation to environment. Non-market economic valuation is one of the ways to do that.

References

- Bateman, Ian. *Evaluation of The Environment: a Survey of Revealed Preference Techniques*. The Centre for Social and Economic Research on the Global Environment (CSERGE). Working Paper GEC 93-06. ISSN 0967-8875. Accessed on 21 May 2014.
- Bulov, S and Lundgren, T. 2007. *An Economic Valuation of Periyar National Park a Travel Cost Approach*. Lulia University of Technology. India. pp. 55. <http://epubl.ltu>. Accessed on 1 September 2014.
- Caulkin, P.P., Richard C. Bishop and Nicholas W. Bouwes. 1986. A Comparison of Two Methods for Incorporating Site Quality and Substitution Effect. *Amer. J. Agr. Econ.*
- Clawson, M and J.L. Knetsch. 1975. *Economic of Outdoor Recreation*. Third Printing. The John Hopkins Press. Baltimore.
- Davis, L.S and Johnson K.N. 1987. *Forest Management 3 rd Edition*. McGraw-Hill Book Company. New York.
- Emira. 2012. *Analisis Kesiediaan Membayar Tarif Retribusi Pelayanan Persampahan/Kebersihan Pada Sektor Komersial di Kota Banda Aceh*. Tesis. Ilmu Ekonomi Universitas Syiah Kuala. Banda Aceh.
- Fauzi, Akhmad. 2006. *Ekonomi Sumber Daya Alam dan Lingkungan: Teori dan Aplikasi*. Gramedia Pustaka Umum. Jakarta.
- Foster, Douglas. 1985. *Travel and Tourism Management*. Macmillan Press LTD. London
- Garrod G and Willis K.G. 1999. *Economic Valuation of the Environment: Methods and Case Studies*. Edward Elgar Publishing. UK. pp. 384.
- Haab, Timonty and K.E. McConnel. 2002. *Valuating and Natural Resources: The Econometric of Non Market Valuation*. Edward Elgar. USA.
- Hufschmidt, M.M., D.E James., A.D. Meister. 1987. *Environmental, Natural Systems, and Development, An Economic Valuation Guide*. The John Hopkins University Press.
- Koens, J.F. et al. 2009. Ecotourism as a Development Strategy: Experiences from Costa Rica. *Environ Dev Sustain.* 11:1225-1237. DOI: 10.1007/s10668-009-9214-3. Springer. Accessed on 1 April 2014.
- Krugman P, Wells R., Myatt A. 2005. *Microeconomics*. Canadian Edition. <http://books.google.co.id>. Second Printing. New York.
- Kling, C.L. 1988. The Reliability of Estimates of Environmental Benefit from Recreation Demand Models, *Amer. J. Agr. Econ.* (1988) 70 (4): 892-901. DOI: 10.2307/1241931. Accessed on 1 April 2014.

- Ma'ruf, Jasmandkk. 1998. *Persepsi Tokoh Masyarakat Terhadap Dampak Pariwisata di Kotamadya Banda Aceh*. Laporan Penelitian. Fakultas Ekonomi Universitas Syiah Kuala. Banda Aceh.
- McEachern, William. 2001. *Ekonomi Mikro*. Salemba Empat. Jakarta. Terjemahan: Sigit Triandaru.
- Muhammad, Said dkk. 1997. *Persepsi Turis Terhadap Pelayanan Wisata di Kotamadya Sabang dan Kotamadya Banda Aceh*. Laporan Penelitian. Fakultas Ekonomi Universitas Syiah Kuala. Banda Aceh.
- Pearce, D.W, Turner, R.K. 1990. *Economics of Natural Resources and The Environment*. Harvester Wheatsheaf. London.
- Samuelson, P.A. and Nordhaus W.D. 2010. *Microeconomics*. McGrawHill. <http://books.google.co.id>. Accessed on 3 January 2014.
- Smith, V.K., William H. Desvousges and Ann Fisher. 1986. A Comparison of Direct and Indirect Methods for Estimating Environmental Benefits. *Am. J. Agr. Econ.* (1986) 68 (2): 280-290. DOI: 10.2307/1241429. Accessed on 28 December 2013.
- Smith, V.K., William H. Desvousges and Ann Fisher. *Travel Cost Lake Recreation*. <https://www.uwsp.edu>. Accessed on 29 December 2013.
- SobariPrihatna M, Fauzi Akhmad, dan Iqbal M. 2006. Economic Value Analysis of Weh Island Marine Tourism Park in Sabang City. *Mangrove dan Pesisir* Vol. VI No. 3/2006. Accessed on 27 January 2014.
- Wood, S. and Trice, A. 1958. Measurement of Recreation Benefits. *Land Economics*. 34:195-207. Accessed on 14 February 2014.
- . 2014. Situs resmi Dinas Komunikasi dan Informatika Sabang <http://dishubkominfo.sabangkota.go.id>. Jadwal Keberangkatan Kapal. Accessed on 20 May 2014.
- . 2013. Situs Resmi Dinas Kebudayaan dan Pariwisata Kota Sabang. www.budpar.sabangkota.go.id. Accessed on 18 May 2014.
- . 2013. Situs Resmi Dinas Kebudayaan dan Pariwisata Provinsi Aceh. www.disbudpar.acehprov.go.id. Accessed on 19 May 2014.