



An economic assessment of the coastal tourist area in Pasir Bogak beach, Pangkor Island using the Travel Cost Method (TCM)

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Abstract

A coastal tourist area is a natural resource of non-market goods where its economic value is important to assess and should be calculated due to the available resources to maintain for further generation use. The economic value of coastal tourist area was determined by the willingness to pay (WTP) among the tourist to assess to the tourist site. This article aims to determine the economic value of coastal tourist area in Pasir Bogak beach, Pangkor Island using Travel Cost Method (TCM). By adopting the travel cost method (TCM), the individual travel costs and expenses paid by local tourists for their visit to the coastal tourist area in Pasir Bogak beach were measured. A total of 64 local tourists were selected as respondents of the survey method. The findings suggested that the mean of the total expenses paid by an individual tourist for the duration of between two to three days stay in Pasir Bogak Beach was around RM 219.39 per visit. The studies show that Pasir Bogak beach receive less touristy and a lower economic value because of the attribute of the beach which is very close to the main road, narrow beach size, less beautiful sea watercolour and strong wave.

Keywords: coastal tourism, natural resource, Travel Cost Method, economic value, local tourist

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INTRODUCTION

The tourism industry is a catalyst for the economic growth of every country in the world. Malaysia's not left behind about this existence of tourism industries which is many places that can be an interesting location for the tourism sector. There are many types of tourism product in Malaysia such as tourism that based on ecologies like coastal tourism, historical places, students tourism, health, education, sports, and agro-tourism (Ministry of Tourism & Culture Malaysia, 2014). Malaysia also knew in the world for tourism destination with the international standard because of the richness and the variety of natural beauty environmental. For instance, tourism industries that most got the place among domestic and international tourist are coastal tourism (Mohd Anuar, 2009). This is because the World Tourism Organization (WTO) places Malaysia in the eleven countries which are most frequently visited in 2013.

Tourism refers to someone's movement away from their ordinary place for a holiday in a period that not exceed in one year (WTO, 2012). Whereas in 2014 WTO defines tourism as a social phenomenon, culture and economy which is cause movement from someone's

normal environment for private purpose or business affairs. Hanizah et al. (2017) define coastal tourism which includes activities and recreation at the beach. For instance, the activity that can be done on the beach like plays at the beach, bath in the sea, boating, playing jet ski, diving, swimming and fishing.

The history of coastal tourism has begun in the western country in the 18th century (Hanizah et al., 2017). This is because western community appreciates the beauty of natural environments such as beach and mountain. For example, the city of Brighton is experiencing a rapid development in terms of coastal tourism that parallel with the increase in population and urban expansion into a major coastal resort in the United Kingdom.

World Tourism Organization (WTO) ranked Malaysia as 11th in the world's most visited country in 2013 (Hays, Page, & Buhalis, 2013). However, in 2017 Malaysia ranked as 12th as the most visited country by tourists

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around the world (Tang, 2019). Tourism is an act of moving people from their place of habits to make a vacation that does not exceed one year (Bonarou, 2012). In 2012, WTO defined tourism as a social phenomenon, culture, and economy that cause the movement of people from their place of residence for personal or business matters (Bonarou, 2012). Coastal tourism includes activities and recreation at the beach (Hanizah, et al. 2017), for example, playing on the beach, bathing, and sightseeing, jet skiing, diving, and fishing. Malaysia's also have interesting and beautiful beach coast. The beautiful beach coast that has cosy and embraces the environment is an important asset for the country to attract local or international tourists to visit or stay in Malaysia. This is due to the beach coast area and island that exists have been a focus by international or domestic tourists as their main destination tourist (Mohd Anuar, 2009). While the history of coastal tourism in the West community began in the 18th century because the tourists appreciated natural resources like beaches and mountains.

The tourism area is one of the natural resources that can be categorized as non-market goods which are their economics values difficult to calculate. However, one technique is used to evaluate the economics of the tourism area by using the travel cost method (TCM). TCM is a technique that been used by the earlier researcher to evaluate the economic value of the area that cannot be a market. TCM is not directly used to estimate the benefit that was received by the consumer when they make a visitation to the recreation area such as beach, park and historical places but to evaluate the economic for these areas based on their expenditure to the recreation areas (Heyes & Heyes, 1999). TCM is being popularly used to investigate the activities based on recreation. In this study context, TCM is used to assess of the economic value of coastal tourism in Pangkor Island based on travel data and individual expenditure in the location studies area.

TCM has been categorized in several categories such as Individual Travel Cost Method (ITCM), Contingent Valuation Method (CVM) and Zonal Travel Cost Method (ZTCM). The individual travel cost method is a cost that calculates individually (Voltaire, Levi, Alban & Boncoeur, 2017). This is because this method explains visiting frequency of the individual based of individuals characteristic and cost incurred. While, contingent valuation method is used to estimate the economic value of all the types of ecosystem and environment service (Jala & Nandagiri, 2015). However, zonal travel cost method has been explaining by Ezebilo (2016) include tourist from the zones that have been fixed based on different distance from their homes to the recreation sites. But in these studies, TCM has been selected as a method because the calculation for economic evaluation is more efficient than CVM and ZTCM. TCM was introduced by Harold Hotelling in 1947

to evaluate economic service in National Park of United State. The costs that incurred by the tourist on the way to the tourist destination such as travel cost, toll cost, foods, lodging, entrance fees and others cost (Fleming 2007, Ekonomou et al., 2013, Jala & Nandagiri, 2015). TCM can make an assessment of expenses that the tourist spends and their willingness to pay. In conclusion, TCM helps to assess of the economic value of the area those non-market goods such as tourism area. The calculation of the economic value helps to strengthen economic value growth in Malaysia. Furthermore, with this method entrepreneur or government can improve the equipment at the recreation area and helping to build tourism policy better.

Tourist areas are non-market goods of a natural resource. Therefore, to obtain their economic value as a tourist area, a specific technique is often used to evaluate its value. This is due to natural resources that cannot be valued by its own, an econometric model that appropriate to calculate the economic value of tourist area such as the Travel Cost Method (TCM) is used. TCM has 3 categories namely the Individual Travel Cost Method (ITCM), the Contingent Valuation Method (CVM) and the Zonal Travel Cost Method (ZTCM). Furthermore, in this study, the ITCM approach was adopted to calculate the expenses spent by an individual tourist. TCM is a technique often used, and it is accomplished by calculating the expenses incurred by the tourist to determine the economy of the places. TCM has been used widely in Western countries to evaluate the economic value of the natural resource. Harold Hotelling is a pioneer of the TCM, and it was initially employed to evaluate the economic value of services provided at the National Park of the United States (Hotelling, 1947). TCM is used as an indirect technique to estimate the benefits enjoyed by tourists when they visit recreational areas such as beaches, park, and historical places (Liston Heyes, & Heyes, 1999). Harold Hotelling suggested that the expenses incurred by the tourists can be used to increase the value of the recreation areas visited by the tourists [6]. However, Clawson and Knetsch develop an empirical model based on TCM (Clawson, & Knetsch, 1971).

TCM can be divided into several categories such as the Individual Travel Cost Method (ITCM), the Contingent Valuation Method (CVM), and the Zonal Travel Cost Method (ZTCM). The Individual travel cost method refers to the cost that is individually calculated (Voltaire, et al. 2017). This method explains the frequency of visit to the recreational area by an individual tourist based on the cost she/he incurred and individual characteristic linked to the visit. The Contingent Valuation Method is used to estimate the economic value for all the ecosystem types and environmental services (Jala, & Nandagiri, 2015). The Zonal Travel Cost Method explained tourist's cost founded on a zone

that has been set based on different distances from their house to the recreational areas (Ezebilo, 2016). So, in this article ITCM is used to assess the recreational areas because this method is very efficient compared to CVM and ZTCM.

The location of a recreational area chosen was the Pasir Bogak beach at Pangkor Island. This is appropriate given the 'Visit Perak Year 2017' where it was assumed that tourist's arrival to the Pangkor Island in that year would increase. It was found that the coastal tourist areas are most popular among the tourists when they visited Perak (Ward, & Beal, 2000). Lumut is a coastal town which is the population 31,880 in Manjung District, Perak, Malaysia. The location situated about 84 kilometres (KM) from Ipoh and 12 km from Sitiawan town. Lumut is the main gateway to Pangkor Island before established Marina Island as the second gateway. This once little-known as a fishing town since becoming the home base of the Royal Malaysian Navy and the site of the biggest naval shipbuilder in Malaysia which is called by Boustead Naval Shipyard. Furthermore, this place famous for its seashell and coral handicraft.

The objective of this research is to calculate the travel and expenditure cost based on the Individual Travel Cost Method concerning to the coastal tourist area of Pasir Bogak beach. Hence, to achieve the objective research of the tourists at Pasir Bogak beach the data such as the tourist's profile, travel features and the travel expenditure cost of tourist are used.

Basic Concept in Assessment of the Economic Value of Coastal Tourism and Travel Cost Method (TCM)

Definition Value in Human and Economic Perspective

Value is a thing that can permit to something. Value is considered as a main gauge of the goods and services. This is because the value is defined to price concept by some parties. Value is a guideline on an individual to considerate and chooses an alternative decision-maker in a social context (Spash et al., 2005). The variety of value is learned by social product and will be used by the individual in their life. While System Economic & Environmental Accounting (2012) define value is a thing that gives to the ecosystem services from a human perspective. This is because human evaluated through services that which is considered as important services like goods variety, services and profit.

Furthermore, economic value is one of the varieties of value that underlying people deeds. Value is used based on financial consideration and profits made by an individual. Economic value is a significant difference between art values. Environmental also have economic value. Raphael & Molina (2007) explain total economic value (TEV) as a method to involve the direct use and environmental passive use of the overall economic

framework. However, Young (2005) argues that environmental economic value such as heritage value, the value of existence and the value of an environmental entity is difficult to determine based on the market price mechanism. This is because of the difficulty in determining market price mechanisms due to differences in unique environmental characteristics and not resembling each other even of the same type. The market price obtained is based on market-pricing mechanisms according to the law curve of a quantity demand and supply in the market cycle. According to Fuguitt & Wilcox (1999), environmental economists also evaluate using alternative methods of providing prices to environmental entities and assessing the benefits and costs of the assessment. Economic environmental evaluation is important because all cost and economic benefit from the environment should be understood. This is important to policy and decision-maker and also for the developer if they make a decision that impacts environment entity. The method that has been used by economists in evaluating environmentally is using travel cost method (TCM).

Definition Economic Value Assessment for non-market goods

According to Clawson & Knetsh (1966) economic value assessment is made to calculate the value of a natural resource area of non-market goods. For example, tourism area is a natural source of non-market goods. This is because recreational areas such as forests, lakes, beaches, hot springs are categorized as non-market goods. After all the value is difficult to calculate. Travel cost calculation can make economists calculate the value of recreation areas based on natural resources and the change in the value (Freeman, 2003). The travel cost method is used to assess recreation areas such as national parks and preservation areas, sports location (hunt and fishing), archaeological area, cultures like museums and assessment for others natural resources like beaches, forests and hot springs. Assessment is made by considered expenses individual costs data when they travel to the tourism or recreation area.

Recreational Area

Recreational areas are part of natural resources that provide valuable resources to a country (Enyew, 2003). While Nde (2011) states recreation areas like public parks and beaches are some non-market goods or services that cannot be stated in value. Therefore, the travel cost method (TCM) is used as a tool to evaluate economic for non-market goods. This is because recreations area values are based on the tourist willingness to sacrifice in terms of time costs, transportations costs, and other expenses during visits to the areas.

Recreational Area (Beaches)

Recreations area such as beaches is amongst the natural resources that categorized as non-market goods. Beach is a location will be visited by local tourists that live far away or situated beaches area for recreations purpose (Nde, 2011). Tourists also make sacrificing their time costs, expenditures and travel cost when they are in the recreations area. For example, recreations activities that can be played on the beaches like sightseeing, swimming, picnic or do beach activity such as plays volleyball and football beach.

Travel Cost Method (TCM)

The travel cost method is a non-direct method to estimate user benefits from visitor's recreational areas such as beaches, parks and heritage areas (Heyes & Heyes, 1999). With this method, expenditures that related travelling to the recreational areas are calculated based on distances and times value during travel (Englin & Shonkwiler, 1995). According to Mitchell & Carson (1989), the travel cost method is a quantitative valuation method which is used intensively by a nationwide assessor to measure the benefits of the economic value of the recreational centre. While, Turner et al., (2008) define the TCM concept using individuals travelling expenses data cost to evaluate the economic values of the places. Furthermore, Turner et al., (2008) define what the basis of this method is using the willingness to pay (WTP) by consumers for the cost visits to the recreational areas. Tourists have to sacrifice an amount of money to pay the cost related to travelling. For example, fuel costs, toll costs, parking costs, and current costs during recreational centre also taken into account like lodging costs, foods cost and ticket price entrance. The total frequencies of tourists are an important basis to estimate the economic value of the recreational areas. The frequencies of tourist are influenced by several individual's incentive factors like motivation and experience. These two basic principles constitute the demand curve of visitors.

The Variables That Affect TCM

Distance Cost

According to the research that has been done by Fixon & Pangapanga (2016) define that distance cost is a variable based on transportation. For example, the tourist who used own transport or renting a car, the cost of fuel are calculated as travel cost to destination. Furthermore, a tourist who visits the place by the group, the travel cost is divided into members group who join the trip. While, Raziah (2003) stated that travel cost is calculating for each individual based on distance cost, time cost and expenditure that relate to travelling.

Time Cost

Raziah (2003) stated that time cost is being calculated by using wage an hour. Tourists wage or month salary is being calculated by dividing total time that has been spent on the recreational area. Limaei et

al., (2014) stated that time cost increase and the visitation decreased. While, Nandagiri (2015) stated time cost to include both travel time which is a round-trip and time that has been spent in the park, pond or other recreation areas. The time cost is being calculated, monthly total income visitors.

The time cost has been debated with researchers towards travel cost (Zawacki and Bowker 2000, Freeman 2003, Hesseln et al., 2003, McKean et al., 2003, & Parson 2003). Some of the research suggests that fraction the wage rated is being used to measure time cost (Cesario & Knetsch 1970, Cesario 1976, Bateman 1993, Bowker et al., 1996, Heyes & Heyes 1999, Zawacki and Bowker 2000, Hagerty and Moeltner 2005, Martinez-Espineira and Amoako-Tuffour 2008a). This statement is supported by Fezzi et al. (2014) where time cost measure by salary rates such as a half or quarter from the salary. Travel cost and time cost is being calculated separately to measure travel time cost that relates to the model (Loomis & Walsh 1997, Shrestha et al. 2002). This is due to the speed choice of travel affect travel cost (Wolff, 2014). Furthermore, the variety of speed that is used by visitor displayed in the previous article such as 80 km/hours (Boxall et al., 1996, Zawacki et al., 2000), 50 km/hours (Englin et al., 1996), 60 km/hours (Layman et al., 1996), and 45 km/hours (Rockel & Kealy, 1991). However, Ezebilo (2016) stated travel speed that assumes only 50 km/hours. This is because travel speed illustrates the recommended speed in and surrounding areas inhabited by people in Sweden.

While Siyenga (2005) stated time cost based on the wage rate. This is due to wage information that has been accepting to enable wage rate to calculate using travel cost. The time that has been spending on the recreational areas, in theory, can be used as time cost of travel cost calculation. The time that has been spending on recreational areas had an unclear effect on the travel demand where its effect both utility obtained from visitation and budget constraints (Bockstael, Strand & Hanneman, 1987). However, time that has been spending on a recreational area is a clear choice by the individual.

Toll Cost

Raziah (2003) stated that toll cost is a cost incurred by the individual during making a travel to the tourism location or recreational area. Therefore, the cost of the maximum toll that has been spent by visitors is RM 200 during visit Agriculture Park. Value of min for the toll cost is 8.11.

Lodging Cost

Raziah (2003) also stated visitors or individual have to bear for the lodging cost when visiting to Agriculture Park. Visitors spend an amount of money to get comfortable accommodation. For example in Raziah (2003) research, visitor stays at the nearest hotel.

Maximum cost that has been spending to pay the hotel bills is RM100. This show that accommodation or lodging cost that offered by the hotel is affordable.

Fuel Cost

Raziah (2003) stated that fuel cost (petrol) that has been incurred by visitors when making travel to Agriculture Park is RM 250. This show that min value for fuel cost is 16.83. Travel distance increase makes the fuel cost also increased. While Jala & Nandagiri (2015) stated that, fuel cost is being calculated based on types of transportation by the tourist. Different types of transport affecting fuel cost of tourist to the tourism destination.

Entrance Fees Cost

Fixon & Pangapanga (2016) stated that entrance fees cost in three (3) types such as individual fees, transport fees and guide fees. While Nandagiri (2015) stated that entrance fees cost increase in recreational areas so that the numbers of tourist will be decreased. This is because the willingness to pay by tourist to get the accommodation that served is Rs. 238 for the visitation that has been made to Pilikula Lake. Nde (2011) stated that entrance fees cost helps to encourage visitor's entry, for instance, Seme Hotel Beach that owned by privately offered entrance fee to the beach is €2.3 for each visitor's in every day. Nde (2011) also suggested that entrance fees to Kribi Beach, Cameroon is only €2.0 for the event held, entrance fees are differently for tourists like locals, non-locals and tourists. While Spacek & Antouskova (2013) stated that 13.4% of tourist bears entrance fees. Entrance fees cost that tourist bears are in the research like Xue, Cook and Tisdell (2000) at Changbai Mountain, China where the cost for entrance is 50 yuan for every tourist that has been fixed from the authorities areas.

While Fleming (2007) stated that entrance fees cost is also charged to the transport owner that entered the tourism area. Furthermore, the tourist that brings the transport should have a transport permit is \$ 33.45 for each transport that enters the island. Raziah (2003) also stated entrance fees cost that has been charged by the owner or authorities on Agriculture Park is RM 45.00 where the cost is maximum for entrance fees. This is different from Jala & Nandagiri (2015), where entrance fees are seen as the same as travel cost. Tang (2009) stated that entrances fee from the tourist's perspective is that the less is much better. This is because in the research at China, Chinese tourist might states the entrance fee is moderate which is conclude that variable entrance fee to the trips is negative. Based on Tang result's when the entrance fee increases, the total trip costs of the park would also rise resulting in the trips taken to the park decreasing accordingly.

Food Cost

Raziah (2003) in the research of Agriculture Park stated that the maximum cost for food that has been

earned by tourist is RM 300. While Spacek & Antouskova (2013) stated that food cost tourist bears during travel to the recreational area are 15.7%. Food cost is the third highest cost compared to the cost of release and convenience. However, Jala & Nandagiri (2015) stated that food cost calculated based on expenditures of foods and drinks during travel and back onto the recreational areas.

Souvenirs Cost

Spacek & Antouskova (2013) stated that souvenirs cost is included in individual travel cost. This is because based on research in Geopark, Czech show that it cost 9.2% for the tourists that visit the area. Souvenirs is a present or gift for the friend or family members that not involve the trip to recreational or tourism areas. The research about TCM at National Park Podygi showed that souvenirs cost that has been spent by tourist is CZK 134.3 (Antouskova, 2013). Souvenirs cost is a big component cost that spends by tourist when visiting agro-tourism areas (Mahreda et al., 2016). This is due to research that has been done by Mahreda et al. (2016) in South Takisung, Kalimantan stated that souvenirs cost by tourist spends on Tabanio Village involve sea source souvenirs. For example sea sources that can be as souvenirs of tourist like dried fish and crackers that were sold by locals.

Recreation Cost

According to Sinyenga (2005), recreation cost also to include in travel cost. Sinyenga (2005) also stated recreation cost is another guide that shows the number of visitors to the tourism location or recreation area. For example, in Sinyenga (2005) research at Zambia stated that Victoria Waterfall is the main attraction to tourist. Furthermore, the uniqueness and natural beauty of the waterfall makes tourist attraction and interested to take pictures while enjoying natural environment beauty. However, recreation cost that tourist bears such as photography cost when visiting Zambia like taking a photo with wildlife. Antouskova (2013) stated that recreation cost that tourist bears are the value of rent cost sports equipment. For instance in research at The National Park Podyji show that tourist spends on CZK 107.9.

MATERIAL AND METHODS

Source of data

The survey was conducted in Pasir Bogak beach, Pangkor Island from 23rd December until 27th December 2017. This was the period of the sampling was based on local tourists who visited the beach. The total number of respondents for this survey was 64 tourists. An unstructured questionnaire was used in this survey. The questionnaire was divided into the 3 sections: the first section was the tourist's profile, the second section aimed to establish details about the characteristics of tourist, and the third section was the calculation of the

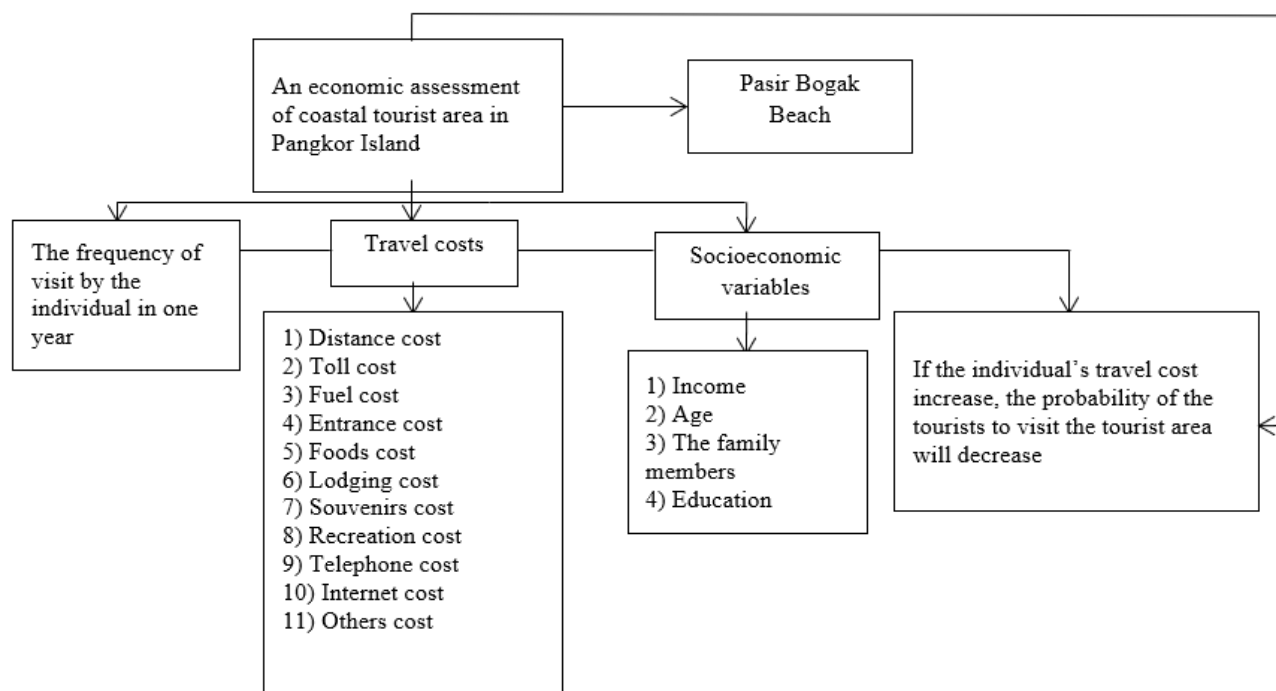


Fig. 1. The Conceptual Framework

cost incurred by the tourist to reach Pasir Bogak beach. The data were collected by distributing questionnaires to the local tourists.

Theoretical framework

There are a few methods that can be used to assess of the non-market goods of a natural resource such as coastal tourist areas. TCM is one of the techniques that could be used to evaluate the economic value of the coastal area, but it can also be used in evaluating other natural resources such as mountains, parks, and lakes. In 1966, Clawson and Knetsch developed an empirical model that can be used to evaluate the economic value of non-market goods through measurement model. There are three (3) main causes to analyze the travel costs (Bateman, 1993):

- i. The primary cause is to emphasize how the demand depends on the quality of the goods.
- ii. The second cause is related to the total number of visits and the duration of the visitors throughout the year.
- iii. The third cause is to take into consideration the substitute visit such as the tourist choice to visit a national park instead of other parks.

All of the main above can be achieved through the measurement of the Travel Cost Method (TCM) model (Bateman, 1993). This measurement model was introduced by Bateman in 1993 and it is widely used to calculate the travel cost in economic terms (Pagiola, Von Ritter, Bishop, 2004, Ward, & Beal, 2000). This theory is also known as the Trip Generation Function (TGF) of the economic evaluation of a destination.

Conceptual framework

The dependent and independent variables were used to research as illustrated in **Figure 1**. The dependent variable is the frequency of visit by an individual in one year while the independent variable is the travel cost. For this article, the travel costs incurred by the tourist include the distance, toll, fuel, entrance, foods, lodging, souvenirs, recreation, telephone, internet and other costs. Socioeconomic variables also used in this research such as the income, age, the number of family members as well of the tourist's educational qualification. All of these costs would affect the frequency of visits especially if the costs are increased. With all of the variables in the research, the initial assumption was made that if the probability of individual travel cost was to increase, the number of tourists visiting the tourist area might decrease.

Model specification

According to Raziah (2003), there is an appropriate explanation of the economic value of a coastal tourist area. Based on the study, the current study included souvenirs and recreation costs as travel costs. Following the research by (Antousková, 2013; Mahreda, et al. 2016; Sinyenga, 2005), the souvenirs and recreation costs can also be considered as a travel cost (TC) since the costs occurred during the duration of the visit. Usually, souvenirs are bought as gifts for a friend or family members who did not participate in the visit (Antousková, 2013). Souvenirs are a significant component of a tourist's expenditure while she or he is in the tourist location (Mahreda, et al. 2016). Furthermore, recreation cost is another indication of the

total number of visits to the location or tourist area (Sinyenga, 2005), Therefore, the total cost functions for the study is as follows:

Total cost function:

$$TC_{Sij} = f(DisC_{Sij}, PetC_{Sij}, TolC_{Sij}, FeeC_{Sij}, FodC_{Sij}, LogC_{Sij}, SouC_{Sij}, RarC_{Sij}, TelC_{Sij}, IntC_{Sij}, OthC_{Sij}) \tag{1}$$

General total cost general estimation model:

$$TC_{Sij} = \alpha_0 + \alpha_1 DisC_{Sij} + \alpha_2 PetC_{Sij} + \alpha_3 TolC_{Sij} + \alpha_4 FeeC_{Sij} + \alpha_5 FodC_{Sij} + \alpha_6 LogC_{Sij} + \alpha_7 SouC_{Sij} + \alpha_8 RarC_{Sij} + \alpha_9 TelC_{Sij} + \alpha_{10} IntC_{Sij} + \alpha_{11} OthC_{Sij} + \epsilon_{Sij} \tag{2}$$

where,

TC_{Sij} = Travel cost individual i incurred to reach location j

$DisC_{Sij}$ = Distance cost individual i incurred to reach location j

$PetC_{Sij}$ = Petrol/Fuel cost individual i incurred to reach location j

$TolC_{Sij}$ = Toll cost individual i incurred to reach location j

$FeeC_{Sij}$ = Entrance cost individual i incurred to reach location j

$FodC_{Sij}$ = Food cost individual i incurred to reach location j

$LogC_{Sij}$ = Lodging cost individual i incurred to reach location j

$SouC_{Sij}$ = Souvenirs cost individual i incurred at location j

$RarC_{Sij}$ = Recreation cost individual i incurred at location j

$TelC_{Sij}$ = Telephone cost individual i incurred at location j

$IntC_{Sij}$ = Internet cost individual i incurred at the location j

$OthC_{Sij}$ = Other costs individual i incurred at the location j

Study area

Pangkor Island is the third largest island in Perak which is located in the Straits of Malacca. The area of Pangkor Island is 2,200 hectares with a population of 25,000. Pangkor Island is one of the prime tourist destinations in Malaysia. This island is a tropical island that has various interesting places to visit, for example, the Dutch inscriptions, Teluk Belanga beach, Pasir Bogak beach, and Teluk Nipah beach.

Pangkor Island is a picturesque group of islands which consists of nine (9) islands, but only two (2) islands are inhabited which are Pangkor Island and

Table 1. Tourists Profile

	Tourists Profile	%
Gender	Male	43.8
	Female	56.2
Age	<20 years old	6.4
	21-30 years old	25.2
	31-40 years old	29.9
	41-50 years old	26.6
	51 years and above	12.7
Race	Malay	73.4
	Chinese	9.4
	Indian	17.2
Occupation	Civil servants	20.3
	Private sector	37.5
	Business	9.4
	Students	7.8
	Housewives/Pensioners	25.0
Income (RM)	<RM 2000	53.4
	RM 2001-RM 4000	23.3
	RM 4001 and above	23.5
Residence	Selangor	31.3
	Kuala Lumpur	15.6
	Perak	25
	Kedah	11
	Putrajaya	1.6
	Pulau Pinang	9.4
	Negeri Sembilan	1.6
	Melaka	4.7

Pangkor Laut. The position of Pangkor Island is in the west of Peninsular Malaysia which is between Penang and Kuala Lumpur. The beauty of the sea and beach attracts tourists to enjoy recreational activities for examples swimming, snorkelling, kayaking, and fishing. Pangkor Laut is a private island that has been developed as a luxury resort. The island's area is 300 acres which set along the Straits of Malacca, three miles off the West Coast of Malaysia.

Pasir Bogak beach situated around 5 kilometres (KM) from Pangkor town. Tourists usually take 15 minutes to travel from Pangkor jetty to the beach. The beach's length is 1.3 km, and it is famous among tourists who enjoy beach activities such as the picnicking, bathing, sports water, cycling and fishing.

RESULTS

The characteristics attribute of the coastal tourist area slightly different from the other natural resources such as forest, wildlife, mountains, caves that give different economic value. The attribute of the coastal tourist such as beautiful scenery, seawater colour, various recreational activities, suitable for tourist who like to do sport water activities and appropriate for the family to enjoy their time together. The economic value depends on their tourism product. For example heritage tourism, coastal tourism, national park, hot spring product and so on.

Socio-economic profile of tourists

The number of tourists who participated in this survey is 64 people. The socio-economic profiles of the respondents are presented in **Table 1**. About 56.2% of the tourists are females and 43.8% males. The Malays

Table 2. Travel features

	Travel features	%
The frequency of visit in one year	First time	40.6
	1 time in a year	46.9
	2 times in a year	9.4
	3 times in a year	1.6
	Above 4 times in a year	1.6
Purpose of visit	Holiday	92.2
	Meeting/convention	1.6
	Visit friend/relative	3.1
	Others	3.1
School holiday	A weekend during school holiday	31.3
	School holiday	53.1
	Public holiday during school holiday	15.6
Duration of stay	1 night	37.5
	2 nights	53.1
	3 nights	3.1
	4 nights	4.7
	Above 4 nights	1.6
Place of stay	Hotel	34.4
	Chalet	15.6
	Relative/friend house	7.8
	Others	3.1
Holiday mode	Individual	4.7
	Friends/spouse	10.6
	Family	46.9
	In a small group (< 5 persons)	3.1
	In a big group (>5 persons)	34.4

tourists form 73.4% of the total number of respondents and followed by the Indian tourists 17.2% and Chinese tourists 9.4%.

The tourist's occupations include being civil servants (20.3%), working in private sectors (37.5%), and business (9.4%), students (7.8%), and housewives/pensioners (25.0%). The tourists who work in the private sector shows higher percentages compared to other tourists with different occupations. In this survey, the majority of the tourists are from the younger generations who are aged below 40 (61.5%), 41-50 years old (26.6%) and 51 years old above (12.7%). In this survey, the majority of the tourists who visited the Pasir Bogak beach have a lower monthly income of less than RM2000 (53.4%). The rest are from the middle-income group with a monthly salary of RM2001 to RM4000 (23.3%) and higher income group with more than RM4000 (23.5%) a month.

The highest percentage of tourists come from Selangor (31.3%). While, the rest of the tourists, comes from Perak (25%), Kuala Lumpur (15.6%), Kedah (11%), Putrajaya (1.6%), Pulau Pinang (9.4%), Negeri Sembilan (1.6%) and Melaka (4.7%).

Travel features

The results of the travel features are presented in **Table 2**. The number of tourists who visit Pangkor Island for the first time is 40.6%, while the rest are tourists who have visited Pangkor Island before (59.4%). The number of tourists who visit the beach in Pangkor Island once a year is 46.9%, the first-time visit (40.6%) and those who visit twice a year (9.4%). The rest of comprising tourists who visit three (3) times and more than four (4) times a year (1.6% respectively).

Table 3. Travel expenditure cost to Lumut Jetty

Cost	Mean (RM)	Minimum (RM)	Maximum (RM)
Petrol	62.66	15.00	250.00
Toll	17.73	8.00	50.00
Foods/Drinks	32.32	10.00	150.00
Lodging	11.41	130.00	600.00
Telephone	0.63	10.00	20.00
Internet	0.47	10.00	20.00
Souvenirs	8.45	20.00	100.00
Ferry ticket	48.61	7.00	237.50
Others	2.95	20.00	60.00

The main purpose of tourists' visits Pasir Bogak beach are mainly for holidays (92.2%) and the other purposes include meeting/convention, visits friends/relatives (7.8%), and others (3.1%). The most preferred holiday that has been chosen by the tourists during school holiday which is either over the weekend, during the school holiday, and public holiday. The majority of tourists choose school holidays (53.1%), and the rest of the tourists choose the weekend during the school holiday (31.3%) and public holiday during school holidays (15.6%).

The duration of stay (nights) at Pangkor Island is mostly 2 nights (53.1%). The rest of the tourists for 1 night (37.5%), 3 nights (3.1%), 4 nights (4.7%) and 4 nights and above (1.6%). The majority of the tourists stay at the hotel (39.1%). The rests prefer chalet (34.4%), homestay (15.6%), a friends or relative's home (7.8%) and others (3.1%).

The majority of the tourists choose to travel with their family to Pangkor Island (46.9%). However, there are also tourists (34.4%) who choose to be part of a big tour group (> 5 persons). Those who travel with a friend's or spouse to the beach is 10.9%. Tourists who travel alone and in a small group (< 5 persons) form 4.7% and 3.1 % of the total number of tourists.

Travel expenditure cost during travelling to the Lumut Jetty

The travel cost is divided to the three (3) parts such as travel cost during a travelling to the Lumut jetty, expenditure cost during their stay at Pangkor Island, and the return trip cost to the tourists' residence. Hence, the mean value of the travel costs during their travel to the Lumut jetty are presented in **Table 3**. The costs that are included in the travel costs to the Lumut jetty are petrol, toll, foods, lodging, telephone, internet, souvenirs, ferry ticket and other costs.

Expenditure cost during visit beaches in Pangkor Island

The expenditure costs during the visits to beaches in Pangkor Island are also included in the travel cost. However, in these current costs, the recreation expenditure is added as a current expenditure of tourists during their visits to the beaches in Pangkor Island. Only two (2) beaches that have been visited by the tourists are considered in this study. The results of the current expenditure are presented in **Table 4** and **Table 5**.

Table 4. Expenditure cost in Teluk Nipah beach

Cost	Mean (RM)	Minimum (RM)	Maximum (RM)
Petrol	4.02	3.00	50.00
Foods/ Drinks	37.97	50.00	1200.00
Lodging	50.11	120.00	1000.00
Telephone	2.34	150.00	150.00
Internet	0.00	0.00	0.00
Souvenirs	12.81	30.00	300.00
Recreational expenditure	32.81	120.00	500.00
Others	14.93	16.00	300.00

Table 5. Expenditure cost in Pasir Bogak beach

Cost	Mean (RM)	Minimum (RM)	Maximum (RM)
Petrol	6.56	3.00	60.00
Foods/ Drinks	144.77	10.00	2000.00
Lodging	400.90	80.00	2000.00
Telephone	0.32	20.00	20.00
Internet	0.32	20.00	20.00
Souvenirs	23.44	30.00	200.00
Recreational expenditure	103.66	50.00	900.00
Others	46.25	15.00	300.00

Table 6. Return trip cost from Pangkor Island

Cost	Mean (RM)	Minimum (RM)	Maximum (RM)
Ferry ticket	48.57	7.00	237.50
Souvenirs	29.38	20.00	400.00
Foods/Drinks	28.13	10.00	200.00
Petrol	62.34	15.00	165.00
Toll	17.24	8.00	50.00
Telephone	2.66	20.00	150.00
Internet	0.31	20.00	20.00
Others	0.63	40.00	40.00

Return trip cost from Pangkor Island to the tourist's residence

The return trip cost from Pangkor Island to the tourists' residence show similar costs as the travel expenditure costs incurred during a travelling to the Lumut jetty. However, in this return trip, the costs included are ferry tickets, souvenirs, foods/drinks, petrol, toll, telephone, internet and others cost. The result of the return trip's cost is presented in **Table 6**.

Overall cost for the travel to Pangkor Island

The overall costs for the travel to Pangkor Island which includes travel cost, current cost and return trip cost are shown in **Table 7**. The mean cost for the overall trip shows that a tourist spends only RM 219.39 per individual. This indicates that the cost spent by the tourist is reasonable and acceptable.

Table 7. The overall cost of a trip to Pangkor Island

	N	Mean (RM)	Minimum (RM)	Maximum (RM)
The overall cost to Pangkor Island	64	219.39	22.93	1024.00

DISCUSSION

For the majority of the tourists, this is not for their first-time visit to Pangkor Island as a vacation. These findings indicated that they were frequently visiting Pangkor Island as shown by the frequency of visit by the tourists which is at least once a year. Furthermore, the majority of tourists spend more than 2 hours and 30 minutes participating in beach activities such as sea bathing, picnic, snorkelling, and so on. The staying period among the visitor is primarily around two (2) or one (1) night at Pangkor Island. This shows that the longer period of stay by the tourists makes Pangkor Island one of the best destinations among local tourists for a holiday.

Besides that, the majority of tourists are from Selangor and this indicated that access to Pangkor Island is in the vicinity of residential areas and easy to access by the highways. Pangkor Island is an appropriate location for a vacation with family and friends and spouse because it offers a multitude of recreational beach activities. All costs included in the travel costs show a reasonable price, but the foods price in Pangkor Island is slightly higher compared to other locations. This may due to the increased arrival of tourists, which encourage the food stall operators to increase the price of food and generate more income for themselves. The second highest is the lodging cost. Therefore, it is suggested that the local authorities should monitor the price of foods and lodgings periodically to prevent traders from arbitrarily increasing prices. For further study, the log-linear model will be investigated to observe the relationship between the total costs of a visit.

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