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# Economic Valuation of Environmental Resources at Selected Hot Springs in Perak

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**Abstract**. This article aims to examine individual travel cost at selected hot springs as part of the efforts to develop health, wellness and recreational-based tourism in Perak. It first argues that the individual's place of origins determines their accessibility to the study sites. This paper then identifies and analyses the visitors' travel expenditure during their visit to each hot spring. The last section will discuss the effects of using hot springs for future health, wellness and recreational-based tourism in Perak. Using a Travel Cost Method, a Willingness–to-Pay of visitors was calculated as function of travel cost that incurred to reach a location. The paper utilizes a primary data which were collected during peak season from November to December in 2017 involving 241 visitors. The findings show that majority of the visitors are those who lived more than 50 km from the hot spring and spent more than one hour for each visit. In addition, each individual visitor to the hot spring generally spent by about RM 58.98 for their visit. This indicates that the hot spring potentially has the economic value in promoting health, wellness and recreational-based tourism.

## 1. Introduction

The 11th Malaysia plan placed a higher target for the development of the eco-tourism sector [1]. The 11th Malaysia Plan once again outlines eco-tourism as the main segment in the growth of the country's tourism industry by utilizing biodiversity asset through preservation and conservation in addition to the support of branding activities and targeted promotions. By implementing this strategy, the eco-tourism product will be developed along the tourism's value chain which has a high return to the economy [1]. The elements that can improve tourist experience and satisfaction in the sub-sector of eco-tourism such as tourist accommodation, interactive information center, security, and communication will be reinforced to achieve the country's intention to make eco-tourism sector as the main contributor to the country's income [1,2]. Malaysian national eco-tourism plan which was introduced in 1996, outlines the potential of the eco-tourism sector as one of the economic sectors that all parties should be paying attention [1,2]. This plan is complete and is officially accepted by the Malaysian government to help the federal and state government develop and stimulate Malaysia's eco-tourism potential [1,2]. The aims of the plan are as tools for sustainable development, the growth of the overall economy, and conservation of natural heritage in Malaysia. Eco-tourism plan outlines the action plan, the site suggestions for eco-tourism, and the special guidelines involved, to guarantee a high success rate when it is implemented [2].

## 2. Hot spring as a natural resource asset

Hot spring is an example of an eco-tourism product as a health-based tourist destination as opposed to typical recreational activities [3]. Hot springs are also considered as a destination for health tourism for tourists in need of treatment for external diseases such as stroke, skin disease, gout, joint pain (muscle),

insomnia and many others. This is due to the fact that the treatment for a stroke can be administered externally and is proven treatment involving hot springs can assist in patients' recovery from the disease according to the severity of the illness [3].

There are a few hot springs in Perak that have become tourists destinations such as Sungai Klah Hot Springs Recreational Park, Sungkai, Lubuk Timah Hot Springs, Simpang Pulai, Ulu Slim Hot Springs, Tanjung Malim, and Trong Medical Hot Springs in Changkat Jering and so on. This research was conducted at three (3) different hot springs in Perak as the selected location of the study and these locations were Sungai Klah Hot Springs Recreational Park, Lubuk Timah Hot Springs and Trong Medical Hot Springs. All three of the hot springs destinations are owned by different types of business entities: Sungai Klah Recreational Hot Springs is owned by FELDA, the Lubuk Timah Hot Springs (leased to a Bumiputera company) and the Trong Medical Hot Springs (owned by a private individual). The hot springs are selected as the study locations because each of the destinations has a stable hot water source and is frequently visited by tourists. They are also among the few interesting tourist destinations compared to other hot spring in the state.

## 2.1  Travel Cost Method (TCM) in Hot Springs Locations

Hot springs is an example of a natural resource asset that should be evaluated from a monetary aspect. An appropriate approach in this context is to evaluate the natural resource asset using the economic assessment technique of non-market goods for natural resources [4,5,7]. There are various techniques that can be applied in the assessment of environmental research such as the Travel Cost Method (TCM), the Contingent Valuation Method (CVM), the Choice Modeling (CM) and the Hedonic Pricing method [5,6,7]. However, this research will be using the Travel Cost Method (TCM) due to the fact that hot spring is an eco-tourism product that is considered as non-market goods [3]. The existing TCM elements add new values such as multi-purpose visit and a multi-site visit for tourists at the visited tourism locations. These elements have not much been taken into account for the TCM application by previous researchers [4,5,8]. Both elements are expected to influence the result of the economic assessment of the environment involving ecotourism product based on the three (3) hot springs in Perak as the case study. Hence, this research aims to reinforce the existing TCM elements that have been used to measure the environment while inserting the multi-purpose visit and multi-site visit that has been observed in tourists at tourism locations as part of the TCM technique.

TCM is the most appropriate technique to measure the economic value of natural resources, considering that hot springs as an ecotourism product can be considered as the value of the non-market goods [5,7]. The determination for the economic concept of tourism location is based on the travel cost method, is achieved using individual travel cost data as a proxy to the recreational area's values. The consumers' willingness to pay (WTP) for the cost of a visit to the recreational area indicates the economic value and the benefits of the tourism area [5,7]. This is because tourists have to sacrifice a sum of money to pay other related costs such as traveling costs like fuel, toll, and parking space. Besides that, they also have to pay current costs when they are in recreational areas such as the costs of lodging, food, and tickets. These costs should also be considered. However, the total frequency of tourists, multi-purpose visits, and multi-site visits are the fundamental basis of estimate for the economic value of a tourism area. The best approach to evaluate environmental asset is by using the economic assessment technique for non-market goods. Travel Cost method (TCM), Contingent Valuation method (CVM), Choice Model (CM) and the Hedonic Pricing method are the common techniques that have been used in the economic evaluation of environmental resources [4,5,6,7,8]. However, the assessment of environmental asset can be made through another method. Hence, the TCM is seen as a more suitable method because the environment is considered as non-market goods especially for the tourism industry that indirectly contributes to the business income. The CVM, however, is more suitable for a product that has aesthetic characteristics [6,7].

A travel cost method is a form of quantitative assessment that has been intensively used by appraisers around the world to measure the benefit of economic value for recreational areas such as a park, forest, and wildlife sanctuary [9,10]. The concept of TCM is using individual travel data cost as a proxy to evaluate the recreational area [5,6,7]. The basis of this technique uses the willingness to pay (WTP) concept which focuses on the cost of visiting the recreational area [5,7]. The tourist has to sacrifice an amount of money to pay related costs such as fuel and parking space. Moreover, the current costs at the recreational centers such as lodging cost, foods, and entrance ticket should also be taken into account. The total frequency of visit is also an important basis in measuring the economic value of the tourism location. The frequency of visit is influenced by several individual incentive factors such as motivation and experience [11,12]. Both bases form the tourists demand curve. However, this technique does not take into account the multi-purpose visits and multi-site visits by the tourist as part of the existing TCM technique to measure its economic environment. Multi-purpose visit refers to the individual who travels to places influenced by several reasons [8]. Multi-site visit refers to the tourist who visits more than one specific tourism areas [3]. A multi-purpose visit is essential in order to differentiate the type of tourists who visit various locations. Only individual travel cost that consists of pure visitors and meanderers should be calculated [7].

A pure visitor is a visitor who benefits only from visiting the tourism area, while meanderers are those who gained the benefits of traveling to the other locations and also the tourist locations they visited. For the multiple-site visits, the expenditure value of a tourist for every visit at several locations should be calculated. Even theoretically, no official technique has been accepted to explain cost allocation. However, this aspect alone cannot be easily seen to influence the economic value of a tourist location [5]. Bateman (1993), suggested that only the travel costs from the initial tourist location should be calculated [7]. However, this technique neglect motivation behind the travel and will then produce an inaccurate allocation, especially for international tourists when the tour visits several locations during the holiday that may last several days or weeks. In this situation, the main tourism location that has been visited by the tourist will produce higher travel cost allocation. However, the first site visited may not be the main reason during the travel.

Another suggestion is to divide the cost of multi-site tourism using time allocation at each location [4,8,13]. Unfortunately, this approach will not calculate the energy, fun, and satisfaction of visitors during a visit related tourist locations. Some of the activities at the specific tourist location may require a longer length of time while others may require less time allocation. However, the sense of fun and enjoyment at the tourist location may not necessarily be indicated by the time spent there [9,14]. There are many types of research that examine the time-cost issue [9,14]. It can be defined as a reliable time that has been spent at a tourist location which will incur costs for the visitor because the tourist will spend an amount of money to enjoy the facilities provided. In other words, it is an opportunity for the tourist to get the worth of the money spent to enjoy the recreational activity of the tourism location. However, there are several issues involving the TCM, so far it is one of the most suitable techniques to evaluate recreational, environmental asset. Hence, this research aims to reinforce the existing TCM with added measuring element that involves a multi-purpose visit, multi-site visits, and the time duration spent by the tourist at the tourism location involved.

The conceptual definition of the travel cost method refers to the basic TCM premises that involve an individual's incurred cost and time during his/her travel to the eco-tourism recreational area [5,7,10,11,14]. Travel cost method is an economic assessment, travel cost analysis and the Clawson method is the more favored method that reveals the economic assessment used in the cost-benefit analysis to calculate the value of things that cannot be obtained through market price (e.g. national park, beaches, and ecosystem). This method aims to calculate the tourist's willingness to pay for a facility with a constant price. Travel cost method is used to estimate the value of economic usability related to the ecosystem or the sites that can be used for recreational purposes. This method can be used to estimate the economic benefit or the cost-consequence from the (a) changes in the access cost for the recreational sites, (b) removal of the existing

recreational site (c) additions of the new recreational site and (d) changes in environmental quality at the recreational site [14].

The basic premise of the travel cost method is the expenditure of time-cost spend by an individual at the visited tourist destination. Therefore, the tourist's willingness to pay during a visit to the tourist destination can be estimated based on the number of travels made by the tourists. This method is as if one were to estimate the willingness to pay by the tourist according to market price based on the quantity demanded at different prices. The travel cost method is used to estimate the value of the recreational benefit caused by some of the recreational centers. It assumes the number of people who are willing to pay in order to enjoy the value of a tourist destination or a beautiful recreational service. It is called the revealed priority method because it uses real behavior and choices to conclude the values. Travel cost method is quite an uncontroversial method because it emulates a standard economic technique to measure value, and uses information based on real behavior instead of an oral answer to the imagined scenarios. This is based on the simple and justified assumption that the travel cost reflects the recreational value. It is also much easier to implement. Most of the tourists staying far away from a tourist destination will visit it less frequently because they will have to bear a higher cost, especially in actual travel cost and time cost [9,14]. The number of the journey from the original zone (current address or other tourist destination visited during the tour) for different distances from the tourism location. Travel cost from each zone is used to achieve the aggregate demand curve for a visit to the tourist destination.

Other factors might also affect the number of visits to a tourist destination. Individuals who have higher incomes will usually travel more to their tourist destination of interest. If there are other tourist destinations with an alternative advantage, less individual tourist will travel there. Other factors that affect TCM are the personal interests of an individual in certain tourist destination types, and their experience level in the recreational area will affect the frequency of visit. To use the travel cost method, the information that should be collected can be categorized as such: (a) the number of visit from the origin zone (more commonly defined through different postcodes), (b) demographic information of a tourist travelling cost from each zone, (c) travel cost for every mile, (d) time value used for travel, or past cost from previous travel cost. Based on [5,7,14], to use the travel cost method, the information that should be collected includes:

- The number of visits from each zone (usually specified by zip code).
- Demographic information of individual tourist from each zone.
- Mileage from each zone.
- Travel cost for each mile.
- Value of time travel that had been spent, or the 'opportunity cost' during traveling.

A more intricate and extensive application is to collect the following information:
- Accurate distance for each individual who went to the site.
- Accurate travel expenditure.
- Travel duration of the trip.
- Total time that has been spent at the tourist destination involved.
- Other locations that have been visited during the same trip, and the total time that had been spent on each location.
- Other tourism location visited by the tourist (not including this tourist destination), and the travel distance for each tourism location.
- Other reasons for travel (is the purpose of travel to only visit the tourist destination, or for several other purposes).

- The level of recreational experience quality at the tourism location, and on other sites of the same nature (e.g., fishing success)
- Environmental quality perception at the sites.
- Characteristics of the sites and other substitute sites.

## 3. Research Method
### 3.1 Source of data and analysis
The research method to collect primary data was by using distributed questionnaires to tourists at the selected three (3) hot springs locations. The total number of respondents for this research were 241 tourists who represented tourists at Sungai Klah Recreational Park Hot Springs (152 tourists), Lubuk Timah Hot Springs (53 tourists) and Trong Medical Hot Springs (36 tourists). The tourists from these three (3) hot springs were briefly interviewed. The unstructured questionnaire contained four (4) sections: Section A (tourist profile), Section B (travel features), Section C (factors affecting individual's visit to the hot springs) and Section D (the calculation of an individual travel cost to the hot spring location). Besides that, secondary data were also used in this research such as data obtained from journal articles, books, and other literary materials.

## 4. Model specification
In this research, the Travel Cost Method (TCM) model used was an adaptation of a model from a previous researcher [15]. The model that was used by Raziah [15] adapted the souvenirs cost as travel cost. This was due to a previous model that was used by Raziah [15]; travel costs included:
- Distance cost
- Time cost
- Petrol cost
- Toll cost
- Entrance fee cost
- Food cost
- Lodging cost
- Others cost

However, souvenirs cost is added into this model because it is also regarded as a cost that is incurred by the tourist during their visit to the tourism area such as hot springs. Souvenirs cost is a cost that is included in an individual journey [13]. This is in reference to the souvenirs cost incurred by the tourists when they visited the National Park of Podygi [14] and Czech Geopark [13]. Therefore, the individual travel cost model for this study is as follows:

$$TC_{Sij} = f\left(DisC_{Sij}, TimC_{Sij}, PetC_{Sij}, TolC_{Sij}, EntC_{Sij}, FodC_{Sij}, LogC_{Sij}, SouC_{Sij}, OthC_{Sij} \ldots\right)$$

Where,

$TC_{sij}$ = travel cost individual I incurred to reach location j

$DisC_{sij}$ = distance cost of individual I incurred to reach location j

$TimC_{sij}$ = time cost of individual I incurred to reach location j

$PetC_{sij}$ = petrol cost of individual I incurred to reach location j

$TolC_{sij}$ = toll cost of individual I incurred to reach location j

$EntC_{sij}$ = entrance fee cost of individual I incurred reach location j

$FodC_{sij}$ = food cost of individual I incurred to reach location j

$LogC_{sij}$ = lodging cost of individual I incurred to reach location j

$SouC_{sij}$ = souvenirs cost of individual I incurred at location j

$OthC_{sij}$ = others cost of individual I incurred to reach location j

## 5. Results

*5.1 Demographic profile of tourists*

The demography of the respondents for the three (3) hot springs areas are shows that the majority of visitors who visited all three (3) hot springs are: female visitors (60.2%) and male visitors (39.8%). The races of the visitors are mainly Malays (88.8% ) and other races such as the Chinese (10%) and Indians (1.2%). Most of the visitors who visited the hot spring tourism area are below 40 years old (62.6%). The findings also indicate that most visitors of the age range of 30-39 years old visit the hot springs at a frequency of 13 times. While the visitors in the age range of 41-60 years old show form 34% of the visitors and the rest are visitors in the age group of 61 years old and above (3.2%). The visitors who visited the hot springs consist of singles (22.8%), single mothers (0.8%), and widowers (0.4%). The majority of the visitors are married (75.9%). This shows that the hot springs' visitors came to have recreational time with their family members. In terms of occupation, visitors who work in the private sector form a higher percentage (39.8%) compared to visitors who are government staff (22.4%). Students and businessmen have a percentage of about 9.5% and 8.7% respectively. The visitors also possessed different levels of education. Overall, the visitors who obtain only the Malaysian Certificate of Education (SPM) show a higher percentage (36.5%). While the percentage of visitors who owns a Degree, Diploma, Masters or PhD qualifications are 26.1%, 22%, 4.6%, and 0.4% respectively. The rest of the visitors have a lower level of education than SPM.

The demographic information about the visitors' monthly income shows that tourists who have a monthly earning of RM1000 and below form the highest percentage (26.4%). Visitors with a monthly income of RM1001-RM2000 (21%), RM 2100-RM 3000 (13.6%) and RM 4000 and higher (19.5%). This indicates that these hot springs locations are suitable for people from the lower, middle-and higher-income groups. Most of the visitors came from Perak (45.4%). The visitors from Kuala Lumpur and Selangor show a percentage of 10.7% and 23.2% respectively. The rest of the visitors came from Negeri Sembilan, Pahang, Kedah, Perlis, and Johor. Visitors from Kelantan and Terengganu show the lowest percentage compared to visitors from the other states in Malaysia. The number of visitors who joined the tour group that is catered for than 10 people has the highest percentage of 72.9%, while the number of members who join a tour group consisting of between 11-20 person has a percentage of 22.3%. The rest of the tour groups consist of 21-30 people (2%) and 30 and above person (2.4%).

*5.2 Travel features*

The travel features of the tourists for the three (3) hot springs are as shown in *Appendix 2*. Based on the result, the majority of the tourists are first-time visitors to the hot springs (55.2%), while the tourists who have come previously form 44.8% of the overall tourists who participated in the study. The tourists' frequency of visit of at least once a year (24.5%), twice in one year (9.1 %). The rest represents the percentage of tourists who came to visit for 3 times and 4 times and above. The main purpose of the tourists visits to the hot springs is due to a holiday (85.5%) while 8.3% of the tourists' visit for the purpose of getting health treatment at the hot springs. The rest either come to the hot springs while visiting relatives (2.1%), or friends and others (4.1%). The majority of the tourists choose to travel during the school holidays (51%). The rest of the tourists chose either the weekend (36.9%) or public holiday (12%)

The duration of the time that the tourists spend at the hot springs are more than 2 hours and 30 minutes (63.1%). The tourists' who spent 2 hours at the hot spring (13.7%) while the rest of the tourists spend time for about 30 minutes, 1 hour, 1 hour and 30 minutes, and 2 hours and 30 minutes with the percentages of 7.1%, 8.3%, 4.6%, and 3.3% respectively. The percentage for the mode of transport used by tourists to reach the hot spring area show that the majority of tourists use their own car as the main transport (95.4%), some use tour buses (1.7%), motorcycles (1.2%), and rental cars (0.4%). Based on the study, it can be further analyzed that the planned time frame of the tourists is similar to the duration of time spent at the hot springs. Forty-eight and five percent of the tourists plan on staying at the hot springs for more than 2 hours and 30 minutes. While the tourists who intend on staying for 1 hour and 30 minutes, and 2 hours and 30 minutes have the same percentage of 10%. The rest of the tourists plan on staying for either 2 hours (15.4%), 1 hour (10.4%), or 30 minutes (5.8%).

The majority of the tourists come to the hot springs during the holidays but does not stay there (80.1%) with the other 19.9% percentage consists of tourists who came to stay at the hot springs. However, the type of accommodation chosen by the tourists comprises of homestay (9.5%), hotel (7.9%), chalet (1.2%), staying over at a friend or relative's home (1.7%), and others (0.4%). The travel mode of tourist shows the majority of them travel with family (75.1%) while other travel with friends or spouse (2.4%), in a big group of > 5 persons (8.7%), individual (1.7%) or a small group of <2 (1%). These tourists get the information about the hot springs location mainly from friends or relatives (63.5%), from the internet (27%), travel agency (2.5%), guidebook (2.1%), tourism office (0.4%) and others (4.6%).

*5.3 Factors that affect the individual number of visits to the tourism location of hot springs*
The factors that affect the individual number of visits to the hot springs' tourism location are influence by many factor. There are several attraction factors that affect the individual number of visits such as a hot spring, and they include the location is famous for eco-tourism, tourists who came are attracted to the beautiful natural scenery, and the hot springs are located near their residence. Furthermore, other factors affecting the number of tourist visit to the hot springs are the opportunity to bath in the mountain water and hot springs pond with their family, the presence of comfortable lodging, easy access to the location, and a safe environment. The factor with the highest min that affects the individual number of visit to the hot springs' tourism location is the chance to have a bathing activity with the family (3.30).

## 6.    Calculate individual travel cost (TCM) to the hot springs' tourism location
*6.1 Individual travel cost of Sungai Klah Hot Spring Recreational Park*
Travel cost is a cost that is incurred by individuals to the hot springs. There are three (3) types of travel costs which are the cost during travel, current travel and return cost of the individual from visiting the hot springs tourist location. There are several costs incurred by tourists such as petrol cost, food, lodging, telephone, internet, souvenirs, and others. The min also shows that food cost contributes to the highest cost of the overall travel cost which is about RM 67.28 while the other costs include petrol/fuel and lodging costs shows the min value of about RM 56.16 and RM 48.42 respectively. Current cost is the tourists' cost during their visit to the hot spring (refer Appendix 5). Entrance fee cost is another extra cost of the travel cost at the tourism location. The entrance fee cost is the highest cost that is incurred by the tourist which is around RM 61.48. The rests are food and lodging costs which are the second and third highest cost of about RM 33.14 and RM 16.02 respectively. The return cost for the tourist is the same as the cost during the travel to the hot spring. However, Appendix 6 shows that the min value of food cost as the highest return cost. The min value is about RM 53.78. Meanwhile, petrol and toll cost have a min value of RM 43.94 and RM 19.27 respectively. Therefore, the min of the overall cost to the Sungai Klah Recreational Park Hot Spring is RM 67.66.

*6.2 Travel cost of individual tourist to Lubuk Timah Hot Spring tourism location*

The travel cost to the Lubuk Timah hot spring is shown in *Appendix 7*. The maximum cost that tourists spent on is the food cost which is around RM 400 with a min value of RM 47.60. While the min value for both fuel and toll cost were RM 34.90 and RM 10.36 respectively. The current cost for tourists at the hot spring shows that the food cost is also the highest cost with a value of RM 34.13 (Refer to *Appendix 8*). The entrance fee cost is the second highest spending by the tourist at the hot spring with a value of RM 32.61. However, the return cost for the tourist to go back to their residence (Appendix 9) indicates that the maximum cost incurred by tourists is the food cost (RM150). However, the min value of food cost is RM 13.01. The rest of the data shows the maximum value of toll cost and petrol cost are RM 100 and RM 50 respectively with a min value of RM 7.21 and RM 13.01 respectively. Hence, the overall min value for an individual's travel journey to Lubuk Timah Hot Spring is RM 25.78.

*6.3 Travel cost of individual tourist to Trong Medical Hot Springs*

The incurred cost for tourists traveling to the Trong medical hot spring is shown in *Appendix 10*. The highest min value is the petrol cost which is about RM 37.08. Other costs such as toll and food costs have a value of RM 15.93 and RM 19.80 respectively. However, the current cost for tourist shows that lodging cost is the maximum cost incurred. In *Appendix 1,* the maximum cost for lodging is RM 300 while the min value is RM 48.61. Food cost is the second maximum cost of tourist expenses at the Trong medical hot spring which is about RM 100 with a min value of RM 14.02. The entrance fee ticket shows a minimum cost of RM 2.00 and a maximum cost of about RM 20 with the min value of RM 7.94. The return cost incurred by tourists to their residence shows that the maximum costs are petrol and food costs. The value of expenditures incurred by the tourist is about RM 100. However, petrol cost shows a higher min value of expenditure cost which is about RM 30.55 (refer *Appendix 12*). The min value of food cost is RM17.83. Therefore, the overall min of an individual tourist for the whole travel to Trong Medical Hot Spring is RM 70.19.

*6.4 Regression analysis based on the travel cost model*

Based on the travel cost model formed, multiple regression analysis is utilized. As mentioned earlier, the dependent variable is the frequency of visit in one year. While the independent variables consist of the travel costs such as distance cost, time, petrol, toll, food, lodging, telephone, internet, souvenirs, entrance fees cost and other costs that act as the predictor variables. According to Table 1, the $R^2$ value is 0.33 (Model 1) suggests that there are about 3.3 percent changes in the dependent variables (The frequency of visit in one year) due to the changes in predictor variables, which is the travel cost.

**Table 1**: Model summary of regression analysis

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .181[a] | .033 | .029 | 1.31222 |

The results further suggest that the fitted model is significant, and this result is supported by the Wald test result (F-test)

**Table 2**: ANOVA analysis

| Model | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|

|   |            |         |     |        |       |         |
|---|------------|---------|-----|--------|-------|---------|
|   | Regression | 13.966  | 1   | 13.966 | 8.111 | .005[b] |
| 1 | Residual   | 411.536 | 239 | 1.722  |       |         |
|   | Total      | 425.502 | 240 |        |       |         |

a. Dependent Variable: The number of visits in one year

b. Predictors: (Constant), Toll Cost

<center>Model 1: F (1,239) = 8.111, p< .05</center>

According to Table 3 and Table 4, the result further suggests that, among other cost variables, only one of the predictor variables is included in the model and that is the toll cost. The results are supported by its significant level of 95%. Moreover, the magnitude value for toll cost (ß= -.18, p< .05) is significant at 95%. (toll cost is a factor affecting the frequency of visit by the tourist). Indirectly, the results indicate that most of tourists are from the other states or abroad whereas not originally from Perak. Thus, it seems obvious that the toll cost is the main factor which discourages tourists from visiting hot spring. However, most visitors in this study can afford for other costs such as petrol, lodging, foods, entrance, souvenirs, telephone and internet.

<center>**Table 3**: Regression Model Results (Included Variable)</center>

|   |            | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|------------|-------|------------|-------|--------|------|
|   |            | B     | Std. Error | Beta  |        |      |
| 1 | (Constant) | 1.231 | .138       |       | 8.934  | .000 |
|   | Toll Cost  | -.129 | .045       | -.181 | -2.848 | .005 |

a. Dependent Variable: The frequency of visit in one year

According to Table 4, the findings show that the predictor variables excluded in the model have an equivocal value on the traveling frequency to the Hot Spring area. In overall, there are ten (10) variables excluded from the model. However, six (6) predictor variables have an inverse relationship with the dependent variable. For example, the variables such as distance, time, petrol, toll, food, lodging, telephone, internet, souvenirs, entrance fees, and other costs. The excluded variables cannot be in the model because their significant value is larger than 95% (not significant) and the beta value is too small. Thus, the independent variables are omitted from the system equation.

<center>**Table 4**: Regression Model Results (Excluded Variables)</center>

| Model |               | Beta In  | t      | Sig. | Partial Correlation | Collinearity Statistics Tolerance |
|-------|---------------|----------|--------|------|---------------------|-----------------------------------|
| 1     | Distance Cost | -.022[b] | -.297  | .767 | -.019               | .752                              |
|       | Time Cost     | -.071[b] | -1.042 | .298 | -.067               | .873                              |

| | | | | | |
|---|---|---|---|---|---|
| Petrol Cost | .012[b] | .142 | .888 | .009 | .611 |
| Food Cost | .023[b] | .334 | .739 | .022 | .827 |
| Lodging Cost | -.015[b] | -.220 | .826 | -.014 | .884 |
| Telephone Cost | .014[b] | .219 | .827 | .014 | .961 |
| Internet Cost | -.023[b] | -.363 | .717 | -.024 | .978 |
| Souvenirs Cost | .029[b] | .457 | .648 | .030 | .999 |
| Entrance Fees Cost | -.014[b] | -.221 | .825 | -.014 | .982 |
| Others Cost | -.014[b] | -.215 | .830 | -.014 | .999 |

a. Dependent Variable: The frequency of visit in one year

b. Predictors in the Model: (Constant), Toll Cost

**Table 5**: Residuals Statistics

| | Minimum | Maximum | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| Predicted Value | .5472 | 1.2311 | .9212 | .24123 | 241 |
| Residual | -1.23106 | 4.24507 | .00000 | 1.30948 | 241 |
| Std. Predicted Value | -1.550 | 1.285 | .000 | 1.000 | 241 |
| Std. Residual | -.938 | 3.235 | .000 | .998 | 241 |

a. Dependent Variable: The frequency of visit in one year

## 7. Discussion

All three (3) tourism hot spring areas showed that food, petrol, and toll are the highest expenditure cost incurred by the tourists during their travel. Current cost expenditure of the tourists at the hot springs shows that the highest cost is the lodging and food costs. Souvenirs costs incurred by the tourists show a range of cost value between RM30-RM60 for all three (3) hot springs. Although the souvenirs cost uses a small amount of the tourists expenses, it is also included in the travel costs. The min value that the tourists spend is different for each location, for example, the expenditure incurred by tourists at the Trong Medical Hot Spring is higher than the one at Sungai Klah Recreational Park Hot Spring and Lubuk Timah Hot Spring. Overall, the analysis shows that half of the tourists are first timers to the hot springs locations. The analysis also indicates that tourists make a once a year visit to the hot spring area. Furthermore, most of the tourists came from all over Peninsular Malaysia especially from Kuala Lumpur and Selangor which is situated next to the Perak state and the highest number of tourists came from Perak itself. The result shows that the shorter the distance, the higher the frequency of tourist visits to the hot springs tourism areas. It also shows that the toll cost is the main factor affecting the frequency of tourist visit to hot springs tourism areas in a year. The increasing toll cost puts a burden on the tourists to visit the hot springs area again.

## 8. Conclusion

Economic assessment is important in order to known economic values of the natural resource asset. An evaluation of the natural resource asset by using TCM accepted as a best practice in the economic assessment technique for non-market goods. TCM can be applied in various forms of tourism attributes such as forests, wetlands, heritage sites and wildlife. Applied TCM in to different attributes will provides a variety of

economic values and trends. TCM mostly influenced by factors such as the type and size of tourism products and various socioeconomic variables. Increasing the individual's travel cost will be the probability decrease of the tourists to visit the tourist area. Although there are weaknesses in TCM applications in various tourism attributes, it is an optional platform that can be considered in an effort to calculate the economic value of the environmental assets.

## 9. Acknowledgement

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