



Pricing attributes of day cruises in Nha Trang bay using hedonic pricing

Nguyen Thi Thuy Tien

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**The Norwegian College of Fishery Science
University of Tromsø, Norway
&
Nha Trang University, Vietnam**

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Abstract

This study employs a hedonic price model to investigate the relationship between package prices of one-day island tours and the different attributes/characteristics associated with them. 127 observations of prices were obtained from 24 tour operators running in Nha Trang City. Using OLS regression method, the results show that the differences in prices among tours to a large degree can be explained by the differences in five various characteristics. Specifically, quality of lunch, the availability of VIP tour, the presence of seafood serving and diving activity have positive and significant effects on prices while the number of destinations has a negative significant effect on prices. With regard to the empirical estimates of attributes' relative importance, quality of lunch is at the head of the ranking list. The results of this study are expected to assist business managers as well as policy makers in drawing strategies for the improvement and investment.

Key words: hedonic price, island tours, attributes, price variation, Nha Trang bay MPA.

1. Introduction

In Vietnam, Nha Trang Bay is rich in islands. With a variety of habitats and ecosystems it becomes one of the most well-known tourism areas. Besides, tourism in Nha Trang Bay is appreciated and worth stimulating because of the nature based tourism. And due to the huge benefits from the attractive marine features, Nha Trang is now investing more and more to explore its potentials. The MPA (Marine Protected Area) that was set up in 2001 in Nha Trang Bay has facilitated this positive development. It is not only advantageous to marine biodiversity conservation, but also of high value to the tourism industry in Nha Trang Bay. Since then a large amount of island tours have been set up and are operated with great success. Sightseeing tours around islands within the MPA are popular and seem to be the most outstanding activity which is attracting tourists to Nha Trang city day by day. Nam and Son (2005) mentioned that there was an upswing in number of visitors because of the continuous increase in the recreational value of the islands. Recently, a report at the beginning of the year 2012 of Khanh Hoa Department of Culture, Sports and Tourism shows that 2.18 million tourists were welcomed to Khanh Hoa Province in 2011, increasing by 19% over 2010 and being approximately double compared with 1.1 million tourists in 2006. This illustrates that there has been a high growth in attraction of tourism in Khanh Hoa province. Likewise, tourism turnover of the whole year 2011 reached VND 2,252 billion, a 19.9%, 44%, 170%, 250% increase over 2010, 2009, 2006 and 2005 respectively (Khanh Hoa Department of Culture, Sports and Tourism, 2012). Understanding the great benefits tourism can contribute, investments in this sector is rising gradually, thus a dramatic growth rate in the next few years is expected.

From the tours statistics in Khanh Hoa province, it was found that the greatest proportion was island tour, which has accounted for nearly 70% of the registered tours in province beside the city tour, river tour, stream tour, etc (Cuong, 2011). This shows that boat tours within the MPA plays a key role in tourism of Nha Trang.

In a context of product or service improvement in the tourism industry, only price produces revenues while the other elements of marketing mix (product, place and promotion) add to costs (Kotler et al., 1999). Price in commerce represents for what buyers are willing to pay, sellers are willing to get and the competition is allowing to be charged. Although pricing and price competition are influential problems to marketing, they remain the least explored

and understood (Chen and Rothschild, 2010). Generally, tour operators in Nha Trang set price basing on the cost-plus pricing method and do not pay much attention to pricing strategies. Most of them lack for identifying specific pricing objectives so as to gain the optimal pricing. The price of a specific tour is the integration of a wide range of attribute prices. The adjustment of the package price depends on the various attributes. It is true that different suppliers and different kinds of tours provide different package prices. The reason for this situation is the variation in the characteristics of products they offer. It is thus very important to investigate the contributions of each attribute; in other words a relationship between prices and quality attributes of products/services should be taken into consideration.

Recognizing the value of tourism in Nha Trang Bay MPA, the need of deep and explicit knowledge of boat trip operation and in order to design effective marketing strategies, this empirical study has been carried out based on a hedonic pricing model to assess the attribute prices of package island tours.

The current research can be seen as being the first to apply hedonic pricing model in the concept of economic tourism in Nha Trang Bay. Also, hedonic pricing models have not been widely applied to tourism, even though a number of empirical studies are available in the literature (Marie et al., 2005). There are certain popular scientific papers relevant to hedonic price regression in a variety kinds of tourism being accessible: study on the local and spatial competition for farm tourism services of Andersson and Hoffmann (2008); valuing scenic views in coastal tourism in Italy of Amrusch (2007) with the main objective was “to explore the economic valuations of the landscape feature scenic view by tourists”. Thrane (2005) devoted a paper researching the sun and beach package tours applied hedonic price models. An earlier research also can be found in Espinet et al., (2003) that examined the effect on price of different characteristics of holiday hotels in the sun-and-beach segment which was estimated using the hedonic function.

This master thesis, thus hopefully will be an addition in the applications of hedonic pricing method to study the package prices in the field of tourism.

1.1 Objective of the study

The purpose of this thesis is to contribute to the understanding of factors that have considerable influence on the island tour prices within MPA in Nha Trang bay. More concretely, the following research questions were drawn up to summarize the overall objective of the study:

- Which services' attributes affect the price variation among island tours in Nha Trang bay MPA? And
- How much does each contribute to the understanding of the pricing strategy?

Consequently, the study is seeking to marketing strategy implications for the whole tourism industry in general and island tours in particular. The research results are expected to support tour operators, managers when considering pricing strategies. Moreover, they could assist policy makers to have good plans for enhancing tourism developments. Hence this study is helpful in order to avoid waste of resources and for a sustainable development.

1.2 Material and method

First of all, the scientific literature was reviewed and the general information of tourism industry was described. Based on these results, a hedonic price model was developed with many anticipated variables that have influences on the prices. To apprehend the study entity well and to obtain good data for the analysis, a pertinent questionnaire was designed. Then a survey of 24 tour operators in Nha Trang city giving 127 observations for the database had been conducted. Conventionally, a descriptive analysis of variables was performed by MS Excel. In addition an econometric software, EVIEW7 was adopted to run the hedonic regression model using ordinary least square estimation (OLS) method and carry out essential tests to achieve the best result and to draw the final conclusion.

1.3 Structure of thesis

The first part which has just been introduced above is about the background of tourism in Nha Trang city, Khanh Hoa province with the statement of problem, thesis objective and the material and method the study is based on. The second part illustrates the Nha Trang bay MPA tourism industry in more detail. Following is the theoretical framework part that presents the conceptual analysis and a review of previous related studies which particularly

applied hedonic pricing models to tourism. Part 4 explains the data collection and the variables selection process. In this part, the methods used will be described alongside, especially justifications for the appropriate adopted model. The next, part 5 provides the results and findings from the econometric measurement and of performance analysis. Finally, the last part will give a conclusion for this study and discuss some specific aspects of the matter.

2. General information

2.1 Study area

Nha Trang MPA (Figure 1) is the core area where many tour's activities have taken place, departing from Cau Da habor. The understanding of the environment increases in Vietnam and the values of a healthy bay have been more and more highly understood and regarded, which contributes to the development of Nha Trang tourism.

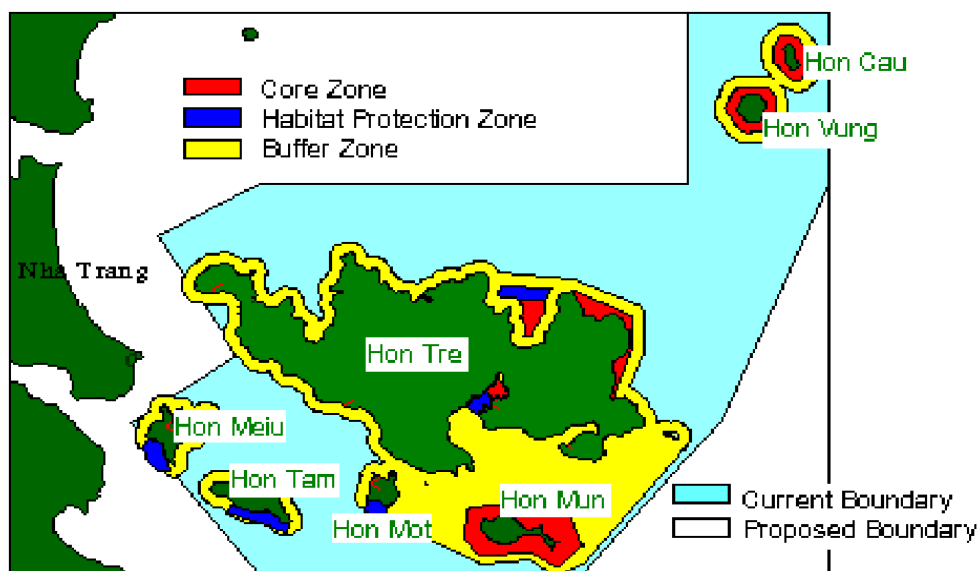


Figure 1: Map of Nha Trang Bay Marine Protected Area

(Source: cited from Haynes and Van Tu (2004). Hon Mun MPA Pilot Project)

2.2 Characteristics of the tour industry in Nha Trang Bay MPA

One of the most interesting things when referring to Nha Trang tourism industry is the performance of the tour operators in this city. Until 2011 there are approximate 40 tour operators available in Nha Trang City; most of them provide the island tour within Nha Trang Bay MPA and consider it as the main point in their package tours. Tour operators work quite professionally in a supply chain of customizing tours for individuals, families, for business travelers and small or large groups. They are running a large amount tours and act as a price taker as well. However powerful they are, the tourist companies in Nha Trang still lose the run of customer's taste and quality services. Especially nowadays people are rational and become more careful in choosing the destination among the immense alternatives. Tourists

seem to be much more cynical about what they read in the magazines or what they hear on the television. Particularly, they just care what they are witnessing and what they are perceived in order to decide to return the destinations or not. Perhaps realizing this tendency, all the tour operators in Nha Trang had a significant change in opinion of core points of economic tourism many years ago. They have paid much more attention to the quality of the tours, the connection with the attractions and the tourists' liking. Moreover, the added values of services' attributes are foremost concerned. Additionally, an understanding of the movement of 21th century tourism and the possibility that it is more profitable makes most of the tour operators work closely together. They will call the other offices whenever they have many clients or even in case they cannot arrange an appropriate tour due to insufficient tourists. More than 40 tour operators in Nha Trang create a good link with most of the 503 guest houses, hotels and resorts in Khanh Hoa province which Nha Trang made up 95% of all the accommodations found in the province (Report of Khanh Hoa Department of Culture Sports and Tourism, 2012).

It must be pointed out that tour operators in Nha Trang City are small in scale and capacity, the probability of handling a large amount of clients at the same time is low. Similar to many tour operators in Europe in the last years of '90s, the country's tour operating industry has not been analyzed in any depth because of a lack of empirical information despite its huge significance (Sard et al., 2002). Besides, competition can be seen among tour operators, especially there is always conflict occurring in prices and the commission percentage. A competitive market of tourism makes tourist companies innovative and continuously upgrade the quality of services. Owing to the world trade affiliation and the fast development in Vietnamese economy recently, the tour managers recognize what they should do, which tendency they should follow and how to make themselves much more prosperous. Hence, tour operators in Nha Trang are making great efforts to change, to achieve and to satisfy visitors those who choose Nha Trang - Khanh Hoa as their destination.

3. Theoretical framework

This part includes key approaches in the theory of hedonic price. In addition, some empirical research related to tourism and pricing are introduced.

3.1 Hedonic price theory

Generally *hedonic* is understood as something that has a close association with *pleasure* or devoted to *pleasure*. *Hedonic* means to belong or relate to utility. Hence, the hedonic approach was often applied to estimate the value of quality characteristics of many products/services. A hedonic econometric model is one where the independent variables are related to quality; e.g. the quality of a product that one might buy or the quality of a job one might take. Actually, the term “hedonics” is derived from the Greek word *hēdonikos* (from *hēdonē*) and origins in the research paper by Court (1939) that investigated the price and the automobiles demand. Though Colwell and Dilmore (1999) mentioned that Haas (1922b) produced an early hedonic study more than 15 years prior to Court (1939), they could not state for sure that Haas had been the first.

This study is closely connected with price theory which is one of the core principles underlying economic theory. Theory of price demonstrates the price for any specific good in the relationship of supply and demand. According to this theory, goods or services are purchased at the point which is not only beneficial to the buyers’ entity demand but also satisfies the sellers. That is the optimal point of market price. According to Friedman (2007) price theory deals with the allocation of resources among different uses and involving three certain missions: transmitting information, providing an incentive to users of resources and to the owners of resources. Pricing the final products was seen extremely important in this theory and “the principles that explain prices in the product markets also explain prices in the factor markets” (Friedman, 2007).

The foundations of hedonic price theories date back to the demonstration of Court L. M. (1941), Lancaster (1966) and Rosen (1974) which have been studied and applied in many research papers in a variety of concepts later on. Rosen (1974) mapped out a standard identification problem of hedonic price via interaction between demand and supply sides of purchasing a product which contained distinct packages of characteristics. Rosen’s approach was regarded that “has been widely used in the literatures on housing, public economics,

environmental economics, and labor markets and somewhat less frequently in those on marketing and industrial organization” (Bajari & Benkard, 2005).

The price of a specific product is determined by its internal and external factors which are closely connected with product valuation. Hence, a set of attributes will be taken into account. A product attribute itself cannot be sold separately but a whole good which is an aggregation of different attributes will be purchased. The hedonic approach represents an effort to estimate the economic value based on the implicit price of characteristics of a product on the basis of market values (Rosato, 2008). Therefore the compositions of a product or service which are known as attributes or characteristics seem to be extremely important in the hedonic pricing theory. Likewise Rosen (1974) defined hedonic price as the implicit prices of attributes coming from observation of a variety of differentiated products and the amount of characteristics associated with them. And each of products’ attribute played an important role in the determination of the economic entire set of hedonic prices which guided and drove consumers and suppliers in business. He preferred to study market equilibrium when developing a theoretical framework for distinctive products varying through the specific characteristics.

Moreover there are always available positive and negative aspects of attributes belonging to goods. It is clear to see the characteristics that are observable; however that is not easy to explore the others which are unobservable. Griliches, father of modern hedonic price modeling (Berndt, 1996) was interested in the “estimation of missing prices”, and his approach attempted to provide a tool for estimating these “missing” prices – “the prices of particular bundles not observed in the original or later periods” (Griliches, 1991: 189). “The prices may be missing either because we failed to observe them when the transactions took place, as in the case of a new product that escaped the notice of price collectors in its early stages. Or they may be missing because they were unobservable, as, for example, if no transactions took place” (Griliches, 1991: 203).

In essence, the key feature of this theory is the assumption that implicit price is a function of its inherent attributes or utility bearing characteristics (Thrane, 2005). Any product or service is the aggregation of different characteristics and that play a key role in the determinant of pricing its value. According to Hans (2002) the core of hedonic hypothesis is

that the set of all items' characteristics forming a specific good which is denoted by $x = (x_1, x_2, \dots, x_k)'$. Then the hedonic price equation can be written:

$$p = f(x) \quad (1)$$

While p : price goods /service;
 x : good's characteristics

It is assumed that price (p) is a function of product's attributes (x) where the value of price will depend upon the value of its quality features. From the description of function (1), the implicit price of a good can be achieved by taking the first order partial derivative:

$$\frac{\partial p}{\partial x_K}(x) = \frac{\partial f}{\partial x_K}(x) \quad (K = 1, 2, \dots, k) \quad (2)$$

The function (2) indicates how changes in each of characteristics in the bundle of goods will change in the price.

3.2 Empirical Issues

Waugh (1928) made an effort to work on a wide range of quality factors influencing vegetable prices to measure accurately how much in dollars and cents that end users and suppliers or dealers placed on quality factors. Such the study then could be of great practical value to others economists who are interested in working on hedonic prices theory. The author investigated two hundred individual lots of asparagus, three hundred and seventy lots of tomatoes and forty nine records of hot house cucumbers which were all inspected in Boston in a specific of time within one year. Basically, Waugh's paper leaned on the belief of consumers' liking, it is believed that they will buy what they value and that suppliers should seriously focus to enhance the determinants if they want to increase their revenues. An extension approach of past research of Griliches and Ohta (1976) in the analysis of automobile prices represented the differences and influences between performances and definite characteristics and between manufacturers of distinct makes of automobiles. And they focused on the variation appearing to the implicit price due to the changes of quality in the certain product. Furthermore, McConnell and Strand (2000) and Carroll et al. (2001) studied hedonic price for tuna and cognately found that the price of fresh tuna was significantly influenced by the quality attributes of the fish rather than only by the quantity supplied.

Concretely, McConnell and Strand declared that “the characteristics of individual fish influence market price in a manner consistent with hedonic prices” (McConnell and Strand, 2000: 142).

Mangion et al. (2004) studied the relationship of price and quality in term of tourism competitiveness in Mediterranean area. A cross-sectional model was applied when evaluating the competitiveness of Thomson Summer Sun operator being one of the dominant operators to Mediterranean. The study was conducted by using cross sectional data available in the brochures of Thomson operator in 2003 and 2000. The package price for a seven night holiday, which was put as dependent variable in the equation, was taken under natural logarithm. Most of the independent variables included in their hedonic price model were dummy variables. Thus, Magion et al (2004) employed the transformation procedure of antilog of coefficients minus 1 to interpret dummy coefficients (Halvorsen and Palmquist, 1980). Moreover, in order to choose the appropriate variables, factor analysis method was adapted. Additionally, “the choice of the final variables to be included was based on a combination of economic reasoning as to which variables were expected to affect price, and econometric criteria relating to their significance.” (Mangion et al., 2004: 12-13).

An issue of Ohta (1975), from the outlook for choosing a specific functional form he suggested to choose the most simple convenient form and to be credible in the actual world not the one that yielded the best fit. Meanwhile Halvorsen and Pollakowski (1981) tended to favor a flexible functional form and followed it to propose a suitable procedure of selecting a form for hedonic equations. There is a collection of existent functional forms. How to apply an appropriate one for the current research is a big question that has been discussed in many paper references. Likewise, a later publish of Halstead et al. that was using a flexible functional form tried to add more in scientific literature on functional form choice through an investigation of landfill (dis)amenities (Halstead JM et al., 1997 : 759). It is thus quite difficult to decide which functional form is suitable for hedonic price models because different previous authors show a variety of decision rules for functional form model specification (Carroll et al., 2001). In general there are forms of linear, semi-log, log-log, quadratic and linear and quadratic functions of Box-Cox transformed variables which are the most functional forms of choices when estimating hedonic price functions (Cropper et al.,

1988). And Palmquist and Danielson (1989) in a study of farmland value reported that semi-logarithmic functional form performed best (Lussier et al., 2001).

One of the important issues accompanied with the hedonic price model is the misspecification errors because of the bias imposed by missing or abundant variables (Hill et al., 2007). Also, it is understood that there are two kinds of misspecification. One is known as over-specification happening when any irrelevant independent variables are included while the opposite occurs when relevant variables are omitted and is called under-specification. Hence, following Leong and Chau (2002) over-specification gives estimated independent variables that are both unbiased and consistent, but inefficient whereas under-specification results in estimated coefficients that are both biased and inconsistent. It seems to be inevitable as implicit price related quantities of set attributes of services or products. However, a number of solutions to the problem of misspecification are useful to avoid or reduce the unexpected bias. The priority in justifying the estimated coefficients is to make sure that the database is homogeneous enough. In case of appearing problems after using testing model specification from an econometric software, appropriate adjustments could be done by adding more or deleting irrelevant variables. Butler (1982) suggested using just a small number of key variables when establishing a hedonic price model. He proposed that only attributes that are costly to produce and yield utility should be considered to be present in the regression equation.

3.3 Hedonic price in the context of tourism

Price provides a very good benchmark in the context of tourism for investigating the competitiveness and efficiency of a business. Though, until 1990 when Sinclair and her coworkers examined the hedonic price theory in a tourism context, there had been no evidence for the study on hedonic price in tourism before. Sinclair et al. (1990) mentioned that there was a relationship between services' attributes and tour operators' competitiveness as well as their efficiency in operating. They studied the overall package holiday price and its determinants; in addition the differences in price which had been indicated by British tour operators in Malaga Resort also was seriously considered. Not many years later, a number of issues have appeared in economic papers and in many relevant books. Recently some researchers have showed their passion in examining the dependent variables which were on behalf of prices for a comprise package tour or an inclusive tour like Sinclair et al., 1990, Sard

et al., 2002; Espinet et al., 2003; Papatheodorou, 2003; Thrane, 2005; while hotel room prices were the main investigation of other professionals (Israeli, A. A., 2002; White & Mulligan, 2002; Chen and Rothschild, 2010). In 2008 Martin Falk had an issue of the paper “*hedonic price model for ski lift tickets*” which he investigated the relationship between price of a 1-day lift ticket, a 6-day ski pass and the ski resorts’ characteristics related to economic tourism as well. Moreover two of the latest papers applied hedonic price in the context of tourism Garcia-Pozo, A. (2011) examined the pricing based on the attributes of camping establishments and Fogarty (2011) used hedonic approach for assessing restaurant meals. The researches relevant to package tours/inclusive tours are seen as basis background for this study and these are continuing to be briefly highlighted below.

A review of Sard et al. (2002) where hedonic analysis was applied in the field of tourism pointed out the implicit holiday package price in the Balearic Islands offered by a representative sample of 28 German and 20 British tour operators in the brochures 2000. Among her findings was that the tour operators who are in close connection with one of the agreements with hotels and being larger companies would fix lower prices and get a greater market share. Given Thrane (2005), it is one of comprehensive references for the theory of the hedonic price equation for this study where a log-linear function was adopted in studying the influences of the independents variables such as choice of tour operator, choice of destination, hotel star rating, and a number of different attributes characterizing the package tour. The results showed that even variables of indirect effects (resort location, availability of restaurant and TV in the apartment) had been very meaningful to the variation of the whole package tour prices. Specifically, Espinet et al. (2003) has intimate concern with the value of hotel’s attributes to the price of an inclusive tour. He also paid much attention to the price variation of different choices of hotels and the rank of hotel star rating was in particular.

Most studies focus on the hotel’s attributes (sauna, bar, restaurants, distance to downtown, etc) or characteristics surrounded like service quality or hotel star rating. There is, however, a common division of attributes into subjective and objective ones which could be employed in the study of a one-day package island tour (Thrane, 2005). Subjective or conditional attributes can be understood as related characteristics or services that are added in one tour by the perspective of the suppliers that served customers. In detail, they are of the quality of physical characteristics of destination. On the other hand, in the field of tourism

objective attributes usually accompanied with the presence of a specific services or items, products; for instance the presence of bar, sauna, TV, air-conditioner, swimming pool, etc (Thrane, 2005). Nevertheless the discrimination of subjective and objective attributes is quite vague.

4. Data and Methodology

4.1 Data sources and survey

The one-day island boat trips offered by tour operators in Nha Trang City consist of a variety of tours, but in general tours include trips to go fishing, diving and island sightseeing tours. “An important aspect of hedonic price modeling is to make sure that the data are homogenous enough to make relevant comparisons” (Thrane, 2005: 304). Hence, the study is restricted to only include island tours that have the duration of one day or less. Furthermore, the area of study is Nha Trang Bay MPA. Most tours depart from Cau Da harbor to destination islands including a visit to the Nha Trang MPA. These tours have to pay the same entrance fees for each destination. Individual tourists have to pay these fees separately when tour operators declare that they are not included in the package price. It is essential to note that in this research these fees are all included. In case they are included in the package price, they will be subtracted when updating the database. All are foremost to make sure the homogeneity of data collection which was considered as a major assumption in the research of Cropper et al. (1988), Beer (2006), Amrusch (2007), etc. Besides, following the research of Thrane (2005) where it was recommended three steps to homogenize the data; there are choices of specific date of departure to avoid the complications of seasonal price variation and an assumption of keeping constant for the tourism production costs at the destinations. In this study data was collected in the second week of March 2012. In general, the caution in the data preparation ensured that quality differences were reflected by price variation among tours (Thrane, 2005).

A survey of tour attributes and prices was conducted using a questionnaire composed by the variables described in the next section. Although it is understood that observation was a sample, data in this study come closer to a population than to a sample (Thrane, 2005). The database embodied 127 tour operators’ prices of 24 tourist companies, operating domestic islands tour in Nha Trang city. Face to face communications with the managers at their companies were preferred. No matter how many attempts were done, about half of the managers were available. In the absence of managers, employees were interviewed. A talk lasted around 15 to 30 minutes and it was very hard for the interviewed person to spend that amount of time in the business hours so a period of time from about 5pm to 8pm everyday (from Monday to Saturday) was chosen to conduct the interviews. Fortunately, that was seen

as a reasonable time for them with density of guests was less and then they felt free to help. However, there are some respondents who did not know, either were clear about or wanted to reveal their sort of information, in this case they are unwilling to give responses. But this was seldom and could be overcome by coming back another time or skip it.

4.2 Description of variables

In this study, most independent variables originated from the brochures collected from Khanh Hoa tourism promotion information center to which most of travel companies, hotels, restaurants and tourist places consign their advertisements. Understanding that tour management in offices is rational, the characteristics, it is expected that what appeared on the catalogue or brochures were most valued by customers (Espinet et al., 2003). Additionally, in-depth interviews with three experienced tour guides had been carried out prior to data collection and specification of the model to explore a wide range of indispensable attributes. Because of the lack of theoretical instruction for choosing the explanatory variables for hedonic pricing models (Andersson, 2000), there is difficulty when selecting them. Furthermore the examination of brochures, and interviews with tour managers/professionals are important fundamentals performed to gain in-depth understanding of the tour operators (Espinet et al., 2003). These led to identification of thirteen characteristics for a one-day island tour.

Table 1: Independent variable descriptions in the study

No.	VARIABLE	DEFINITION	DESCRIPTION	EXPECTED EFFECT
1	PRICE	Tour price	Continuous variable. VND/person or a ticket tour	
2	EXPERI	How long the company has been running	Continuous variable. Years of operating	?
3	TGUIDE	Tour-guide's experience	Continuous variable. Calculated by average years of experience	+
4	LUNCH	Lunch served in the tour	Continuous variable. VND/person or a ticket tour	+
5	FBAR	Floating bar: drinking wine in the sea with a buoy	Dummy Variable. 1 if yes and 0 if no	?

6	SEQUIP	Snorkeling equipment	Dummy Variable. 1 if yes and 0 if no	+
7	GBBOAT	Glass bottom boat	Dummy Variable. 1 if yes and 0 if no	+
8	DESTI	Number of destinations	continuous variables 1,2,3,4	?
9	FVILL	Fishing village	Dummy Variable, 1 if the tour included visiting Fishing village, and value 0 if no	?
10	DCOUNT	Discount for group with group >10	Dummy Variable. 1 if yes and 0 if no	-
11	VIPT	VIP Tour	Dummy Variable. 1 if yes and 0 if no	+
12	SFOOD	Seafood	Dummy Variable. 1 if the tour serve seafood and 0 if no	+
13	FISHING	Fishing activities with available bait and fishing rod	Dummy Variable. 1 if yes and 0 if no	+
14	DIVING	Diving activities	Dummy Variable. 1 if yes and 0 if no	+

First of all, it seems logical to think that a company with higher experience in doing business will have a better control of the market and thus they can charge a higher price. However, experienced company may offer lower prices due to lower capital costs. Hence, the expected effect of this variable may go in both directions. EXPERI variable was enclosed in the questionnaire as one of the continuous variables and to be measured by how long the company running in years. This reflected the experience of their operating tour boat trip.

Next, tour guide is a major factor and can be found in any sightseeing tour; it is actually reflected in the island tour brochures of all the travel companies in Nha Trang. The value added by tour guide can be very important. So tour guide is expected to have an economic significance regarding its effect on price of the specific tours. It was chosen to be a continuous variable in the model and could be calculated by the average years of experiences of all tour guides in a specific company. Tour guide in the study of Zhang and Chow (2004) was represented via twenty service quality attributes which professional skills, language ability were most concerned. Besides, in the viewpoint of managers the particular skills of island tour working experience was highly interested in when interviewing a new employee working as an island boat trip tour guide. It is believed that tour guides in the islands tour must be very

talented, they are not only professional in their work, have communication skill, speak fluently at least one foreign language but also can be an artist of music and for sure to be able to swim well. Tour guide performance has a significant effect on tourist satisfaction with guiding service and on satisfaction with tour services and with tour experience (Huang et al., 2010). Tourists who were asked about impressive features of the island tour mentioned the tour guides' performances. Particularly the tour guide was known as being valued by customers by the survey after each tour. There are freelance tour guides in Nha Trang tourism, but each tour operator in Nha Trang trains their own staff. So, different companies have different ways of tour guides' service. This will lead to the differences in the service quality among them and is being expected to affect to the price variations.

Lunch is an important and common attribute related to the one-day island package tour. This attribute also was elicited from the tour's brochure. Most of the island tours serve lunch on boat and there is difference between meals concerning the quality of lunch. Hence lunch variable will be measured in amount of VND as continuous variable.

The next independent variables have been derived from the brochures are floating bar, snorkeling equipment and glass bottom boat. These are embodied by dummy variables where 1 represents included and 0 not included. Floating bar is an entertainment feature where tourists can swim in the sea and get served from a bar floating beside them.

Moreover, the number of destinations was included as a continuous variable. Fishing village, discount for group, VIP tour and seafood (Sard et al., 2002) were included as dummy variables. Prior to conduct the survey, interviews with people working in the tourism field in Nha Trang city. According to them, a discount could be found in most of services, especially for those who are buying a large number of tickets at the same time (usually a discount for each ticket). In this study, discounts for groups over 10 persons will be considered. Besides the tours were branded as normal or VIP tours and the prices associated with them were clearly different. There are differences in the prices for tours with or without serving seafood. Serving seafood is thought to be more expensive than serving other kinds of food. It is thus expected to positively affect the price. This is also included as a dummy variable. The last two variables concern of entertainment activities FISHING and DIVING. Island tourism in Nha Trang MPA is famous for diving but not all the tour operators have ability to run these activities, hence some tours provided this service and others not, and for sure there will be

differences in quality service. So they are expected to be attributes that contribute to explain price differences.

The dependent or explained variable being the package price for the one-day boat trip demonstrates the most important variable in the model. The tour quality is reflected by the price set in advance. The price does not fluctuate much within one year or within a season, so cross sectional data is sufficient.

4.3 Method and model

The selection of hedonic price function in this study based on the theoretical concepts reviewed by Rasmussen and Zuehlke (1990), Amrusch (2007) and Chen (2010). These were in favor of Rosen's (1974) recommendations that semi-log was most suitable as appose to the linear form (Thrane, 2005). Thus, log-linear is a suitable function that could be adopted for this study. The convenience in the interpretation of the approximate percentage change in independent variable given a 1-unit change in dependent variable made the choice of semi-log satisfactory. The study's analysis adopted both continuous and dummy variables, corresponding to the subjective and objective attributes of services. Subjective attributes comprise experience of companies, tour-guide, lunch, discount and VIP tour. And the objective attributes are snorkeling equipment, glass bottom boat, destination, fishing village, floating bar, seafood, fishing and diving. While it is quite easy to calculate and interpret the continuous variables in conventional way, there is no permission for this straightforward interpretation with the dummy coefficients and large coefficients (Thrane, 2005). In term of Halvorsen and Palmquist (1980), Espinet et al. (2003), Thrane (2005), and Chen and Rothschild (2010) it was necessary to transform the estimated coefficients by taking the anti-log of coefficients minus 1 ($e^\beta - 1$) (β is the coefficient and e is the base of the natural logarithm). In the context of tourism and the relationship being close to the research, the model of this study was mostly based on Thrane (2005) and Espinet et al. (2003) which took natural logarithm of the package price.

$$\ln(PRICE)_i = \beta_0 + \sum \beta_{ki} X_{ki} + e_i \quad (3)$$

Where i is the observation that represents one-day island boat trip - a package tour ($i = 1 \dots$), k is the ordinal number of explanatory variables X and e_i is a random error. $\ln(PRICE)_i$ is the natural logarithm of the price of one day island tour and X_{ki} is a vector of

tour's characteristics. $\partial PRICE_i / \partial X_{ki}$ which is known as the partial derivatives of price with respect to the characteristics refer to the marginal implicit price. Below is the suggested empirical specification used in this study.

$$\begin{aligned}
 Ln(PRICE)_i = & \beta_0 + \beta_{1i}EXPERI_i + \beta_{2i}TGUIDE_i + \beta_{3i}LUNCH_i + \beta_{4i}FBAR_i + \beta_{5i}SEQUIP_i \\
 & + \beta_{6i}GBBOAT_i + \beta_{7i}DESTI_i + \beta_{8i}FVILL_i + \beta_{9i}DCOUNT_i + \beta_{10i}VIPT_i \\
 & + \beta_{11i}SFOOD_i + \beta_{12i}FISHING_i + \beta_{13i}DIVING_i \\
 & + e_i
 \end{aligned}
 \tag{4}$$

This study adapted classical statistical technique to analyze and select the appropriate independent variables to the model. Follow Andersson (2000) this method is to test the hypothesis based on the prior estimated function which should itself be derived from theoretical reasoning. Also in regard to the application of classical statistics, potential statistical estimation problems (e.g., heteroskedasticity) is taken into account beforehand (Andersson, 2000). This study selects a suitable econometric method – Ordinary Least Squares (OLS) for estimating the parameters of the multiple regression model. Next follows a descriptive analysis of the above variables.

4.4 Descriptive analysis

Descriptive statistics for the variables sampled for the analysis are shown in table 2. The mean price for a one-day island boat trip within MPA in Nha Trang Bay in the second week of March 2012 was approximately 477,000 VND (~ US\$24, 1 USD = 20,000 VND) per person. The standard deviation of the tickets is around 386,000 VND indicating a large variation in the one-day boat trip prices. The prices of one-day boat trip range between 100thousands to 2millions VND. The average year of experience of the companies and tour guides working in this field in Nha Trang was 7 years and 5 years respectively. There are operators that established 22 years ago, whereas some are new entrances within 1 year. Snorkeling equipment can be found in most of tours in the database (mean = 0.89), while just 12% of tours includes glass bottom boat services. More than a half of the tours served seafood (mean = 0.6). Average price of lunch was 110 thousands VND. Only about 20% of the island tours comprise either fishing or diving activities and only ¼ of the tours investigated has a group discount. Normally an island tour which takes place within one day includes 2.5 destinations with a maximum of 4.

Table 2: Descriptive statistics (N=127)

No.	VARIABLE	MEAN	MEDIAN	SD	MAX	MIN
1	Tour price	477.57	335.00	386.35	2000.00	100.00
2	How long the company has been set up	6.92	5.00	6.00	22.00	1.00
3	Tour guide's experience	5.35	5.00	2.34	9.00	2.00
4	Lunch served in the tour	110.29	90.00	78.44	420.00	20.00
5	Floating bar: drinking wine in the sea with a buoy	0.44	0.00	0.50	1.00	0.00
6	Snorkeling equipment	0.89	1.00	0.31	1.00	0.00
7	Glass bottom boat	0.12	0.00	0.32	1.00	0.00
8	Number of destinations	2.52	2.00	1.29	4.00	1.00
9	Fishing village	0.13	0.00	0.34	1.00	0.00
10	Discount for group with group >10	0.23	0.00	0.42	1.00	0.00
11	VIP Tour	0.39	0.00	0.49	1.00	0.00
12	Seafood	0.60	1.00	0.49	1.00	0.00
13	Fishing activities with available bait and fishing rod	0.21	0.00	0.41	1.00	0.00
14	Diving activities	0.22	0.00	0.42	1.00	0.00

Appendix 1 illustrates a matrix giving the correlation between all pairs of variables. There are no variables with a correlation score higher than 0.5 with three exceptions. Number of destinations (DESTI) and floating bar (FBAR) are highly correlated with a coefficient of 0.813. The price of lunch (LUNCH) and VIP tours (VIPT) have a correlation score of 0.66, while LUNCH and seafood option (SFOOD) have a correlation score of 0.62.

5. Results

The OLS estimates of the log-linear hedonic price equations are reported in the Table 5 corresponding to model/equation (4). Overall, the model fit the data well with the equivalent R^2 equal to ~ 0.85 , adjusted $R^2 \approx 0.84$ (and F-statistic = 50.45 with $p_value = 0.000$). In other word the explanatory power of the models is very strong. Using as a goodness of fit measure, R^2 in this situation implies that more than four fifths of the variation in one-day islands tour prices can be explained by the modeled attributes. Furthermore a Breusch – Pagan – Godfrey test (Table 3) was undertaken and shows that there were no serious problems of heteroskedasticity ($X^2 \approx 15.79$, $p \approx 0.2$).

Table 3: Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.348751	Prob. F(12,114)	0.2013
Obs*R-squared	15.78904	Prob. Chi-Square(12)	0.2011
Scaled explained SS	11.74287	Prob. Chi-Square(12)	0.4665

Table 4 illustrates that there is no serious issue with multi-collinearity as the VIF (Variance Inflation Factors) of each variable in the result model being very small ($VIF \ll 10$) (Kennedy, 1985). However, value of centered VIF of FBAR ($VIF \approx 4$) and DESTI ($VIF \approx 3.65$) could be a cause for concern. Additionally the result of correlation matrix (**Error! Reference source not found.**) showed a high correlation of FBAR. And because FBAR variable did not have a significant effect on the price, it was excluded from the final analysis.

Table 4: VIF test

Variable	Coefficient variance	Un-centered VIF	Centered VIF
EXPERI	0.000024	2.905846	1.240729
TGUIDE	0.000137	6.796452	1.084193
LUNCH	0.000000	7.586250	2.534747
FBAR	0.011179	7.176658	4.012148
SEQUIP	0.008126	10.526550	1.160407
GBBOAT	0.008220	1.413566	1.246610
DESTI	0.001518	17.681070	3.649345
FVILL	0.007192	1.401617	1.213999
DCOUNT	0.004602	1.529971	1.180608

VIPT	0.007200	4.044589	2.484079
SFOOD	0.006056	5.276772	2.119019
FISHING	0.007013	2.170826	1.709311
DIVING	0.008090	2.596743	2.024233
Mean	0.005335	5.469762	1.973802

Table 5 contains the estimated coefficients from the final regression model (not comprising FBAR). The variable price of lunch served in a specific tour (LUNCH), number of destinations that tourists can be accessed (DESTI), whether it is a VIP tour (VIPT), seafood served as a main course in the menu (SFOOD) and diving activities (DIVING) have significant effects on the one-day island package tour prices. T-statistics of each indicates that the estimated coefficients are significant at a confidence level of 1% or 5%.

The differences between constant and the quality attributes in the result model have been showed for a convenient interpretation (column 6: Difference, Table 5). Under the circumstance without various dummy variables contribute to the price variations (all of dummies are equal to 0), just the constant and mean value of continuous variables can be used to calculate. The price of this tour is the base tour which all effects are measured against. The price for this particular boat trip is 219,931VND. This base tour reflects the price of a tour where the company has been running for 6.92 years, the tour guide has 5.35 years of experience, the average lunch cost is 110,290VND, no floating bar included, no snorkeling equipment, no glass bottom boat ticket included, a tour with 2.52 destinations, no visit of fishing village, no discount, not to be a VIP tour, no seafood served and no fishing activities available.

Regarding all of factors which have been considered as subjective attributes just LUNCH and VIPT are significant variables. An increase in 100 units = 100,000 VND of a lunch price will lead to an approximately 34% rise (or $219,931 \times 0.34 \approx \text{VND } 75,000$) in the base tour price. Additionally VIPT attribute ($p = 0.0000 < \alpha = 0.01$, α is level of significance) also plays a key role in explaining the variation of tour price though its proportion in the database was only 39% of all tours included. There is a noticeably large difference in the base price with and without VIP tours. A VIP tour will increase the base price with 58.88% or about 130 thousand VND ($58.88\% \times 219,931 = 129,500$).

Interestingly, a boat trip that visits fewer places tends to have a higher price. The rate for a tour price with a maximum of four islands added is about 20% less expensive than the one for price comprised just one island, *ceteris paribus* ($4 \times 6.74 - 6.74 = 20.22$), corresponding to approximate VND 44,000 ($219,931 \times 20\%$). Besides, SFOOD that is regarded as one of the objective variables has a positive and significant relationship with the package price. Comparing to a price without seafood, the tour serves seafood considerably drives up the price of a base tour up by $\approx 31.2\%$. In a similar way the most dramatic rise in price can be seen via diving activities, when a one-day tour has this attribute involved, the price will rise approximately 76%, *ceteris paribus*.

In contrast the results also show that there are some variables are not significantly related to the tour prices. The experiences of tour operators (EXPERI) as well as tour guides (TGUIDE) have positive signs of coefficient however they are seen as statistically insignificant factors to the one-day island boat trips price. Additionally five more dummy variables left in the model have no noteworthy impacts on the prices: snorkeling equipment (SEQUIP), glass bottom boat (GBBOAT), fishing village (FVILL), a discount for a group above 10 persons registered (DCOUNT) and fishing activities (FISHING).

Table 5: Multiple regression results

Included observations: 127

Variable	Coefficient	Std. Error	t-Statistic	Prob.	Difference (%)
C	5.148189	0.153534	33.531200	0.000000	
EXPERI	0.001769	0.004877	0.362809	0.717400	
TGUIDE	0.004939	0.011691	0.422484	0.673500	
LUNCH	0.003411	0.000532	6.405927	0.000000	0.34
SEQUIP	0.029730	0.089956	0.330494	0.741600	
GBBOAT	0.065260	0.087101	0.749244	0.455300	
DESTI	-0.067357	0.028608	-2.354437	0.020300	-6.74
FVILL	0.042165	0.084394	0.499621	0.618300	
DCOUNT	-0.125165	0.067795	-1.846208	0.067500	
VIPT	0.462994	0.084759	5.462480	0.000000	58.88
SFOOD	0.271710	0.077455	3.507981	0.000600	31.22
FISHING	0.137902	0.077797	1.772571	0.079000	
DIVING	0.565315	0.085678	6.598130	0.000000	76.00

R-squared	0.853042	Mean dependent var	5.899734
Adjusted R-squared	0.836135	S.D. dependent var	0.729597
F-statistic	50.4558	Prob(F-statistic)	0.000000

In order to rank the relative contributions of different attributes to the determination of package tour prices of the one-day island boat trips within MPA in Nha Trang City, standardized or beta coefficients are employed (Chen and Rothschild, 2010; García-Pozo et al., 2011). In addition, Muthén and Muthén (2010, 641 - 644) was borrowed to calculate the necessary beta coefficients. Prior to this calculation, from the result model the insignificant variables were removed and the hedonic price function was re-estimated just including significant variables, then normalizing beta coefficients to add up to 1 so that they can be transformed into percentage for an applicable explanation (Chen and Rothschild, 2010).

Figure 2 highlights the relative importance of lunch (29%), VIP tour (24%), diving activities (22%), seafood (14%) and destinations (11%) to the determination of package tour prices.

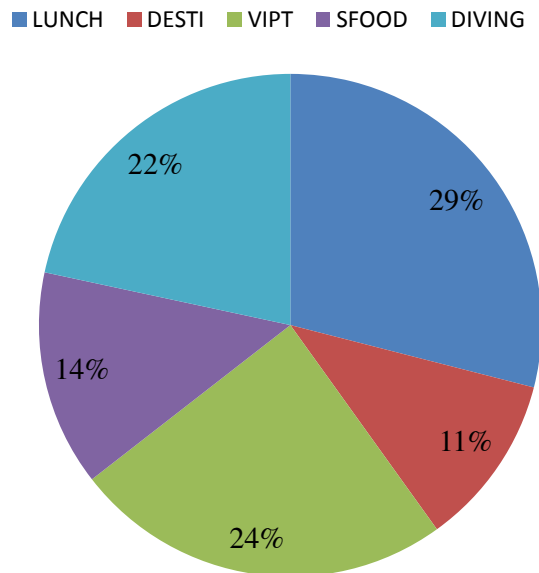


Figure 2: Contribution of various significant attributes.

6. Discussion and conclusion

The empirical analysis results based on 127 one-day island boat trips to MPA area in Nha Trang have indicated that the prices variation among tours can be primarily explained by their differences in quality of meal (lunch), availability of seafood, certain activities and how they were ranked. As expected, most of these attributes had the positive effects on price (LUNCH, VIPT, SFOOD, DIVING), this means that the presence of these attributes in the inclusive tours contribute to higher prices except DESTI attribute. The more destinations were included the less expensive the tour was.

The price of lunch offered by tour operators plays a major role of the package price determination. However, the explanation for effect on base tour price of LUNCH variable was not very high (~ 0.34%), nearly doubling the lunch price from 110,000 VND to 220,000 VND only increase the base tour price by 75,000 VND. Actually, one-day island boat trips in Nha Trang are extremely popular. They were designed initially for visitors with low and average salaries, hence a meal can only be spent VN\$20000 (~ US\$1) with many kinds of Vietnamese fresh food such as: boiled rice, fried fish, vegetables soups, eggs, etc that seem to be economical due to economies of scale in a package tour. However, the developments of premium needs as well as the competition have made tourist companies vary the quality of meals and advertise them as their competitive advantage. Of all the significant attributes, diving activities and the availability of VIP tours have the highest influences on the difference of prices (~62% and ~58%, respectively). The reason for the high valuation is that diving is regarded as a luxurious entertainment in the boat tour trip in Nha Trang MPA and it costs a lot. Likewise VIP has become a luxurious brand for high-class customers. That not only means a higher perceived service quality but also reflects personal status (the hierarchy of needs. Maslow, 1943). Besides neither all the tours included the diving activities (mean = 0.22) and VIP tours (mean = 0.39) nor all the tour operators offered them, they tend to be notable competitive characteristics of one-day boat trips in Nha Trang City.

The third important explanatory attribute in the price variation is the presence of seafood. Seafood is well-known in Nha Trang. Sea urchin, starfish, sea cucumber are specialities besides calamari, squid, shrimp, crab and fish. Associated with their fame and value is the high cost. That is why not all tours in the sample include seafood and thus the availability of seafood in certain tours is highly concerned when setting a luxurious tour. Interestingly, the

empirical result indicates a less expensive tour with a fewer destinations included. Tourists who take part in the four island tours pay a very keen price. This kind of tour is known as the ancestor of others. Moreover it can be found in the catalogue of most of tour operators whose one-day island boat trips are offered in Nha Trang MPA. The price of one island tours will be extremely different from four island tours. It is believed that service qualities are focused and enhanced in one island tour. Either Hon Mun (Mun island) or Hon Tam (Tam island) is the choice of that tour because a 5 star resort (Hon Tam) and the core zone of MPA (Hon Mun) can be found there.

In contrast, the results have showed the following attributes appeared not to have significant relationship with the package tour prices: experience of companies as well as tour guides, the presence of floating bar, snorkeling equipment, glass bottom boat, a discount and the involvement of fishing village, fishing activities.

Comparing to findings in most of previous study (Thrane, 2005; Amrusch, 2007; Andersson and Hoffmann, 2008; Falk, 2008; Chen and Rothschild, 2010) this research results provide a little higher amount of explained variation. This may be partly owing to the higher differences of overall price range for the package tour in the data sample (Thrane, 2005). Furthermore it is given the fact that the intangible characteristics such as scenery, resort charm, reputation, MPA attraction that are difficult to measure and are not presented in the model do not a problem (Falk, 2008).

Following to Chen and Rothschild (2010) who investigated the impact of a variety of attributes on the hotel room rate per night in Taipei, fitness facilities characteristic has a higher contribution to the price of hotel room in the list of important variables in their multiple regression analysis: location in city center, the presence of conference facilities, led TV and internet in weekday sample. Meanwhile, in this research, lunch accounts for the highest proportion of relative importance among significant determinants (29%) following by VIP tour, diving activities, seafood and destinations.

The estimation results provide a range of key attributes which differences have great effects on the price. Similar to findings of Falk (2008) most of these factors (quality of lunch, number of destinations, availability of seafood, diving activities) are able to be controlled by the tour operators, though they are indeed in some way dependent on the references of

tourists. Hence, it must be pointed out that the results drawn from this study not only contribute to the perspective of demand but also especially to insights into the supply part. According to both providers and the users of services, implicit prices represent marginal value of each attribute (García-Pozo et al., 2011). And attributes which are valued by consumers ranked as characteristics of high value. Hence they should be emphasized and provided to tourists in the tours offered by travel companies who desire to increase their revenue (Marie et al., 2005; Waugh, 1928). Those attributes are close to quality factors and are the ones that have significant estimate parameters in the model. Tour operators, tourism service providers, official tourism promoter, public authorities or services consumers can make use of these findings. The marketers or managers of travel companies can utilize information about price - quality relationship withdraw from the application of hedonic pricing model to price products and design effective marketing strategies (Chen and Rothschild, 2010). The suppliers can identify which services or facilities are more important than others so that they can offer or develop to achieve a higher price. Furthermore an attribute or a characteristic that allows the providers to increase the price can also be seen as the one that commits to the differentiation of their products (Espinete et al., 2003). On the other hand, the attributes which are insignificant in explaining the price need not paying much attention to enhance or improve. This is extremely useful to save cost and to ensure a sustainable development. Diving activities, which is a significant attribute in enhancing the value of island tours, has a high correlation with the maintenance of MPA in Nha Trang bay. Tourists are very interested in the beauty of coral reef and marine biodiversity. Therefore the authorities need to have reasonable policies to substitute for the MPA in term of coral related tourism. More research in this field also should be carried out so that the resources can be utilized and allocated efficiently.

In conclusion, tourism is considered as the most important area in the service industry for the economy development of a specific nation. There is little doubt in contributions it can bring. For many reasons, tourism is one of the priority sector each country has paid attention to, especially a sustainable tourism is the long term objective that all are seeking to obtain. Nha Trang Bay, which is famous for tourism with many beautiful islands and the biggest MPA in Vietnam, has welcomed millions of turns each year. The specification of Nha Trang tour industry is the one-day island boat trips which are appealing to tourists day by day. The current study employed the hedonic approach to devote the insights into tourism markets and

industry with respect to price and quality relationship of island tours. The key empirical findings were that lunch, destinations, VIP tour, seafood and diving activities attributes are important to the differences of package tour prices. Obviously the price variation among islands tours in Nha Trang Bay MPA were affected by the differences of lunch quality served in a tour, the numbers destinations included, the presence of VIP mark and the availability of seafood and diving activities in that tour. Among them, diving has the highest influence on the price variation, keeping others constant. While quality of lunches seems to be the most important factor to the decision making of setting prices for one-day island tours.

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Appendixes

Appendix 1. Correlation matrix of all variables

	<i>EXPERI</i>	<i>TGUIDE</i>	<i>LUNCH</i>	<i>FBAR</i>	<i>SEQUIP</i>	<i>GBBOAT</i>	<i>DESTI</i>	<i>FVILL</i>	<i>DCOUNT</i>	<i>VIPT</i>	<i>SFOOD</i>	<i>FISHING</i>	<i>DIVING</i>
<i>EXPERI</i>	1												
<i>TGUIDE</i>	-0.0031	1											
<i>LUNCH</i>	-0.0897	0.0239	1										
<i>FBAR</i>	-0.0361	0.1914	0.2495	1									
<i>SEQUIP</i>	-0.0593	0.0750	0.0470	0.2113	1								
<i>GBBOAT</i>	-0.1912	0.1013	0.0486	0.3138	0.1288	1							
<i>DESTI</i>	0.0351	0.1960	0.2310	0.8133	0.1815	0.1748	1						
<i>FVILL</i>	0.0516	0.1187	0.0009	0.2563	0.1384	0.0711	0.3449	1					
<i>DCOUNT</i>	-0.3382	-0.0826	0.0522	0.0458	0.0717	0.0334	0.0282	0.0616	1				
<i>VIPT</i>	-0.1385	0.0946	0.6616	0.0128	0.0724	0.0107	0.0697	0.0209	-0.0073	1			
<i>SFOOD</i>	-0.1425	0.0143	0.6225	0.2430	-0.1345	0.0012	0.3062	0.1497	-0.0136	0.5833	1		
<i>FISHING</i>	-0.0576	-0.1449	0.0572	0.3452	-0.2472	-0.0113	0.2551	0.1478	-0.0534	0.0230	0.0723	1	
<i>DIVING</i>	0.0452	-0.0971	0.2970	0.4723	0.0053	-0.1946	0.4664	0.2091	-0.0178	0.0467	0.2419	-0.2763	1

Appendix 2. Calculating the contribution of each important attribute in the dataset.

Formula:

$$\text{Standardized coefficient} = b \times \text{SD}_{(x)} / \text{SD}_{(y)}$$

b is unstandardized coefficient, $\text{SD}_{(x)}$ is the standard deviation of independent variable, and $\text{SD}_{(y)}$ is the standard deviation of dependent variable.

$$\text{Or (4)} = \text{(3)} \times \text{(2)} / \text{(1)}$$

Percentage contribution of attributes

(1) Standard Deviation of price	0.730				
	LUNCH	DESTI	VIPT	SFOOD	DIVING
(2) Standard Deviation of independent variable	78.436	1.290	0.489	0.492	0.416
(3) Unstandardized Coefficient	0.003	-0.081	0.470	0.266	0.489
(4) Standardized Coefficient	0.374	-0.143	0.315	0.179	0.279
Absolute value	0.374	0.143	0.315	0.179	0.279
Sum	1.290				
%	28.98	11.10	24.40	13.89	21.63

Hedonic price function was re-estimated just including significant variables to get the standard deviation of price.

The multiple regression results of estimated model

Dependent Variable: LOG(PRICE)

Method: Least Squares, N = 127

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	5.272099	0.09431	55.90387	0.0000
LUNCH	0.003478	0.00052	6.74567	0.0000
DESTI	-0.081025	0.02526	(3.20744)	0.0017
VIPT	0.470091	0.08258	5.69289	0.0000
SFOOD	0.265683	0.07627	3.48345	0.0007
DIVING	0.489221	0.07410	6.60210	0.0000
R-squared	0.840404	Mean dependent var	5.899734	
Adjusted R-squared	0.833809	S.D. dependent var	0.729597	

Getting value of $SD_{(x)}$:

Descriptive analysis of LUNCH, DESTI, VIPT, SFOOD, and DIVING

VARIABLE	Mean	Standard Error	Median	Mode	Standard Deviation
LUNCH	110.29	6.96	90	150	78.436
DESTI	2.52	0.11	2	4	1.290
VIPT	0.39	0.04	0	0	0.489
SFOOD	0.60	0.04	1	1	0.492
DIVING	0.22	0.04	0	0	0.416

Appendix 3. Questionnaire

<h2 style="margin: 0;">Study on price of daily boat tour trip in Nha Trang Bay MPA (Nghiên cứu giá du lịch tour đảo khu bảo tồn biển vịnh Nha Trang)</h2>									
<p>This is where I describe the study for my Msc. Thesis. Please assist me by supplying the following key informations. Your enthusiastic cooperation will be highly appreciated. I am very respecting your answer and let you know that it will be anonymous and confidential.</p> <p>(Dưới đây là những thông tin tôi cần cho đề tài nghiên cứu luận văn- chương trình thạc sỹ khoa học. Tôi rất hy vọng quý anh/chị sẽ giúp tôi hoàn thành bảng câu hỏi này. Sự hợp tác của quý anh/chị sẽ được đánh giá rất cao. Mọi thông tin về công ty quý anh/chị sẽ được tôn trọng và bảo mật an toàn).</p>									

	Name of Tour Operator : (Tên doanh nghiệp)								
	Year of establishment : (Năm thành lập)								
	Daily boat tour trip (Tour đảo hằng ngày)								
1a	The average year of experience of your tour guide ? (Kinh nghiệm trung bình của hướng dẫn viên du lịch tại công ty a/c?)								

	What are skills of your tourguides in island tour? (Những kỹ năng nào HDV của bạn cần có)			
	(Singing, playing instruments,.....) (hát, nhảy, chơi đàn, ...)				

	2 How many daily island tours do you have ? (Công ty quý a/c có tổng cộng bao nhiêu tour tham quan đảo vịnh NT)									
No	Name of tour	Price (VND)	Lunch included	Floating bar	Fishing	Diving	Snorkelling equipment	Glass bottom boat	Fishing Village	How many Islands included
	If yes choose 1, no choose 0									
I										
II										
III										
IV										
V										
VI										

	3 How old are your boats ? (Tàu của bạn đóng năm)	Year of age:							
	4a Do you have VIP Tour for each? (Công ty a/c có Tour VIP cho mỗi tour đảo không?)								
	4b How many percent that VIP tour higher than normal tour? (Giá tour VIP sẽ cao hơn bao nhiêu phần trăm so với giá tour thường?)								

5	What type of meal (lunch) do you serve? (Bữa trưa tour đảo bạn phục vụ với các món nào? Giá cả trung bình?)									
	Normal:					Price:				
	VIP:					Price:				

6a	Do you serve sea food ? (Công ty quý a/c có phục vụ hải sản trong tour đảo hay không?)									

6b	What is the most common seafood do you serve ? (Nếu có, loại hải sản nào hay được phục vụ nhất? Và giá cả phụ thu?)					Name					
						Price/dish					

7	Do you have a discount for a group of visitors ? (Quý a/c có chương trình giảm giá cho khách mua vé số lượng lớn không?)										
						Registered Above: (Đăng ký trên)		Discount: (Chiết khấu %)			

8	To you, which factors have significant impact on the price of island tour?(the first will be the highest) (Theo quý a/c, những nhân tố chính yếu nào tác động mạnh đến sự chênh lệch giá tour đảo vịnh NT? Liệt kê theo thứ tự giảm dần)									

9	If any. Could you please list some of your added services and fee charge ? (Nếu có, quý a/c vui lòng liệt kê một vài dịch vụ phụ thêm và giá cả của nó khi tổ chức tour tham quan đảo?)									
	I								Fee	
II								Fee		
III								Fee		
IV								Fee		

Your answer is a great value to my paper! Thanks so much for your contribution!									
(Câu trả lời của quý a/c rất có ý nghĩa cho bài nghiên cứu này. Chân thành cảm ơn sự đóng góp của quý a/c!!!)									