QUANTIFYING THE TOURISM VALUE OF HALONG BAY

Tran Duc Thanh

Department of Tourism Studies,
College of Social Sciences and Humanities, VNU

Nguyen Thi Hai

Department of Geography, College of Science, VNU

1. Research problem

Quang Ninh, a north-eastern province of Vietnam, is rich not only in economic potential, but also in tourism attractiveness. Ha Long Bay, located in Quang Ninh province and recognised in 1994 and in 2000 by UNESCO as a world heritage site, represents a major role of economic growth. Indeed, for many centuries tourists from various countries have marvelled at the beauty of Ha Long Bay. In order to achieve its full potential, Quang Ninh has defined some specific orientations towards tourism. These aim mainly at increasing the speed of development of the infrastructure necessary to support an increasing flow of tourists, both national and international.

In the market place, individuals exercise choice over consumption goods and services by comparing the price of the good with their willingness to pay for that good. If their willingness to pay is greater than the price of the good, they will purchase the good. However, because of its characteristics, there is no price attached to the environment. It is therefore not possible to use market prices and infer from consumers' behaviour the value they attach to the environment. Nonetheless, the need for economic evaluation of environmental impacts remains crucial. Indeed, simply pursuing efficient policies and investing in efficient projects and programs requires that environmental impacts be evaluated. This is particularly true of the planning process: a planning process that ignores environmental values will lead to a path of development detrimental to environmental quality and over-exploitation of natural resources.

2. Methodology

The method assumes weak complementarily between the environmental asset and consumption expenditure. This implies that when consumption expenditure is zero, the marginal utility of the public good is also zero. So if travelling to a forest becomes so expensive that no one goes any more, the marginal social cost of a decrease in the quality of that forest is also zero.

Measuring the area under this second stage demand curve gives an estimate of consumers' surplus. This value is most usually reported as consumers' surplus per visit. If the log of visits is regressed on travel costs etc, then this has the convenient property that the reciprocal of the travel cost coefficient gives consumers' surplus per visit.

3. Results

3.1. Overall features of the sample

About 600 copies of questionnaires were prepared and distributed by working group, only 507 were gone in to analysis (table 1). As we mentioned before, the survey should be done during at least one year, one tourism cycle life. Since the survey was done in a particular time of the year, it could not capture entire variety of tourists, in particular this was not a tourism season for Vietnamese nationals and it made it difficult to select the representatives of all the provinces of Vietnam. However this sample number may provide a sound basis to estimate the tourism demand and at statistically significant level and result of the analysis on this data set can be trust.

3.2. Socio-economic characteristics of the interviewees

It is interesting to note that 95% of the interviewees are of age from 18 to 55. About 30% of which are of age from 36 to 55. That may be explained by long trip to Ha Long.

Table 1. Age of the Respondents

Age	Respondents	Share
Under 18	6	1
From 18 to 25	179	35
From 26 to 35	146	29
From36 to 55	152	30
From 55 to 60	14	3
Above 60	10	2
Total	*507*	*100*

Two factors that play important role to the assessment of the quality of the survey are education and occupation. The person who has a defined education background and who has constant income has generally conscious behaviour toward environment problems. Among the respondents, 62% have university degree or higher.

Table 2. Education level of respondents

Education	Respondents	Share
Primary	0	0
Secondary	152	30
High school	40	8
University	290	57
Master	14	3
Doctor	11	2
Total	*507*	*100*

Most of the visitors have high education that makes us to hope a good behaviour on the environment problems. If education is a conscious factor, income is material one, that influences to the decision of tourists to travel. The median income of domestic visitors is $145 as shown in the table 3.

Table 3. Income of respondents

Income	Respondents	Share
<$35	118	25.38
$35-60	157	33.76
$60-72	100	21.51
$72-145	61	13.12
$145-290	18	3.87
$290-500	4	0.86
$500-715	5	1.08
$715-1500	2	0.43
Total	*465*	*100.00*

In general, all values (geological, biological, esthetical, cultural, tourism ...) are recognised. But the picturesque scenery is best appreciated (422/507 that consists 83%)

Table 4. Halong value appreciation from respondents

Opinion		Good weather	Picturesque scenery	Cave and grottoes	Biodiversity	Specialties
No	Respondents	380	85	268	440	400
	Share	*75*	*17*	*53*	*87*	*79*
Yes	Respondents	127	422	239	67	107
	Share	*.25*	*83*	*47*	*13*	*21*
Total	Respondents	507	507	507	507	507
	Share	100	100	100	100	100

Expenses for trip to Ha Long varies from ten to thousands dollars. It depends on living standard and income of the tourists, on distance and means of transport (table 5).

Table 5. Expenses incurred for the trip to Ha Long

Expenses ($)	Respondents	Share
<10	54	10,65
11-30	124	24,46
31-50	80	15,78
51-70	47	9,27
71-100	61	12,03
101-150	52	10,26
151-300	63	12,43
301-500	26	5,13
Total	*507*	*100,00*

3.3. Tourism Zoning

The tourists-respondents are grouped into 5 zones of increasing distance. Considering the transport network, transportation capacity and population statistics, a spatial division was made according to administrative areas.

Table 6. Zoning of provinces

Zone	Provinces	Population
1	Hai Phong, Quang Ninh	2,677,000
2	Bac Giang; Bac Ninh; Ha Noi; Ha Tay; Ha Nam; Hai Duong; Hung Yen; Nam Dinh; Ninh Binh; Thai Binh	15,588,000
3	Hoa Binh; Phu Tho; Thanh Hoa; Vinh Phuc; Bac Can; Lang Son; Thai Nguyen	8,605,000
4	Nghe An; Ha Tinh; Lao Cai; Lai Chau; Son La; Yen Bai; Cao Bang; Ha Giang; Tuyen Quang; Quang Binh; Quang Tri; TT Hue	11,233,000
5	Dà Nang; Quang Nam; Quang Ngai; Đac Lac; Gia Lai; Kon Tum; Lam Đong; Binh Đinh; Phu Yen; Khanh Hoa; Binh Thuan; Ninh Thuan; Đong Nai; Đong Thap; Binh Duong; Binh Phuoc; Ba Ria-Vung Tau; Long An; Tay Ninh; Ho Chi Minh city; Tien Giang; An Giang; Bac Lieu; Ben Tre; Ca Mau; Can Tho; Kien Giang; Soc Trang; Tra Vinh; Vinh Long;	34,844,000

3.4. Travel cost

Two first inner zones, one-day trip is possible. Visitors from first zone can visit Ha Long during a day, the average distance to the site being 70km. Visitors from second zone can stay a night in Ha Long. Their trip, in general, lasts 1-2 days only. Overcoming 200-300km to Ha Long, the visitors from third and fourth zone prefer staying in Ha Long for 2-3 nights, so their trip last at least 3-4 days. Tourists from farther zone can come Halong via Hanoi by aircraft, so their trip is not always longer than of other one. But the cost for travel is much higher.

There is a variety of transport means to reach Ha Long. The distance, the nature of transport, the living standard of visitors, the duration of the trip and the value of the time they spent for the trip etc... are all considered in estimating travel costs.

Table 7. Travel Cost by zone

Travel Cost ($)	Zone					Total
	Z1	Z2	Z3	Z4	Z5	
<10	47	7				54
11-30		124				124
31-50		80				80
51-70		1	46			47
71-100			23	38		61
101-150				40	12	52
151-300				4	59	63
301-500					26	26
Total	*47*	*212*	*69*	*82*	*97*	*507*

3.5. Visitation rate

Depending on the distance, duration of time, expenses...the visitation rate of different zone varies sensibly (table 8).

Table 8. Visitation Rate by zone

Zone	Potential tourists	Interviewees	VR
1	1.338.500	47	17,31
2	7.794.000	212	13,41
3	4.302.500	69	7,91
4	5.616.500	82	7,20
5	17.422.000	97	2,75

3.6. Tourism value in the year 2000

The relationship between visitation rate (VR) and travel cost (TC) is linear. Some cases are studied to find the case when the model best fit the observation. Some functions are examined such as:

$$TC = -30.27\ VR - 233.38 \text{ with } r^2 = 0.81$$

$$TC = -131.30 \ln(VR) + 771.31 \text{ with } r^2 = 0.96$$

As shown in two histograms, the semilog form is best fit with the observation is selected. Using visitation rate (VR), average travel cost (TC) and visits/year for each zone, the amount of benefit and consumer surplus was calculated (table 9).

Table9. Tourism benefit and consumer surplus of Ha Long users

Zone	Benefit ($)	Consumer Surplus($)
1	128,858.00	64,892.80
2	2,938,506.90	1,130,034.00
3	305,875.76	70,089.44
4	7,520,734.00	2,950,873.30
5	16,403,298.00	3,372,787.00
Total	27,297,272.66	7,588,676.54

Basing on the data provided by Quang Ninh Tourism Department, there are about 1,500,000 visitors come to Ha Long. Among them there are 550,000 tourists mean to overnight in Ha Long. The visitation rate study shows that it decreases drastically with distance from Ha Long from 17.31 per capita per annum in zone 1 to 2.75 in zone 5. Travel cost per visit increased from $8.91 to $259.68 at full wage rate.

Regression analyses suggest that a semi-log form represents best the demand function between visitation rate and travel cost than normal form, as indicated by regression coefficient (r^2) of about 0.96 for the former and 0.81 for the later.

Total recreation benefit as measured through linearly connected points is $27,297,272.66 in total annually and total consumer surplus is $ 7,588,676.54 per annual. Improved facilities shifted the demand curve outward. There is little difference in the curvature of demand function; the main change is the outward movement of intercept when facilities improve.

REFERENCES

1. J.A. Dixon, L.F. Scura, R.A. Carpenter, P.B. Sherman, *Economic analysis of environmental impacts,* London, Earth publications Ltd, 1994.
2. Du Yaping, The value of improved water quality for recreation, *An application of contingent valuation and travel cost methods to East lake in Wuhan, China,* 1996.
3. N. Hanley, J.F. Shogren, B. White, *Environmental economic,* London, Macmillan Press Ltd, 1997.
4. Nguyen Thi Hai, Tran Duc Thanh, *Using the travel cost method to evaluate the tourism benefit of Cuc Phuong National Park,* Economy & Environment, Case studies in Vietnam, By David Glover and Herminia Francisco, Philippines, EEPSEA, 1999.

TẠP CHÍ KHOA HỌC ĐHQGHN, KHTN & CN, t.XVIII, N°4, 2002

LƯỢNG HOÁ GIÁ TRỊ DU LỊCH VỊNH HẠ LONG

Trần Đức Thanh

Khoa Du lịch, Đại học Khoa học Xã hội và Nhân văn, ĐHQG, Hà Nội

Nguyễn Thị Hải

Khoa Địa lý, Đại học Khoa học Tự nhiên, ĐHQG, Hà Nội

Do những giá trị địa chất và thắng cảnh tiêu biểu cho cảnh quan karst ngập nước điển hình và là một tổ hợp giữa tự nhiên và văn hoá, vịnh Hạ Long đã hai lần được ghi vào danh sách di sản thế giới. Số du khách đến đây ngày càng nhiều đã mang lại nguồn lợi kinh tế lớn cho khu vực đồng thời cũng tiềm ẩn một nguy cơ về môi trường. Cần phải lượng hoá giá trị vô hình của Hạ Long để có thể xác định mức đầu tư phù hợp vào việc bảo vệ môi trường ở đây. Đó chính là mục đích của đề tài mà nhóm tác giả đã thực hiện.

Phương pháp được áp dụng dựa trên quan điểm cho rằng giá trị du lịch (hàng hoá vô hình) có thể được xác định thông qua việc tính tương quan giữa tỷ suất du lịch (VR) và chi phí du hành (TC).

Dựa trên phân tích 507 phiếu điều tra du khách trong nước từ các đới khác nhau, sau khi so sánh hai mô hình tương quan, các tác giả đã chọn mô hình:

$TC = -131.30\ln(VR) + 771.31$ với $r^2 = 0.96$

Kết quả tính toán theo mô hình này cho thấy với lượng khách năm 2000, giá trị du lịch của Hạ Long đạt đến 27.297.272 đô la Mỹ và du khách nội địa có một tổng giá trị thặng dư người tiêu dùng lên đến 7.588.676 đô la.

Từ khoá: TC, VR, giá trị thặng dư người tiêu dùng, giá trị du lịch.