A Value of Tourist Demand: An Individual Travel Cost Methods for Three Destination in Java Island

Diah Setyawati Dewanti, Arifin Suryo Putranto, Weisya Ananda Putri and Baehaqi F. Wahyuni

Department of Development Economics, Faculty of Economics and Business, Universitas Muhammadiyah Yogyakarta,

Keywords: Travel cost methods, tourist demand, socio-economics, frequency of visit.

Abstract: To identify the main factors related to the number visit of tourist in three different tourist destination located in Java Island. Three different destination has different area of tourism which could represented in different value of tourist demand measurement. Travel cost methods is applied to measure the demand value in this study. This study is use quantitative research methods with 332 respondents spread to three different tourist destination. This study area covered pine forest of Kragilan, Museum Soeharto, and Laguna Lemburpurwo beach. The accidental sampling was applied to collect the data. This study has nine independent variables such as the frequency of visitation, cost of the travel, income, ages, length of the destination, education, job characteristics, gender and facilities. The travel cost, income and facilities were significantly influence to the frequency of visitation with $p \leq 0.05$; and no influence to the age and education of the visitors.

1 INTRODUCTION

Tourism is an activity indirectly involving the community to develop or metamorphose in every aspect (Pitana and Gayatri, 2005). It is a commodity which is carried out by each individual to increase the creativity, release the worries, stress after work by relaxation, shopping or even increase the knowledge from the history and ethical culture from certain places (Ali et al., 2018). Indonesia is well-recognize as a country with high tourism resources, start with the natural, human traditions ethnic, culture and history. Indeed, tourism sector is important for country as the economics drive to alleviate the poverty, decrease the unemployment and decrease the urbanization. Hereafter, the government role as the facilitator is important to develop the economics. Tourism sector has three impacts as economics, social and culture aspects (Wahyunindyawati and Sari, 2016).

Indonesia tourism sector is the important part to drive the economic development. Tourism sector has tickle-down effect to other sectors, including manufactures, food, services to create employment and increase the income (Wahyunindyawati and Sari, 2016). In the last years, the government is potentially benefit from the tourism sector and received based on the target of tourist visitation as much as 20 million from other countries and 275 million local tourists.

Hereafter, Indonesia stated as tourist as one among five most potential sectors (Jogja, 2007). To improve the development of the tourism sector, it needs to improve the collaboration among central government to local government to have natural conservations and also preservation of the environment, culture and history (Sasmi, 2016).

In this study, three different tourist destination is choose which define as three types of tourist types. Pine forest of Kragilan and Laguna Lembupurwo beach is the natural destination type, Museum Soeharto as the history destination type. Individual Travel cost methods (ITCM) is carried out based on the information concerning the travel cost and travel time spend to reach the tourist destination which could measure the benefit value (Centeno and PRIETO, 2000). Pine forest of Kragilan recognize as top-selfie pine forest tourist Kragilan, located in Magelang, Central Java province. It is located in the mountain area of Mt.Merbabu which attract on photo spot with natural background and green-cold environment. Meanwhile, Laguna lembupurwo beach has the highest tourist destination which located in between two provinces, Central Java and Yogyakarta province. Most of the local tourist enjoy Laguna lembupurwo for the natural tourist resources, mostly the beautiness of the beach. In the other side, this study took Museum Soeharto as the other type of the tourist type at-

35

traction. Museum Soeharto is one of the most attractive museum when the visitors receive knowledge and education concerning the second President of Indonesia, Mr. Soeharto who lead Indonesia for 30 years. This museum also has video attractive with 9 minutes duration to explore the Soeharto' battle to keep Indonesia independence' day and how he developed the country for 30 years. Through two different type of tourist attractions, this study has an aim to identify the determinant or main factors of related to the frequency of visit based on travel cost methods.

2 RESEARCH METHODOLOGY

This study use quantitative research methodology with descriptive approach. The data collection was use survey with the instrument as questionnaires. The sample data collection choose by accidental sampling methods, which was interview to the respondents who were met based on the number of samples. This study uses Solvin sampling measurement with precision of 10% cause the number of population was quite large numbers, more than 1,500 visitors. Based on Solvin formula, the number of the sample is described in Figure 1 which is 332 respondents. However, this study has an aim to compare the demand valuing from tourist using TCM in each of the tourist destination.

Tourist Destination	Population	Level of sign	Sample
Pine fore Kragilan	18,735	10%	127
Lembu purwo beach	1,825	10%	105
Soeharto Museum	1,924	10%	100
TOTAL	22,484		332

Figure 1: The Sample Measurement of Three Tourist Destination.

This paper has dependent variable as the number of visit which define as the frequency visitation to the certain tourist destination within in the last past year. The independent variables consist of the cost of the travel, length or time spend of tourist to go to the destination, income, facilities and education. The cost of the travel has definition as the total cost spend by the tourist on one time visit to the tourist destination. Income is the monthly revenue of the person. Facilities define as the facilities satisfactory measurement from the visitors concerning the infrastructure of the tourist destination. Education is the number of the year of the respondents who get formal study. The analysis of this study was multiple regression analysis with model as follows:

$$Y = \alpha + X1 + X2 + X3 + X4 + X5 + e \qquad (1)$$

Information:
Y = number of visits (in each of destination, such as Pine Forest, beach and Museum)
A = constant
β1 – β2 = parameter
X1 = variable cost of the travel (IDR)
X2 = variable length of the destination (Km)
X3 = variable income (IDR)
X4 = variable facilities (likert scale-score)
X5 = variable of education (year)

The hypothesis for this study were formulated as follows:
H1 = the cost of the travel has significantly impact with negative values to the number of visits
H2 = the length of the distance has significantly impact with negative values to the number of visits
H3 = income has significantly impact with positive values to the number of visits H4 = the facilities satisfactory has significantly impact with positive values to the number of visits
H5 = the education has significantly impact with positive values to the number of visits

To recognize and compare the demand value on each of tourist destination, this study needs to analyse the quality of each of the data by validity, reliability and classical assumption test. Validity test has aim to measure the appropriateness of the data collection (Gujarati, 2009)(Kuncoro, 2003). Reliability test is the index to describe how the data quality is reliable to represent the result. Classical assumption test has been the basic requirement of multi-regression analysis which consist of normality test, multicollinearity test and heteroscedasticity test. Normality test need to be done to recognize the normality of the residual data collection in regression analysis. This procedure needs to be carried out as the statistical analysis which error term need to be distributed normal through the residual value (Gujarati, 2009). Multicollinearity is the data quality analysis to recognize the linier relationship each of the variables. The multicollinearity test could be done by the tolerance values and the number of Variance Inflation Factor (VIF). Meanwhile, the heteroscedasticity has been tested whether the data is consistent and no-bias.

This study has been analysis the quality of the data through validity, reliability and the classical assumption test. The validity test in three different tourist destination has been generate valid with indicator the value of r-test ¿ r-table in each of variable. The r-table has been identified the value as 0.196 and r-test

for Pine forest result in between 0.393 – 0.693. The r-test for Lembu purwo beach in between 0.545 – 0.696, meanwhile the r-test of Soeharto museum found in between 0.775 – 0.863. Based on the validity result, the value of r-test has been higher than r-table and indicated as valid in each of data quality. The reliability test has been use the measurement through Cronbach's Alpha value which need to required more than 0.500. Nevertheless, each of destinations has reliability test more than the requirement and describe in Figure 2.

Tourist Destination	Validity Test	r-table	Reliability test	Reliability value	Result *)
Pine forest Kragilan	0.693	0.196	0.764	>0.500	VR
Lembu purwo beach	0.696	0.196	0.716	>0.500	VR
Soeharto Museum	0.863	0.196	0.896	>0.500	VR

Information: *) VR = Valid and Reliable

Figure 2: The Validity and Reliability Analysis.

The classical assumption test has been describe in Figure 3, which define the quality of the data has been qualified to be process and analyse using multi-regression analysis. The normality test was found for three different destination has been values more than 0,05. The multicollinearity test was also reflected the value less than 10 which define the data from three different destination has no multicollinearity relationship among whole the variables. The heteroscedasticity test was also valued as >0.05 which indicated there were no heteroscedasticity found in three tourist destination. Through this result, the multi-regression analysis could be further examined to achieve the aim of this study.

Tourist Destination	Normality test		Multicollinearity test		Heteroscedasticity test	
Pine forest Kragilan	0.196	N	<2.100	NM	>0.290	NH
Lembu purwo beach	0.200	N	<5.141	NM	>0.163	NH
Soeharto Museum	0.215	N	<3.442	NM	>0.317	NH

Figure 3: The Classical Assumption Test.

Information:
N = Pass the Normal Test
NM = No Multicolliniearity
NH = No Heteroscedasticity

3 RESULT AND DISCUSSION

This study examines the t-test, F-test and coefficient determination test to recognize the determinants factors of valuing the tourist demand through TCM. Based on the analysis of F-test, t-test and coefficient determination as R2 (see Figure 4), three different tourist destination has been clarified having different factors determinant in valuing the tourist demands through TCM. Based on the F-test, the independent variables have impact to the dependent variable on three different tourist destination. It shows the F-test has level of significance less than 0.05. Furthermore, the coefficient determination test or R2 in three of destination for five independent variables. Comparing three tourist destination, Pine Forest Kragilan has the highest coefficient determination, 0.943 which define 94.3% among five independent variables influence to the dependent variable, the number of visit to Pine Forest Kragilan. The model for Pine forest Kragilan describes the highest determinants for the model. Lembu purwo beach has R2 equal to 0.535which define 53.5% among 5 independent variables are the determinants of the model for TCM. It is also found in Soeharto Museum which had 0.443 as the coefficient determination.

Variable	Pine Forest Kragilan	Lembu purwo beach	Soeharto Museum
Log_cost of travel	-5.896**	-0.126*	-2.849**
Length of distance	-0.009**	-1.374**	0.054*
Log_income	0.505**	-0.041*	-3.617
Facilities Satisfactory	0.094*	0.094*	1.630
Education	-0.299*	0.142	10.495*
F-TEST	245.877**	21.596**	7.950**
R²	0.943	0.535	0.443

Figure 4: The Classical Assumption Test.

Information:
*p-value significant in 5%
**p-value significant in 1%

The t-test in each of tourist destination as the model of the equation 1, has been developed based on the t-test as follows:

$$Y = 0.575 - 5.896 ** Log_cost of travel$$
$$-0.009 **$$
$$Length of distance + 0.505 ** Log_income$$
$$+ 0.094 *$$
$$Facilities - 0.299 * Education + e \quad (2)$$

$$Y = 1.213 - 0.126 * Log_costoftrave$$
$$l - 1.374 **$$
$$Lengthofdistance - 0.041 * Log_income +$$
$$0.094 *$$
$$Facilities + e \quad (3)$$

$$Y = 1.557 - 2.849 ** Log_costoftravel$$
$$+ 0.054 *$$
$$Lengthofdistance + 10.495 *$$
$$Education + e \quad (4)$$

Through model (2), the highest impact for the number of visits of tourist is cost of the travel. The unstandardized coefficient found (-5.896) which define that if the cost of the travel is decrease, the number possibilities of tourist coming to Pine forest Kragilan will be increase. The negative impact was shown for cost of travel, length of distance and education. Local tourist chooses tourist destination as the nearest to their house. Then, to valuing the demand with improving the number or frequency people or tourist come to the Pine forest Kragilan, could be in several options and possibilities. In internal ways, the management of Pine forest Kragilan could improve the facilities such as toilets, mosques and cleanliness on each of facilities. Furthermore, decreasing the price of food vendors and tickets fee could increase the frequency of tourist increase their demand to enjoy the tourist spot. Model 3 has four independent variables significantly impacted to the number of visitation of tourist. The highest impact shows on the length of distance. The geographical location of Lembu purwo beach is in the border between Yogyakarta province and Central Java province. This could be the main reason of tourist valuing the demand for Lembu Purwo beach. In the other side, cost of travel (0.126) has been significantly impacted to tourist decide to increase the demand. Model 4 has describe that only cost of travel, length of the destination and education of the tourist were the significant impact of demand value for Museum Soeharto. Variable of education has been appear since Museum Soeharto has certain type of tourist destination as to educate visitors.

negatively influence to the number of tourist visitation. Cost of travel is the important variable to the number of visits of tourist and has the main consideration of each individual to choose and made trip to the certain tourist destination (Centeno and PRIETO, 2000) (Prabugati,) (Pratiwi,) (Tang, 2009) (Zulpikar et al., 2018). The second hypothesis concerning the length of distance has significantly impacted to the number of visits. Pine forest Kragilan and Lembu purwo beach have negative impacted to the frequency of visit of tourist. The more mileage need to be taken, the less tourist visit pine forest Kragilan and Lembu purwo beach. It defines, the markets were mostly located to local tourist nearby. These summarize as to improve the demand value of pine forest Kragilan and Lembu purwo beach, the tourism management could plan the social media marketing strategies to spread the type of tourist and improve the number of foreign tourists visit pine forest and lembu purwo beach (Prabugati,)(Pratiwi,) (Tang, 2009) (Zulpikar et al., 2018). Furthermore, Museum Soeharto has positive significant impact between distance and the number of visits. However, the number of coefficients was small, 0.054 as the impact value. Museum Soeharto is the education type of tourism spot, hereafter, some schools in other province were carried field trip to educate the students in the type of education tourism (Popescu et al., 2017).

The third hypothesis measure the intercourse between income and values of visits for Pine forest Kragilan, Lembu purwo beach and Museum Soeharto. Pine forest Kragilan and Lembu Purwo beach have significant influence to the number of visit. However, the difference is the direction of the relationship. Pine forest describe positive impact which defines that the higher income of people made increase the frequency of people to visit Pine forest Kragilan (Pratiwi,).

The fourth hypothesis accepted to the Pine forest Kragilan and Lembu purwo beach. Both has the same value and direction of relationship among facilities satisfactory and the frequency of people visit pine forest Kragilan and Lembu purwo beach (Pratiwi,)(Tang, 2009). The fifth hypothesis was accepted for pine forest Kragilan and Museum Soeharto, the education has significantly impacted to the frequency tourist visit.

4 CONCLUSIONS

The first hypothesis was accepted for three different tourist destination. Cost of travel is significant and

REFERENCES

Ali, A. H. M., Afandi, S. H. M., Emmy, P. J., Shuib, A., Ramachandran, S., and Samdin, Z. (2018). Assessment of non consumptive wildlife oriented tourism in sukau, sabah using travel cost method. *International Journal of Business & Society*, 19.

Centeno, A. B. and PRIETO, L. C. H. (2000). The travel cost method applied to the valuation of the historic and cultural heritage of the castile-león region of spain. *European Regional Science Association*, pages 1–21.

Gujarati, D. N. (2009). *Basic econometrics*. Tata McGraw-Hill Education.

Jogja, S. K. (2007). Statistik kepariwisataan jogja 2007.

Kuncoro, M. (2003). Metode riset untuk bisnis dan ekonomi. *Jakarta: Erlangga*, 52.

Pitana, I. G. and Gayatri, P. G. (2005). *Sosiologi Pariwisata: Kajian sosiologis terhadap struktur, sistem, dan dampak-dampak pariwisata*. Andi.

Popescu, A. et al. (2017). Trends in tourism demand in the top visited european countries. *Scientific Papers–Series Management Economic Engineering in Agriculture and Rural Development*, 17(4):243–254.

Prabugati, G. An economic valuation of ecotourism using travel cost method approach.

Pratiwi, S. R. Economic valuation of amal beach tourism: Travel cost method (tcm) application.

Sasmi, N. (2016). Faktor-faktor yang mempengaruhi willingness to pay (wtp) pengunjung obyek wisata pantai goa cemara menggunakan contingent valuation method.

Tang, T. (2009). *An application of travel cost method to Yuelu Mountain Park in Changsha, China*. PhD thesis, University of Helsinki.

Wahyunindyawati, W. and Sari, D. (2016). Ekonomi sumberdaya alam dan lingkungan (economics of natural resources and the environment). *Available at SSRN 2916841*.

Zulpikar, F., Tambunan, L. A., Utami, S. R., and El Kiyat, W. (2018). Economic valuation of marine tourism in small island using travel cost method (case study: Untung jawa island, indonesia). *Omni-Akuatika*, 14(1).