UNIVERSITI PUTRA MALAYSIA

VALUING RECREATIONAL BENEFITS OF PERLIS STATE PARK, MALAYSIA USING TRAVEL COST METHOD

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By

SYAMSUL HERMAN BIN HJ. MOHAMMAD AFANDI

Thesis Submitted to the School of Graduate Studies, Universiti Putra Malaysia in Fulfilment of the Requirements for the Degree of Doctor of Philosophy

October 2010

Dedication

I dedicated this work to
my wife Mashitoh binti Hamzah,
my son Muhammad Adham Haziq and
my late daughter Atikah Hannani

Abstract of thesis presented to the Senate of Universiti Putra Malaysia in fulfilment of the requirement for the degree of Doctor of Philosophy

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Chairman : Mohd. Rusli bin Yacob, PhD

Faculty : Economics and Management

Outdoor recreational experience is one of the services provided in many natural areas. In planning for the development and operation of outdoor recreational opportunities of public land, valuation of the area is mostly done by establishing a recreational demand model curve. Not only does the demand model illustrate the actual recreational behaviour, it also estimates the economic value generated by outdoor recreation.

This study is conducted in the state of Perlis. It is a small state with approximately 14% forest cover. Perlis State Park (PSP) was chosen as the study site, because there has been no forest production for the state of Perlis for several years, even though it still has forested areas. This study, on the recreational use of PSP, seeks to determine its economic value as an alternative income for Perlis. In terms of method, the

geographical location of PSP provides variations in distance, and thus, a variety of travelling costs, which are necessary for regression analysis. The estimation of the recreational use value for Perlis State Park (PSP) is conducted by applying the Zonal Travel Cost Method (ZTCM) and the Individual Travel Cost Method (ITCM). In the study, the ZTCM used, is a modification of the basic traditional Clawson model. Modifications were made in terms of including the elements of time, alternative locations, perceptions, and demographic variables. Adding relevant variables enriches the explanatory power of the model, especially the variables that will affect visitation rates. Regression analysis found that visit per capita, is influenced by existing alternative recreational locations, the cost of travelling time, length of stay, expenditure at the site, and monthly income. The motive variables do not capture implicit intention, suggesting that visits may be a combination of the listed benefits or other benefits that were not captured by the model. This transformation has improved the statistical properties of the model. The second type of model (ITCM) is an advanced type of travel-cost method. It is considered better, as it uses actual visitations per year as a dependent variable. To counter endogenous stratification problems and truncation, the model is based on a count-data model, and this has also improved the statistical properties.

The economic value of PSP, as a recreational area, is estimated at RM 5.3 million with the modified ZTCM; and at RM 19.5 million by applying ITCM. The estimates found from the study, confirm that there is a substantial recreational use value for PSP, which suggests that outdoor recreational activities provide benefits to its visitors. Despite the difference in monetary values, in the ZTCM and the ITCM, the calculated values from both models are dependent on visitation rates. Therefore, it is imperative for the management to maintain an optimum visitation rate to PSP. To this effect, not only are the efforts by the managing agency to promote outdoor recreation in PSP justified, but also, extra effort may be required to attract more tourists to the area as this will increase the economic value.

Abstrak tesis yang dikemukakan kepada Senat Universiti Putra Malaysia sebagai memenuhi keperluan untuk mendapatkan ijazah Doktor Falsafah

MENILAI FAEDAH-FAEDAH REKREASI TAMAN NEGERI PERLIS MENGGUNAKAN KAEDAH KOS PERJALANAN

Oleh

SYAMSUL HERMAN B. HJ. MOHAMMAD AFANDI

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Pengalaman rekreasi luar merupakan satu daripada perkhidmatan yang ditawarkan oleh banyak kawasan alam semulajadi. Di dalam perancangan pembangunan dan operasi sesebuah tanah awam, penilaian kawasan kebiasaanya dilaksanakan dengan mewujudkan satu keluk model permintaan rekreasi. Model tersebut tidak hanya mengambarkan perilaku sebenar rekreasi, malah ia penganggaran nilai ekonomi yang terjana oleh rekreasi luar.

Kajian ini dilaksanakan di negeri Perlis. Ia adalah sebuah negeri yang kecil dengan 14% litupan hutan. Taman Negeri Perlis (TNP) dipilih untuk kajian ini disebabkan oleh ketiadaan hasil hutan daripada negeri Perlis dalam beberapa tahun yang lepas walaupun ia memiliki kawasan

berhutan. Kajian penggunaan rekreasi di TNP ini adalah untuk menentukan nilai ekonominya sebagai hasil pendapatan alternatif kepada negeri Perlis. Dari segi kaedah penyelidikan, lokasi geografi PSP dapat memberikan variasi pada jarak, oleh itu, memberi variasi pada kos perjalanan yang mana ia diperlukan untuk analisis regresi. Penilaian penggunaan rekreasi TNP dibuat dengan mengaplikasi kaedah model kos perjalanan zonal (MKPZ) dan kaedah kos perjalanan individu (MKPI). Di dalam kajian ini, MKPZ adalah hasil ubahsuai daripada model asas tradisional Clawson. Ubahsuai dibuat dengan memasukkan pembolehubah-pembolehubah elemen masa, lokasi alternatif, persepsi dan demografik. Penambahan pembolehbah-pembolehubah ini meningkatkan keupayaan penerangan model terutamanya pembolehubah yang mempengaruhi kadar lawatan. Analisa regressi mendapati bahawa lawatan per kapita dipengaruhi oleh lokasi alternatif sedia ada, kos masa perjalanan, jangkamasa berada di lokasi, perbelanjaan di lokasi dan pendapatan bulanan. Pembolehubah motivasi didapati tidak menunjukkan sebarang tujuan lawatan yang jelas. Justeru itu, mencadangkan motif lawatan adalah hasil kombinasi faedah-faedah yang dinyatakan atau faedah-faedah lain yang tidak disertakan oleh model kajian ini. Transformasi model telah mempertingkatkan ciri statistik model. Model yang kedua, (MKPI) adalah model kos perjalanan yang maju. Ianya dianggap lebih baik kerana menggunakan kadar lawatan tahunan sebenar sebagai

pembolehubah bersandar. Untuk mengatasi masalah stratifikasi endogen dan data terpotong, model tersebut adalah didasarkan pada taburan data hitungan,dan ini juga telah memperbaiki ciri statistik model.

Melalui kaedah MKPZ, nilai ekonomi TNP dianggarkan pada RM5.3 juta, manakala pada RM19.5 juta dengan kaedah MKPI. Nilai anggaran yang diperolehi daripada kajian ini mengesahkan bahawa wujudnya nilai penggunaan rekreasi yang kukuh di TNP, yang mencadangkan bahawa rekreasi luar memberikan faedah kepada pengunjungnya. Walaupun terdapatnya perbezaan nilai kewangan pada MKPZ dan MPKI, nilai tersebut bergantung kepada kadar lawatan. Oleh itu, adalah penting untuk pengurusan memastikan kadar lawatan optima ke PSP. Oleh itu, bukan hanya semua usaha penggalakkan rekreasi luar di TNP adalah wajar, malah usaha lanjut perlu untuk menarik lebih banyak pelancong ke situ kerana ia akan meningkatkan nilai ekonomi.

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I certify that a Thesis Examination Committee has met on 22 October 2010 to conduct the final examination of Syamsul Herman bin Hj. Mohammad Afandi on his thesis entitled "Valuing Recreational Benefits of Perlis State Park, Malaysia Using Travel Cost Method" in accordance with the University and University Colleges Act 1971 and the Constitution of the Universiti Putra Malaysia [P.U. (A) 106] 15 march 1998. The committee recommends that the student be awarded the Doctor of Philosophy.

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This thesis was submitted to the Senate of Universiti Putra Malaysia and has been accepted as fulfilment of the requirement for the degree of Doctor of Philosophy. The members of the Supervisory Committee were as follows:

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DECLARATION

I hereby declare that the thesis is my original work except for quotations and citations which, have been duly acknowledged. I also declare that it has not been previously and is not concurrently, submitted for any other degree at Universiti Putra Malaysia or other institutions.

SYAMSUL HERMAN B. HJ. MOHAMMAD AFANDI

Date: 22 October 2010

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