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Analysis

Willingness-to-pay and the perfect safari:Valuation and cultural evaluation of safari package attributes in the Serengeti and Tanzanian Northern Circuit

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ABSTRACT

Governments and NGOs worldwide aim to develop models of tourism that realize the economic, environmental, and cultural ideals of ecotourism. This is true in the national parks of the Northern Safari Circuit of Tanzania, which attract hundreds of thousands of tourists annually. To better understand what tourists to Tanzania were willing to pay for various attributes of their tour package, we used a linear mixed effects model to analyze what attributes of 72 tour packages from 32 tour operators contributed to the price of tour packages. We found that the number of days spent on tour, the number of days spent in the Serengeti, the type of accommodation (basic camping versus lodges or luxury tents), the mode of transport into the park (flying versus driving), and the inclusion of cultural tourism helped predict the price of a tour package. Our findings suggest that tour operators charge 92% more for a day in the Serengeti than other Northern Circuit attractions, but we do not examine what happens to the additional rent generated by the Serengeti. Additionally, the utility of cultural tourism in attracting foreign tourists presents both tremendous opportunities and potential challenges to efforts to realize culturally sensitive ecotourism.

1. Introduction

Ecotourism has been proposed as a development tool that protects the ecological integrity of the world's remaining wilderness, creates jobs that satisfy the socioeconomic needs of local people, and protects vulnerable human populations from adverse alterations to their culture in the face of modernization (Gössling, 1999; Honey, 2008; Scheyvens, 2007). Ultimately, ecotourism hopes to reconcile the sometimes conflicting goals of poverty alleviation and wildlife conservation (Honey, 2008; Manyara and Jones, 2007), and evidence suggests that ecotourism has occasionally brought about desirable results (Honey, 2008; Wunder, 2001). For instance, protected areas in Costa Rica and Thailand appear to have helped reduce poverty, in part due to tourism and allied business opportunities (Andam et al., 2010).

Unfortunately, ecotourism has often failed to achieve the environmental, social, and economic ideals to which it aspires (Scheyvens, 2007). The large numbers of tourists that visit popular national parks and nature destinations often leave a degraded environment (Chase et al., 1998; Honey, 2008; Wall, 1997). The tourism industry has been reluctant to invest in developing economic partnerships with poor communities (Scheyvens, 2007). As such, the profits generated by ecotourism often pass by the local people who tolerate the opportunity costs of protected areas and depredations of local wildlife (Krüger, 2005; Mbaiwa, 2005), and profits accumulate in the hands of corrupt local or foreign entrepreneurs and businesses (Laudati, 2010; Luvanga and Shitundu, 2004; Walpole et al., 2001). To further complicate matters, tour operators and government officials sometimes prevent local people from utilizing protected areas for fuel wood, food, or medicines, leading to a net decline in their welfare (Adams et al., 2004; Duffy, 2008). Efforts to satisfy tourists have also led to the neglect of local people's development and the distortion of their culture. For instance, in Bwindi Impenetrable National Park in Uganda, tourists' expectations as to how local farmers and Batwa pygmies should live and behave have retarded government efforts to improve the standard of living for locals. Additionally, villagers have had to act "primitive" to entertain Western tourists to earn money to offset their loss of access to forest resources (Laudati, 2010). Two decades of experience with ecotourism proves that it is not a silver bullet—but if done correctly, ecotourism has the potential to help address the economic, ecological, and cultural challenges of a region (Honey, 2008).

Northern Tanzania is home to Serengeti National Park, Ngorongoro Crater, and other reserves teeming with world-famous displays of wildlife in spectacular landscapes. Tourists from around the world have visited the region in increasing numbers over the last fifty

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years—international tourist arrivals in Tanzania increased from 582,807 in 2004 to 770,376 in 2008, generating $1.2 billion in earnings in 2008. Some 62% of tourists come to spend their holidays in the national parks, Ngorongoro Conservation Area (NCA), Mt. Kilimanjaro, and Zanzibar (TNBS, 2010). The NCA alone is visited by some 200,000 people annually, generating $10 million a year from gate fees (Honey, 2008). Eagles and Wade (2006) note that in 1996, there were 105,000 visitor-days in the Serengeti; the most recent TANAPA figures for 2010, show that this has risen to nearly 350,00. The tourism industry is second only to agriculture in Tanzania, representing 15% of the nation's economy (Honey, 2008).

Commensurate with the popularity of Tanzania's natural and historical wonders are its socioeconomic challenges. Despite efforts to achieve the Millennium Development Goals, 33.6% of Tanzanians still lived in extreme poverty in 2008 (UNDP, 2009). The Serengeti region is the sixth poorest of Tanzania's twenty-one administrative regions (Kideghesho et al., 2006), suggesting that local people may be receiving limited benefits from the Serengeti's tourism industry. From 1975 until a temporary reprieve in 1992, a ban on crop cultivation and other constraints on land use in the Ngorongoro Conservation Area (NCA), combined with a growing human population, are thought to have contributed to growing poverty, the breakdown of social systems of livestock sharing, and malnutrition amongst the Maasai who live in the NCA (Charnley, 2005). Northern Tanzania thus presents a critical laboratory for ecotourism. If ecotourism can be used to promote culturally appropriate development in the region without damaging the area's wildlife populations, it would address local concerns about the parks and their wildlife (Charnley, 2005; Honey, 2008). More research on tourism in northern Tanzania is needed to inform the development of such a tourism industry.

We aim here to (a) better understand what attributes of Tanzanian tour packages generate tourists' willingness-to-pay (WTP) and (b) describe the cultural aspects of tour packages in Tanzania's Northern Circuit. Since national park entry fees, tariffs, and other tourism-related taxes are typically set by the government, instead of by market forces, the willingness-to-pay of tourists is often measured by a technique called contingent valuation method (CVM), which attempts to reveal WTP through hypothetical markets (Kim et al., 2007; Mmopelwa et al., 2007; Shultz et al., 1998). In this exploratory study, we use an alternative approach to gain insight into the economics of Tanzanian tourism, assessing the tour packages offered by tour operators in northern Tanzania. In theory, the costs of tour packages *are* set by the market, and thus provide insight into how much customers are willing to pay for particular attributes of tour packages in the region. By studying what is advertized in tour package itineraries and brochures, we can gain an understanding of what places and activities generate willingness-to-pay in tourists, and which activities draw the most tourist revenue. We used data from 72 tour packages from 32 tour operators in 2008–9 to create a database that documented the prices, attractions, and activities associated with tour packages. We then created a linear mixed effects model that analyzed which attractions and activities contribute most substantially to the pricing of tour packages (and, by extension, willingness-to-pay of tourists). Finally, we systematically noted how local people and their cultures are featured in these tour packages. The economic and socio-cultural information we collected for the popular nature destinations of Tanzania may help policy makers in Tanzania and abroad develop tourism models that better achieve the ideals of ecotourism.

2. Methods

2.1. Description of Tour Packages and Estimating Willingness-to-Pay

We used the actual prices charged by tour operators for tour packages with varying characteristics to understand what features of tour packages were associated with tourists' willingness-to-pay. In the fall of 2008, we contacted fifty tour companies operating in Tanzania's Northern Circuit (a set of popular destinations in northern Tanzania) identified using an internet search. We posed as an American man with a family of four (including two children aged 8 and 12) hoping to spend up to two weeks in March on safari in Tanzania. We suggested that we were mainly interested in the Serengeti, but that we were also interested in going to other places, specifying Ngorongoro, Lake Manyara, Tarangire, and Arusha as examples. We asked for multiple options budgeted for different combinations of activities, including both camping and stays in lodges. We also suggested that we would be willing to take an occasional plane flight if it sped up a critical part of the trip. Of the fifty companies, only thirty-two finally provided quotes and March itineraries for seventy-two packages; others either never responded or lost interest when we refused to talk on the phone or for other reasons. Data were collected from late October of 2008 to January of 2009.

After receiving the itineraries, we recorded information on the cost for individuals and a family of four, the amount of time spent in each location during the trip, overall length of the trip package (which varied considerably), the number of nights spent in different types of lodging, and the various activities included in the package. We broke up lodging types into basic (or "classic") camping, lodges, or luxury tent camping. In fact, the "lodges" category spans a whole spectrum of luxury levels, but we were unable to find a meaningful way to differentiate luxury from standard lodges. We also recorded whether the safaris would be public or private and whether the safari company was based in Tanzania or elsewhere. We also collected data on the park fees in the various Tanzanian parks detailed in the tour packages (Tanzania National Parks, 2007).

Itemized prices for the activities and attributes in the tour packages were not provided. In order to determine which of the variables we observed were contributing significantly to—or at least correlated with—the price of safari packages, we used a linear mixed-effects model. Models were fit using the nlme package (Pinheiro et al., 2012) of R 2.15.2 (R Core Team, 2012). Since our sample was essentially a cluster sample with some companies having multiple packages, we treated company as a random factor. Our data set included many plausible predictors of tour package price, including the number of days spent in each location and each of the various activities in the package (activities were treated as dummy variables). In order to single out the predictors that best explained the variation in package price, we first identified the ten predictors that correlated most strongly with package price for an individual tourist. We then added one predictor at a time to a model predicting package price until we attained a minimum AIC. Variables with little variation amongst non-zero values—such as the number of nights spent basic camping or the number of flights in a small plane—were converted to binary (dummy) variables in the model. Because this was an exploratory study and we could think of no reason to expect interactions amongst the predictors in determining price, we did not include interaction terms. As it turned out, a model with only main effects fit the data quite well (see Supplement). All the variables in the final model were level-1 variables, although for many variables there was only little variation within companies amongst packages (meaning variation in price attributed to the predictors may potentially be due to company-level confounding variables). We ensured that none of the final predictors were more than 40% correlated with each other, and we saw no pattern in the residuals of the model. However, because prices are bounded below by zero, assuming that the response variable had a normal distribution with a constant variance in a simulation resulted in a model that predicted a small number of negative package prices—this suggested that the model was unable to account for the variation in model price without making unrealistic predictions. We corrected for this by modeling the within-group variance as a power function of the fitted mean, thus assuming a heteroscedastic normal distribution for the response. This model had a substantially lower AIC than the original constant variance normal model and eliminated the problem of occasional negative