I WANT TO JOIN THE ZOO!
A CONJOINT STUDY OF MEMBERSHIP PROGRAM PREFERENCES

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Abstract.—Membership programs are an important and often vital element for the success and economic sustainability of leisure and tourism visitor attractions. Unfortunately, very little research is available to guide membership program development and promotion efforts. To address this gap in the research literature, a research project assessed member and nonmember preferences for the different benefits available through a zoo membership program. Using a choice-based conjoint analytic approach (also known as stated preference choice analysis), data were collected during the summer of 2007 from both members (n=1,204) and nonmembers (n=304) of the Brookfield Zoo (located just outside of Chicago in Brookfield, IL). A self-administered survey, conducted both online and on-site at the zoo, was used to examine preferences for eight membership benefit categories, each varying from three to five levels. Analysis of the resulting study data provides information on relative preferences for the eight study factors and suggests several implications for designing and promoting membership packages to current as well as potential zoo members.

1.0 INTRODUCTION

Membership programs play an important and often vital role in the success and economic sustainability of leisure and tourism visitor attractions ranging from history/arts-based organizations, such as historical sites and museums, to nature-based organizations including aquaria, parks, botanic gardens/conservatories, and zoos. Despite the important role that membership programs play in these organizations, very little research is available to guide membership program development and promotion efforts. Of the extant research on membership programs, most attention has been focused on the psychological reasons for joining a membership-based organization (Bigley et al. 1994, Caldwell and Andereck 1994, Slater 2003, Paswan and Troy 2004) or the benefits that are important to current members (Bigley et al. 1994, Caldwell and Andereck 1994). Bhattacharya (1998) also examined the factors impacting behavior that results in lapsed memberships and, most recently, Bosso (2003) analyzed how organizations themselves adapt to the needs and interests of current members.

Research on the importance of specific membership benefits by Bigley et al. (1994) and Caldwell and Andereck (1994) relied exclusively on direct ratings of benefit items. In this approach, respondents are asked to rate the importance of a list of membership package benefits, each taken one at a time. The present investigation is unique in that a less direct choice-based conjoint approach was used to examine the importance of member package elements. In choice-based conjoint analysis (also known as stated preference choice analysis), respondents are presented with a series of choices involving two or more options and are asked to indicate which option they would choose. In each choice set, the available options are described using different levels of the attributes (in this case membership package benefits) of the product in question. The choices made are then used to derive

the importance (or utility) associated with each attribute and attribute level. Since product attributes are considered jointly (i.e., "conjointly"), respondents make choices the way they do in actual market settings, trading off one attribute against another. Conjoint analysis allows researchers to examine consumer preferences for hypothetical alternatives (i.e., product options such as membership package benefits) that are proposed but are not currently available in the marketplace (Morton and Devine 1985). Another advantage is that by including price as an attribute in the study design, the implicit price (i.e., the monetary value consumers would be willing to pay) can be estimated for each level of the attributes included in the design.

2.0 STUDY CONTEXT AND OBJECTIVES

Brookfield Zoo is a large suburban zoo located 14 miles west of Chicago, IL. The zoo is operated by the Chicago Zoological Society and is visited by 2 million people every year, ranking it among the top five American zoos in attendance. The zoo also has a strong membership base of more than 75,000 members and offers an array of benefits across seven different membership levels. The membership benefit packages have changed little over the past few years. Thus, this research focused on determining what would happen if the zoo made changes to the available membership benefit packages. More specifically, the main objective was to understand how current and potential zoo members value specific member benefits and benefit levels (including current and new benefit options).

3.0 METHODS

3.1 Study Approach

Data for the study were obtained from both zoo members and nonmembers using a self-administered survey conducted both online and onsite at the zoo. The questions in the survey were organized in four sections: zoo membership (present/past member status, interest in joining/renewing, membership at other institutions), conjoint task questions, zoo-ographic questions (e.g., zoo visitation behavior, exhibit/attraction use), and respondent demographics.

3.2 Benefits and Benefit Levels Examined

Based on discussions with zoo staff and several pilot tests, the conjoint task questions focused on eight benefit categories from the zoo's main family membership package: the number of free guest vouchers offered with the membership package; the number of free guests admitted with the member on each visit; price of admission to two interactive child-oriented attractions (the Hamill Family Play Zoo and Children's Zoo); price of admission to a marine-animal attraction (the Dolphin Show); price of admission to temporary/special exhibits; member-only discounts on food and beverages; member-only discounts in zoo gift shops; and the membership package price (per family for two adults and their children under 18 years of age). Each benefit category had three to five levels. A detailed description of each benefit category and its levels is shown in Table 1.

3.3 Study Design

In choice-based conjoint analysis, paired choice sets are used to elicit respondents' preferences (Louviere 1988, Louviere et al. 2000). Rather than using a "full-factorial" design, which would have required the use of more than 4000 paired choice sets, an "efficient experimental design" was employed which required the use of only 45 choice sets (Kuhfeld 2005). To make the study more manageable, nine survey versions were used, each requiring the respondent to make a choice from among five choice sets (i.e., pairs of membership package options with the options in each pair labeled Package A and Package B). Each paired choice set included a non-choice option (i.e., "I would not choose either package") in order to mimic actual market choice behavior (Hensher et al. 2005). An example of a paired choice set used in the study is provided in Figure 1.

3.4 Data Collection Procedures

During June and July 2007, 6,000 Brookfield Zoo members were contacted via email and asked to complete a self-administered online survey; in addition, 508 zoo visitors were intercepted and asked to complete a similar self-administered paper-and-pencil survey. For the online survey, 1000 members

Table 1.—Member benefits and benefit levels examined in the study

Benefit	Levels
One-time-only guest passes (Guest Passes)	1. 8 guest passes 2. 6 guest passes* 3. 4 guest passes
Free guest on each visit (Free Guest Each Visit)	1. One free guest on each visit* 2. No free guest benefit
Admission to the "Hamill Family Play Zoo" and "Children's Zoo" (Hamill/Children's Zoo)	1. Unlimited free admission* 2. Member discount on admission 3. No free or discounted admission
Admission to the Dolphin Show (Dolphin Show)	1. 6 free tickets to Dolphin Show 2. 4 free tickets to Dolphin Show* 3. Member discount on Dolphin Show tickets 4. No member benefit
Admission to temporary/special exhibits (Temp/Special Exhibits)	1. 4 free tickets to special exhibit 2. Member discount on exhibit tickets* 3. No member benefit
Member-only discounts on food and beverage (F&B Discount)	1. 10% discount on all purchases* 2. 5% discount on all purchases 3. No discount
Member-only discounts in zoo gift shops (Gift Shop Discount)	1. 10% discount on all purchases* 2. 5% discount on all purchases 3. No discount
Membership package price (Package Price)	1. $89 2. $94* 3. $99 4. $104 5. $109

* Current Membership Package Levels

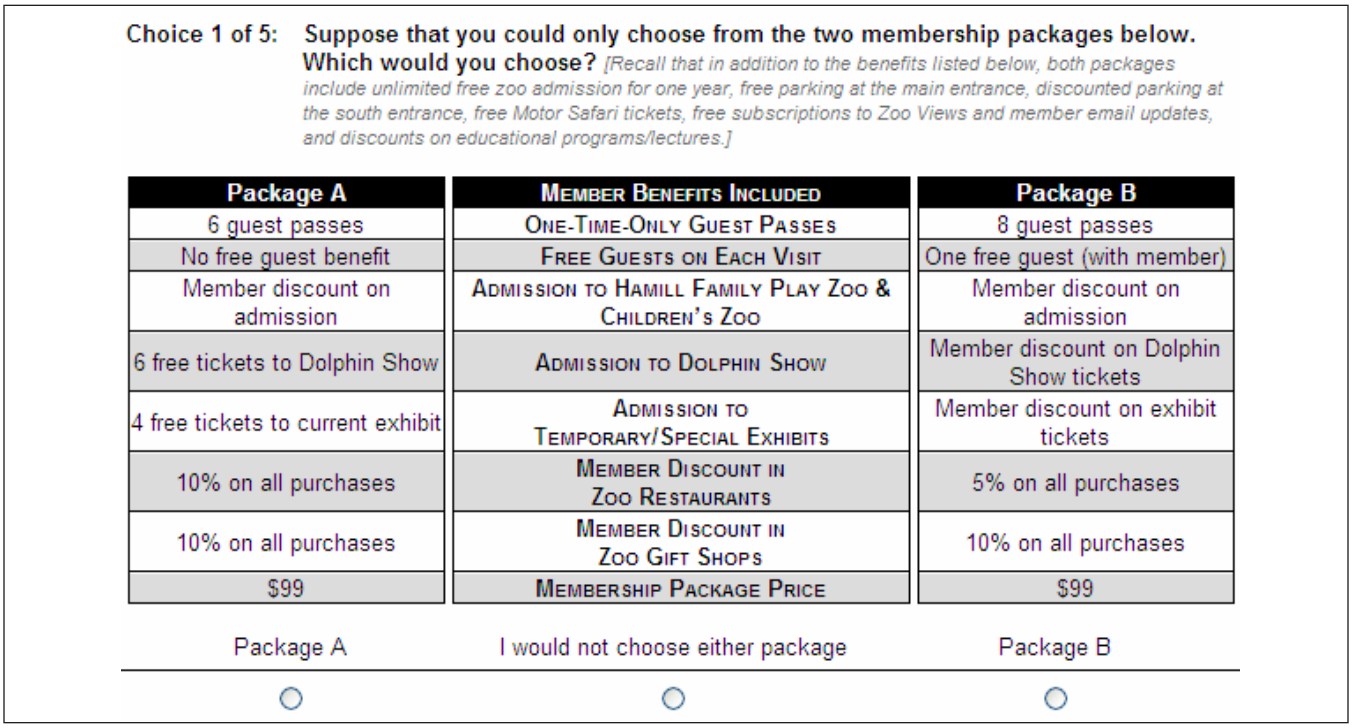

Figure 1.—Example of a paired choice set for the zoo membership package choice task.

completed the survey by the cutoff date, resulting in a 16.7-percent response rate. Of the on-site survey respondents, 204 were Brookfield Zoo members and the remaining 304 were non-members. Taken together, surveys were obtained from 1,204 zoo members and 304 nonmembers.

3.5 Analytical Model

Data analysis used the Stated Preference Choice Model, an analytical model based on two well-grounded theories: utility maximization and random utility (Louviere et al. 2000). Utility maximization theory indicates that individuals make choices that lead to the highest utility (i.e., satisfaction). According to random utility theory, utility comprises a deterministic component (i.e., the measurable section of the utility estimated by the attributes included in the study) and a random error component (i.e., the effect of unobserved influences by attributes not included in the study) (Louviere et al. 2000). Because of this random error component, utility that is not observed directly can only be estimated using the indirect utility function. A deterministic component can be estimated to represent the vector of coefficients of attribute levels. The indirect utility function of a representative individual on a choice (or purchase) of membership package j can be represented as: $U_j = V_j(A) + \varepsilon_j = \beta A + \varepsilon_j$,where U_j is the utility of an alternative membership package j, V_j is the deterministic component of utility to be estimated, and ε_j is the unobservable error component of utility. Further, β is the coefficient vector (or vector of parameter estimates) to be estimated and A is the vector of relevant attributes that determines the utility derived from each alternative. However, because researchers cannot observe a respondent's utility directly, the probability of choice is used instead. The use of choice probabilities, along with the assumption that the error terms are independently and identically distributed with a type I extreme-value distribution, allows the use of the conditional logit model (McFadden 1974, Ben-Akiva and Lerman 1985) to derive the β estimates.

With this model, implicit prices can be calculated for each attribute level (with all other attributes remaining the same). Implicit price between a coefficient of a non-price attribute (β_i) and the coefficient representing price is calculated using $-\beta_i / \beta_{price}$ to gauge the magnitude of preferences for each level of an attribute (Bennett and Adamowicz 2001).

4.0 RESULTS

4.1 Respondent Profile

Of the 1,508 respondents, most were female (77.9 percent), were between the ages of 30 and 49 (70.3 percent), and lived in households of three or more (84.2 percent). Most respondents reported having children who were less than 5 years old (55.8 percent) or between 6 and 11 years old (41.2 percent).

4.2 Conjoint Results

As noted above, data were collected from two respondent groups: zoo members and nonmembers. Of the nonmembers, only those that indicated that they had some likelihood of becoming a zoo member were analyzed further. This subgroup, referred to as "interested nonmembers" or the INM group, consisted of 181 respondents.

Conditional logit models were run for two groups: zoo members and INM. Estimation was performed using NLOGIT 3.0. An alternative specific constant (Constant) was used to capture the effects on utility of any attributes not included in the paired choice sets. Dummy variables were assigned to the levels of each study attribute. As indicated in Table 2, the explanatory power of the zoo member model was 0.152 (McFadden's ρ^2, which is analogous to the R^2 in a conventional regression model). All estimated coefficients were significant ($p < 0.05$), with the signs in the expected direction—i.e., the variables for the benefit items all had positive coefficients reflecting a preference for additional membership benefit levels, while the price coefficient was negative indicating a preference for lower price levels. A comparison of the best versus worst level within each benefit indicated that the Hamill/Children's Zoo benefit (with a coefficient of 1.34) had the largest impact on respondents' preferences, and the Dolphin Show benefit (1.15) had the next highest impact, followed by the food and beverage discount (.89), the free guest

Table 2.—Conditional logit models for zoo members and interested nonmembers (INM)

		Zoo-Member Model		INM Model	
Attribute	Attribute Level	Coefficient	Implicit Price	Coefficient	Implicit Price
Constant [a]		2.3096**		2.2820**	
Guest Pass1	8 guest passes	0.3252**	$6.41	0.1429	$4.78#
Guest Pass2	6 guest passes	0.1701**	$3.35	0.1507	$5.05#
	4 guest passes^				
Free Guest	One free guest each visit	0.6729**	$13.26	0.3440**	$11.51
	No free guest benefit^				
Hamill/Childrens1	Unlimited free admission	1.3378**	$26.35	0.6452**	$21.60
Hamill/Childrens2	Member discount on adm	0.3452**	$6.80	0.1068	$3.58#
	No free or discounted adm^				
Dolphin Show1	6 free Dolphin Show tickets	1.1543**	$22.74	0.6375**	$21.34
Dolphin Show2	4 free Dolphin Show tickets	0.9310**	$18.34	0.4518**	$15.12
Dolphin Show3	Member discount on tickets	0.3579**	$7.05	0.0373	$1.25#
	No member benefit^				
Special Exhibit1	4 free tickets current exhibit	0.5529**	$10.89	0.3616**	$12.10
Special Exhibit2	Member discount exhibit tix	0.2195**	$4.32	0.1138	$3.81#
	No member benefit^				
F&B Discount1	10% discount	0.8849**	$17.43	0.4681**	$15.67
F&B Discount2	5% discount	0.4454**	$8.77	0.3057**	$10.23
	No member discount^				
Giftshop Discount1	10% discount	0.5416**	$10.67	0.7345**	$24.59
Giftshop Discount2	5% discount	0.4244**	$8.36	0.4226**	$14.15
	No member discount^				
Price	*Per $	-0.0508**		-0.0299**	
Model Statistics					
Number choice sets		5800		857	
Log L		-5396.12		-806.41	
McFadden ρ^2		0.152		0.079	

** indicates statistical significance at 0.05.
[a] Constant is an alternative specific constant.
^ indicates the base level for that attribute.
# indicates Implicit Price estimate is not significantly different from zero.

benefit (.67), the special exhibit benefit (.55), the gift shop benefit (.54), and, lastly, the guest pass benefit (.33).

The explanatory power of the interested nonmember model had a slightly lower goodness-of-fit measure of 0.079 (McFadden's ρ^2). With only a few exceptions, the pattern of results for the INM model was generally consistent with the pattern observed for the member model.

The impact of a level change in each attribute was assessed using implicit price (IP) estimates computed for each attribute level. Analysis of these data, shown in Table 2 and Figure 2, indicates that members most valued the benefit of unlimited free admission to the Hamill/Children Zoo (with an IP of $26.35), followed by six tickets to the Dolphin Show (with an IP of $22.74). Thus, given the base option of no free or discounted admission to the Hamill Play Zoo & Children's Zoo, members were willing to pay $26.35 for retaining the option of unlimited free admission (Hamill/Children Zoo1). Also, members were willing to pay $22.74 for six free tickets to the Dolphin Show (Dolphin Show1), compared to the option of no member benefit for this attraction. In contrast, the guest pass benefit was the least valued benefit; members were willing to pay only $3.35 for six guest passes and $6.41 for eight guest passes, compared to the base option of four guest passes.

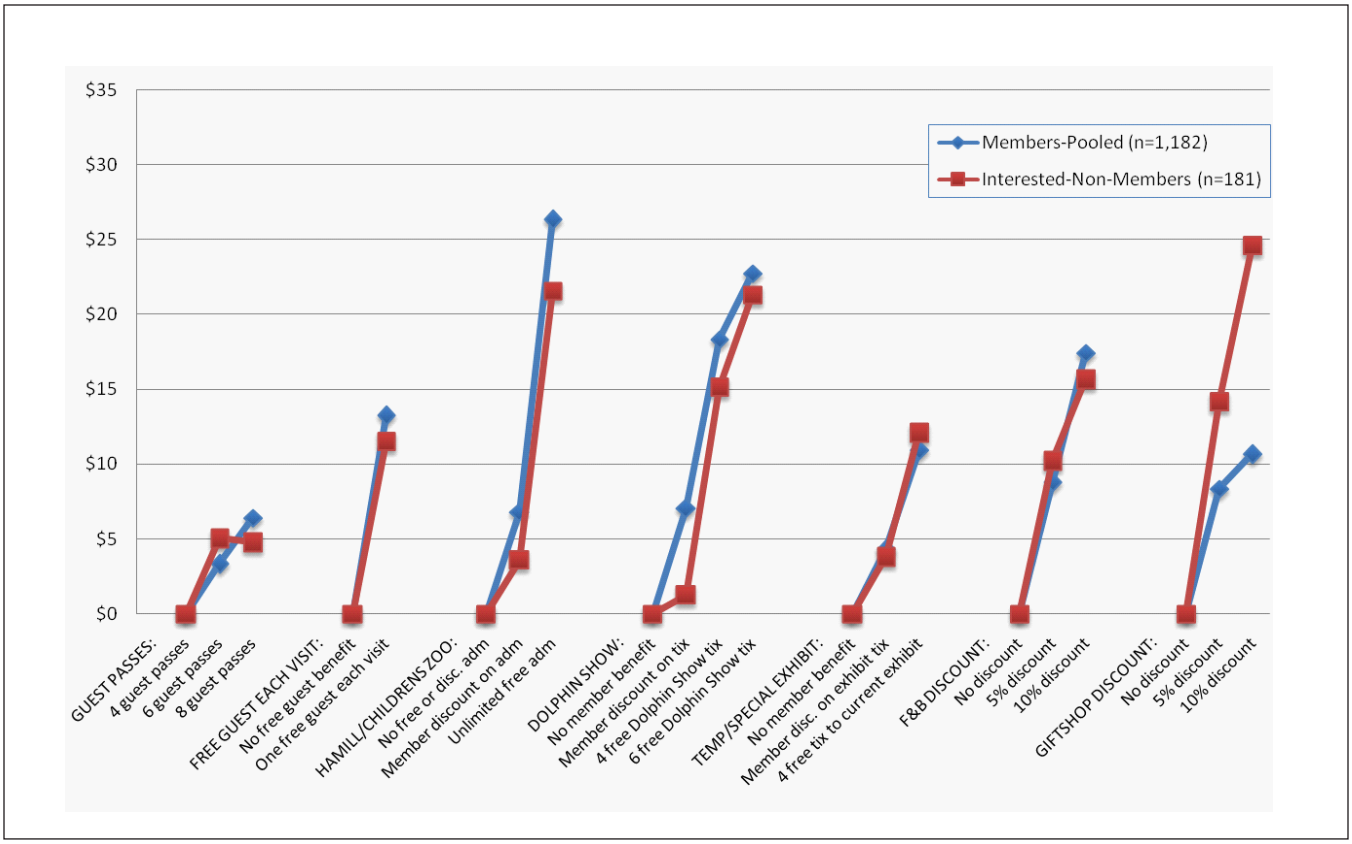

Figure 2.—Implicit price estimates for zoo members and interested nonmembers.

A similar analysis for the interested nonmember group showed that certain benefit levels (e.g., Guest Pass1, GuestPass2, and Dolphin Show3) did not achieve statistical significance. A very surprising finding was that the INM group had the highest IP estimate for member-only discounts in zoo gift shops ($24.59 for gift shop Discount1 and $14.15 for gift shop Discount2), compared to $10.67 for gift shop Discount1 and $8.36 for gift shop Discount2 for pooled Zoo members. For the rest of the attributes, the pattern of IP values for the INM group was similar to the values for the zoo member group. Another notable finding was that the respondents in both subgroups showed higher IP values for receiving limited vouchers (i.e., free tickets) over unlimited discounts on admission to both the Dolphin Show and special/temporary exhibits at the zoo.

5.0 CONCLUSIONS AND IMPLICATIONS

The results of this investigation provide useful information about the particular membership package benefits and price levels examined. Current and potential zoo members differed in the value they attached to several of these benefit elements. While further research is needed to assess their generalizability in other zoo and attraction settings, the present study demonstrates the usefulness of using a choice-based conjoint approach to study and develop membership benefit programs, and thus provides a useful complement to prior research reported in the recreation literature.

In addition to the conceptual significance of these results, this study has useful applications for those who manage and develop membership programs for leisure and tourism attractions. Specifically, the finding that both members and nonmembers preferred limited vouchers (i.e., free tickets) over unlimited admission discounts for zoo attractions/exhibits suggests that the practice of offering vouchers should be retained as a component of the zoo's membership packages. In addition, the finding that those in the interested nonmember group had the highest IP for the 10 percent

gift shop discount suggests that nonmembers might be encouraged to become members by appealing to their preference for gift shop discounts, perhaps by offering a gift shop coupon to all new members.

As noted earlier, a key advantage of the conjoint approach is that it allows researchers to examine preferences for current membership packages as well as hypothetical or proposed package options. Although beyond the scope of the present paper, the coefficient estimates from the present study were used to develop an interactive decision support tool (i.e., a spreadsheet model) that allows planners and managers to alter the level of each benefit and examine the impact of these changes on member preferences (i.e., predicted choice probabilities) for alternative membership package configurations. Using this tool, zoo administrators were able to better understand the tradeoffs that members were willing to make (or not make) among benefit package elements and assess the impact on market demand that would result from a change in the set of membership packages offered.

6.0 CITATIONS

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