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by

Zahra Hosseinzadeh
University of the Philippines Diliman

Erniel Barrios
University of the Philippines Diliman

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School of Statistics
Ramon Magsaysay Avenue
U.P. Diliman, Quezon City
Telefax: 928-08-81
Email: updstat@yahoo.com

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Zahra Hosseinzadeh
University of the Philippines Diliman

Erniel Barrios
University of the Philippines Diliman

ABSTRACT

We characterize a strategy on how revenue from online tour package bookings can be optimized by discriminating among the various travel packages (combinations of offers) as well as offers per bundle. From a sample of 53 respondents, conjoint analysis revealed four segments: planners, efficient travelers, tourists/ explorers, and breakfast-goers. The first group takes into consideration 4 of 5 available offers (attributes), while the second, third and fourth groups value airport or pier transfers, historical/scenic/island-hopping tour, and daily breakfast the most. A typical customer who would book travels online are unmarried males who travel mostly around Asia (outside the Philippines).

Keywords: *e-marketing design, on-line travel booking, conjoint analysis, logistic regression*

1. Introduction

Today, it is ordinary to correspond with a business colleague through email and access company data through the website. This might not be the case for all, but it is common for some to engage in e-meetings, send out interactive reports and webcasts, and work from home through virtual networks that enable an employee to access files in the office workstation. Multinational companies, as well as educational institutions around the globe, set up their own virtual libraries and other support for virtual learning environment. Job seekers and job hunters alike benefit from the internet by posting resumes and posting employment opportunities online, respectively. Big companies and even organizations advertise on the internet.

Shopping online is becoming a norm. While companies do advertise online, most of them also sell their products online, generating even higher revenue. Some sites do not sell anything, instead they bring the buyer and seller together and facilitating the transactions between the two. Some sites go both ways: they sell their own merchandise as well as consigned items. There are search engines that present, naturally upon the customer's query or search, a list of e-shops offering the product being canvassed or looked for among other things. Certain websites offer price comparisons -- through convenient price charts -- for various stores or products that aid buyers in picking the best price for a specification; thus the electronic version of mystery shopping. These sites also make available reviews from previous customers on first-hand experience in dealing with the stores. Auction or bid sites are many; the customer tries to beat other bidders to the same item; whoever bids the highest usually gets 'awarded' the merchandise.

E-consumers have a wide range of choices. Anything can pretty much be purchased online, be it jewelry, clothing, electronics, books, or herbs and spices, among other things. Food orders for delivery may be placed online as well; movie seats may be booked or reserved in advance; even flowers may be ordered and sent to a friend living in another continent on any occasion or no occasion at all.

Services, accommodation, rental cars, flights, tour packages or other travel arrangements may also be purchased on the internet. Certainly, booking a room, plane seat, or travel package online is a very convenient way to travel, be it for leisure or business. Hence, travelers have more control over their itinerary because choices are laid out in front of them; there is no need to communicate various questions to an operator or reservation agent nor is there pressure to decide quickly and then modify the reservation later on or end up with an itinerary that one is compelled to take. In addition, a person who is otherwise too busy to book a flight or room either in person or by phone may do so online from work, home or any place at a more convenient pace and place.

This paper investigates e-marketing for online travel bookings. Consumers themselves may provide the best clues in product development or enhancement. We aim to maximize revenue from customer online activity

and perform sensitivity analysis of revenue with respect to different product or service models. Particularly, the focus is on online travel, more specifically, tour packages. An interesting incentive package can minimize abandonment across all online booking activity thus maximizing the number of confirmed bookings. A sensitivity analysis on the effect of tour packages on revenue will help in drafting an efficient marketing strategy. E-commerce, and consequently e-marketing, are getting bigger and bigger, therefore it is only prudent to find ways to enhance productivity and efficiency in these areas.

2. E-Commerce

Huff, et al, (2002) pointed out that "electronic commerce" or e-commerce has entered the popular vocabulary in about 1995, marking the beginning of a new era, the "age of the Internet". Information and communication technologies (ICT) is no longer just a support mechanism, it has become a business channel, an important option in doing business. Greenstein and Feinman (2000) noticed that one can see practically any newspaper/magazine to read on some facet of e-commerce. More often than not, businesses incorporate e-commerce into their strategic plans, business schools are incorporating it into their curriculum, and consulting and software firms are marketing their corresponding e-commerce "solutions". Westland and Clark (1999) observed that e-commerce and the technologies surrounding it had been beneficial in every sectors of the world economy. The Internet has indeed changed the rules of doing business and the Web has become a place to do serious business, Plant (2000), Maddox and Blankenhorm (1998).

E-commerce has admittedly changed the way business is done, but what is it exactly? E-commerce is business/trade that is transacted electronically. It is the buying and selling of goods and services on the internet. It is also referred to as e-business or e-tailing (online retail selling). Rayport and Jaworski (2002) define e-commerce as 'technology-mediated exchanges between parties (individuals and organizations) as well as the electronically based intra- or inter-organizational activities that facilitate the exchanges'. In addition, they explained that its focus is 'evolving away from simply technology-enabled to technology-mediated exchanges,' and that 'increasingly, transactions are managed or mediated largely by technology,

and so is the relationship with the customer.' They identified four distinct categories of electronic commerce as 'business-to-business, business-to-consumer, consumer-to-consumer, consumer-to-business.'

As for e-commerce sites, these would be sites that offer or sometimes merely facilitate the actual buying and selling of goods and services online. Think Amazon, eBay, Buy.com, and "online versions" of a lot of businesses from drug stores to fast food chains to department stores. Typically, electronic transactions may be concluded through a credit card, sometimes a debit card, a check, or money order.

McLaren and McLaren (2000) recount the advantages of e-commerce. E-commerce can help control costs by not having to print and mail catalogs and brochures. They can advertise and communicate on the Web, reaching a worldwide audience that they might never be able to reach otherwise. They can be visible and available to customers 24 hours a day, 7 days a week. Mariga (2003) also noted that e-commerce enables and facilitates electronic markets and allows firms to cut service costs while improving speed of delivery and to simplify and streamline business processes, supporting the delivery of information products, services and payments, and improves information exchange with customers

Purchasing items online is highly convenient and remarkably closes the gap between physical distances. What is otherwise difficult becomes simple. Consumers now have greater access to information that is provided online and this translates into greater motivation to buy.

3. On Conjoint Analysis

Goldberg, et al (1984) extends metric hybrid conjoint models to consider classificatory criterion variable and applies this model to a problem involving over 40 attributes and over 100 attribute levels. They concluded the viability of the model for dealing with extremely large conjoint problems. They further show evidence of the inability of simple functions of self-explicated utilities for components of a bundle of hotel amenities to predict respondents' preferences for the total bundle.

Earlier studies using conjoint analysis have been made in the areas of health care, health economics, and medicine, among others. Ryan and Hughes (1998) consider the use of conjoint analysis to assess utilities as applied to assess women's preferences for the management of miscarriage. Ryan (1999) uses the technique as a method for taking account of patient preferences as well as considering attributes beyond health outcomes.

As part of the procedures in conducting a conjoint analysis, respondents are asked to rank-order or rate possible stimuli/treatments or factor-level combinations. Carmone, et al. (1978) pointed out that the use of nonmetric algorithms to analyze respondent ranks of products described by more than 8 or 10 attributes is time consuming and very expensive for large samples. They compared results of nonmetric analysis, full factorial designs and rank data with less expensive methods of metric analysis, orthogonal arrays and stimulus ratings, concluded that metric analysis utilizing ratings data and orthogonal arrays is very robust. Boyle et al. (2001) evaluate three response formats used in conjoint analysis experiments. They examine if recoding rating data to rankings and choose-one formats, and recoding ranking data to choose one, lead to structural models and welfare estimates which are indistinguishable from ranking or choose-one questions estimates. Their study showed that convergent validity of ratings, rankings, and choose-one is not established; and that people use 'ties' in responding to rating questions. It also showed that the option to not choose any alternative has an effect on preference estimates. Kohli and Sukumar (1990) suggest alternative methods to using the total utilities of candidate items to create product lines that maximize seller return or buyer welfare. Enumerating utilities of candidate items can computationally be infeasible if the number of attributes and attribute levels is big. It is therefore recommended that constructing product lines straight from the partworths data is better.

In conjoint analysis, segments may be created by grouping customers based on their parthworth utilities. Sometimes, these segments are formed based on predetermined information like age or income, among others. Desarbo et al. (1992) propose a latent class methodology to estimate market segment membership and part-worth utilities for each derived market segment. They do this by using mixtures of multivariate

conditional normal distributions and present a commercial application. In another work, Desarbo et al. (1995) discuss how conjoint analysis can be used to perform market segmentation and highlight the role of choice-based conjoint models in market segmentation to derive information on the market segments such as number, size and part-worths. Moore (1980) compares two methods of performing conjoint analysis-clustered and componential segmentation. The predictive power of the former proved to be higher than that of the latter, although both demonstrated to be superior to aggregate analysis but then, inferior to individual level analysis. In contrast, Andrews et al. (2002) did a comparison between finite mixture conjoint models and hierarchical Bayes conjoint analysis methods. Hierarchical Bayes conjoint analysis demonstrated good performance even with the partworths coming from a mixture of distributions, while finite mixture conjoint models produced good parameter estimates even at the individual level. Both models were shown to be quite robust to violations of assumptions. Hagerty (1985) worked on a study that derives a way to improve the predictive accuracy of conjoint analysis. To do this, respondents with similar preferences were grouped then a method of weighting respondents is used to maximize predictive accuracy in conjoint analysis, indeed an improvement to that of cluster analysis.

4. Methodology

Data was collected in 2006 from 53 Filipino reservation agents working under the reservations department of and servicing the international clientele of a hospitality group. The questionnaire included items asking for some personal information such as gender, age group (18-34 years old, 35-54 years old, or 55 years old and above), education level (college or not college graduate), and marital status (married or not married). The main questions on Philippine and Asian travel outside the Philippines, as well as online travel behavior follows:

- Have you ever gone on a package tour in the Philippines?
- Have you ever booked a local tour package *online*?
- Have you ever gone on a package tour elsewhere in Asia?
- Have you ever booked an Asian tour package *online*?

- When (if) you book a tour *online*, is it (would it be) *mostly* for local travel or travel elsewhere in Asia?
- When you travel, is it *mostly* locally or elsewhere in Asia?
- Do you go on tours around the Philippines or elsewhere in Asia at least once a year?
- Do you always book online when making a tour package reservation in the Philippines or elsewhere in Asia?

The respondents were asked to rank 10 travel packages, all of which are inclusive of accommodation as was mentioned in the survey, in order of preference and with 1 being most preferred and 10 being least preferred. The first 3 packages includes both airport or pier transfers and daily breakfast; the disparity among these three lies on the third provision in the bundle which varies from a historical/scenic or island-hopping tour, a picnic lunch / lunch out during tour / lunch out, and a shopping tour. The next 3 likewise offer airport or pier transfers but no daily breakfast, the second and third deals of which are varying combinations of historical/scenic/island-hopping tour, picnic lunch / lunch out / lunch out during tour, and shopping tour. The 7th, 8th, and 9th bundles all provide daily breakfast, with travelers being able to avail of a historical or island tour, plus a choice between lunch out and shopping tour in the 7th and 8th bundles; and lunch and a shopping tour in the 9th. The last offer includes both tours – shopping and historical/island/scenic – and for a third term, a lunch out. These combinations are presented in Table 1.

Table 1. Tour Packages / Stimuli

1	Airport/pier transfers	Daily breakfast	Historical / scenic / island hopping tour	-	-
2	Airport/pier transfers	Daily breakfast	-	Picnic lunch / lunch out during tour / lunch out	-
3	Airport/pier transfers	Daily breakfast	-	-	Shopping tour
4	Airport/pier transfers	-	Historical / scenic / island hopping tour	Picnic lunch / lunch out during tour / lunch out	-
5	Airport/pier transfers	-	Historical / scenic / island hopping tour	-	Shopping tour

6	Airport/pier transfers	-	-	Picnic lunch / lunch out during tour / lunch out	Shopping tour
7	-	Daily breakfast	Historical / scenic / island hopping tour	Picnic lunch / lunch out during tour / lunch out	-
8	-	Daily breakfast	Historical / scenic / island hopping tour	-	Shopping tour
9	-	Daily breakfast	-	Picnic lunch / lunch out during tour / lunch out	Shopping tour
10	-	-	Historical / scenic / island hopping tour	Picnic lunch / lunch out during tour / lunch out	Shopping tour

The value that customers place on each package attribute, i.e. offer given per bundle, are investigated. To avoid abandonment of the whole reservation process, as some travelers shop for tours online but then decide not to book or book elsewhere, travelers must be given only the 'best' and most saleable offers. These offers, of course come within a bundle of offers. The assumption in this study is that the offers would come in addition to accommodation that is typical of a travel package.

The study uses conjoint analysis, a multivariate technique used in understanding consumer preferences for services or products. Conjoint analysis is used to comprehend how respondents develop preferences for products or services; it is based on the premise that consumers assess the value of a product or service by combining the individual amounts of value attached to each attribute. The basis for measuring value is utility, which is subjective and unique to each individual (Hair et al., 1998). The utility or value for a product in conjoint analysis may be expressed as a sum of utilities for its features or attributes and can be measured through the customers' overall evaluation of products where customers make tradeoffs among attributes, thus providing information about the value that customers associate with the different attributes (Lehmann et al., 1998). Hooley and Hussey (1999) refer to each level of each factor or attribute as 'part-worth utilities'. They explain that summing the partworth utilities gives the overall utility.

The goal is to find out which would reel in the highest number of bookings to know which deals to go with and make available to the travelers. From the attribute utilities, the relative importance of each attribute may be computed for each customer as:

Relative Importance of an Attribute = Utility of attribute / Sum of utility for all attributes.

The first step in conjoint analysis is determining the attributes and the attribute levels. The attribute profiles or stimuli to be considered are then identified. For this study, realistic tour packages have been chosen, consisting of a combination (stimuli) of the following: roundtrip airport/pier transfers, daily breakfast, historical/scenic/island hopping tour, picnic lunch / lunch out during tour /lunch out, and shopping tour. For each feature or factor, there are 2 levels or possible values: a yes, meaning that the feature is available for that bundle, or no it is unavailable (see Table 1). In the questionnaire however, the name of the offer itself was written to avoid any confusion and make it easier for the respondents to answer.

Table 2. Offers / Factor Levels

Airport/pier transfers		Daily breakfast		Historical / scenic / island hopping tour		Picnic lunch / lunch out during tour / lunch out		Shopping tour	
Yes	No	Yes	No	Yes	No	Yes	No	Yes	No

Setting up various stimuli would give the respondent's preference structure that should explain how the levels of a factor influence the formation of overall preference or utility for a certain product. There are 2 x 2 x 2 x 2 x 2 = 32 possible combinations of the 5 factors. However, not all will be considered since some combinations are trivial and not sensible for the customer. A travel website usually do not consider offering all possible combinations just to get a booking. It is more realistic to look at the more practical combinations, as well as the number of factors for each combination, such that more bookings come in but at the same time unnecessarily pricey offers are not given. In this study, respondents are given only ten combinations or stimuli, as shown in Table 1. It may be noted that at most 3 offers are made per bundle. Also, the minimum number of stimuli is

Total number of levels (5 factors x 2 levels) – Number of factors (5) + 1

or 6, which is satisfied in this study. Since each factor has 2 levels, the number of levels across all factors is balanced; no one factor's relative importance increases due to increase in the number of levels. A full-profile presentation is used wherein one stimulus at a time is evaluated by the respondent. Respondents are asked to rank the products in order of their preference.

Upon deriving the parth-worths and consequently the importance values at the individual level, cluster analysis is performed to identify any segments among the respondents. The variables used are the resulting relative importance to determine same preferences and importance values among groups.

5. Results and Discussion

The 53 respondents are distributed as follows: 75.47% are female; 98.11% are between 18 and 34 years of age; all are college graduates; 85.11% are not married; 33.96% have gone on a package tour in the Philippines; 21.15% have gone on an Asian tour elsewhere in the Philippines. When asked if they have ever booked a local travel package online, 11.54% said yes, while 6% said they have booked an Asian travel package online for a non-Philippine destination. When asked if they usually (for those who have booked online) or are more likely (for those who haven't booked online or gone on a tour package to Asia or locally or both) to book a Philippine or Asian (except Philippines) tour package online, 54.17% picked Asian and 45.83% chose the Philippines; the rest did not provide answers. 63.27% of the respondents answered that they usually travel in the Philippines versus 36.73% who said they mostly travel elsewhere in Asia. Finally, when asked about the frequency of travel or online booking, 75.47% noted that they go on tours around the Philippines or elsewhere in Asia at least once a year and only 13.21% said that they always book online when making a tour package reservation in the Philippines or elsewhere in Asia.

5.1 Consumer Profile

The resulting utilities and corresponding attribute importance for subjects 5 and 6 are presented in Table 3 and 4, respectively. Airport or pier transfers is the most important attribute of a tour package for subject 5.

A tour package providing such transfers is preferred by this subject over ones without. Subject 5 also prefers breakfast to no breakfast, and a historical / scenic / island hopping tour versus no such tour. Shopping tour accounts for essentially none of the preference.

Table 3. Utilities and Importance for Subject 5

Utilities Table Based on the Usual Degrees of Freedom		
Label	**Utility**	**Importance (% Utility Range)**
Intercept	3.9372	
Transfer,No Transfer	-3.6466	46.667
Transfer,Transfer	3.6466	
Breakfast,Breakfast	1.3892	17.778
Breakfast,No Breakfast	-1.3892	
Tour,No Tour	-1.3891	17.777
Tour,Tour	1.3891	
Lunch,Lunch	1.3892	17.778
Lunch,No Lunch	-1.3892	
Shopping,No Shopping	0.0000	0.000
Shopping,Shopping	0.0000	

For subject 6, lunch is most important, with a tour package providing lunch being preferable over one not providing lunch. Breakfast is the next important for this subject, with subject preference being that with breakfast provision. From these, it appears that this particular subject values meals most in a travel package. Historical / scenic / island hopping tour is as important to this subject as airport/pier transfers. Shopping tour is not an attribute that is particularly important.

Table 4. Utilities and Importance for Subject 6

Utilities Table Based on the Usual Degrees of Freedom		
Label	**Utility**	**Importance (% Utility Range)**
Intercept	3.6872	
Transfer,No Transfer	-1.7237	19.018
Transfer,Transfer	1.7237	
Breakfast,Breakfast	2.3630	26.071
Breakfast,No Breakfast	-2.3630	
Tour,No Tour	-1.7237	19.018
Tour,Tour	1.7237	
Lunch,Lunch	3.2534	35.894
Lunch,No Lunch	-3.2534	
Shopping,No Shopping	0.0000	0.000
Shopping,Shopping	0.0000	

What is more useful to know over individual parth-worths and relative importance given by each customer to each package feature is the overall utility and 'average' importance given by the customers (see Table 5). On the average, airport or pier transfers are deemed most important by online travel bookers with mean equal to 40.1506 and followed behind by breakfast (mean=22.5318). Historical, scenic or island hopping tour is also given some importance (mean=19.8077), followed somewhat closely by lunch (mean=17.5098). It can be observed that shopping tour is not an attribute that is given any consideration in a tour package.

Table 5. Average Importance

Factor	**Mean**
Airport/Pier Transfer	40.1506
Daily Breakfast	22.5318
Historical / Scenic / Island Hopping Tour	19.8077
Picnic Lunch / Lunch Out During Tour / Lunch Out	17.5098
Shopping Tour	0

An inspection of the utilities shows (see Table 6) that, except for shopping tour that's given no utility or value, availability is preferred over non-availability of each tour package feature which makes sense. Naturally, a consumer would value a feature due to its availability versus otherwise. Consistently, the highest utility is given to airport or pier transfers; in particular, travel packages including airport or pier transfers are more valued.

Table 6. Average Utility

Variable	**Mean**
Transfer No	-0.9782
Transfer Yes	0.9782
Breakfast No	-0.6297
Breakfast Yes	0.6297
Tour No	-0.4888
Tour Yes	0.5994
Lunch No	-0.4015
Lunch Yes	0.4015
Shopping No	0
Shopping Yes	0

From Table 7, it is evident that the lowest averages among all ten travel packages or stimuli occur for package tours number 8, 9, and 10. These packages have no offering for airport/pier transfers, which turned out to be given the most importance but instead include a shopping tour, which has been given no importance at all. Packages 1, 2, and 4 seem to rank at around 4 on the average, with these packages including transfers to and from the airport/pier, and with package 2 being closer to 5 in ranking. The difference of travel package 2 from 1 and 4 is that it does not include a historical/scenic or island hopping tour. It's interesting how the mean ranking for package # 3 seemed to go down between 5 and 6 (closer to 6), as historical/scenic or island hopping tour and lunch are no longer offered (shopping tour is offered instead) in this bundle.

Table 7. Mean Rankings for Each Stimuli or Tour Package

Variable	N	Mean	Minimum	Maximum
PT1	53	4.075472	1	10
PT2	52	4.711539	1	10
PT3	52	5.653846	1	10
PT4	53	4.301887	1	10
PT5	52	5.230769	1	10
PT6	52	5.826923	1	10
PT7	52	5.25	1	10
PT8	52	6.519231	1	10
PT9	52	6.403846	2	10
PT10	52	6.865385	1	10

5.2 Segmentation of the Sample

While the 'average' importance suggests what the 'average' customer wants, it could be helpful to see any differences or groupings in the sample. To do this, a cluster analysis (hierarchical clustering and centroid method) of the importance utilities is performed.

Five or four clusters seem reasonable, as more than that would give comparable diagnostic values, anyway. Ideally, all values except for the R-squared should be low. R-squared should be as close to 1 as possible as this would suggest maximum differences among groups (i.e., the greater the difference between the groups, the more homogenous each group). A small RMSSTD indicates cluster homogeneity, whereas a low semipartial R-squared is indicative of homogeneity of the merged clusters (the groups/clusters combined to

form the new groups or clusters). The resulting R-squared values when there are 4 or 5 clusters are relatively close to 1 and certainly more than midway away from 0. The semipartial R-squared is relatively low and lower when the number of clusters is 5.

When there are 5 clusters, the first cluster could represent those who consider all but one attribute (all but shopping tour) in determining tour package preference. Relative importance is given to airport/pier transfers, breakfast, lunch, and historical/scenic/island tour, whereas there is none given to shopping tour. The second cluster shows ultimate preference for airport/pier transfers, and incredibly little for breakfast and lunch and historical/scenic/island tour, and none for shopping tour. The third one displays preference for historical/scenic/island tour and little for transfers, breakfast, and lunch; no essential importance is given to shopping tour as seems to be the pattern. Cluster 4 gives the highest importance to daily breakfast provision in picking a tour package, whereas cluster 5 seems to value transfers and historical/scenic/island tours, although more preference is given to transportation to/from the airport or pier.

Results for when 4 clusters are assigned is similar to that for 5 groups except for the absence of the last cluster, the preferred attribute for which seems to be mostly divided between transportation and historical/scenic/island tour. Based on 4 clusters, the respective groups are thus the planners, the efficient travelers, the tourists or explorers (depending on whether they had the historical, scenic, or island-hopping tour in mind when ranking), and the breakfast-goers. The biggest group are the planners, followed by the efficient travelers, with the last 2 bunches having the same counts.

Truly enough, the average relative importance per cluster are consistent with above results (see Table 8).

Table 8. Mean Relative Importance Per Cluster

Cluster 1				
Variable	N	Mean	Minimum	Maximum
ImpTransfer	41	32.40422	0	67.996
ImpBreakfast	41	24.24629	0.001	57.637
ImpTour	41	20.71978	0	49.986
ImpLunch	41	22.62963	0	60.911

ImpShopping	41	0	0	0
Cluster 2				
Variable	N	Mean	Minimum	Maximum
ImpTransfer	8	99.925	99.48	99.997
ImpBreakfast	8	0.012125	0	0.073
ImpTour	8	0.0385	0.002	0.26
ImpLunch	8	0.024375	0	0.187
ImpShopping	8	0	0	0
Cluster 3				
Variable	N	Mean	Minimum	Maximum
ImpTransfer	2	0.001	0.001	0.001
ImpBreakfast	2	0.003	0	0.006
ImpTour	2	99.9935	99.99	99.997
ImpLunch	2	0.002	0.002	0.002
ImpShopping	2	0	0	0
Cluster 4				
Variable	N	Mean	Minimum	Maximum
ImpTransfer	2	0.004	0.002	0.006
ImpBreakfast	2	99.9915	99.986	99.997
ImpTour	2	0.0015	0.001	0.002
ImpLunch	2	0.003	0	0.006
ImpShopping	2	0	0	0

5.3 Sensitivity to Tour Packages

Results suggest that the most number of respondents take into account all of airport/pier transfers, daily breakfast, historical/scenic/island-hopping tour, and lunch out. A package inclusive of all four attributes should therefore generate the highest revenue. Also a number of respondents that is smaller than the first group deem the airport and pier transfers feature most important, i.e., it mostly determines tour package preference among these online travel package bookers. No preference or relative importance is given at all to shopping tour, which suggests that shopping tours in a travel package will not potentially attract the respondents. Including it in a package however will most likely affect their decision, in that they will turn away from such packages and look for ones that provide more ‘valuable’ offers in their terms. Thus, when restricted to a combination of 3 offers only, the highest revenue should come from packages that include transfers and no shopping tour, meaning that the other 2 offers can be a combination of breakfast, a tour, and lunch. Generally, what matters most to the respondents is that among the 5 offers, they are presented with a combination of all except shopping tour; to others, it’s transportation to and from the airport or pier that is most essential. Most of the respondents fall into the planners category, followed by the ‘efficient travelers’

sort. It is interesting that while all respondents put no weight on shopping tour, some do put little or a lot weight on historical/scenic/island tour (recall the 'tourist' group of travelers).

It might be a good idea therefore to offer travel packages inclusive of daily breakfast, luncheon, historical/scenic/island-hopping tour, with transportation to and from the pier or airport being especially highlighted to try and pull those who might give it the most preference, since this apparently would yield the highest revenue. Shopping can be ignored or dropped from travel packages offered since the respondents basically ignored it in ranking the treatments.

If one feature has to be sacrificed over another among the four valued travel package features, it should not be the airport/pier transfers. Thus, daily breakfast can be replaced with a lunch out or a historical/scenic or island hopping tour. Similarly, a tour can be replaced by a daily breakfast or lunch out, and so can the lunch out be replaced by the other two. The transfer must always be included, however, if a relatively higher number of bookings is desired. The best packages to sell the online travelers therefore, among the ten originally identified combinations, are as listed in the table below:

Table 9. Most Desired packages

Pt # 1	Airport/pier transfers	Daily breakfast	Historical / scenic / island hopping tour	-	-
Pt # 2	Airport/pier transfers	Daily breakfast	-	Picnic lunch / lunch out during tour / lunch out	-
Pt # 4	Airport/pier transfers	-	Historical / scenic / island hopping tour	Picnic lunch / lunch out during tour / lunch out	-

The three packages in Table 9 will generate the highest revenue among the ten choices presented to the respondents. It may be noted that the above three treatments all include airport or pier transfers and the last column are all left blank -- none of them give the traveler a shopping tour option. These results are consistent with earlier mean rankings provided in Table 8. There are three other combinations with airport/pier transfers, but have shopping tours as well, and thus would not be considered as saleable as the previous packages (see Table 10).

Table 10. Less desired packages

Pt # 3	Airport/pier transfers	Daily breakfast	-	-	Shopping tour
Pt # 5	Airport/pier transfers	-	Historical / scenic / island hopping tour	-	Shopping tour
Pt # 6	Airport/pier transfers	-	-	Picnic lunch / lunch out during tour / lunch out	Shopping tour
Pt # 7	-	Daily breakfast	Historical / scenic / island hopping tour	Picnic lunch / lunch out during tour / lunch out	

Once again, the results are consistent with mean rankings that appear in Table 8. These three in fact rank lower than the preceding batch of three. Reasonably, the least desired bundles should be the ones in Table 11 and as usual, this matches the earlier average rankings in Table 8. The lowest revenue will come from these three, among the 10 tour packages presented to the respondents.

Table 11. Least Desired Packages

Pt # 8	-	Daily breakfast	Historical / scenic / island hopping tour	-	Shopping tour
Pt # 9	-	Daily breakfast	-	Picnic lunch / lunch out during tour / lunch out	Shopping tour
Pt # 10	-	-	Historical / scenic / island hopping tour	Picnic lunch / lunch out during tour / lunch out	Shopping tour

When taking into account the four clusters, the groups that can be targeted look for travel packages including transportation to and from the airport or pier, daily breakfast, lunch, and historical/scenic/island-hopping tour; another looks for the transportation in particular; a third group values the historical/scenic or island hopping tour most; and a fourth group sees breakfast as the most important. All of these apply to five clusters, with the additional group considering both the transfers and historical/scenic/island-hopping tour as essential, so that these fellows can be considered as both efficient and adventure- or fun- seeking. Thus, it would be a good idea to have several package tours for the web booker, bearing in mind that online travelers might have slightly different tours in mind when shopping for a tour package. The groups to be targeted are the planners, efficient travelers, tourists/explorers, and breakfast-goers. These four should be kept in mind

when putting together new packages or trying to enhance already existing tours, taking into consideration

that the planners are most in number, followed by the efficient bunch. Thus, the highest revenue should come from a package tour providing transfers, breakfast, tour, and lunch, since these four turned out to be most important to the respondents. Between selling a combination of 3 offers and a combination of four offers, higher revenue should come from the latter, which already includes all four of the most desirable attributes. If limited to a combination of only 3 offers, however, the most revenue-generating packages would be packages 1, 2, and 4, all of which offer transfers but do not include shopping in the itinerary.

5.4 Determinants of Consumer Behavior

To establish connections among the travel profile and preference of customers, logistic regression was used. First, it was investigated whether always booking online is influenced by factors such as gender, marital status, having ever gone on a package tour in the Philippines (elsewhere in Asia), having ever booked a local (an Asian) tour package online, mostly booking a local or Asian tour outside the Philippines online, traveling mostly locally or elsewhere in Asia, and going on tours around the Philippines or elsewhere in Asia at least once a year. Second, it was examined whether ranking a particular package highly is determined by any of these factors. This would show what factors motivate the respondents to rank highly for a package.

The dependent variable is whether they always book online when making a tour package reservation in the Philippines or elsewhere in Asia. The independent variables or predictor variables are gender and marital status, as well as data obtained from the answers to the following questions with their corresponding variable names:

- Have you ever gone on a package tour in the Philippines? (*TourPhil)*
- Have you ever booked a local tour package *online*? (*WebPhil*)
- Have you ever gone on a package tour elsewhere in Asia? (*TourAsia*)
- Have you ever booked an Asian tour package *online*? (*WebAsia*)
- When (if) you book a tour *online,* is it (would it be) *mostly* for local travel or travel elsewhere in Asia? (*WebLocAsia)*
- When you travel, is it *mostly* locally or elsewhere in Asia? (*TravLocAsia*)

- Do you go on tours around the Philippines or elsewhere in Asia at least once a year? (*TourFreq*)

The value of the chi-square test statistic (13.5068 with 6 degrees of freedom) is significant (p<0.0357). The null hypothesis that none of the independent variables are important can therefore be rejected. The score test also rejects the null hypothesis.

The fitted model is:

$$ln\frac{p}{1-p} = -.9353 + 3.0617Sex - 3.7861MStat + 0.9668WebLocAsia$$
$$-2.6194TravLocAsia + 0773TourPhil + 09277TourAsia$$

where p is the probability of belonging to the population that always books online when making a tour package reservation.

Wald's test suggests that *WebLocAsia*, *TravLocAsia*, *TourPhil*, and *TourAsia* are not statistically significant. This means that responses to the ensuing questions are not very informative in identifying the individuals who always book online when making a travel package reservation.

Sex and marital status, on the other hand, are both statistically significant (p<0.0430, p<0.0447, respectively). The log of the odds of always booking tour package online increases by 3.0617 for males and decreases by 3.7861 for those who are not married.

The odds ratio estimate are 21.363 and 0.023 for gender and marital status. Being a male rather than female increases the odds of booking online more than 21 times, conditional on marital status, booking a tour mostly for local travel or travel elsewhere in Asia, traveling mostly locally or elsewhere in Asia, having ever gone on a tour package in the Philippines, and having ever gone on a tour package in Asia.

An event in this case would be those who always book tour packages online, while a non-event would be those who don't always book tour packages online. Of the 7 event cases, 2 were correctly classified and the

5 remaining have been misclassified as nonevent cases; 32 of the 36 non-event cases were properly classified whereas 4 have been falsely classified as event cases. In total, 79.1% cases have been correctly classified. The sensitivity or percentage of correctly predicted event responses is 28.6%, whereas the specificity or percentage of correctly predicted nonevent responses is 88.9%.

To determine what motivates the respondents to rank higher for certain packages and lower for some, another logistic regression procedure is performed. Rankings for each package per respondent are first and foremost encoded as 1 to signify favorable ranking from 1 to 5, and 0 otherwise. Only 2 packages have statistically significant predictor variables – among all possible combinations of predictor and criterion variables. In particular, these are packages number 1 and 3.

Thirty-one out of 49 respondents (4 observations with missing values excluded from total count) ranked Package 1 highly, i.e., between 1 and 5, inclusive. The rest of the 18 respondents gave it low ranking ranging from 6 to 10 (recall that 1 is for most preferred and 10 least preferred). This would be when *TravLocAsia*, or traveling mostly locally or in Asia outside the Philippines, is the predictor being considered. *TravLocAsia* is a significant determinant ($p<0.0380$) to package 1 ranking. The fitted model is

$$ln\frac{p}{1-p} = 0.2231 + 1.2792TravLocAsia$$

where p is the probability of belonging to the population that ranks Package 1 highly; and indicating that the log of the odds of picking Package # 1 would increase by 1.2792 for respondents who travel mostly locally versus somewhere else in Asia. The odds ratio for traveling mostly locally or outside in Asia is 3.594. The odds of ranking Package 1 highly increases more than 3 times for those who have traveled mostly in the Philippines instead of elsewhere in Asia.

For Package 3, 27 individuals gave high ranks ranging from 1 to 5 and 20 gave low ranks ranging from 6 to 10. The significant independent variables are gender and marital status. The fitted model is

$$ln\frac{p}{1-p} = 0.9449 \quad 2.3326Sex \quad 0.1434MStat$$

where p is the probability of belonging to the population that ranks Package 3 highly; and indicating that the log of the odds of purchasing a tour package including airport/pier transfers, daily breakfast, and a shopping tour decreases by 2.3326 among males.

For the rest of the packages, there are no particular factors that help determine a high or low ranking.

Thus, gender, marital status, having ever gone on a package tour in the Philippines or elsewhere in Asia, having ever booked a local or Asian tour package online, mostly booking online for local travel or travel elsewhere in Asia, traveling mostly locally or outside the Philippines but in Asia, and going on tours around the country or outside the Philippines but in Asia at least once a year do not determine high ranking for packages 2, 4, 5, 6, 7, 8, 9, and 10. There are no specific individuals who are particularly interested in these packages. It could be other factors that lead them to rank these packages highly; whatever these factors are, they are not included in the list mentioned.

6. Conclusions

Revenue from online tour bookings among the respondents can be maximized by offering packages inclusive of airport or pier transfers and targeting the biggest segment. Of four resulting groups, the biggest group of planners look for packages inclusive of a combination of airport or pier transfers, daily breakfast, historical/scenic or island hopping tour, and picnic lunch during tour / lunch out / lunch out during tour. The other segments are those whose main concern is the airport and pier transfers, called the efficient group; people who give historical, scenic or island hopping tours the highest value – the tourists or explorers; and the breakfast-goers to whom daily breakfast is most important. Tours offering the bookers an opportunity to go on a shopping tour are not attractive, especially when not providing airport or pier transportation.

Bundles inclusive of airport/pier transfers but have no shopping tour offer are ranked highest among the 10 packages. Those without transportation but has shopping tour listed in the itinerary are ranked lowest. In between are the rest of the packages that include both transportation and shopping tour.

Married males who travel mostly in Asian countries excluding the Philippines and have at least once made a local tour package reservation through the web are the ones most likely to always make tour reservations online.

Those who travel mostly locally instead of to other Asian countries are the ones more likely to get packages offering airport or pier transfers, daily breakfast, and historical / scenic / island hopping tour. Male respondents are less likely to go for a combination of airport or pier transfers, daily breakfast, and a shopping tour in picking a travel package.

These marketing strategies can be developed using the methodology offered by conjoint analysis.

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