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Testing and Verification of the Zero-Price Effect in Touristic Products

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Abstract

Consumers are affected from similar factors while deciding to purchase a product or a service. Although there is a general acceptance that psychology plays the most important role at the center of these factors; the studies on this subject have revealed that cognitive biases and irrational elements are also very important. These studies have also indicated that one of the factors among the irrational elements that affect the consumer behavior is zero price sensitiveness.

This study aims to test whether zero price has an effect on decision making process towards tourism. In regard to this goal, two different hotels with two components of room and breakfast are determined; and although that the other hotel is the selected option, when a certain component's price within the product is fixed to zero, it has been assumed that demand for that product would increase abnormally. Also, Monty Hall problem was applied to tourism and tested in order to examine whether the choices about zero price are realized randomly or not. Within the scope of this study, an experiment relying on hypothetical selection method was conducted by 159 lecturers. The zero price effect was found to be significant in the model used in the experiment and a significant difference was found between the responses to the Monty Hall problem.

Keywords: Tourism; Behavioral economics; Irrational behavior; Cognitive bias; Zero price effect; Monty Hall

Introduction

All the discussions on zero, in fact, shows that zero have a much larger meaning than itself [1]. While it's a good thing when a doctor sees zero traces of cancer, a zero score in sports events is a really bad one. For a student, a zero error is a good thing, while zero as a grade means a bad outcome. When it comes to price zero gets quite interesting [2].

There are many reasons that make the zero point increasingly important. In particular, suppliers have admitted that the free-of-charge concept is a new approach to behavioral economics. However, while the attraction created by free-of-charge is intuitive, studies have shown that "free" can be a much stronger bait than its true value. When the value for a product or service is determined to be zero, it is observed that the expected benefit is substantially higher compared to even a very low, but positive price. This effect was found to be very important and is often referred to as the "zero-price effect" or "free effect" [3].

Zero is a source of irrational excitement and emotional tender spot [4]. Zero price or free goods or service offers affect people incredibly. People sometimes travel for miles for a free concert or zoo tour [2].

Despite the positive and negative aspects of most transactions, when something is free, its negative sides are omitted and it is thought that what is presented is more valuable than it is in reality. This may be due to the nature of human beings' fear of losing. Although people are not afraid to lose when they choose free products, the risk of losing arises when they choose non-free products. So, in the face of this option, people run towards the free products. For this reason, zero pricing is

not just a price, and nothing can overcome the emotional fluctuation that "free" brings [4]. Many experiments have shown that zero pricing leads to irrational behaviors among individuals in economic terms [5].

The zero price effect occurs when people systematically value a product that is offered for free [6]. When choosing between two products, there is usually more reaction to the free one [4]. The free effect proved itself with non-experimental daily-life experiences. For example, amazon.com made a free cargo campaign in some European countries, but mistakenly in France, the price of the cargo was set as low as 10 cents. As a result, despite the fact that there was only a difference of 10 cents, there was a significant increase in orders compared to France in the free-cargo campaign countries [3].

Zero is not just another discount [1]. Zero has a completely different place. The reason is that while the difference between two cents and one cent is small, the difference between one cent and zero is quite large [4].

Standard benefit-cost model

To find out if a zero price effect exists or not, it is very important to determine the level of demand according to the standard economic theory when the price of a product drops to zero. Therefore, before explaining the zero-price model, it is necessary to give brief information about the standard benefit-cost model.

The standard benefit-cost model assumes that consumers are rational [7] and that they base their decisions on maximizing the benefit. According to the standard benefit-cost model, zero is just another price. The reduction of one of the prices to zero is just like any other price reductions and therefore does not create any extraordinary advantages. When the consumer is caught between two products (products X and Y), if the value of X is greater than the value of Y, X is selected. Similarly, if the value of Y exceeds the value of X, then Y is

preferred. If the prices of X and Y exceed the values of X and Y respectively, the customer may not choose any of the products. Additionally, if the prices go down to zero or a low level, consumers will choose X, if the value of X is greater than the value of the newly low-priced X. The same thing is true for Y. Finally, if the prices of X and Y are greater than the values of X and Y, respectively, consumers may prefer not to buy anything at all. For this reason, the effect of a price reduction to zero will be just the same as for another price reduction of the same level, while the prices are still positive [8].

The standard benefit-cost model indicates that when the value of the product exceeds its price, consumers buy the product. As the single-component model suggests, in the case of choosing between two products (products X and Y), the consumer buys the product when its value exceeds its price, and buys the product with a higher value and price compared to the value and price of another product. Product value is considered positive [9]. However in the two-component model, each product consists of two components. For example, you can book a hotel room with a breakfast service or buy coffee with cake. The valuation of a two-component product depends on the value and price of both components. This means that, if the value of both components exceeds their price, the product will be purchased. The consumer decides on a two-component product: if the price of the high-value but reduced-price product exceeds the reduced-price of the low-value product, will purchase the higher value product. It is based on a precise choice between combinations of a high-priced product and a low-priced product, or a low-priced product and a free product. For example, while stay with breakfast at hotel A is a high-value product, the same product at hotel B is a low-value product [2].

It has already been mentioned that consumers overreact for any free product. In this case, the intrinsic value increases far more than the price reduction. Thus, consumer decisions during their making choices are also affected. In other words, the zero-price model shows that zero is not just a number, as in the standard benefit-cost model, but it also has a special place.

The zero price effect

The first study on the effect of free or zero-price products was by Shampanier et al. in 2007, called "Zero as a special price: The true value of free products" [9]. In this study, it was shown that in the decision-making process of people between two products when one of them is for free, they decide to favor the free product since they think of the zero price as an indirect extra value, rather than not paying any fee. Consumers, when they have to choose between a cheap but not free product and a free one, not much to their liking, they tend to choose the latter because it is free [2].

In the course of time, however, another question has arisen: when it comes to a multi-component positive-price product and the price of one of these components is zero, whether this effect is still preserved. For this reason, the effect of these results is extremely relevant for the tourism companies that offer promotions with multi-component products. People can opt for a free-of-charge component, just because it's free though it might not have a part in their decision of preference. In fact, even if this price is non-zero, such as a negligible amount of $2, there is no shift in people's preferences.

Nicolau and Sellers [10], taking the multi-component structure of tourism into consideration, have been working on hotels, a combined tourism product, rather than a unique product, in their study [1,11,12]. While creating this two-component model, they divided the components into room and breakfast. In order to see the effect of the free breakfast, the breakfast prices were gradually lowered to zero, even though the hotel continued to charge for the rooms. As the breakfast price went down to zero, there was an extreme demand for accommodation at the hotel.

Then Nicolau [11] tried different combinations to see the effect of zero price. In this experiment, you are still offered the room and breakfast option, but this time you have the option to choose from a free breakfast or a discount at breakfast. People were told to go to a travel agency within 15 minutes' distance to get a discount equal the breakfast's worth. A significant number part of the participants preferred to make online reservations instead of going to the travel agency. When the discount option was replaced with the free breakfast at the same monetary value, the percentage of those who said they would go to the travel agency showed a significant increase [11].

Nasif and Minor [13] have come to the conclusion in their "Free Gifts and Irrational Preferences" study, that if a free gift is offered to people, they welcome applications such as receiving a new credit card, creating a new check account and filling out forms. The given gifts have lower values compared to what is requested of them. Therefore, though consumers say they set a value for the cost they will have to pay in return for what others request of them, they seem to do this for a low-value gift that is virtually free.

Spiegel et al. [14] did something completely different. They did not offer consumers two products, but they made combinations of products with the same final price. These combinations are offered in different marketing forms, such as "buy one get one free" or "2 products for a 50% discount". In general, consumers preferred to buy a free product instead of buying products with a 50% discount. This has also shown that the zero price effect is a special case and that the free effect is confirmed in multi-product environments. Consumers have in fact overestimated free products before realizing that 50% discount is the same in both cases. They also found that even in a bundle of expensive products, there was a free effect [3].

As studies are examined, we see that the zero price effect for some products, such as chocolate, telecommunication, music systems, has been studied and confirmed. Especially as far as simple decisions are concerned, zero price effect is more significant. In more complex decisions for more expensive products, there was no unilateral result about the importance of the zero price effect. When all possible explanations are examined, it was found that the psychological mechanism effect is the only significant motive for the zero price effect, and with this mechanism the disadvantaged (no cost) options have been found to trigger a more positive emotional reaction. It was also determined that consumers used this emotional reaction as a decision-making signal to choose free options [15].

Method

Objective

In this study, the aim was to test whether there was a zero-price effect in the decision-making process for a hotel room reservation with and without breakfast. In an experiment on two-component tourism products, it was predicted that fixing a price for a component (breakfast) in a product (room) could abnormally increase the demand for the product, even if another hotel was the preferred option. In addition, the Monty Hall dilemma was adapted to tourism to test

whether the preferences for zero prices have occurred in a random fashion.

Universe and sampling

The scope of the work consists of academicians. It is possible to explain the reason for this from a socioeconomic point of view. The fact that the education levels of the academicians are high and there is no holiday culture in the Turkish society, matters in this respect of the academicians' role. Additionally, since tourism activities require a certain level of consciousness as well as economic power, academicians have been included in the study due to their average and above-average income levels. In this direction, the study was conducted with 159 faculty members working at Ataturk University.

Data collection method

In the study, a research model was designed in order to see the effect of zero price in the decision making process of a two-component tourism product. In this model, two hotels were subjects of the hypothesis in the same destination to eliminate other external factors (such as geographical, seasonal) in the determination process of hotels. The first one is a hotel with four stars and well-known by many vacationers, while the other is a fake one with three stars which no one really knows about. As Nicolau and Sellers [10] pointed out, the reason for determining a four and a three-star hotel is the slight difference that could have the least influence on people's choices. Because if the hotels were defined as five and four-stars, the difference in these choices would be much more significant. Again, while setting the room +breakfast prices, the difference between these two hotels was aimed to be minimal. This is because the hotel, which is a four star hotel in the first and second stages, is intended as a more attractive and eligible alternative. In the third stage, positioning and prices are prepared according to the four-star hotel, so that the zero price effect can be seen more clearly.

For this reason, the names of the hotels have been determined as Dedeman, for the four-star hotel and Aden, for the three-star hotel. The starting price was 63 TL for a room at the four-star hotel, Dedeman and 12 TL for the breakfast. The room price for the three-star Aden hotel was 52 TL, while the breakfast price was set to 8 TL. These prices constituted the first stage, referred to as the first case. In the latter case, the same amount of discount was applied to the breakfast prices of both hotels and the responses of participants were measured. Considering the standard benefit-cost model, the second option was expected to be in favour of the four-star hotel. According to this model, in the two cases in which the same amount of discount is applied, the tendency of people is towards the higher value product. After this stage, the effect of the zero-price was measured in the third case. The same amount of discount in the second case was also applied in the third case. But according to the standard benefit-cost model, the only difference in the price level, which is in the same direction of this model, is the three-star hotel's free breakfast. For this purpose, contrary to the aforementioned model, the zero-price is anticipated to change consumer decisions in the opposite direction and to significantly increase the demand for the three-star hotel.

The hypothetical options that predict choosing one of the two hotels, are considered to cause a disadvantage. Because in many studies, it has been confirmed that when people are asked to choose between the two options, they make a random decision by falling into more unconscious traps during the process. In this direction, another

question is added to the model to determine whether the decisions given by the respondents for the second model are the result of the stated theory or whether it is an effect of the zero price. This question was adapted from the Monty Hall equation to fit the research model and the results were evaluated. It is considered that the zero price effect will be reinforced and prove itself by showing a meaningful difference between the reactions given to the zero price effect and the responses given to the question.

Participants were asked to choose one of the three options with a prize. Later, the option with no prize was removed to increase the chances of winning. The participant then received a remark towards changing the choice, if desired. At this point, participants were asked whether they would change their choice. In the Monty Hall dilemma, the real solution was in the direction of changing the choice. Because the probability of winning in the first choice is 33.3%, while the probability of losing is 66.6%. If one of the blank options is omitted, the probability of winning is 66.6%. So in this case, the most logical behavior would be to change the already chosen selection. This problem has become the subject of many debates, including those of mathematicians. These discussions, which lasted for many years, have reached an end by the induction of mathematical proofs. But even though these proofs justify the real solution to the problem, people have in fact continued with a suspicion and the result had little impact on changing their choices. Thereupon, this subject intrigued other fields of science and several researches were carried out on why people behave this way. The most serious theory in this regard, is the misguidance of cognitive traps in which people face when making their decisions in such problems; despite seeing the decision in its simplest form and having shown evidence to the correct answer, they strive to justify their own choices instead of accepting the correctness of what is told to them, so that they do not have to change their decisions.

The purpose of using this problem in the research is to test whether resistance will be shown by the participants, whom people show in changing their decisions after making choices, and also whether there is a significant difference between these results and changes in choices made for zero prices, in case a similar resistance is observed. If the difference occurs, the aim is to prove that the resistance of people towards change, is broken at zero price and its effectiveness shall be tested with a different method.

In the study, a quantitative research design has been adopted. This design was considered appropriate, due to the generalization of results and providing answers for research questions [16]. In order to provide clarity in expressions and to be able to independently evaluate the anticipated preferences in the research, hotel information cards in the form of flyers were printed. These cards included hotel features, stars and price options. The intention here was to emphasize price sensitivity, by changing prices for each option on the same form.

Data Analysis

Demographic characteristics

40.9% of the 159 faculty members subjected to the research were female while 59.1% were male. When the age groups of these participants were examined, the majority of the group was between the ages of 35-44 with 31.4%. The ratio of participating academicians specialized in sciences were as 47.8% for social and 52.2% for physical sciences.

Testing the zero price effect

The results of the analysis, to determine the zero price effect for Model, are given in Figure 1. Decisional changes of consumers between binary options were determined by the discrimination analysis.

As the results were examined, a difference between Case 1 and Case 2 of model was observed and their values were determined. First of all, examining these two cases designed to observe the benefit-cost analysis, with differences in evidence. In Case 1, as the participants were asked to choose over the initial prices (Dedeman room +breakfast=63+12, Aden room+breakfast=52+8), the result was in favour of Dedeman hotel with a ratio of 73%, while this rate was 27% for Aden hotel. As for case 2 in which the discount on breakfast prices were reflected to the participants, the rate for Dedeman hotel (room +breakfast=52+4) had increased to 76.70%. As a result of this analysis, the change in demand was found to be meaningful (t=2,489 p=0.014). The results show that the decisions made in Case 1 and 2 are in line with the simple cost-benefit theory. According to these results, there is a significant difference between the preferences for Case 1 and Case 2 of model.

When analyzing the third case where the zero price effect was measured, the differences that were developing for Case 2 were observed. In case of a discount of 4 TL, in the case of Dedeman, where demand is higher in Case 2 than Case 1, a very different statistical result was obtained by controlling the change of demand, with another discount of 4 TL. As a result of the discount made in Case 3, the prices were determined as room+breakfast=63+4 TL at Dedeman Hotel, and as room+breakfast=52+0 TL at Aden hotel. According to the simple cost-benefit theory, the demand for Dedeman hotel was expected to increase in parallel with the previous situation, however the results were seen to be in the opposite direction.
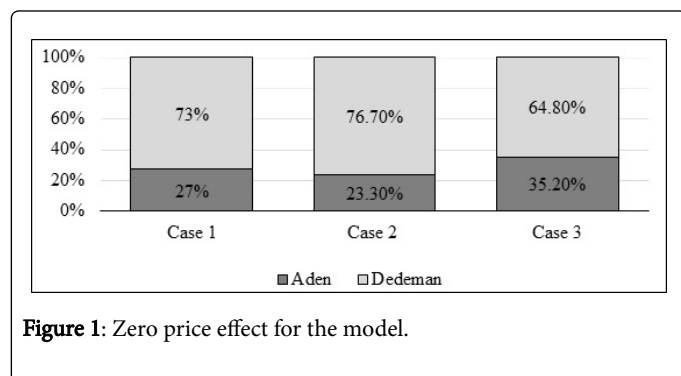

Figure 1: Zero price effect for the model.

The demand for Dedeman hotel, measured as 76.70% in case 2, had dropped to 64.80%, and for Aden hotel it had increased from 23.30% to 35.20%. The difference in demand between these two cases was statistically significant (t=-4,631 p=0,000). In contrast to the measurement between Case 1 and Case 2, the ratio difference between Case 2 and Case 3 was against Dedeman Hotel. In the first two cases, where the demand for Dedeman hotel was constantly increasing; as the price of breakfast at Aden hotel was for free, the opposite of what would be expected in classical economic theories had occurred, and the demand for Aden hotel had risen. All these results demonstrate that the zero-price effect is considered separately from other theories and may in itself be considered to have an area of influence.

Verification of the zero price effect

While investigating the zero price effect, it has been thought that limiting the options to two, as already mentioned in the study, will cause some problems due to randomness. For this reason, Monty Hall's dilemma has been tried to take advantage of, which is the most searched and most experimented concept on randomness, in order to avoid any possibility of doubt that these problems might cause on the zero price effect. Unlike the well-known Monty Hall concept, the problem has been acted upon a touristic product so as not to lose meaning of the question and continued as the options in Model. Accordingly, this two-stage question is shaped as follows.

Adaptation of the results in the Monty Hall dilemma according to participants, are presented in Figure 2. Hereunder, as 2 out of 3 of the participants did not change their choices, while the rest 33% said they would. These results show that when compared to the actual solution of Monty Hall's dilemma, a dramatically symmetrical result is achieved. That is, while the odds in favor of 34% are preferred by 66% of the participants, the option with a chance of 66% is chosen by 34% of the participants. These results just like the theory states; proves the tendency of people not to change their decisions, even if it may be in their interests to do so, in the case of bilateral choices.
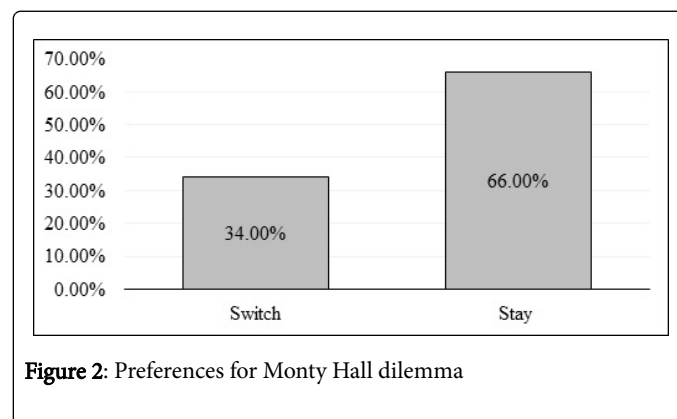

Figure 2: Preferences for Monty Hall dilemma

Based on the stated reasons, discrimination analysis was applied to determine whether the responses to the Monty Hall dilemma were in the same direction as the responses to the zero-price, to determine whether people's decision-making tendencies were also valid for the zero prices. The result suggested that there was a significant difference between the responses of these two concepts (t=5,313 p=0,000). So when it comes to zero prices, people seem to be more willing to change their minds.

Conclusion and Discussion

Developments in behavioral economics have important implications for the tourism sector. Because in an environment where globalization and technological developments increase with competition, especially the tourism sector, which is a human-oriented service sector, being open to innovations in the field of behavioral economics will provide an important competitive advantage. Although consumer behaviors towards tourism products may include some special behaviors, depending on the structure of the industry, they have many common characteristics with consumer behaviors in general. Tourism product requires, structure-wise, a variety of services and experiences. For this reason, consumers are affected by many factors in making their decisions. This versatile domain can also be a risk factor in terms of

tourism marketing. Because the redundancy of these factors complicates managing consumer decisions; presenting them with simplified preferences to consumers will provide significant advantages both in terms of tourism operators and touristic destinations.

Due to the multi-component nature of tourism products and the many sub-decisions required to determine the separate price for each component, the decision to set the price is becoming much more complex. In this context, the product bundle strategy with the non-linear response to the price of each component has always been a general strategy applied in tourism. The analysis of price factors in the form of a package of goods and services provides different advantages to the marketing people. People's subjective price perceptions, provide valuable information for assisting design and the implementation of effective promotional programs for packaged products. Tourists can create a combination of their own complementary travel products by gathering components in their simplest form.

As a result, the findings show that zero prices is effective not only in one component but also in multi-component products. Moreover, unlike the one-component model, instead of paying nothing consumers are willing to pay a price for the other product that complements the component, besides the product they think they are getting for free. This situation can harbour many administrative effects in terms of the tourism sector. A very important part of these effects is towards tourism marketing. The reason for that is the difficulty for consumers to make a rational decision by analyzing prices even in a two-component product, as observed in the current and other studies. These results, when compared with the multi-component structure of tourism, predict that the current rationality in consumers will decrease exponentially. Therefore, when pricing and marketing activities are being carried out, systems should be designed taking these values into consideration and making it easier for the consumer to decide by thinking as minimal as possible.

If businesses feel the effect of zero prices, they will reach the ability to appeal to wider masses, which in turn will increase their profitability by selling more products or services. This study, aimed at seeing the "zero price effect" on tourism products, is not sufficient on its own, but will become clearer in future researches working on different samples and sectors. In general, when assessed together with previous studies, it is seen that studies on zero price are mostly made on students. The selection of participants from different backgrounds of income, occupation and age groups, can lead to an observation of significant differences.

When the studies are examined, it is seen that cheap products are used for single component products and the alternative products are selected that cost less at the same level. In the case of two-component studies such as tourism products, it is still at a level of comparison of bed and breakfast. There is no study yet, to show whether such an effect especially for luxury goods exists and the extent to the level of this effect as the difference between the product and the alternative product widens. It is thought that studies in this area will provide substantial contributions to the literature.

References

1. Sallberg H, Wrenne A, Blomqvist J (2014) "The Zero-Price Effect Extended? An Empirical Study of Multi-Component Online Mobile Services". 47th Academy of Marketing Conference. Bournemouth. 7-10.

2. Müller J, Messelink CW (2014) The Power of Free: Literature Study to the Zero Price Effect. Erasmus University Rotterdam. Rotterdam.

3. Gal MS, Rubinfeld DL (2015) "The Hidden Costs of Free Goods: Implications for Antitrust Enforcement". New York University Law and Economics Working Papers 403: 1-58.

4. Ariely D (2013) Akıl Dışı Ama Öngörülebilir. Optimist Yayınları. İstanbul.

5. Romell D (2012) Is Loss Aversion Causing "FREE!" to Flourish?. Lunds Üniversitesi. İsveç.

6. Hogan SK, Murphy T (2015) Breaking up is Hard to do: How Behavioral Factors Affect Consumer Decisions to Stay in Business Relationships. Deloitte University Press. UK.

7. Özcan B (2007) "'Rasyonel Satın Alma' ve 'Boş Zaman Sürecine Ait Alışveriş' Eylemlerinin Birlikte Sergilendikleri Mekânlar: Alışveriş Merkezleri". Sosyal Bilimler Dergisi. 9: 39-68.

8. Driouchi A, Chetioui Y, Baddou M (2011) "How Zero Price Affects Demand?: Experimental Evidence from the Moroccan Telecommunication Market". Münich Personal RePEc Archive. 1-26.

9. Shampanier K, Mazar N, Ariely D (2007) "Zero as a Special Price: The True Value of Free Products". Marketing Science. 26: 742-757.

10. Nicolau JL, Seller R (2011) "The Free Breakfast Effect: An Experimental Approach to the Zero Price Model in Tourism". Journal of Travel Research. 20: 1-7.

11. Nicolau JL (2012) "Battle Royal: Zero-Price Effect vs Relative vs Referent Thinking". Springer Science. 23: 661-669.

12. Shaw BR, Radler B, Haack J (2012) "Comparing Two Direct Mail Strategies to Sell Native Plants in a Campaign to Promote Natural Lake Shorelines". Social Marketing Quarterly. 18: 274-280.

13. Nasif N, Minor MS (2011) "'Free' Gifts and Irrational Preferences: An Exploration for Effects of Promotional Enticements on Financial Decision Making". Advances in Consumer Research. 39: 292-299.

14. Spiegel U, Benzion U, Shavit T (2011) "Free Product as a Complement or Substitute for a Purchased Product - Does it Matter?". Modern Economy. 2: 124- 131.

15. Fabbro Y, Bellemans T, Cools M (2013) Free Public Transport: A Socio-cognitive Analysis. Universiteit Hasselt Faculteıt Bedrıjfseconomısche Wetenschappen. Belçika.

16. Hallmann K, Müller S, Feiler S (2014) "Destination Competitiveness of Winter Sport Resorts in the Alps: How Sport Tourists Perceive Destinations?". Current Issues in Tourism. 17: 327-349.