THE ASYMMETRIC DOMINANCE EFFECT AND BEER BRANDS
THE ASYMMETRIC DOMINANCE EFFECT AND BEER BRANDS

Thesis presented to Escola de Administração de Empresas de São Paulo of Fundação Getulio Vargas, as a requirement to obtain the title of Master in International Management (MPGI).

Knowledge Field: Management and Competitiveness in Global Companies

Advisor: Prof. Dr. Carlos Eduardo Lourenço

SÃO PAULO
2020
Sun, William. 
42 f.

Orientador: Carlos Eduardo Lourenço. 
Dissertação (mestrado profissional MPGI) – Fundação Getulio Vargas, Escola de Administração de Empresas de São Paulo.


CDU 658.89

Ficha Catalográfica elaborada por: Isabele Oliveira dos Santos Garcia CRB SP-010191/O 
Biblioteca Karl A. Boedecker da Fundação Getulio Vargas - SP
WILLIAM SUN

THE ASYMMETRIC DOMINANCE EFFECT AND BEER BRANDS

Thesis presented to Escola de Administração de Empresas de São Paulo of Fundação Getulio Vargas, as a requirement to obtain the title of Master in International Management (MPGI).

Knowledge Field: Management and Competitiveness in Global Companies

Approval Date
____/____/_____

Committee members:

__________________________________________
Prof. Dr. Carlos Eduardo Lourenço
FGV-EAESP

__________________________________________
Prof.ª Dr. Lilian Carvalho Pereira
FGV-EAESP

__________________________________________
Prof. Dr. Evandro Lopes
UniNove
ACKNOWLEDGMENT

I thank my parents, brother and family for all the provided support not only during my master studies years, but throughout my entire personal, academic and professional trajectory.

I thank my good friends from FGV-EAESP and Yale GBS, that were key source of motivation and inspiration.

At last, I thank my advisor, Carlos Eduardo Lourenço, for all learning acquired during this project.
ABSTRACT

This study aims to explore in which situations the asymmetric dominance effect might happen or not. Some authors suggest that the effect only happen in very rare occasions, where the stimuli is quantitative and clear. As for qualitative stimuli, the effect is diminished and practically vanishes. The main reason is that qualitative stimuli, such as perception of image quality or brands, rely on subjective interpretation. The present study investigates the effect using three beer brands and measures an individual’s brand preference using consumer-based brand equity (CBBE). The choice set is constructed in a way that the most preferred brand is set at a higher price, the second option as the target and at the same price as the third option, the decoy. In this case, the decoy effect would happen if respondents choose the second preferred option. Essentially, the key question here is to understand if the effect would happen given different levels of brand preference. Results showed that the effect was not observable (p-value not significant at 5% but significant at 10%). In addition, brand preference measurements were not good predictors for the targeted option. However, when it comes to overall choice, brand preference was a good predictor of choice. The results serve as initial thoughts of investigating the effect using a metric to measure how respondent perceive certain qualitative stimuli.

KEY WORDS: Decoy effect, asymmetric dominance effect, marketing, consumer behavior, behavioral economics
RESUMO

Este estudo tem como objetivo explorar em quais situações o efeito de dominância assimétrica pode ocorrer ou não. Alguns autores sugerem que o efeito ocorre apenas em ocasiões muito raras, onde os estímulos são quantitativos e claros. Quanto aos estímulos qualitativos, o efeito é diminuído e praticamente desaparece. A principal razão é que estímulos qualitativos, como a percepção da qualidade da imagem ou das marcas, se baseiam na interpretação subjetiva. O presente estudo investiga o efeito usando três marcas de cerveja e mede a preferência de marca de um indivíduo usando o valor da marca baseado no consumidor (VMBC). O conjunto de opções é construído de forma que a marca mais preferida seja definida com um preço mais alto, a segunda opção como alvo e precificada igualmente à terceira opção, a isca. Nesse caso, o “efeito isca” (decoy effect) aconteceria se os respondentes escolhessem a segunda opção preferida. Essencialmente, a questão principal aqui é entender se o efeito aconteceria com diferentes níveis de preferência de marca. Os resultados mostraram que o efeito não foi observável (valor-p não significante a 5%, mas significante a 10%). Além disso, as métricas de preferência da marca não foram bons preditores para a opção alvo. No entanto, quando se trata da escolha geral, a preferência de marca foi um bom preditor de escolha. Os resultados servem como passos iniciais para investigar o efeito utilizando métricas para mensurar como respondentes assimilam estímulos qualitativos.

PALAVRAS CHAVE: Efeito isca, Efeito de dominância assimétrica, marketing, comportamento do consumidor, economia comportamental.
# TABLE OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Visual Representation of study relation</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>Subscription plans of The Economist</td>
<td>13</td>
</tr>
<tr>
<td>3</td>
<td>Asymmetric Dominance Effect (graphical representation)</td>
<td>14</td>
</tr>
<tr>
<td>4</td>
<td>Conceptual CBBE framework developed by Keller (1993)</td>
<td>21</td>
</tr>
<tr>
<td>5</td>
<td>Conceptual CBBE framework developed by Aaker (1996)</td>
<td>22</td>
</tr>
<tr>
<td>6</td>
<td>CBBE measurement by Yoo and Donthu (2001)</td>
<td>23</td>
</tr>
<tr>
<td>7</td>
<td>CBBE measurement by Porral et al. (2013)</td>
<td>24</td>
</tr>
<tr>
<td>8</td>
<td>CBBE measurement by Porto (2018)</td>
<td>25</td>
</tr>
<tr>
<td>9</td>
<td>Survey design blocs</td>
<td>27</td>
</tr>
<tr>
<td>10</td>
<td>Brand preference ranking question</td>
<td>28</td>
</tr>
<tr>
<td>11</td>
<td>CBBE question</td>
<td>30</td>
</tr>
<tr>
<td>12</td>
<td>CBBE question example</td>
<td>30</td>
</tr>
<tr>
<td>13</td>
<td>Absence of Decoy Stimuli</td>
<td>31</td>
</tr>
<tr>
<td>14</td>
<td>Presence of Decoy Stimuli</td>
<td>31</td>
</tr>
<tr>
<td>15</td>
<td>Graphical representation of decoy choice set</td>
<td>32</td>
</tr>
<tr>
<td>16</td>
<td>Data cleaning criteria</td>
<td>33</td>
</tr>
<tr>
<td>17</td>
<td>Choice set using CBBE score on ranking preferences</td>
<td>35</td>
</tr>
</tbody>
</table>
TABLE OF TABLES

Table 1: Paired-t test for CBBE brands .................................................. 34
Table 2: Paired-t test for CBBE ranking preference ................................. 34
Table 3: CBBE between control and treatment ........................................ 35
Table 4: Deal attraction level result .......................................................... 36
Table 5: Summarized choices results......................................................... 36
Table 6: Adjusted summarized choice results ........................................... 37
Table 7: Logistic regression, control versus treatment ............................. 37
Table 8: Logistic regression, treatment group model with CBBE metrics .... 38
Table 9: Logistic regression, control versus treatment with CBBE metric .... 38
# TABLE OF CONTENTS

1. Introduction ................................................................................................................ 12  
2. Literature Review ......................................................................................................... 12  
   2.1. The Asymmetric Dominance Effect ...................................................................... 12  
       2.1.1. Explanations for Asymmetric Dominance Effect ....................................... 15  
       2.1.2. Debate about the robustness of ADE ......................................................... 16  
       2.1.3. Similar studies .............................................................................................. 18  
   2.2. Research question and goals .................................................................................. 19  
3. Brand Preference Measure ........................................................................................... 20  
   3.1. Definition of Customer Based Brand Equity ....................................................... 20  
   3.2. Customer Based Brand Equity scale and measurement ...................................... 22  
   3.3. CBBE review in the present study context ......................................................... 24  
4. Methodological Approach ............................................................................................ 26  
   4.1. Survey Experiment ............................................................................................... 26  
   4.2. Sample and Data Collection ............................................................................... 27  
   4.3. Product Selection ................................................................................................ 27  
   4.4. The Survey Design ............................................................................................... 27  
       4.4.1. General Information ...................................................................................... 28  
       4.4.2. Brand Preference Ranking .......................................................................... 28  
       4.4.3. Brand Preference Measurement .................................................................... 28  
       4.4.4. Random Groups and Stimuli ....................................................................... 30  
       4.4.5. Attractiveness of Options .......................................................................... 32  
5. Analysis and Results .................................................................................................... 32  
   5.1. Data cleaning ......................................................................................................... 33  
   5.2. CBBE metric consolidation ................................................................................... 33  
   5.3. Control and Treatment, group validation ............................................................... 35  
   5.4. Decoy Effect Analysis ......................................................................................... 35  
       5.4.1. Deal attraction level ..................................................................................... 36  
       5.4.2. Chi square .................................................................................................... 36  
       5.4.3. Logistic Regression ...................................................................................... 37  
   5.5. CBBE and Decoy Effect ....................................................................................... 37  
6. Limitations ...................................................................................................................... 39  
7. Managerial implications ............................................................................................... 39  
8. Conclusion ...................................................................................................................... 40
1. Introduction
The topic of consumers’ purchasing behavior has long been subject of interest of many different academic fields, both from having theoretical and managerial importance. From a theoretical point of view, it helps scholars to better model and understand human decision-making process and what kind of incentives may influence human behavior. On the managerial perspective, it helps marketers to understand how the presence of competition reflects in choice probabilities, making possible to create strategies that increase sales and therefore profit.

One of the concepts that has been widely studied in the past 30 years, is the Asymmetric Dominance Effect (ADE), also known as the Decoy Effect (DE) or Attraction Effect (AE). The phenomenon was first introduced by Huber, Payne and Puto (1982) to describe a violation of core principles in rational choice models. A supposedly irrelevant alternative when introduced in a choice set might slightly shift consumers’ preferences to a specific target.

Despite the importance of this finding and many subsequent researches in the field, in recent studies of Frederick, Lee and Baskin (2014) and Yang and Lynn (2014) questioned the applicability of ADE in practical contexts. The authors conducted a series of studies and replicas in which they attempt to produce the ADE and did not obtain much consistent results. The main questioning brought in these studies was that the phenomenon might be limited to highly stylized product representation, where the product’s attributes are expressed in a numerical form (e.g. given quality rates). In contrast, when consumers depend on own interpretation or subjective sensorial perception (e.g. comparing taste of food or picture quality), the phenomenon is not observable.

The present study aims to explore the use of qualitative attributes, specifically brand, and use a metric (brand preference) to investigate the impact on the phenomenon.

2. Literature Review
2.1. The Asymmetric Dominance Effect
As previously described, the ADE was first introduced by Huber et al. (1982) to describe a phenomenon in which the addition of a supposedly irrelevant option in
the choice set, known as the “decoy”, influences the choice process itself. By adding a decoy (almost never chosen option), an agent changes the probability of choosing a specific item from a choice set, in a way that is different from a situation without the decoy option. This behavior violates the axiom of “regularity” in models of rational choice theory in which the probability of choosing an item \( x \) from set \( A \), must be at least as large as the probability of choosing \( x \) from \( B \), if \( A \) is a subset of \( B \) (Huber et al., 1982),

\[
Pr (x; A) \geq Pr (x; B)
\]

In the book “Predictably Irrational”, Ariely (2008) provides a clear example of the phenomenon. In an experiment conducted with 100 MIT’s Sloan School of Management, participants were asked to choose among subscription plans of The Economist. In figure 2, we can see that 68% of the participants chose the “digital” subscription for $59.00 and 32% chose the “print and web” subscription for $125.00 (absence of decoy). However, when the option of “only printed version” was added at $125.00, 16% chose the “digital subscription” whereas 84% chose the “print and digital” pack, leaving 0% to the printed version (presence of decoy).

![Figure 1: Subscription plans of The Economist](image)

Source: Ariely (2008)

Clearly the “only printed” version is a worse option than getting both “print and digital” subscription for the same price. In this case, the print subscription is used as a decoy to shift respondent’s attention from the “digital” version to “print and digital” (target). The decoy option performs equally or similarly in a dimension or attribute (price), but worse in the other dimension (subscription pack), therefore
being “dominated” by one of the alternatives (printed and digital). Given this setting, the decoy is almost never chosen by respondents. A more general concept about the ADE will be provided.

In figure 3 it is possible to see a graphical representation of the phenomenon. The graph’s axis represents each, a different dimension of an alternative, where a higher value indicates better performance of the option in that attribute. In this case, the vertical one represents “quality”, where a more distant point from the origin indicates higher quality, whereas the closer to center, denotes a lower quality. On the horizontal axis, the attribute “price” is represented, in which a more distant point to the origin shows a lower price and a closer point to the origin means a higher price. It is important to highlight that consumers are assumed to display a preference for lower prices, therefore high performance in “price attribute”.

![Figure 2: Asymmetric Dominance Effect (graphical representation)](source: Adapted from Huber et. al (1982))

The two-alternative choice set can be represented by the black dots A1 and B1 in figure 3. From the decision maker’s point of view there is not clear “best alternative” without making a trade-off between a high-quality and high-price product (A1) versus a low-quality and low-price product (B1).

The ADE happens when a third alternative, the decoy, is introduced in the choice set and influences the decision itself, making one of the previous options (A1 or B1) more appealing. The third option is supposedly irrelevant because it is similar
to one of the alternatives in one dimension, but slightly worse in the other, therefore becoming dominated by an alternative.

In this case, the gray dots (A2, A3, B2 an B3) represent decoy alternatives, which helps to catch the attention for their respective targets, A1 and B1. For instance, a choice set 1 could be composed by A1 and B1 and a choice set 2 by A1, B1 (target) and B2 (added decoy). B2 has a same price point as B1, however with a lower quality rate, therefore being dominated by B1 and making it more appealing than A1. We would see more people choosing B1 in choice set 2 than in choice set 1. Similarly, in one of Huber et al. (1982) between subject experiments with cars, showed that in the first situation (without decoy) the target B1, was chosen by 44% of the group, whereas in situation 2 (with decoy), B1 was by chosen 66% of participants.

2.1.1. Explanations for Asymmetric Dominance Effect

Possible explanations for the ADE were developed short after the publication to address the phenomenon. Simonson (1989) proposed the idea of “added value”, where consumers’ or decision makers’ interest for an item might increase not just because of the dimensions and attributes itself, but also to external factors, in this case the presence of decoy. Simonson found that when subjects were told to later explain their choices, the extent of the ADE would also be higher. Here the dominated alternative would serve as a “justification” for choosing the dominating option. Also, note that the choice set itself influences the decision-making process.

Later, Simonson and Tversky (1992) proposed a broader model that could describe consumer choices where context matters. In their model, two principles were accounted, tradeoff contrast and extremeness aversion. The first principle is the idea that there is a dimension weighting when decision makers encounter choice sets. Following, Simonson and Tversky (1992) example, consider a hypothetical situation where a consumer has to decide between a computer “X” with 960k memory, costing $1200 versus another “Y” with 640k memory, costing $1000. Here the choice lays on the consumer’s willingness to pay additional $200 for 320k of extra memory. The hypothesis “predicts that consumers are more
likely to choose X if the choice set includes pair of options for which the cost of additional memory is greater than that implied by the comparison between X and Y" (Simonson and Tversky, 1992). The second principle is the idea that intermediate options between two other clearly distinct alternatives, tends to be preferred due to its marginal difference between both. This way, consumers don’t have to choose between two distant, or “extreme” alternatives. Using this theory, Simonson and Tversky (1992) could develop a model that accounted for ADE.

Another similar framework, “theory of dynamic choice reconstruction”, was suggested by Ariely and Wallsten (1995). This theory incorporates both previous ideas of “added-value”, where the choice set itself influences the decision, and “dimension-weighting”, in which a value of an item depends on its relationship to others. In other to do so, the authors conducted three experiments to test three hypothesis: (i) The preference between two options B1 (target) and B2 (decoy); (ii) The importance of an attribute that will increase when others are similar; (iii) If “there exists a real and intrinsic value change for the items, associated with their relationship to the decoy” (Ariely and Wallsten, 1995). In overall, experiments showed that the decision maker actively looks for simple ways to solve a choice task. It does that by making relationships between items and comparing its dimensions. The presence of a decoy in the choice set alters how dimensions are being weighted and changes how items values are being perceived. As result, the decoy influences how a decision maker chooses.

Ariely and Wallsten’s (1995) proposed explanation for the ADE seems to be the most satisfactory in terms of complexity and capturing more nuances that surrounds the phenomenon. As the focus of this study is not to further investigate other possible theories that could account for the effect, dimension weighting evaluations won’t be made in the present study. Instead, the purpose is to collaborate with the existing literature by giving further understanding in how some variables (brand) might influence the effect.

### 2.1.2. Debate about the robustness of ADE

Recently two studies have questioned the robustness and practical relevance of the ADE for business context. Yang and Lynn (2014) conducted 91 experiments
as attempts to replicate the ADE, using 23 different product classes, such as beers, wines, pizza, beverages and overall consumer goods. From the 91 experiments, 37 were conducted involving only numeric representation of attributes in the choice set and 54 involving qualitative description of the alternatives such as brand name and pictures. The first group of 37 scenarios produced 9 (23.7%) significant ADE, however the second group of 54 scenarios only produced 2 (3.7%) significant effect. Generally, Yang and Lynn (2014) observed that the ADE was more significant where choice dimensions were presented in an abstract numeric form, whereas in a more “realistic”, qualitative and visual representation of products the effect wasn’t promising. The authors to conclude that “promising for practitioners who hope to employ asymmetric decoy tactics as a way to increase market share for a targeted product because verbal descriptions and/or pictorial descriptions of choice options are common in real-world marketing contexts” (Yang and Lynn, 2014). In a similar way, Frederick, Lee and Baskin (2014) found results that led to the same conclusion. From their 38 choice scenarios evaluation, they concluded that the ADE could be diminished when subjects had contact with the choice set, in which depended on self-subjective evaluation (seeing a picture or a product). In overall, both studies suggested that the ADE was an extreme rare phenomenon to find in the real marketplace and that future research should address these issues.

Short after Frederick et al. (2014) and Yang and Lynn (2014) have questioned the practical relevance of ADE, Huber et al. (2014) in a second cowriting made important observations. First, the ADE was a demonstration study to show a violation of important assumptions in rational choice theory. Second, ADE is placed in a broader general discussion about how preferences are constructed and not just revealed. Third, Huber et al. (2014) find themselves in accordance with both studies when it comes to the limitations of the phenomenon and its difficulty to find in real market contexts, suggesting that multi-dimensional complexity and high cost to maintain decoy option in market helps to understand this situation. Fourth, authors argue that their findings in the original work remain robust when same conditions are exactly maintained and that both studies should have paid more attention with key factors such as recruitment process and subject’s perceptions. Finally, although ADE having little impact in real market
context, further research should be maintained and developed because it shows the importance of context in choice decisions, “that is, to show that how an offering stacks up against its competition can be more important that its inherent quality” (Huber et al, 2014). In a similar way, Simonson (2014) commented on both studies stating that there were many choice situations where subjects were not able to identify which was the decoy alternative.

Having this debate in mind, Lichters, Sarstedt and Vogt (2015) made an extensive literature review about ADE publications in the top 30 marketing journals from the past 40 years. From their results authors found that many studies tend to over generalize the concept in other contexts without being careful or neglecting some important background factors. These factors accounted as suggestion guidelines for further context effect studies, such as ADE. Some of these factors includes: “(i) introducing real economic consequences; (ii) using real items or realistic attributes and attribute levels description; (iii) align the products/ services with the target audience in the real-world application; (iv) allow for sensory pre-choice product evaluation; (v) include no-buy option; (vi) control for subjects` perception and (vii) avoiding learning process in repeated choices” (Lichters et al., 2015).

The present study incorporated some of Lichters et al. (2015) suggestions: (ii), (iii), (v) and (vii).

2.1.3. Similar studies

Kim, Ryu and Park (2006) initially studied the effects of brand name on the decoy effect. The authors conducted a field experiment with three hundred and twenty married females and asked them to choose between different refrigerators. In the choice set without of a decoy, the stimuli were presented through two competing products from different brands at different price points and refrigerating capability. In the three-option choice set the same products were kept but with an addition of a decoy from the same brand as the target product. Results showed that real brand names eliminated the decoy effect with participants that had a high degree of knowledge about the brand but had no effect on participants that had a low knowledge. According to the authors, the results were consistent with a category-based processing view of brand name effects. Essentially, the brand acts more
than just a mere attribute when consumers make a decision. Instead, “it can serve as a distinctive cue activating a brand schema or category from memory” (Kim et al., 2006). Despite the findings, formal measurements about the category-based view were not provided nor estimated, therefore leaving a gap to be addressed for future research.

Another study conducted by Monk et al. (2016) examined the existence of ADE in alcohol and water purchase decision. Participants were asked to choose among options in which a “cost-benefit” relation between price and quantity was presented in both decoy and non-decoy situation. The fifty-two students received the stimuli in a library and a pub context. The results showed that participants were more likely to present a decoy effect in the pub context with both water and alcoholic drinks. In contrast, participants in the library context did not present such effect. Monk et al. (2016) concluded that the same product may be perceived differently in different contexts, making subjects more or less likely to the ADE.

The present study did not precisely fill this gap presented by Kim et al. (2006). However, a measure for brand preference was used. Similarly, taking into account the findings of Monk et al. (2016), this study gave respondents a hypothetical pub context and asked them to make a decision.

2.2. Research question and goals

The present study attempts to explore how subjective preferences might influence the Decoy Effect. More specifically, this study aims to better understand the influence that a product brand combined with a decoy option have on the consumer decision making.

It is worth to note that Huber et al. (2014) highlighted that complex attribute preferences such as brand may not generate ADE due to its subjective nature. However, authors did not mention if the phenomenon could be seen, case those non-numerical attributes were in some degree discriminatory in the consumer’s preferences. Essentially, the question asked is: “if consumers have a brand consumption preference order, can brand be used as a dimension to insert an irrelevant option in the choice set in a way capable of generating the ADE?”.

Figure 1 provides a visual representation of the intended study relation. The left box contains the “irrelevant” or “decoy option” (X), connected by an arrow that is
pointing to the right box, which contains “consumer choice” (Y), therefore characterizing the Asymmetric Dominance Effect. The top box, contains “brand” (W) that acts as a moderator of the relation between X and Y. Thus, this study aims to investigate what is the effect that a “decoy option” (X) has on “consumer choice”, for different consumer “brand preference” (W).

Figure 3: Visual Representation of study relation

Source: Own elaboration

3. Brand Preference Measure

In order to measure an individual’s preference for a specific brand, this study used the concept of “customer-based brand equity” (CBBE). The rationale behind this choice is that the measure considers not only a single concept of brand measurement such as loyalty or awareness. Instead, it incorporates a broader set of metrics into one single scale, therefore providing a holistic view. In this section, CBBE will be reviewed by presenting the core ideas behind the construction of the metric.

3.1. Definition of Customer Based Brand Equity

Customer-based brand equity was first introduced by Keller (1993, 2016) as an attempt to bring more clarity and advances in the evaluation of brand equity. The core idea behind this concept is to ground the value of a brand based on the perception and behavior that consumers display towards it. CBBE is essentially “the differential effect of brand knowledge on consumer response to the marketing of the brand” (Keller, 1993). That is, CBBE measures the incremental effect that the image and knowledge of a brand has on the consumer response towards a product, which can be observed by how they react in terms of choices
attitudes and others. Figure 4 (Keller, 1993), shows the conceptual framework of CBBE. Notice that brand knowledge is decomposed into brand awareness, which measure level of brand recall and brand recognition, and brand image (types, favorability, strength and uniqueness of brand association). In addition, types of brand association can be break down into perceived attributes, benefits (functional, experimental and symbolic) and attitudes of consumers. This broad set of concepts, all combined into a single one, makes CBBE a complete measurement of brand equity.

In a similar way, Aaker (1996) also developed a conceptual framework about CBBE. The main idea remains the same, however it was expanded to incorporate other important concepts regarding consumer behavior and market context. For instance, in figure 5 we can see that loyalty is added and conceptualized by a combination of consumers’ willingness to pay a premium price for a product of a specific brand and the level of satisfaction of customers. In addition, Aaker’s (1996) framework start incorporating market elements, such as market-share (comparison with competitors). Therefore, displaying even more elements into CBBE definition.

![Figure 4: Conceptual CBBE framework developed by Keller (1993)](source: Keller (1993))
Both frameworks incorporate the same idea that brand equity can be measured by multidimension of customer perception towards the brand. A brand builds its value, or equity by satisfying the needs of consumers. If consumers have a positive view of the brand, then its brand equity is higher.

3.2. Customer Based Brand Equity scale and measurement

Despite providing a conceptual framework for consumer-based brand equity, both Keller (1993) and Aaker (1996) did not provide a scale to measure it. This point was initially addressed by some scholars, such as: Kamakura and Russel (1993), which provided a direct measure based on the perception of quality and the intangible value of a brand in the powder detergent category. Park and Srinivasan (1994), proposed to measure CBBE as the difference between the level of one specific consumer brand preference and its objective measure of product attribute by studying toothpaste and mouthwash products. However, Yoo and Donthu (2001) were the first to measure CBBE in a multidimensional indirect setting.

Their study was conducted with 1530 participants from three different cultural backgrounds, Americans, Koreans and American Koreans. A total 12 brands (distributed in three product categories, athletic shoes, film for cameras and color television set) were used to measure CBBE. The authors used a psychometric test to create and validate a scale that could be used to measure CBBE. It is important to highlight that CBBE is a construct (latent variable) and cannot be directly measured. It is only possible to estimate it by measuring other observable
variables. Figure 6 represents an overview of a CBBE scale proposed by Yoo and Donthu (2001). Ellipsis represents non-observable variables (latent variables) or the constructs and the rectangles, the observed metric. Notice that CBBE is defined by a combination of brand loyalty, brand awareness and perceived quality. And each of these constructs are measured by a series of questions. For example, brand loyalty is constructed by a combination of three questions. Each question captures a different aspect of the brand loyalty construct. All questions were measured in a 5-point Likert scale.

In order to generate the final indexes, the authors used confirmatory factor analysis (CFA) and structural equation modeling (SEM). The idea is that through both techniques, the initial number of variables is reduced into factors and these factors are reduced into CBBE. The study found that the proposed brand equity scale was “reliable, valid, parsimonious, and generalizable across several cultures and product categories” (Yoo and Donthu, 2001).

Similarly, Washburn and Plank (2002) tested the robustness of Yoo and Donthu (2001) by studying paper towel brands. The conclusion was that the questionnaire applied was a good start for multidimensional CBBE scale measurement, but further research was still necessary.
A large variety of studies came later to expand those initial measurements. Some studies such as Netemeyer et al. (2004) included consumer’s willingness to pay a premium as part of CBBE construct. Others had a foundation in more “subjective” perception. Christodoulides et al. (2006) studied online brands and included emotional connection and fulfillment into the construct of CBBE.

The following section will be reviewing studies that are closer to the context of the present studies.

### 3.3. CBBE review in the present study context

Porral, Bourgault and Dopico (2013), studied CBBE in the Southern European beer brewing market. Authors used the proposed conceptual framework by Aaker (1996) and analyzed the impact of CBBE on purchase intention and willingness to pay a premium price. Figure 7 provides an overview on their study. Survey questions are incorporated into constructs and relationships between constructs are later validated. The study suggests that beer brand image is the most important factor for beer brand equity. Brand awareness, perceived quality and loyalty also had a positive relation. In addition, authors found that the constructed measure could help explain consumer purchase intention and willingness to pay a premium price for a specific brand’s product.

![CBBE measurement by Porral et al. (2013)](image)

*Figure 7: CBBE measurement by Porral et al. (2013)*  
*Source: Porral et al. (2013)*

In a similarly way, Vinh (2017) measured CBBE using Heineken in Vietnam as a study case. The study was conducted with 322 consumers also using a
questionnaire to collect data and SEM to validate CBBE construct. The results found were aligned with Porral et al. (2013) in which all four factors (perceived quality, awareness, associations and loyalty) have a positive and direct effect on CBBE.

Porto (2018, 2019) developed a CBBE scale with Brazilian consumers measuring the difference in brand performance among brands in the same category. In the first study 39 brands were evaluated, distributed in two product categories (videogame consoles and isotonic beverages) and five services (taxis, fast-food restaurants, credit cards, cable TV and mobile phone operator). The model was constructed based on six metrics (awareness, perceived quality, loyalty, association, exclusiveness and willingness to pay a price premium), described in figure 8.

![Figure 8: CBBE measurement by Porto (2018)](source: Porto (2018))

In the second study, Porto (2019), revalidated the metric with a few changes and evaluating 61 international and national brands of products and services. The results indicated that overall brands had a high dispersion in awareness and perceived quality and that foreign brands have a higher brand value than national ones.

The present study will use Porto’s (2018, 2019) metric for two reasons. First is that the metric was tested within Brazilian consumers, therefore avoids possible translation and semantic deviation on the metric. Second, the proposed framework incorporates the key important metrics to evaluate beer brands (brand image and perceived quality, for example), therefore being in accordance with Porral et al. (2013) and Vinh (2017). Further details about the measure will be provided in the methodology chapter.
4. **Methodological Approach**

This study aims to better understand the effect of brand preference on the *Asymmetric Dominance Effect*. In this chapter all methodological approach will be explained in order to investigate the phenomenon.

4.1. **Survey Experiment**

Survey experiments have been widely used in social sciences to study behavior and understand opinions. Part of this popularity is due to major advantages such as simplicity to implement them (Gaines, Kuklinski and Quirk, 2006). The convenience of experimental surveys has drawn some attention regarding its validity. First, experimental surveys might not be representative to the entire population, therefore it is hard to make populational inferences. Second, the method seems to not precisely meet some fundamentals of experiments such as isolating the effects on variables in order to find a causal relationship. Gaines et al. (2006) identified generalization issues in making causal inference in political science field. Similarly, Barabas and Jerit (2010) studied the effects of media news on public opinion about Medicare and immigration and found differences in responses between survey experiments and experiments. Despite both studies finding those differences, they do not completely invalid findings from survey experiments. On the contrary, they recognize the importance of this method in the advancement of research. The only cautious point is to not over generalize conclusions and keep in mind the limitations of this method.

More recently, Hainmueller, Hangartner and Yamamoto (2014) studied the effects of immigrant's attributes on support of naturalization from Swiss citizens. Results showed that there were similarities between survey experiments and real-world behavior. This finding might, as suggested by Hainmueller et al. (2014) might be due to the actual referendum process being replicable with survey or experiment setting. On the same line, Mullinix et al. (2016) studied framing effects on information availability and policy support. Authors have found similar results between convenience, populational-based and Amazon Mechanical Turk samples. The result might be due to the “strong nature” of framing effects.
In overall, survey experiments are useful to establish initial findings of a phenomenon but is important to keep in mind the limitations of general and causal inference.

4.2. Sample and Data Collection
The target group select was university students (most from a major business school in São Paulo) and young professionals from the age of 18 to 30 years old with a regular beer consumption (at least once per month).

Data was collected through an online post in a FGV’s student groups with access link to the survey and distributed via electronic messages. The link was accessible during March 6th and March 9th of 2020.

4.3. Product Selection
This study uses three beer brands (Heineken, Budweiser and Skol) as stimuli for respondents. The choice of beer category is due to the high consumption of beer within the Brazilian culture. Brands were chosen according to the popularity among the target group. Heineken and Budweiser are well known international brands and Skol is a national brand. All three brands are accessible in marketplaces and easy to find.

4.4. The Survey Design
The survey was built using Qualtrics and it is divided into 5 main sections as shown in figure 9. Each section will be detailed bellow.

![Figure 9: Survey design blocs](Image)
4.4.1. General Information
In the first bloc, respondents were asked to provide basic demographic information such as name (optional), age, gender, profession (student or young professional) and whether they consume beer at least once a month or not.

4.4.2. Brand Preference Ranking
In this bloc, respondents were asked to rank the three beer brands (Heineken, Budweiser and Skol) according to their preference, assuming that all had the same price point. By considering the same price point, it is possible to minimize the chance of respondents thinking about a “cost-benefit” tradeoff and therefore capture only their preference for a product of a specific brand. Figure 10 displays the questions showed to participants. This question was important to create an individualized stimulus for each respondent.

Assume that all 3 brands have the same price point
Please, order all according to your preference
Do not choose the same twice.

From the following beers, what is your (first/ second/ third) option?

Figure 10: Brand preference ranking question
Source: Own elaboration

4.4.3. Brand Preference Measurement
In this bloc, the questions used to measure brand preference will be discussed. As previously mentioned, this study used the CBBE framework proposed by Porto (2018, 2019) with a few adjustments. First the metric of willingness to pay was removed in order to avoid possible impact on the question which asked respondents to make a purchase decision. Second a question evaluating
regarding taste and flavor perception was added. This helped to better capture the respondents’ preference for a specific product brand. Figure 11 displays all CBBE question asked to respondents and figure 12 gives an example.

<table>
<thead>
<tr>
<th>Metric</th>
<th>Question</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Awareness</td>
<td>From the list of brands below, evaluate how well each product brand is known</td>
<td>0 (unknown), 1 (barely known), 2 (moderately known), 3 (well known), 4 (extremely well known)</td>
</tr>
<tr>
<td>Associated Image</td>
<td>From the list of brands below, evaluate the associated image of each product brand</td>
<td>0 (very negative), 1 (negative), 2 (neutral), 3 (positive), 4 (very positive)</td>
</tr>
<tr>
<td>Perceived Quality</td>
<td>From the list of brands below, evaluate the quality of each product brand</td>
<td>0 (no quality), 1 (low quality), 2 (moderate quality), 3 (high quality), 4 (extreme quality)</td>
</tr>
<tr>
<td>Loyalty</td>
<td>From the list of brands below, estimate your average purchase frequency of each product brand</td>
<td>0 (zero), 1 (1 or 2 units per month), 2 (3 or 4 units per month), 3 (5 or 6 units per month), 4 (above 6 units per month)</td>
</tr>
<tr>
<td>Exclusivity</td>
<td>From the list of brands below, evaluate how exclusive each product brand is made unique or personalized way.</td>
<td>0 (not all exclusive), 1 (hardly exclusive), 2 (moderately exclusive), 3 (very exclusive), 4 (extremely exclusive)</td>
</tr>
</tbody>
</table>
Taste | From the list of brands below, evaluate the taste and flavor of each product brand | 0 (bad taste), 1 (little pleasant taste), 2 (moderate taste), 3 (good taste), 4 (very good taste)

<table>
<thead>
<tr>
<th>Brand</th>
<th>I’m unable to evaluate this brand</th>
<th>0 (no quality)</th>
<th>1 (low quality)</th>
<th>2 (moderate quality)</th>
<th>3 (high quality)</th>
<th>4 (extreme quality)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skol</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Heineken</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>Budweiser</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>

**Figure 11: CBBE question**

*Source: Adapted from Porto (2018, 2019)*

**Figure 12: CBBE question example**

*Source: Adapted from Porto (2018, 2019)*

### 4.4.4. Random Groups and Stimuli

In this bloc, respondents were randomly assigned into two groups using Qualtrics tool. Respondents have the same probability to respond either questionnaire 1 (control) or 2 (treatment) and can only answer one.

In both cases, respondents were asked to consider a hypothetical situation in which they are in a pub with friends, receive a menu with some beer options and need to make a purchase decision.

In order to better illustrate, consider a scenario where the respondents ranked product beers in the following order: Heineken (first), Budweiser (second) and Skol (third).

The first group (control) received a choice set with two options in which the first product corresponded to the first option in the ranking question and the second option corresponded to the second preferred product brand. The most preferred
one was set at a higher price of R$5.00 (five reais, Brazilian currency), whereas
the second preferred was set at a lower price of R$4.00. With this setting, there
was no clear answer for respondents. It is almost mandatory that respondents
make a mental tradeoff relation of getting their preferred beer among the options
but at a higher price or a second preferred beer at a more accessible price. Figure
13 shows the stimuli presented for this group. Notice that this group represents
the situation without decoy.

![Figure 13: Absence of Decoy Stimuli](image)

Source: Own elaboration

The second group (treatment) received a similar choice set but with the addition
of a third option. This beer represented the least preferred beer, answered in the
ranking preferences question. This option is the decoy because it is worse in the
brand preference dimension and set at the same price point, therefore making
the second preferred option more appealing for the respondent. Figure 14
displays the stimuli presented to this group.

![Figure 14: Presence of Decoy Stimuli](image)

Source: Own elaboration
Figure 15 shows a graphical representation of the above choice set. In the example, Heineken (competitor) is the most preferred brand and it is set at a higher price. Budweiser (target) is the second option at a lower price. Skol is the least preferred option with the same price point as Budweiser and it is used as a decoy to shift the respondent’s attention from Heineken to Budweiser.

![Graphical representation of decoy choice set](source: Own elaboration)

**4.4.5. Attractiveness of Options**

In the end of the survey, respondents were asked to evaluate how attractive the previous options were from 0 to 10. This response will be later used to compare the difference in perception between both groups as a measure of decoy effect. Kim et al. (2006) and Frederick et al. used a similar approach in one of their experiments.

**5. Analysis and Results**

This section will discuss the entire data analysis process to evaluate whether the asymmetric dominance effect is observable or not. The first bloc discusses the criteria used to valid a response. The second bloc discusses CBBE consolidated metric. The third bloc validates the profile similarity between control and treatment group. The fourth bloc tests the decoy effect. Finally, the fifth bloc tests if the brand preference can influence the choice of the respondent.
5.1. Data cleaning
A total of 93 responses were collected through the survey. In figure 16, we can see that from those respondents, 4 were above 30 years old, therefore out of the target group’s age range. From the remaining respondents, 3 did not meet the minimum amount of beer consumption (at least 1 unit per month). Finally, the study excluded 7 respondents that could not value at least one brand in any of the asked attributes. These respondents were excluded from analysis in order to evaluate only the sample that have a personal opinion about the brand itself. In the end, a total of 79 responses were valid.

![Figure 16: Data cleaning criteria](Source: Own elaboration)

5.2. CBBE metric consolidation
This study uses the CBBE concept to measure the preference that an individual has towards a specific brand and create a choice set to test the ADE. As the method proposed by Porto (2018, 2019) was validated in two occasions, this study uses the same metric but with some adaptations (previously discussed). Since the focus is not to revalidate the CBBE construct, confirmatory factor analysis and structural equation modeling won’t be discussed.

The final CBBE score was calculated by taking the average of all observed variables. The metric was useful to identify the overall perception of respondents on Skol, Heineken and Budweiser. From table 1 we can see the paired-t test for
means comparison results of the entire sample. Results showed that there is a statistical difference in CBBE score between Heineken versus Skol and Budweiser versus Skol but not between Heineken versus Budweiser. This suggests that that Heineken and Budweiser have higher and similar brand perceptions and Skol a lower and different one.

<table>
<thead>
<tr>
<th>Description</th>
<th>Paired t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand 1</td>
<td>Brand 2</td>
</tr>
<tr>
<td>Test 1</td>
<td>Skol</td>
</tr>
<tr>
<td>Test 2</td>
<td>Budweiser</td>
</tr>
<tr>
<td>Test 3</td>
<td>Heineken</td>
</tr>
</tbody>
</table>

*Table 1: Paired-t test for CBBE brands*
*Source: Own elaboration*

In a similar way and more important to the context of this study was to identify if there was a consistency between ranking options and CBBE score scale, regardless of the brand. In table 2 we can see that this relation is consistent. The most preferred beer presented a higher preference level and the decoy (third option) was the least preferred. All results were statistically significant.

<table>
<thead>
<tr>
<th>Description</th>
<th>Paired t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rank Item 1</td>
<td>Rank Item 2</td>
</tr>
<tr>
<td>Test 1</td>
<td>First option</td>
</tr>
<tr>
<td>Test 2</td>
<td>Second option</td>
</tr>
<tr>
<td>Test 3</td>
<td>Third option</td>
</tr>
</tbody>
</table>

*Table 2: Paired-t test for CBBE ranking preference*
*Source: Own elaboration*

Note that this consistency was important to build the choice set for the respondent, so a dominance relation exists. In figure 17 it is possible to see the overall grade choice set by preference on the group average.
5.3. Control and Treatment, group validation

Before proceeding with the analysis, it was important to certify that both samples had the same overall perception about the brands. A series of two sample t-test were performed to validate this concern.

Table 3 summarizes all performed two-sample t-tests. It is possible to see that there is no statistical significance between control (absence of decoy) and treatment (presence of decoy) in any of the CBBE measurement by brand. The same goes for the preference ranking CBBE gradings.

Table 3: CBBE between control and treatment

Source: Own elaboration

5.4. Decoy Effect Analysis

In order to analyze the magnitude of the decoy effect, three different tests were performed. Only one of the tests resulted in a statistically significant decoy effect.
5.4.1. Deal attraction level

The first test was a two-sample t-test, testing the mean difference in the “level of attractiveness of the deal” (Kim et al., 2006). The idea here was to identify if there was a difference in how respondents perceived the target offer with the presence of a decoy option. In table 4 we can observe that the treatment group had higher perceived deal attraction level than the control group. The result was statistically significant and suggests a presence of decoy effect.

Table 4: Deal attraction level result

<table>
<thead>
<tr>
<th>Deal Attraction level</th>
<th>Absence of Decoy</th>
<th>Presence of Decoy</th>
<th>Two-sample t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>µ</td>
<td>σ</td>
</tr>
<tr>
<td>Test 1 Targeted Choice</td>
<td>42</td>
<td>5.43</td>
<td>3.01</td>
</tr>
</tbody>
</table>

Source: Own elaboration

5.4.2. Chi square

Before running the chi square test, it was necessary to make an adjustment. In table 5 we can see the original responses by group. Notice that in the treatment group there were 6 respondents that chose the decoy option, in other words, an inconsistent choice. The decoy option should never (or close to never) be chosen. This might be due to respondents not paying attention in the response.

Table 5: Summarized choices results

<table>
<thead>
<tr>
<th>Groups</th>
<th>Competitor</th>
<th>Target</th>
<th>Decoy</th>
<th>Not Buy</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absence of Decoy</td>
<td>25</td>
<td>15</td>
<td>0</td>
<td>2</td>
<td>42</td>
</tr>
<tr>
<td>Presence of Decoy</td>
<td>13</td>
<td>18</td>
<td>6</td>
<td>0</td>
<td>37</td>
</tr>
<tr>
<td>Total</td>
<td>38</td>
<td>33</td>
<td>6</td>
<td>2</td>
<td>79</td>
</tr>
</tbody>
</table>

Source: Own elaboration

Following Frederick et al. (2014) adjustment, those 6 respondents were redistributed between half competitor and half target. Table 6 displays the final table with the adjustment.
Table 6: Adjusted summarized choice results
Source: Own elaboration

With the final table a chi square test performed was performed. The result was not statistically significant at 5% (two degrees of freedom and $\chi^2 = 4.68$, significant at 10%). Therefore, suggesting that decoy effect was not observable.

5.4.3. Logistic Regression

In a similar way, before running the logistic regression it was necessary to adjust the dataset. The 6 respondents that chose the decoy option were excluded from the model due to the choice inconsistency. The target option was set as the dependent variable, where 1 represented the targeted choice and 0 non targeted choice. The group flag was used as independent variable, where 0 represents the control group and 1 the treatment group. Using this approach, it was possible to estimate the overall impact of the decoy on respondent’s choice.

The model suggested that the decoy was not effective in increasing the target option share. Table 7 shows the logistic regression output. Notice that the p-value is 0.0602 therefore not statistically significant at 5% level.

Table 7: Logistic regression, control versus treatment
Source: Own elaboration

5.5. CBBE and Decoy Effect

Despite of the decoy effect not being observed in 2 out of 3 analysis methods, this section discusses whether difference levels of brand preference result in choices or not.
First, a logistic regression model was created only using the treatment group, where the dependent variable represented the choice of targeted option and independent variables are the CBBE measurements. Table 8 summarizes the model’s output. Notice that CBBE didn’t have any significant (5%) effect on targeted option choice.

| Coefficients            | Estimate | Std. Error | z-value | Pr(>|z|) |
|-------------------------|----------|------------|---------|---------|
| Intercept               | -2.236   | 3.386      | -0.660  | 0.509   |
| First option CBBE score | -1.653   | 1.127      | -1.467  | 0.142   |
| Second option CBBE score| 2.087    | 1.116      | 1.870   | 0.062   |
| Third option CBBE score | 1.048    | 0.755      | 1.388   | 0.165   |

Table 8: Logistic regression, treatment group model with CBBE metrics
Source: Own elaboration

Second, a similar regression model was created using the entire sample. The model is a combination of both previous models. With this model, decoy effect was still no observable (p-value=0.313), however CBBE measure for the first option and second option were both significant (p-value = 0.004 and p-value = 0.003). A marginal increase in the CBBE measure of the first preferred option reduces the log odds ratio of choosing the target by -2.072, whereas the marginal increase in CBBE for the second preferred option increases the log odds ratio by 2.258. This result seems to be intuitive given that respondents would naturally choose the target option if the target itself is more desirable. On the contrary, if the competitor option is more attractive, respondents would choose the competitor’s option. Table 9 summarizes the model result

| Coefficients                  | Estimate | Std. Error | z-value | Pr(>|z|) |
|-------------------------------|----------|------------|---------|---------|
| Intercept                     | -1.446   | 2.300      | -0.628  | 0.530   |
| Control (0) vs Treatment (1)   | 0.559    | 0.553      | 1.010   | 0.313   |
| First option CBBE score       | -2.072   | 0.728      | -2.846  | 0.004   |
| Second option CBBE score      | 2.258    | 0.771      | 2.929   | 0.003   |
| Third option CBBE score       | 0.774    | 0.541      | 1.432   | 0.152   |

Table 9: Logistic regression, control versus treatment with CBBE metric
Source: Own elaboration
6. Limitations
Although the results suggest that there is no observable decoy effect, it is important to discuss some limitations of the present study.

First, there is an intrinsic generalizability issue of survey experiments. Despite the increasing use of convenience sample in research, especially in social sciences, the results might not be accurately representative to a population and do not precisely replicate an experimental condition. However, even with these limitations, it is still useful, serving as a baseline for further research.

Second, structural equation modeling (SEM) and confirmatory factor analysis (CFA) were not used to validate if the consumer-based brand equity metric was consistent to measure the construct in the study. Further procedures would be necessary. Despite this gap, the resulting metric was useful to estimate the preference for brands of each respondent.

Third, only few brands of one specific category were selected in order to conduct the study. The effect may vary according to other segments within the same category (for instance lower end beers and high premium artisanal beers) or for different types of products or even services (cheaper or more expensive categories).

Fourth, the study only simulated a context in which consumers buy a single unit of a product. Good deals or bargains regarding a better cost benefit in terms of quantity was not tested and it might also influence the effect. In a similar way, the study did not consider the situation in which a consumer is deciding between products of the same brand at different price levels. For example, a consumer might decide which subscription plan of mobile service to adopt and receive a certain choice set containing a decoy. This situation seems to be more susceptible to the asymmetric dominance effect given that consumers are already actively willing to pay for a service and is looking for the “best deal”.

7. Managerial implications
The present study suggests that an insertion of a decoy in a choice set does not significantly change consumer preferences for a specific targeted product.
Instead, the preference that a consumer has towards a brand seems to be much more relevant in a purchase decision. This result might lead to implications in how managers choose to focus attention and make product related decisions. In a competing brand context, companies should focus more in increasing the perceived value of their brands to attract more buyers. As opposed to build a choice set, using competing brands as decoys. Other aspects of the choice architecture might be more important, for instance, position in the shelf or promotion materials in the marketplace. Therefore, deserving more attention.

8. Conclusion

The asymmetric dominance effect is a phenomenon that has been widely studied and more recently debated. Frederick et al (2014) and Yang and Lynn (2014) studies suggests that the decoy effect was a phenomenon that could be rarely observed in real market situations. Some reasons for this weakened observation are due to the factors that includes: almost not possible to observe a clear choice set structure, sometimes decision makers cannot identify the decoy, using qualitative stimuli (ie. images and brands) that rely on subjective interpretation and others.

The findings on the present study are similar to Frederick et al. and Yang and Lynn (2014) conclusions. When introducing real brand names and logos, the decoy effect is weakened and practically not observable. Three different methods were used to reach that conclusion. First, a two-sample t-test, measuring the difference in “deal attraction level” between control and treatment groups. Despite the higher perception of “a good deal” of the target choice in the treatment group, the result is not a precisely a choice task. I addition, the other two tests, chi-square and logistic regression, evaluated the choice itself and did not find statistically significant results. The decoy was not effective at 5% significance level (only 10%).

The consumer-based brand equity concept (Keller, 1993, 2016 and Aaker, 1996) was used to measure a respondent’s brand preference. Specifically, the study used Porto’s (2018, 2019) proposed framework. A logistic regression was used to measure whether brand preference could be a good predictor for choosing the
targeted option within the treatment group (presence of decoy) or not. Results showed that no statistically significant relation was found. Despite this finding, a second model was developed, using the entire sample to test if brand preference could help predict overall choice. CBBE score for the most preferred option and CBBE score for the second most preferred brand were both statistically significant predictor for the targeted choice (second option). This result was quite intuitive, as previously explained.

In overall, it seems that respondents have specific preferences for brands and don’t change them regardless of the presence or absence of a decoy.

Despite the findings of this study, it is important to keep in mind the limitations and possible bias of survey experiments. In addition, this study did not validate the measure proposed by Porto (2018, 2019), although it produced statistically significant difference of scores for all three ranked options. The purpose of this study was to give an overall view of the decoy effect and measurements of subjective qualitative perceptions such as brand preference. Further studies can expand the scope of the present study and test out with difference product categories or brand preference metrics.
References:


