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| RESEARCH ARTICLE

An Analysis on the Impact of Choice Overload to Consumer Decision Paralysis

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| ABSTRACT
As consumers make purchase decisions, they often encounter a large number of options from which they base their choices. Traditional theories such as the Rational Choice theory imply that the more options involved, the more beneficial for the consumer. However, recent studies suggest otherwise. One such study is that of Choice Overload, a phenomenon in which individuals encounter difficulty when they are presented with too many options. Some studies show that Choice Overload causes paralysis in analysis in different industries. Decision Paralysis is the abandonment of making a decision due to overanalysis. The paper focused on proving if Decision Paralysis would take place when there is Choice Overload by analyzing whether the different antecedents of Choice Overload, namely Decision Task Difficulty, Choice Set Complexity, Preference Uncertainty, Decision Goal, and Asymmetric Information, would be affected by the number of options available. A survey was used to measure the different variables, and the data were analyzed through logistic regression and ordinary least squares regression. The results of this study indicate that Decision Task Difficulty and Asymmetric Information directly impact Choice Overload, which then contributes to the high probability of the occurrence of Decision Paralysis. It is difficult for consumers to choose when more options are offered; thus, abandoning their purchasing decision.

| KEYWORDS

Choice Overload, Decision Paralysis, Decision Task Difficulty, Choice Set Complexity, Preference Uncertainty, Decision Goal, Asymmetric Information

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1. Introduction

People are always surrounded by options. According to Cornell University (2018) researchers, an average adult makes about 35,000 choices every day. The substantial amount of choices made by an average individual has gained interest from different researchers. Numerous journals and peer-reviewed papers have discussed whether having many options is beneficial or more troubling for consumers. Deciding on a vast majority of options takes a toll on the cognitive processing of people (Grandi & Cardinali, 2020; Chernev et al., 2014; Mcshane & Böckenholt, 2017). Even if choices are less consequential than others, they always involve large choice sets, which contradicts the idea of traditional economic theories that the more options, the better (Besedes et al., 2014).

The Rational Choice theory suggests that the more options are offered to people, the decision-maker is better off because they can effectively rank the options based on their preferences (Gerasimou & Papi, 2018). Although this theory is commonly used in Economic literature, recent studies suggest a different take on consumer choice and decision-making altogether. When people are confronted with a large set or an excessive amount of options, consumers may be overwhelmed, and some may choose to select the status quo or the first few options they saw (Malone & Lusk, 2017). The phenomenon that when a consumer is faced with many options resulting in confusion because of the complexity of options, he or she is faced with has come to be known as *Choice Overload* (Gerasimou & Papi, 2018). Due to the limited cognitive ability of a person, the mere copious amount of options tends to be difficult to process, which leads them to pick what they are familiar with (Le Lec et al., 2017). An overload of options can cause an effect called the *paradox of choice*, which explains that the more options there are, the less beneficial it is for the

individual and the *paralysis effect* wherein the consumers choose not to pick from the array of options as they tend to not look at all of the options when evaluating for the best deal (Alvarez et al., 2014).

According to Anisha Patel (2014), "choice paralysis is the notion that too many options can paralyze a consumer and make them more prone to not purchasing anything at all. The term Decision Paralysis or what can be called "paralysis of analysis" attributes to the overthinking or overanalyzing of a particular circumstance whereas an action or a decision is never completely taken and, therefore, results in a paralyzed outcome. With the existence of excessively detailed options, a decision can be looked upon as over-complicated. Thus, whenever a major conflict or deviation emerges, the choice is never made instead of trying something and creating a change.

There is a possibility that an optimal or "perfect" solution is pursued by an individual, and the presence of fear of making any decision can prompt erroneous results - an individual who constantly seeks a better solution. This condition depicts the opportunity cost of Decision Paralysis exceeding the benefits that could be acquired through acting out some decision, or an informal or non-deterministic situation where the decision-making process overwhelms itself, resulting in the prevention of a decision when there is the sheer quantity of analysis (Kurien et al., 2014).

A research study conducted by the Columbia University Medical Center (2014) found that the accuracy of the decision making can be enhanced through the process of postponing the onset of the decision making by a bare fraction of a second; hence, a few milliseconds of pausing can alter the decision's results. According to Jack Grinband, 2014 as cited in Sturt and Nordstorm (2015), "postponing the onset of the decision process by as little as 50 to 100 milliseconds enables the brain to focus attention on the most relevant information and block out irrelevant distractors." Decision Paralysis often leads individuals not to accomplish or delay an action. It has been said that procrastination prevents individuals from making decisions. When an individual is faced with making decisions between particular actions, individuals do not know which one to begin first and tend to do other things instead; therefore, resulting in the individuals not doing either (Ludwig, 2018). Malone and Lusk (2017) stated that too much information could deter a consumer from making a choice. The researchers considered Asymmetric Information to be a factor in Choice Overload leading to Decision Paralysis.

Asymmetric Information exists in a transaction wherein one participant has the advantage to obtain more valuable information than the other (Khatali, 2020). According to Bar-gill & Board (2012), producers are assumed to have superior information in the matter of product attributes. However, consumers have better information with regards to product use since it is one of the cores of their preferences. In order to minimize Asymmetric Information, there should be effective communication between consumers and producers by using beneficial marketing strategies. By gathering and exchanging information, the participants in the market can expand each other's knowledge regarding goods and services (Nestorowicz, 2016).

A number of advertisements hold little to no information, yet there is also high-cost advertising that indicates the price and quality of the product (Ismagilova et al., 2014). Firms in developing countries lack a good reputation for promoting products (Bai, 2018). Furthermore, the existence of Asymmetric Information can be considered as a source of market failure and market opportunities. It hurts effectively allocating resources on the side of the consumers but also has a positive impact as it gives opportunities to entrepreneurs (Barbaroux, 2014).

The paper aimed to prove if Decision Paralysis would take place when there is Choice Overload by analyzing whether the different antecedents of Choice Overload, namely Decision Task Difficulty, Choice Set Complexity, Preference Uncertainty, Decision Goal, and Asymmetric Information, would be affected by the number of options. The researchers attained the objective through (1) collecting data on consumers' product awareness; (2) conducting secondary content analysis as a supplement for consumer's product awareness, (3) obtaining qualitative data from producers to determine their information intended as a supplement to datasets to be collected; (4) comparing consumer awareness and perception of the product intention in selling the same product; (5) designing and conducting a survey simulating marketplace circumstances.

The study likewise focused on four main factors in defining Choice Overload, specifically Decision task Difficulty, Choice Set Complexity, Preference Uncertainty, and Decision Goal derived from the meta-analysis of Chernev et al. The meta-analysis included 99 observations derived from 53 studies published in 21 articles across 7202 participants. Additionally, the paper included Asymmetric Information in defining Choice Overload. The locale of the study was limited to the Philippines. The paper concentrated on an essential item for the reason that these are the products purchased and used by consumers on a daily basis. Following this, the researchers chose bread as it was stated in the Family Income and Expenditure Survey (2018) by the Philippines Statistics Office to have the largest percentage under the food expenditure consumed at home, having an 11% contribution to the expenses of all income classes. The study is only limited to conducting an online survey representing the options offered in a marketplace rather than executing field observations in actual marketplaces as the study is being conducted during the COVID-19 pandemic.

The significance of the study focused on the possibility of providing information to firms and other vital decision-makers regarding actions that can be undertaken in providing options and sufficient information to consumers. As a result, this may lower the cognitive costs of processing information to such consumers. The paper's theoretical contribution is that it included the factor of Asymmetric Information and how it affected Choice Overload, which in turn caused Decision Paralysis.

People are presented with a variety of options on a day-to-day basis, processing every information concerning the available options in order to reach satisfaction. Although, as individuals continue to analyze the accessible data, the existence of Asymmetric Information may arise. This could lead them to overthink as they evaluate options. It could be a source of poor decision-making and could affect the productivity of a person as they experience Decision Paralysis, which exhausts the individual resulting in a deferment or abandonment of making the decision entirely.

2. Literature Review

2.1 Decision Paralysis

Decision Paralysis is the result of cognitive overload and fatigue whenever an individual arrives at a circumstance where he/she has the inability to single out between options. It has been said that individuals cannot evaluate and compare the sheer amount of information they are mostly presented with for the reason that the human brain simply is not constructed to process that sheer information. The need to choose among several options can result in a cognitive burden instead of contentment even if consumers state that they want more options. In connection with this, individuals encounter a difficult time to decide and freeze when they do not have the ways to manage it mentally or weigh the value of the information presented. Additionally, another behavioural principle is loss aversion, wherein it is the idea that individuals are more cautious about severe losses rather than winning. Individuals tend to be troubled about making a bad choice even if they have already managed to overcome their aversion in managing stressful decision-making (Schmidt, 2016).

In the study of Kurien et al. (2014) regarding the application of the paralysis analysis syndrome to consumer behaviour, they analyzed annual sales reports and utilized opinion surveys in their study. They focused on whether people will pick a choice immediately when given a limited amount of options compared to a wide range of options. They concluded that the more options there are, the more consumers buy less and are less satisfied due to raised expectations. They suggested simplifying the information presented to consumers. Patel (2014) utilized linear and quadratic regression to quantify the switching patterns of consumers. They determined the relationship between assortment size and the tendency to switch, wherein they found out that the more options are offered, the more people will abandon their decision.

2.2 Choice Overload

Choice Overload represents the confusion encountered by the consumers as the selections available become complex, which leads to a less motivated and less satisfied decision-maker (Gerasimou & Papi, 2018; Scheibehenne et al., 2010). Researchers look to demonstrate the occurrence of Decision Paralysis by determining the relationship of the number of options to consumer behaviour which is related to the effect of Choice Overload. Its gravity can also be determined through familiarity with the product, size, and information of the options (Le Lec et al., 2016). A field experiment can also be used to collect primary data. Malone and Lusk (2017) used a quasi-experimental design which adds a factor to the consumers' choice. Townsend and Kahn (2013) used experimental design as well. Their study utilized an online grocery store to ascertain the behaviour of the consumers when presented with verbal text and visual image options that have small and large choice sets. In addition, a meta-analysis was used by Chernev et al. (2014). They collected data from published articles reviewed by experts in the field of psychology and marketing. The approach explores and confirms the impact of derived antecedents of Choice Overload. The antecedents that will be mainly used for the study are derived from Chernev et al., which are Decision Task Difficulty, Choice Set Complexity, Preference Uncertainty, and Decision Goal of the consumers.

Some researchers found that the more options are offered, the better consumers' satisfaction. Mittal (2016) stated that consumers have adopted choosing from a vast marketplace. Some are based on heuristics which pertains to information they previously knew, some are based on popularity, reputation, and some take their time to process the information presented. They prefer more options and are satisfied with what they pick. On the other hand, Barry Schwartz (2014), in his executive summary of the Paradox of Choice, explained that having too many options is unfavourable to consumers. It affects the person's psychological and emotional well-being negatively. Previous research has come to support the stand of Schwartz. Individuals who are offered a large choice set choose products that they are more familiar with more frequently than those offered with fewer options (Le Lec et al., 2016). People struggle more to pick with larger choice sets (Alvarez et al., 2014). Giving people fewer options gives more post-satisfaction leading them to spend more on other products (Grandi & Cardinali, 2020). Even in oligopolistic markets, Gerasimou & Papi (2018) found that firms already assume that consumers will be overloaded when given too many options, which leads them to find the optimal trade-off from their goods and services.

2.2.1 Decision Task Difficulty

Decision Task Difficulty includes the number of attributes present in a certain option. The individuals tend to evaluate the given attributes of products such as colour, design, and expiration date/durability and rank these options. Furthermore, it focuses on the presentation of options available for the consumers. It mentioned how presenting these selections to consumers through an organized or random manner also influences Choice Overload.

2.2.2 Choice Set Complexity

Choice Set Complexity can be measured through factors such as the dominance of an option and the attractiveness of options. The availability of the dominant option is presented alongside inferior options, which would more likely result in an individual purchasing the product. Choices with lower quality increase the value of a superior-good to consumers. However, the attractiveness of options depends on having low and high quality. Consumers tend to prefer fewer options yet with the most attractive selection instead of more options that include low and high-quality goods.

2.2.3 Preference Uncertainty

Consumers weigh the pros and cons of a product. Preference Uncertainty can be measured through the individuals' familiarity with the given options and their precise ideal point in a product. Consumers that do not have sufficient knowledge about a product would more likely lead to a deferment in making a decision. On the other hand, having an ideal point within a product category would reduce the complexity of making a choice.

2.2.4 Decision Goal

Decision Goal refers to the manner in which consumers decrease cognitive effort. The researchers measure this through the level of construal. The level of construal shows if individuals have high or low comprehension in understanding the significance of the decision task.

2.2.5 Asymmetric Information

Asymmetric Information refers to a situation wherein one group is well and more informed than the other (Bergh, 2018). During an interaction between firms and consumers in the market, the firms can know the limitations of their advertising campaign in terms of location and the source of consumers' information about their products. This also allows them to understand the shopping behaviour of the purchaser. Through gathered data, the sellers could determine the appropriate price relative to their rivals (Esteves and Cerqueira, 2017). According to Bhargava and Chen (2012), the existence of Asymmetric Information commonly arises in products with complex features. It gives firms the power to control consumers' valuation by offering guarantees of return, product trials, or by showing them advertisements that fit their preferences. Moreover, if prices are included in the advertisements, it improves the selection of the consumers and reduces the production of low-quality goods. These socially responsible marketing strategies should contain details that are not difficult to understand and can be correctly interpreted by a typical consumer. (Ismagilova et al., 2014 & Nestorowicz, 2014). Asymmetric Information has a dual role. It could be a source of market failure and opportunities. It affects the quality of goods and services in the market, disrupts the efficient allocation of resources, and can also be a source of producer surplus. (Barbaroux, 2014).

Moreover, Iyengar and Lepper, 2000 as cited in Guillet et al. (2019), stated that the capacity of the human brain to hold information processing is limited; hence, this may lead to Choice Overload. In other words, the human brain gets overwhelmed with options and becomes overloaded, which may cause the slowing of the decision-making process. In simple terms, Choice Overload is the product of the number of options presented, and information overload is the product of the amount of information presented. "The effect of information overload is often compounded in assortments in which options are poorly organized since the very lack of structure further complicates evaluating the available options" (Chernev, 2011 as cited in Guillet et al., 2019).

Consumers encounter a continuously increasing amount of product options and information. Notably, consumers' unfamiliarity in the product domain can bring difficulties in perceiving differences in choice sets and processing information. When finding the offer that suits the consumers best, consumers need to assess several dissimilar product attributes and multiple levels of those attributes. One technique for categorizing the available choice sets to lessen the difficulty of consumers in the process of decision-making is called "filtering." It has been stated in this previous research that information filtering mechanisms help alleviate burdensome information processing (Langner and Krengel, 2013).

With copious amounts of information adding to the cause of Choice Overload, it also leads to Asymmetric Information. Information overload contributes to informational inefficiency present in financial markets. Inefficiency then brings about the nature of Asymmetric Information. As the relaying of information becomes inefficient, some players in the market become more informed than others (Pernagallo & Torrisi, 2019). Chapman et al. (2019) stated that firms use disclosures to decrease information asymmetry in their study. They found out that spreading out the interval wherein they disclose their information decreases information

overload. When solving Asymmetric Information, there is a possibility that information overload will be reduced. The human mind has a limited capacity to absorb and process information which contributes to the ineffectiveness of information distributed by traders or producers, leading to Asymmetric Information (Południak, 2017).

Providing information leads to consumers engaging in new products and straying away from what they are familiar with. Still, as more information is provided, the cognitive costs to the consumer become more apparent. (Le Lec et al., 2016). Consumers do not consistently know the attributes and use of products they purchase (Nestorowicz, 2016). However, Bhargava (2012) stated that if they are given ample time to become more informed about the product, there would be a movement in the demand curve. But there is also misleading information, increasing the imbalance of knowledge between consumers and producers (Nestorowicz, 2016). Some details about a product are intentionally made difficult to understand by the manufacturers for their advantage (Nestorowicz, 2014) and benefit from this through manipulating prices to make huge profits (Khatali, 2020).

There is a lack of dependable guidelines in developing countries in complying with high-quality products. This can then lead to a deterioration of the firm's reputation (Bai, 2018). A good advertisement with the price and quality of goods and services would help the consumers identify the high-quality and low-quality products in the market. This will improve their selection and eliminate poor-quality products (Ismagilova et al., 2014). According to Palma et al. (2015), consumers might experience difficulty as they become more informed about their options.

In a previous study, Bai (2018) conducted an experiment wherein researchers examined firms' incentives in providing quality and consumers' demand for quality. On the other hand, Palma et al. (2015) collected data through a choice experiment to evaluate consumers' preferences and willingness to pay. A series of surveys and experiments are utilized in the study of Nestorowicz (2016) to identify the additional gained knowledge of people regarding food and nutrition and information shown in food packaging. Barbaroux (2014), Arbi (2017), Bergh et al. (2018), and Moser et al. (2011) analyzed pieces of literature using the lens of knowledge management under Asymmetric Information. Furthermore, Khatali (2020) examined 22 companies included in the New York stock market by collecting annual sales of the firms, return on assets, leverage ratio, and capitalization of each firm at the end of the year. This has 220 observations used for calculating Asymmetric Information.

2.3 Synthesis

The main finding was that providing more options leads to post-choice dissatisfaction. On the other hand, Choice Overload was assessed through field experiments examined through regression analysis. The conclusion, in this case, was that more options would lead to lower satisfaction and confidence in decision-making due to the incapacity of humans to hold vast information and its complexity. Meta-analysis was also used by Chernev et al., wherein they investigated 53 studies about Choice Overload. Their study used four variables that measured the weight of Choice Overload in the plethora of studies, namely Decision Task Difficulty, Choice Set Complexity, Consumers' Preference Uncertainty, and Consumers' Decision Goal. They established that the four antecedent variables directly affect Choice Overload.

Information overload contributes to the occurrence of Asymmetric Information, which also leads to Choice Overload. With regards to Asymmetric Information, experiments, surveys, and analysis of the information distribution were utilized to determine consumers' knowledge regarding the products they purchase. Based on the studies reviewed by the researchers, they hypothesized that the four antecedent variables with the addition of Asymmetric Information lead to Choice Overload. As Choice Overload takes place, consumers may be paralyzed in their decision-making and less satisfied with the choices they make. Thus, the researchers wanted to determine if Decision Paralysis will occur when there is Choice Overload as determined by its antecedents, whereas the mentioned antecedents will be affected by the number of options.

3. Research Method

3.1 Research Design

The researchers used an online survey design showing the options presented to consumers in a marketplace. In this survey design, the researchers assigned participants to different groups based on the alteration of the variables (Mize, 2019). Le Lec et al. (2016) used a survey design to illustrate the behaviour of consumers when they are faced with Choice Overload and the weight of its effect.

The study is quantitative and qualitative, wherein rating scales were used and analyzed through regression analysis. In addition, interviews were conducted to ascertain the presence of Asymmetric Information. The establishment of the occurrence of Decision Paralysis was based on the results of the survey. Kurien et al. (2014) utilized opinion surveys that consisted of rating scales. With this, the researchers determined whether Decision Paralysis would take place when Choice Overload occurs through an online survey. The online survey also consisted of determining whether the number of options would affect the antecedents of Choice

Overload by having two sets of survey questionnaires in which one of the survey sets had relatively a more number of options than the other.

3.2 Data and Sources

Purposive sampling was utilized as Chernev (2006), Gourville & Soman (2005), and Chernev & Hamilton (2009) also used non-probability sampling techniques through the use of convenience sampling. The age of the respondents was from 18 to 65 years old based on the studies analyzed and categorized by Chernev et al. as the profile of the respondents (Chernev, 2006; Chernev & Hamilton, 2009; Chernev, 2003; and Gourville & Soman, 2005). The survey was conducted supposedly by handing out questionnaires to the respondents; however, considering the current situation caused by the COVID-19 pandemic, the researchers opted to have a contingency plan to conduct an online survey instead of directly handing out the questionnaires to the respondents.

Before proceeding to the methods, screening questions were asked in the online survey to grasp the respondents' knowledge of the specific product. The series of questions were derived from the study of Calitz & Barlow (2011), wherein they measured customer product knowledge and display preferences. The questions that the study utilized are as follows:

1. I purchase bread on a regular basis
2. I know most of the bread products in our local grocery store.
3. I know how different types of bread are grouped on grocery shelves.
4. I know the physical layout of our local grocery store.

Respondents answered the above questions on a 1-4 Likert scale, with 4 being the highest and 1 being the lowest, and their overall score was totalled. Their scores were used to determine their level of knowledge. Overall scores from 4-8 were categorized as Novice, 9-14 for Intermediate, and 15-20 for Advanced. Respondents categorized as Novice were not included in the data analysis.

According to the literature reviewed by the researchers, the study centred on the occurrence of Decision Paralysis when there is Choice Overload and its antecedents being affected by the number of options. The paper used Multilevel Modeling, in which the model focused on the occurrence of Decision Paralysis wherein Choice Overload served as its indicator. Since Decision Paralysis will have a value of either 1 or 0, Logistic regression was used for the model.

On the other hand, the following model focused on the development of Choice Overload. The five independent variables that the researchers considered to cause the development of Choice Overload are the following: (1) Decision Task Difficulty; (2) Choice Set Complexity; (3) Preference Uncertainty; (4) Decision Goal; and (5) Asymmetric Information whereas these antecedents would be affected by the number of options. Ordinary Least Squares was used as a method for the regression analysis. The two models were applied to the two sets of surveys wherein one survey had a relatively more number of options while the other had a relatively less number of options.

These antecedents are operationally defined by Chernev et al. (2014), wherein they concluded that the four factors could directly impact Choice Overload. The stated antecedents were measured based on the methods done by the studies in which Chernev et al. categorized for the different variables. All necessary data for the study was gathered within the National Capital Region (NCR) area; likewise, the entire study was conducted online until the end of 2021. Furthermore, all information provided by the respondents was treated with utmost confidentiality, and the researchers accumulated only the necessary elements for the study.

3.2.1 Decision Paralysis

As Decision Paralysis was defined by Patel (2014), it is the abandonment of choice due to the over-analysis of the individual. When a respondent abandons making a choice, the researchers deemed it as an occurrence of Decision Paralysis. This method was designed to determine the relationship between Choice Overload and Decision Paralysis.

Decision Paralysis was measured by categorizing it as 1 or 0. To administer this, questions were presented to consumers before the methods of the different variables were carried out. A question was asked to the respondent:

> "*What is the first kind of bread that comes to mind when you purchase bread from a grocery store? (Please indicate the brand and the weight if possible, e.g. Gardenia Classic Bread – 600g)*"

When a respondent leaves a blank answer in the different survey methodologies, then there is an occurrence of Decision Paralysis.

3.2.2 Choice Overload

The objective of this method was to determine the phenomenon of Choice Overload. Choice Overload refers to the difficulty encountered by consumers when they are presented with many options (Gerasimou & Papi, 2018; Scheibehenne et al., 2010). With this, it was measured through a Likert scale which was asked at the end of the survey. The questions are as follows:

1. I had a difficult time choosing among the options.
2. The numerous variety of bread options did not help me sort out my preferences effectively.
3. The more bread options are given to me, the more I become confused.
4. I had a difficult time processing the information as more options of bread were presented.
5. I became less motivated to choose as more bread options appeared.
6. I became less satisfied with my decision as more bread options were presented to choose from.

The answers in the Likert scale were averaged and computed in the regression model. Comparisons were made between the two groups. The answers of the different groups were separated and processed differently in the model. One group has relatively more options than the other.

3.2.3 Antecedents of Choice Overload

3.2.3.1 Decision Task Difficulty

This method was designed to determine the relationship between Decision Task Difficulty and Choice Overload. It investigated the direct impact of Decision Task Difficulty on Choice Overload, which was assessed through the number of attributes and presentation of options. The study applied the method of Gourville & Soman (2005), which was categorized as focusing on Decision Task Difficulty in the meta-analysis of Chernev et al. (2014).

Participants were divided into two groups, one group was assigned to the main brand with one alternative, and the other group was offered two alternatives.

> Suppose that you want to purchase bread for a trip/outing you will soon be taking. One day, you visit your local grocery store with the intent of buying bread that day. The very knowledgeable supermarket assistant shows you two types of bread with specific attributes. Which bread would you pick?

GROUP 1	Bread 1	Bread 2
Colour	Brown	White
Number of loaves inside	10	16
Brand	Fuwa Fuwa	Gardenia
Shape	Round	Square
Flavour	Banana	Raisin

GROUP 2	Bread 1	Bread 2	Bread 3
Color	Brown	Light Brown	White
Number of loaves	10	16	14
Brand	Fuwa Fuwa	Gardenia	Pinoy Tasty
Shape	Round	Square	Square
Flavor	Banana	Wheat	White

Respondents answered questions related to the Decision Task Difficulty by means of a Likert Scale (Chernev et al., 2014; Greifeneder et al., 2010). The questions read: "How difficult was it to choose between the two bread?" (1 - not at all difficult, 8 - very difficult) and "To what extent were you overtaxed by choice?" (1 - not at all taxed, 8 - very overtaxed).

The answers in the Likert scale were averaged and computed in the regression model. Comparisons were made between the two groups. The responses of the different groups were separated and processed differently in the regression model. The value for Decision Task Difficulty of one group differed from the others.

3.2.3.2 Antecedent 2 (Choice Set Complexity)

This method was designed to determine the relationship between Choice Set Complexity and Choice Overload. It investigated the direct impact of Choice Set Complexity on Choice Overload, which was assessed through the attractiveness of the options as well as the dominance of the options. The study applied the method of Chernev and Hamilton (2009) that was included in the meta-analysis of Chernev et al. (2014).

Respondents were given an option between two grocery stores wherein both stores offered the bread of similar quality but varied in terms of the size of the choice sets. One of the grocery stores offered a smaller choice set consisting of 9 bread options; meanwhile, the other grocery store provided a larger choice set comprising 38 bread options. Respondents were asked to choose one from the two grocery stores in which they would be purchasing bread. Respondents could not preview the options before selecting one of the two grocery stores. The name of the grocery store and the number of options were displayed.

> Suppose you want to purchase bread; however, there are two grocery stores that offer the bread of similar quality. Which grocery store would you go to?
>
> Store A: 9 bread options Store B: 38 bread options

Furthermore, after selecting a grocery store, respondents were asked to choose their most preferred bread among the options and rate the choice set by means of a Likert scale (Chernev et al., 2014; Sela, 2009). Afterwards, respondents were presented with a question pertaining to Choice Set Complexity. The question read: "How difficult was it to make a decision about which bread to pick?" (1 - not at all difficult, 8 - very difficult), and "I had difficulties in determining which bread has better qualities than the others." (1 - not at all difficult, 8 - very difficult).

The answers in the Likert scale were averaged and computed in the regression model. Comparisons were made between the two groups. The answers of the different groups were separated and processed differently in the model. The value for the Choice Set Complexity of one group was different from the others.

3.2.3.3 Antecedent 3 (Preference Uncertainty)

This method aimed to examine the impact of ideal point availability on the strength of consumer preferences as a function of assortment size. The study applied the method of Chernev (2003), which was included in the meta-analysis of Chernev et al. (2014). Respondents were first asked to articulate their ideal attribute combination and then asked to choose from a larger or a smaller assortment.

Respondents were asked to indicate each attribute's most attractive level and rank order the attributes in terms of their relative importance. This method is called Ordinal Preference Elicitation, in which it asks consumers to form judgments about their attribute preference and attribute importance. Traditionally, preference elicitation is used to measure consumer preferences. It provides a detailed account of their preferences. In contrast, the elicitation procedure in this method aimed to help consumers articulate their preferences.

Select only the most attractive level for each of the attributes and simply rank (1 - 4) the following attributes according to their importance, where 1 is the highest and 4 is the lowest:

__ Type of Bread White Bread Pandesal Monay Wheat Bread Filled Buns	__ Pieces per pack 10 pcs. 12 pcs. 16 pcs. 20 pcs. 24 pcs.
__ Flavor Classic Chocolate Ube Cheese With raisins	__ Brand Gardenia Marby Neubake Fuwa fuwa Tinapayan

After ranking the attributes, the participants were divided into two types of sets: a small assortment set with four alternatives and a large assortment set with 16 alternatives. All options in the small assortment sets were also available in the large assortment sets; there were no identical options (replicates) in either of the sets. The options in the small set were described on four attributes—two attributes on which options had different values and two attributes with values that were identical for all alternatives. Options in the large set were also described on four attributes, but there was more variance across attributes.

Furthermore, after dividing the respondents into two sets, they answered questions related to Preference Uncertainty by means of a Likert Scale (Chernev et al. 2014; Mogilner et al. 2008). The questions read: "How frequently do you eat bread?" (1 - not at all frequently, 8 - very frequently), "To what extent can you distinguish between types of bread?" (1 - not at all, 8 - very much), "I selected this particular bread because this is what I want" (1 - not at all true, 8 - very true), and "How would you rate your confidence that you will actually like the bread you selected?" (1 - not at all confident, 8 - very confident).

The answers in the Likert scale were averaged and computed in the regression model. Comparisons were made between the two groups. The answers of the different groups were separated and processed differently in the model. The value for Consumers' Preference Uncertainty of one group was different from the others.

3.2.3.4 Antecedent 4 (Decision Goal)

This method was designed to determine the relationship between Decision goals and Choice Overload. It investigated the direct impact of Decision Goal on Choice Overload, which was assessed through the level of construal. The study applied the method of Chernev (2006), which was included in the meta-analysis of Chernev et al. (2014).

Respondents were randomly assigned to two conditions. The first condition is the product-choice condition wherein they pick a store and buy a type of bread from the store. The second condition is the delayed product choice wherein they pick a store and buy a type of bread with a mindset of having it in the following month.

After which, respondents were asked to pick from two selections. The first selection is a store with 6 types of bread, and the second store offers 24 types of bread. The respondents were asked questions regarding the variable Decision Goal (Chernev et al. 2014; Goodman & Malkoc 2012). The questions read: "How much effort did you put into making your choice of bread? (1 - no effort, 8 - maximum effort) and "How much thought did you give to this decision? (1 - no effort, 8 - maximum effort).
The answers in the Likert scale were averaged and computed in the regression model. Comparisons were made between the two groups. The answers of the different groups were separated and processed differently in the model. The value for the Decision Goal of one group was different from the others. One group has relatively more options than the other.

3.2.3.5 Antecedent 5 (Asymmetric Information)

The goal of this method was to ascertain the impact of Asymmetric Information on Choice Overload. The occurrence of Asymmetric Information was determined through earlier research by Nestorowicz (2016) that used surveys to identify consumers' knowledge

regarding a product. As mentioned in the literature review, information overload contributes to the effect of Asymmetric Information, and the incapacity of individuals to process the overload of information causes Choice Overload (Południak, 2017).

The survey included questions to prove the consumers' information awareness imbalance. The researchers also conducted an interview with producers of essential items to obtain information about the description of the products and their precise intention as the consumers comprehend these details. The study used a Purposive sampling technique to determine the participants to be interviewed. In connection with this, the following were the qualifications for the participants: (1) the firm in which the respondent is employed has been operating in the industry for 10 years, (2) the subject's position must be managerial. This is to ensure that the interviewees are knowledgeable about the company and its market.

Asymmetric Information was measured by first interviewing firms (producers) and then comparing it to the respondents' answers (consumers). The question below was used for the interview.

Does the company focus on the affordability aspect of the product? Benefits of the product? Nutritional facts? Explain.

The firms were asked an open-ended questions, and they were subjected to follow-up questions. After gathering the information, the researchers evaluated the answers and formulated questions regarding the producer's intent in relaying the information of their products and included the said questions in the survey questionnaire to determine whether the consumers were aware of the information.

Due to the ongoing COVID-19 pandemic, there have been some constraints to conducting the interview further; therefore, the researchers came up with alternative methods to supplement the initial data gathered for this study.

In order to compare the perspective of producers to the knowledge of consumers regarding bread products, the researchers included a question in the survey that was related to the initial interview of producers. The question reads, "Are you aware of the quality of taste, aroma, texture, freshness, etc. of products being promoted by the bread company of your choice?" which was answered by Yes or No. Asymmetric information was measured by the value of 1 or 0. When a respondent answers "Yes," which means that the producer's informational intention was the same as the knowledge of the consumers, then the value is 0, denying the presence of Asymmetric information for that respondent as opposed to a respondent answering "No", which indicates that they are unaware of the information that the producers want to relay to the consumers suggesting a presence of Asymmetric Information with the value of 1.

3.3 Secondary Content Analysis Approach

The researchers conducted content analysis to bread manufacturers' advertisement posters promoted in a social media platform, specifically, Facebook. The bread manufacturers analyzed in this method were the bread manufacturers that could not undergo the interview method. "Content analysis is a research method that has been traditionally used to analyze the characteristics and content of written, spoken, or pictorial communication (e.g., TV programs, books, magazines, and advertisements; Hsieh & Shannon, 2005). It has also been employed in the study of package design communication (Elliott, 2008)."

The researchers followed the content analysis method of Mchiza et al. (2013) by determining the number of times that the different attributes such as price, quality, and health benefits appeared on online marketing posters. The researchers gathered three (3) years of online posters from five (5) different bread manufacturers to evaluate its content. Three (3) journals from Eze & Cherish (2019), Fejza et al. (2013), and, Tamba-berehoiu et al. (2014) were utilized as references in analyzing the posters to reduce biases. These studies have evaluated marketing strategies from twelve (12) bread companies.

Based on the literature reviewed, the following hypotheses were set:

H_1: Decision Paralysis would occur when there is Choice Overload.

As more options are presented, consumers will be more confused, leading to a paralysis in their analysis (Kurien et al., 2014; Grandi & Cardinali, 2020; Mcshane & Böckenholt, 2017). According to Piasecki and Hanna (2011), the paralysis encountered by the consumers in decision-making is a result of less contentment when they have more freedom to select. For the reason that consumers assume that having a large number of options would increase the chances of satisfying their preferences (Townsend & Kahn, 2013).

H_2: As more options are offered, the antecedents of Choice Overload will be directly affected.
H_3: Choice Overload would occur when consumers encounter Decision Task Difficulty.

H_4: Choice Overload would occur when consumers encounter Choice Set Complexity.
H_5: Choice Overload would occur when consumers come across Preference Uncertainty.
H_6: Choice Overload would occur when consumers do not consider a Decision Goal.
H_7: Choice Overload would occur when there is an existence of Asymmetric Information.
H_8: The number of options would affect the derived antecedents of Choice Overload.

The central focus of the study is proving the occurrence of Decision Paralysis when there is Choice Overload determined by its antecedents and number of options. To examine this more fully, the researchers first examined whether having more options affects the derived antecedents of Choice Overload itself. Hence, the five independent variables mentioned above were investigated. Based on the literature reviewed, Asymmetric Information has not yet been incorporated into studies regarding Choice Overload and Decision Paralysis. This forms the motivation for including Asymmetric Information as an additional factor that may prove contributory to Choice Overload, as mentioned in some research to cause uncertainty for individuals.

3.5 Research Model

To determine the relationship of Choice Overload to Decision Paralysis, the following regression models were formulated:

3.5.1 Decision Paralysis

$$\text{Decision Paralysis} = B0 + B1\text{ChoiceOverload} + e$$

The independent variable was Choice Overload, and the dependent variable was Decision Paralysis. Decision Paralysis is the occurrence of overanalyzing a decision which increases the likelihood of consumers not purchasing from the selection (Patel, 2014). The value for Decision Paralysis was either 1 or 0. When a respondent leaves an item unanswered, the researchers deem the occurrence of Decision Paralysis resulting in a value of 1. As opposed to when the respondent answers every question leaving no blanks, the value of Decision Paralysis is 0. Since the dependent variable had a categorical value of 1 or 0, logistic regression was used to process the model. The model was run separately for the two sets of surveys.

3.5.2 Choice Overload

$$\text{Choice Overload} = B0 + B1\text{DecisionTaskDifficulty} + B2\text{ChoiceSetComplexity} + B3\text{PreferenceUncertainty} + B4\text{DecisionGoal} + B5\text{AsymmetricInformation} + e$$

The model consisted of one dependent variable and five independent variables. The dependent variable was Choice Overload. The five independent variables were the derived antecedents of Choice Overload: Decision Task Difficulty, Choice Set Complexity, Consumers' Preference Uncertainty, Consumers' Decision Goal, and Asymmetric Information. Ordinary least squares regression was utilized to process the model. The model was run separately for the two sets of surveys.

Asymmetric Information was a categorical variable whose value was equal to 1 or 0. Its value was based on the congruence of the participants' awareness regarding the products and the interviewees' answers (producers) about the information they intend to disseminate to their customers. The value was 1 if the researchers deemed that the information was not aligned between the two parties, and the value was 0 if Asymmetric Information is nonexistent. The model's margin of error was represented by *e* to include any unforeseen errors in the analysis.

GRETL analysis software was utilized for the two models to process the data as it was used by Kokodey (2012) to model and project consumer behaviour regarding product categories, health information, distribution chains, and others. GRETL analysis consists of a t-test, correlation analysis, collinearity, and others used to analyze the relationship of the variables.

4. Results and Discussion

The researchers aimed to prove if Decision Paralysis would occur when there is Choice Overload through analyzing the antecedents of Choice Overload and how the number of options affected them by designing and conducting an online survey simulating marketplace circumstances. A total of 378 respondents answered the online survey in which the two sets of survey questionnaires had 189 respondents each.

The paper also included qualitative data through interviews from producers to determine their information intent in bread products. This was supplemented by a secondary content analysis executed through gathering bread manufacturers' advertisement posters and analyzing them. Following this, it was compared through collected data regarding consumer awareness and perception of the bread product.

Decision Paralysis was measured by categorizing it as 1 or 0. Questions were presented to consumers before the methods of the different variables were carried out, and the question reads:

> "*What is the first kind of bread that comes to mind when you purchase bread from a grocery store? (Please indicate the brand and the weight if possible, e.g. Gardenia Classic Bread – 600g).*"

There is an occurrence of Decision Paralysis when a respondent leaves a blank for the different methodologies.

In determining the relationship of Choice Overload to Decision Paralysis, the following regression models were formulated:

The independent variable was Choice Overload, and the dependent variable was Decision Paralysis.

$$\text{Decision Paralysis} = B0 + B1\text{ChoiceOverload} + e$$

However, for determining whether the different antecedents contribute to choice overload, the model consisted of one dependent variable, Choice Overload, and five independent variables: the derived antecedents of Choice Overload, namely, Decision Task Difficulty, Choice Set Complexity, Consumers' Preference Uncertainty, Consumers' Decision Goal, and Asymmetric Information.

$$\text{Choice Overload} = B0 + B1\text{DecisionTaskDifficulty} + B2\text{ChoiceSetComplexity} + B3\text{PreferenceUncertainty} + B4\text{DecisionGoal} + B5\text{AsymmetricInformation} + e$$

Choice Overload and its derived antecedents were measured through a Likert scale in a survey. The questions per antecedent were according to methods of previous studies included in the paper of Chernev et al. (2014). (1) Decision Task Difficulty was measured through the number of attributes and presentation of options, (2) Choice Set Complexity was quantified through the dominance of an option and attractiveness of options, (3) Preference Uncertainty was weighed through the familiarity and ideal preferences of consumers in a product, and (4) Decision Goal was measured through the level of construal.

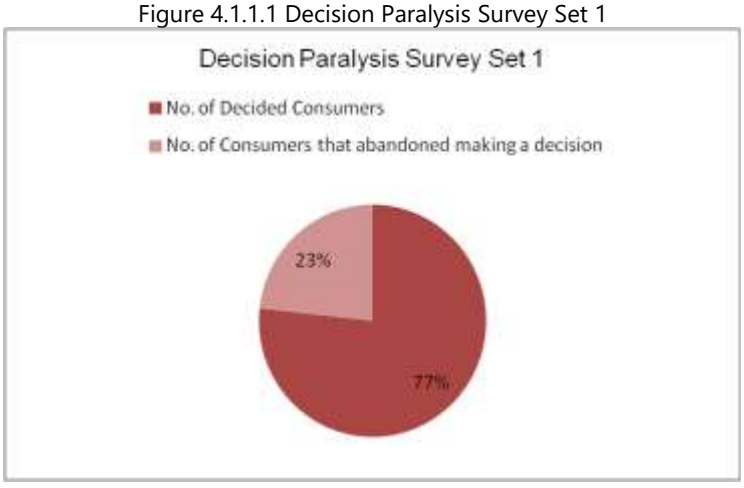
For the Asymmetric Information, the researchers measured it by conducting an interview with firms (producers) and then comparing it to the respondents' answers (consumers). It was a categorical variable whose value was equal to 1 or 0 wherein 1 if the researchers deemed that the information is not aligned between the two parties, and the value was 0 if Asymmetric Information is nonexistent.

In addition, the content analysis method of Mchiza et al. (2013) was used to determine the number of times that the different attributes such as price, quality, and health benefits appeared on online marketing posters of bread manufacturers. To reduce biases, the study used three (3) journals from Eze & Cherish (2019), Fejza et al. (2013), and Tamba-berehoiu et al. (2014) as judges in analyzing the advertisement posters. These prior studies assessed marketing strategies from twelve (12) bread companies.

4.1 Data Results

4.1.1 Decision Paralysis

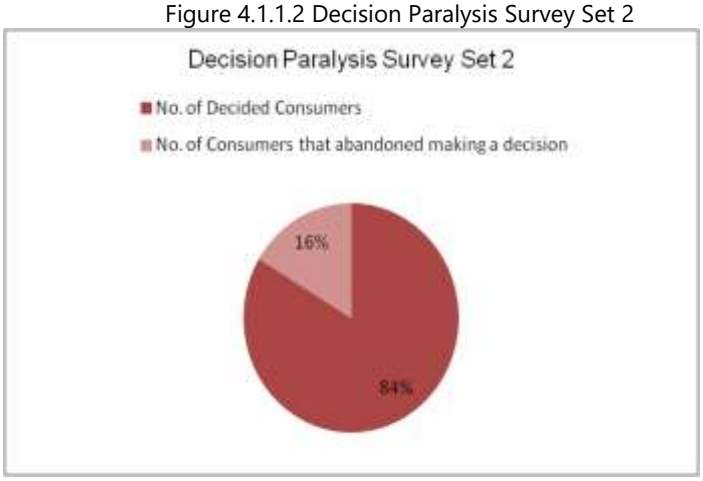
Figure 4.1.1.1 Decision Paralysis Survey Set 1



According to the graph shown above, 145 respondents (77%) have made a decision by selecting the bread product they want to purchase. It has an equivalent value of 0 which means that there is no occurrence of Decision Paralysis. Meanwhile, 44 respondents

(23%) abandoned their decision by leaving the question in accordance with Decision Paralysis blank. It has an equivalent of 1, which indicates that there is an occurrence of Decision Paralysis.

Figure 4.1.1.2 Decision Paralysis Survey Set 2



According to the graph shown above, 158 respondents (84%) have made a decision by selecting the bread product they want to purchase. It has an equivalent value of 0 which means that there is no occurrence of Decision Paralysis. Meanwhile, 32 respondents (16%) abandoned their decision by leaving the question in accordance with Decision Paralysis blank. It has an equivalent of 1, which indicates that there is an occurrence of Decision Paralysis.

4.1.2 Asymmetric Information

Asymmetric Information will be measured by first interviewing firms (producers) and then comparing it to the respondent's answers (consumers). The question below was used to gather information from the interviewees.

"Does the company focus on the affordability aspect of the product? Benefits of the product? Nutritional facts? Explain."

The interview took place through phone calls for the reason that the research was conducted during the COVID-19 Pandemic. The researchers used an open-ended question to allow the subjects to elaborate their answers more.
The researchers were able to find the following data:

Among the interviewees, 66% answered that quality was the primary focus of their marketing purpose. They wanted to inform their market about the standard they uphold with their products. Price was a driving factor for 33% of the respondents. They argued that their products have an edge against competitors due to their competitive price.

To further supplement the data gathered from the interview, the researchers conducted Secondary Content Analysis on bread posters, whereas (1) Price, (2) Quality, and (3) Health Benefits are the attributes considered. The study used three (3) journals from Eze & Cherish (2019), Fejza et al. (2013), and Tamba-berehoiu et al. (2014) as judges in analyzing the posters.

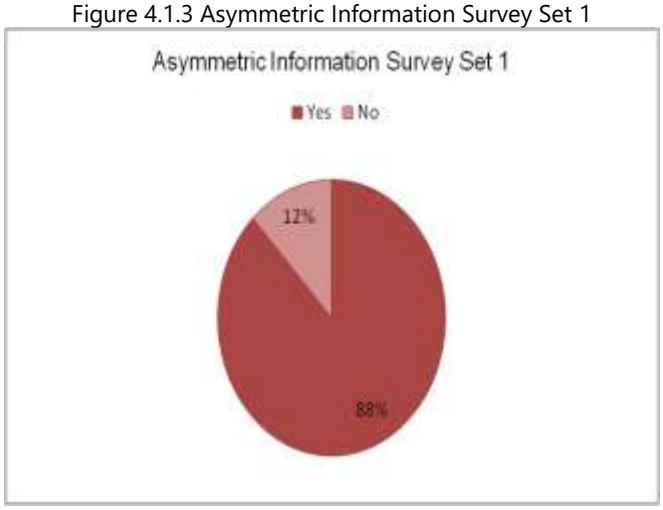
Table 4.1.2.1 Summation of 3-Year Data for each Product Attribute

Attribute	**Frequency**	Percentage
Price	141	0.2040520984
Quality	429	0.6208393632
Health Benefits	121	0.1751085384
Total	691	1

According to the following data shown above, Quality has the highest frequency among the product attributes, 62.08%; therefore, taking the interview results into account, the researchers opted to include the Quality product attribute in the survey questionnaire.

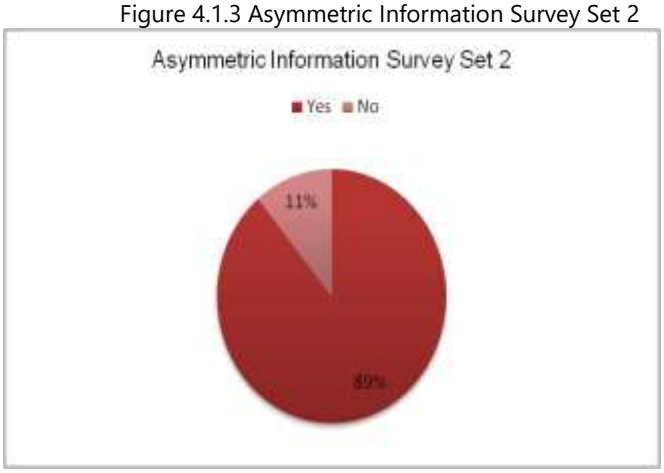
4.1.3 Online Survey Results

Figure 4.1.3 Asymmetric Information Survey Set 1



According to the graph shown above, 166 respondents (88%) answered "Yes," which has an equivalent value of 0, indicating that there is a consistency between product intention and consumer awareness of the bread products. Meanwhile, 23 respondents (12%) answered "No," which has an equivalent value of 1, which shows that the particular percentage of the respondents are not aware of the intended product information.

Figure 4.1.3 Asymmetric Information Survey Set 2



According to the graph shown above, 168 respondents (89%) answered "Yes," which has an equivalent value of 0 which means that there is a consistency between product intention and consumer awareness of the bread products. Meanwhile, 21 respondents (11%) answered "No," which has an equivalent value of 1, which shows that a particular percentage of the respondents are not aware of the intended product information.

4.2 Regression Analysis

Model 1: Logit, using observations 1-189
Dependent variable: DP
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*p-value*	
const	−1.79070	0.423120	−4.232	<0.0001	***
CO	0.152376	0.0952396	1.600	0.1096	

Mean dependent var	0.232804	S.D. dependent var	0.423741
McFadden R-squared	0.012526	Adjusted R-squared	-0.006975

Number of cases 'correctly predicted' = 145 (76.7%)
f(beta'x) at mean of independent vars = 0.424
Likelihood ratio test: Chi-square(1) = 2.5693 [0.1090]

Model 2: Logit, using observations 1-189
Dependent variable: DP
Standard errors based on Hessian

	Coefficient	*Std. Error*	*z*	*p-value*	
const	−2.66984	0.571383	−4.673	<0.0001	***
CO	0.254635	0.124420	2.047	0.0407	**

Mean dependent var	0.164021	S.D. dependent var	0.371278
McFadden R-squared	0.025628	Adjusted R-squared	0.001916

Number of cases 'correctly predicted' = 158 (83.6%)
f(beta'x) at mean of independent vars = 0.371
Likelihood ratio test: Chi-square(1) = 4.32321 [0.0376]

Decision Paralysis, as defined, is the inability of an individual to choose between options due to cognitive overload leading to the abandonment of the decision. There was inconclusive evidence to prove that Choice Overload impacted Decision Paralysis with the method used in the first set. Decision Paralysis cannot be determined by Choice Overload alone in the study. However, with more options presented in Set 2, Choice Overload directly positively affected Decision Paralysis. The more options are presented to individuals, and they become more confused; hence the probability that individuals will abandon their decision increases.

Model 3: OLS, using observations 1-189
Dependent variable: CO

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	2.29819	0.457806	5.020	<0.0001	***
DTD	0.288177	0.0705539	4.084	<0.0001	***
CSC	0.182904	0.0698952	2.617	0.0096	***
PU	−0.0221755	0.116460	−0.1904	0.8492	
DG	−0.000657813	0.0589704	−0.01115	0.9911	
AI	1.74368	0.360527	4.836	<0.0001	***

R-squared	0.202699	Adjusted R-squared	0.180915
F(5, 183)	9.304864	P-value(F)	6.51e-08

The multiple regression results for the model in Set 1 of the survey showed that Decision Task Difficulty (DTD) with a p-value of less than 0.0001 has a significant relationship with Choice Overload (CO) at a 1% level of significance while Choice Set Complexity (CSC) with a p-value of 0.0096 also has a significant positive relationship with Choice Overload (CO) at a 1% level of significance. Asymmetric Information (AI) with a p-value of less than 0.0001 has a significant relationship with Choice Overload (CO) at a 1% level of significance. However, Preference Uncertainty (PU) has a p-value of 0.8492, which has an insignificant relationship with Choice Overload (CO). In addition, Decision Goal (DG) with a p-value of 0.9911 has an insignificant relationship with the dependent variable, Choice Overload (CO). The r-squared value of the model is 0.20, which implies that 20% of the data fit the regression model and explains the dependent variable. The adjusted r-squared value is 0.18, which indicates that additional variables do not add value to the model.

Breusch-Pagan test for heteroskedasticity
OLS, using observations 1-189
Dependent variable: scaled uhat^2

	coefficient	std. error	t-ratio	p-value	
const	1.03583	0.336077	3.082	0.0024	***
DTD	0.0644231	0.0517938	1.244	0.2152	
CSC	0.0672514	0.0513103	1.311	0.1916	
PU	−0.172123	0.0854938	−2.013	0.0456	**
DG	−0.00291987	0.0432904	−0.06745	0.9463	
AI	0.407772	0.264664	1.541	0.1251	

Explained sum of squares = 12.0218

Test statistic: LM = 6.010896,
with p-value = P(Chi-square(5) > 6.010896) = 0.305160

The Breusch-Pagan test was used to check the heteroskedasticity of the Set 1 of the survey. The p-value of the test statistic is 0.305160, which is more than the level of significance (0.05) hence acceptance of the null hypothesis, which means that there is no presence of heteroskedasticity.

Model 4: OLS, using observations 1-189
Dependent variable: CO

	Coefficient	*Std. Error*	*t-ratio*	*p-value*	
const	2.56624	0.442854	5.795	<0.0001	***
DTD	0.371266	0.0675778	5.494	<0.0001	***
CSC	0.0283107	0.0559289	0.5062	0.6133	
PU	0.127967	0.0918110	1.394	0.1651	
DG	−0.0667562	0.0529182	−1.261	0.2087	
AI	0.840113	0.350869	2.394	0.0177	**

R-squared	0.193709	Adjusted R-squared	0.171680
F(5, 183)	8.793062	P-value(F)	1.70e-07

For Set 2 of the survey, the multiple regression for the model results showed that Decision Task Difficulty (DTD) with a p-value of less than 0.0001 has a positive relationship with Choice Overload (CO) at a 1% level of significance. Additionally, Asymmetric Information (AI) with a p-value of 0.0177 also has a significant relationship with Choice Overload (CO) at a 5% level of significance. However, the Choice Set Complexity (CSC) with a p-value of 0.6133 has an insignificant relationship with Choice Overload (CO). Preference Uncertainty (PU) has a p-value of 0.1651, which has an insignificant relationship with the dependent variable, Choice Overload (CO). Meanwhile, there is an insignificant relationship between Choice Overload (CO) and Decision Goal (DG) with a p-value of 0.2087. The r-squared value of the model is 0.19, which implies that 19% of the data fit the regression model. The adjusted r-squared value is 0.17, which indicates that additional variables do not add value to the model.

Breusch-Pagan test for heteroskedasticity
OLS, using observations 1-189
Dependent variable: scaled uhat^2

	coefficient	std. error	t-ratio	p-value	
const	1.30286	0.389878	3.342	0.0010	***
DTD	−0.0356527	0.0594938	−0.5993	0.5497	
CSC	−0.0385536	0.0492384	−0.7830	0.4346	
PU	0.0387777	0.0808281	0.4798	0.6320	
DG	−0.0353961	0.0465879	−0.7598	0.4484	
AI	−0.179071	0.308897	−0.5797	0.5628	

Explained sum of squares = 3.54516

Test statistic: LM = 1.772578,
with p-value = P(Chi-square(5) > 1.772578) = 0.879632

The Breusch-Pagan test was used to check the heteroskedasticity of the Set 2 of the survey. The p-value of the test statistic is 0.879632, which is more than the level of significance (0.05) hence acceptance of the null hypothesis, which means that there is no presence of heteroskedasticity.

Previous studies about Choice Overload primarily utilized field experimental design conducted in classrooms, stores, and restaurants as opposed to this research conducted online due to the circumstances. A study was conducted by Townsend and Kahn in an online grocery store, and their study was categorized by Chernev et al. that focused on Decision Task Difficulty.

The results from the study showed that Decision Task Difficulty (DTD) had a direct effect on Choice Overload. As more bread options are presented to the residents of the National Capital Region (NCR), the evaluation of attributes becomes critical.

As defined from the previous chapters, Choice Set Complexity (CSC) focuses on the dominance option, which pertains to the item's quality and how it is compared to superior goods. An item's quality is often considered when making a purchasing decision; however, as more options, the quality becomes unnecessary when making a choice, as proved by the significance of CSC in Set 1 and insignificance in Set 2. It may depend on other people as some may find quality important, but quality becomes irrelevant as more options are offered.

Preference Uncertainty (PU) is measured by the individuals' familiarity and their ideal preferences in a product. The insignificance of the variable in the study to Choice Overload can be interpreted as despite having an ideal product in mind and being knowledgeable about the products (low preference uncertainty), consumers can still be overwhelmed with the numerous information processed by the individual.

Determining whether individuals have a high or low level of comprehension in understanding the decision task can also be affected by the high number of options presented to consumers (Decision Goal). Even with high comprehension (high level of decision goal), it is not enough to deter Choice Overload; hence there is no correlation between them.

Asymmetric Information (AI) had a positive direct effect on Choice Overload. Even if individuals are informed about how the suppliers market the product, they can still be overloaded as they must incorporate new information from the presented products and incorporate it with their background knowledge.

5. Summary and Conclusion

The study centred on the occurrence of Decision Paralysis when there is Choice Overload by processing its antecedents which could be affected by the number of options. It is both quantitative and qualitative in nature. The paper used Multilevel Modeling, wherein a model focused on the occurrence of Decision Paralysis in which Choice Overload served as its indicator and was run through logistic regression. Another model focused on the development of Choice Overload. The five independent variables that the researchers considered to cause the effect of Choice Overload are the following: (1) Decision Task Difficulty; (2) Choice Set Complexity; (3) Preference Uncertainty; (4) Decision Goal; and (5) Asymmetric Information which was processed through ordinary least squares regression. The two models were treated to the two sets wherein one survey had relatively more options than the other.

An online survey was conducted to ascertain its relationship. There were two sets of survey questionnaires showing two scenarios in a marketplace with few and a large number of options. The researchers used convenience sampling as a sampling technique. The questionnaire used the Likert Scale and was analyzed through regression analysis. Additionally, the paper included qualitative data through interviews from producers to determine their information intent in bread products. This was supplemented by a secondary content analysis executed through gathering advertising materials and analyzing them. After this, it was compared through collected data regarding consumer awareness and perception of the bread product.

The results showed that the independent variables that significantly affect Choice Overload are Decision Task Difficulty and Asymmetric Information. Choice Set Complexity became insignificant when more options were offered. Meanwhile, in analyzing if Decision Paralysis occurs when there is Choice Overload, it was proved by the statistical significance of its relationship. Therefore, there is a high probability that when consumers are given more options, they encounter difficulty choosing, resulting in abandonment of decision making.

5.1 Conclusion

5.1.1 Decision Paralysis

To attain the paper's primary objective, which was to prove that Decision Paralysis will take place when there is Choice Overload, the online survey results were processed using Logistic regression analysis. The statistical significance of CO to DP as a dependent

variable proved that as individuals become confused due to increasing options, it is more probable that the individual will abandon their decision. People become overwhelmed with options and will leave their decision unanswered. Being knowledgeable can still be a nuisance when making a decision. The individuals' information is in conflict with the additional information being occupied as more options are offered.

5.1.2 Choice Overload

Among the five (5) antecedents of Choice Overload, namely Decision Task Difficulty, Choice Set Complexity, Preference Uncertainty, Decision Goal, and Asymmetric Information, the results of the study revealed that DTD and AI were the main variables that had a direct effect on CO as proved by the statistical significance. When given more attributes and information to process, people become more confused with their choices. As more options appear, the quality factor (CSC) when deciding becomes nonessential, as evidenced by the statistical significance of Set 1 and statistical insignificance of Set 2 of CSC, which offered more options than Set 1. The variables of PU and DG proved ineffective in determining the occurrence of Choice Overload. For the bread consumers of NCR, the two precursors seemingly do not affect CO.

The researchers recommend formulating new antecedents that could affect Choice Overload. Future researchers should conduct a field experiment done by previous studies for an efficient and more accurate representation of a market choice. Online surveys lack a portrayal of actual marketplace conditions. Expanding the number of respondents is also suggested to represent a larger population scope.

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