

# *The Influence of Quantitative Restriction on the Quantity of Purchases under Anchoring Effect*

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**Abstract:** The aim of this study is to analysis whether purchase quantity limit is an effective anchoring. Anchoring effect is a cognitive bias where individuals rely too heavily on the first piece of information they receive when making decisions. This bias has been extensively studied in the context of pricing decisions, but less attention has been paid to its effect on quantity limitations in purchasing decisions. This study uses a questionnaire to investigate how the anchoring effect affects consumers' decisions about the quantity of a product they would purchase when faced with quantity limitations. By examining the effect of the anchoring bias on purchasing quantity limitations, the studies shed light on a relatively unexplored area of consumer behavior research. The key findings of the paper suggest that the anchoring effect influences consumers' decisions about the quantity of a product they would purchase, and that this effect is moderated by the type of product being considered. Overall, the paper provides valuable insights into the role of the anchoring effect in purchasing decisions, and highlights the importance of considering product type when designing quantity limitations. By taking into account the anchoring effect and its moderating factors, businesses can better understand and influence consumers' purchasing decisions, potentially leading to increased sales and revenue.

**Keywords:** anchoring effect, purchase quantity limit, consumption behaviour

## **1. Introduction**

The anchoring effect is a cognitive bias in which an individual relies too heavily on an initial piece of information (the anchor) when making subsequent decisions. This effect has been observed in various contexts, including consumer behavior. Quantity limitations are often used in marketing and sales to create a sense of scarcity and urgency among consumers [1-3]. For example, a store may advertise a limited-time sale with a sign that says "only 3 items per customer". In this scenario, the anchoring effect could come into play if the customer sees the sign and becomes anchored to the idea of purchasing 3 items, even if they originally intended to purchase only one or two.

The anchoring effect is thought to be caused by a variety of factors. One of the most important of these is the availability heuristic, which is the tendency to rely on easily accessible information when making decisions. In the context of purchase quantity limitations, customers may anchor on the limit itself because it is the most easily accessible piece of information about the purchase [4,5].

Another factor that may contribute to the anchoring effect in purchase quantity limitations is the contrast effect. This is the tendency for people to perceive things differently based on their context

[6,7]. For example, if a customer is shopping for a particular item and sees a sign indicating that there is a purchase limit, they may perceive the limit as reasonable or even generous if it is contrasted with a larger limit that they have encountered in the past.

Some research studies the phenomenon of consumer behavior has developed from the grand formal approaches to middle range theories resulting in excessive fragmentation. For example, there is a model about conspicuous consumption [8-10]. Following this example, the paper will analysis an application about anchoring effect called purchase quantity limit.

The importance of this paper is to determine whether the purchase quantity limit is a kind of anchoring and whether it is effective. The key findings of the paper suggest that the anchoring effect not influences consumers' decisions about the quantity of a product they would purchase so much, and that this effect is not moderated by the type of product being considered. Specially, the research finds that purchase quantity limit just influences some specific people instead of the most part of people in today's society.

The study is organized as the follows. Section 2 describes the questionnaire design of this study and the participants. Section 3 displays the results, which focused on discussing the differences and connections of gender and age groups in purchase quantity that is affected by quantity limit shown by sellers. Then, Section 4 concludes the paper.

## 2. Methodology

Some research has done real experiments to describe phenomenon that purchase quantity limit allows merchants selling more products. This study conducts a questionnaire to analyse the influence of quantitative restriction on the quantity of purchases under anchoring effect. Therefore, the paper makes a hypothesis that purchase quantity limit tends to increase the unit of sale numbers by controlling the mental of consumers. The data is about which factors can affect the unit of sale numbers such as age, gender and the nature of product. The goal of this paper is to determine are whether the "anchoring" exists and verify can the purchase quantity limit is a useful application of "anchoring".

### 2.1. Questionnaire Design

The questionnaire includes 10 questions. The first two questions are basic information about consumers. The third is to research the shopping frequency of people who attend this questionnaire. The fourth is to collect which factor will influence consumers' shopping behavior the most. The fifth question is to research consumers shopping habits. The next following questions are scene questions.

In the beginning, the questionnaire collects information gender and age of people who participant this survey. The study shows these are two factors may affect the function of purchase quantity limit. Therefore, the way of buying will be disparate. Question 3 and 5 in the survey are closely related to each other. The reason is that the frequency of shopping and purchase preference tends to influence each other. Question 3 asks the frequency of shopping, specifically shopping in supermarkets, of the consumers. They are given the choice of twice per week, once per week, once every two weeks and once every month. Question 5, therefore, asks the consumers about their habit that they prefer while shopping in the markets.

Question 4 asks the participants to list the factors that may affect the units of consuming products. Then, the questionnaire follows by two hypothetical scenario questions. The first scene is that when a consumer buys alkaline mineral water, the unit of alkaline mineral water that you need is one box. However, the board besides the goods shelf signs that "limit purchase of two cases per person". The question asks what the consumer's choice is, to still buy the unit of alkaline mineral water that you need or to buy maximum limit quantity.

The other scene is that when a consumer buys vegetable in the supermarket, the consumer only needs one package. However, the board besides goods shelf signs that “limit purchase quantity of three units per person”. The research pay attention to that alkaline mineral water is durable product and vegetable is consumables. Therefore, the study shows that the property of product may also influence the unit of selling products. The study also conducts similar hypothetical questions asking consumers on their purchase behaviour in shampoo and apples.

## 2.2. Participants

The questionnaire is conducted via an app called “The star of questionnaire”, which is a convenient way to collect the data. It is all carried out online. The questionnaire is conducted by snowballing sampling method. Snowballing is non-probability sampling method where new units are recruited by other units to form part of the sample. The advantage of this way is convenient and high efficiency. The disadvantage is this way is not random enough. However, in fact random is not the most important factor because the key of this paper is to analyse characteristic of consumer’s behavior. The total number of questionnaire that the author send is 200 and receive 117 questionnaires.

## 3. Results

### 3.1. Gender, Age and Shopping Frequency

The study firstly starts with the consumer’s demographic information such as gender and age. Then, the paper studies consumer’s shopping way. Last, the study researches people in different situations, whether the units of product that they buy will be changed. In this way, the study is prone to know that if purchase quantity limit is an effective anchoring.

Table 1: Gender distribution.

Gender	Male	Female
Frequency (%)	41	59

Table 2: Age distribution.

Age	Below 20	21-35	36-55	Above 56
Frequency (%)	57.14	8.4	31.09	3.36

Table 1 illustrates that the proportion of female and male who participated in this questionnaire. It is easy to see that the number of respondents is disproportionately female, that 59% of them are female compared to 41% of them are male. Table 2 illustrates that the majority of participants in this study are under the age of 20 years old.

It is known that female and male may have different perception of consumption. Generally, most female will think more carefully and logically and whether the products are economical and practical when they are shopping. Comparing with male, most of them will buy things without too much hesitate, especially for property of product is consumables.

Age is also a factor may influence the result of purchase quantity limit. The reason is that people in different age groups will have different kinds of experiences, so that they will have the attitudes toward money. The second largest group of participants in this study are people with age between 36 and 55 years old. People in different age and gender will have different shopping habits. Therefore, it is worth to analyse how gender and age can affect the impact of purchase quantity limit on consumption behaviour.

Figure 1 below presents the distribution of shopping frequency of the participants of this questionnaire. It illustrates that most consumers have high shopping frequency. Among these 117 participants, 103 of them generally go shopping. It can be seen that most of them (about 42%) would go shopping twice per week, while 28 of them go shopping once a week. The number of people who go shopping once two week and once per week are almost the same, and together these two groups take 30% of the participants.

The study makes connection with age and frequency of shopping that people in different age have different frequency of shopping. People whose age below 20 often go shopping once every two weeks. It may due to the fact that people in that age are mostly students, and they do not have too much time to buy something. Therefore, their shopping frequency is relatively low.

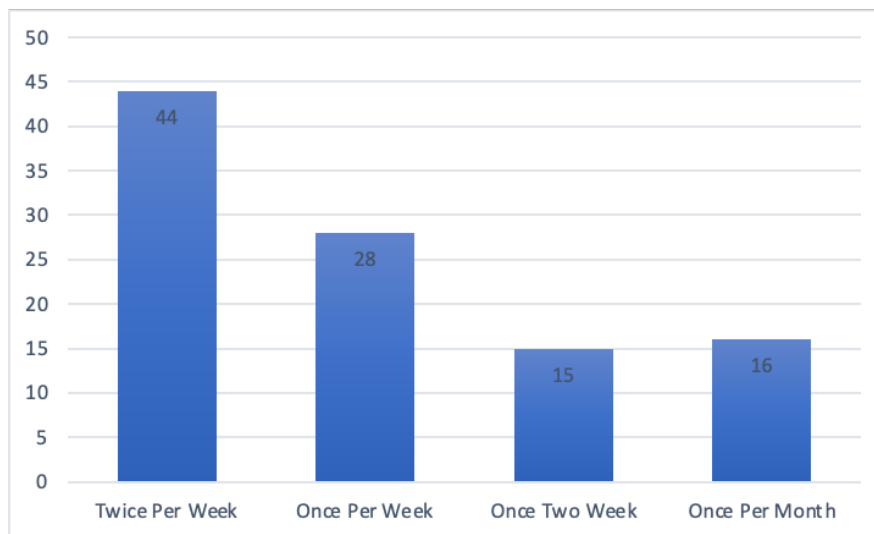


Figure 1: Distribution of Shopping Frequency.

People whose age is between 21 and 35 years old often go shopping once every week. Relatively speaking, their frequency of shopping increases a little compared to those under-20s. This is because people in that age will have more shopping requirement such as buying daily supplies. In that age range, people become more independent, so they need to go shopping for themselves instead of requiring assistance from their parents.

For those who are aged between 36 and 55 years old, their shopping frequency is the highest among the participants. The reason is people in this age are mostly have their own family, they have responsibility to take care of the whole family. Therefore, they need to buy some things to supply the requirement of the whole family and their shopping frequency are higher.

This paper also studies that different gender may cause different shopping ways. The readers can see that female's shopping frequency are higher than that of male. Female pay more attention on family from physiology. Therefore, they have higher shopping frequency in order to supply family requirement.

### 3.2. Anchoring Effect from Quantity Limit

The first scenario question asks consumers who wish to buy Alkaline mineral water with 1 box. However, the board besides goods shelf signs that there is a quantity limit of 2 cases per person. Among all consumers, 100 of them decided to buy the units of alkaline mineral water that you required. Only 19 consumers decided to buy the maximum units of alkaline mineral water. It clearly shows that purchase quantity limit does not affect most consumers decisions when buying Alkaline mineral water.

In terms of the scenario questions related to purchase quantity of vegetables, the data shows that 106 consumers stick to buy their required units of vegetable, compared with only 13 consumers choose to buy to the maximum quantities of vegetable.

The study also uses another application of anchoring, brand promotion, to compare with purchase quantity limit. The study makes a research that when consumer go shopping with shampoo. They only want to buy one bottle of shampoo at the beginning, however, the board besides goods shelf signs that “buy two get one free”. In this question, the data shows that 59.66% consumers decide to buy 3 bottles of shampoo.

The last scene question is when consumer go shopping with apples. Assumes that the consumer wants to buy apple with one catty. Then, the consumer sees the promotion that “buy two catties get half catty for free”. The result shows that most of the consumers, 66 of them, choose two buy two catty of apple.

It can be seen that different kinds of products may cause different function of purchase quantity limit. According to the four scenario questions, when consumer go shopping with alkaline mineral water, although there is a quantity limit of two bottles, most consumers still choose to buy the units of alkaline water that they need. However, with quantity limit of three units of vegetables, most consumer still choose to buy one bag of vegetable as they needed. To sum up, no matter the products are durable goods or consumables, it does not have too much effect to changes the units that consumers want to buy. Mostly consumer still consist their original choice.

In general, purchase quantity limit is an application of anchoring. At least, it has some influence on people who in particular age and female. People whose age between 36 and 55 are influenced by purchase quantity limit easier because they think more for family and they will easier have mental that they should buy things economical and practical. People who is a female are also be affected by purchase quantity limit easier because from mental angle, female will more careful when they do something especially go shopping.

This study pays attention that this kind of phenomenon only have in a small group of people whose age between 36 and 55 and female. However, the study does not support the idea that purchase quantity limit is an effective anchoring. As when most consumer see there is a limit quantity, they still choose the units that they want. The author suggests that the seller should not make purchase quantity limit as a major and effective anchoring. The function of this kind anchoring is not very useful for most consumers.

#### 4. Conclusion

This paper mainly illustrates what is the purchase quantity limit and whether it is an effective anchoring effect. A questionnaire is used to collect data and analyse consumers' shopping habit in order to determine whether purchase quantity limit can make a positive influence to sellers and consumers. The results show that purchase quantity is an anchoring, but it is not effective for most consumers. It only influences some particular people such as people whose age between 36 and 45 and some female consumers. This paper also needs to be improved. For instance, the questionnaire should be sent to a larger group of people in order to be more representative. This paper should also study more factors that may influence the effect of purchase quantity limit.

However, purchase quantity limit is not useless completely. The study suggests that the seller can use this anchoring in some particular products such as durable products that people often using it in their daily life. This kind of products are widely used in people's daily life and the number that people need is very large. Therefore, the quantity limit may change consumers' shopping decision. The sellers also ought to pay attention on the time of using purchase quantity limit. If the sellers always use this method, it may cause the aversion of consumers. They will think they are teased by the sellers.

Last but not the least, purchase quantity is a kind of anchoring effect, but it is not effective for most consumers.

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