

# A study on factors that influence on consumer's shopping behaviour on E-commerce platforms

HCIN600 group 5  
Rochester Institute of Technology  
Rochester, NY

## ABSTRACT

With the fast development of e-commerce websites, and the growing number of products that can be bought online, understanding people's online shopping behaviors becomes increasingly critical as people are exposed to completely different advertising and marketing patterns compared to physical shopping. In this report, we analyze the shopping patterns of customers who shop on Amazon. We first hypothesize that given the same product, and holding everything else equal, negative top reviews should impact people's inclination towards not buying a product. Then, we will also speculate that amongst all the factors influencing customers' purchasing intention, the delivery time will have the least impact on their decision. We conducted two separate experiments to test each of the hypotheses. For the first test we asked participants to compare different products and for the second test we asked them to walk us through their selection process. We observed through statistical analysis that if a product has a negative top review it significantly influences the user not to purchase the product. Also, customers are willing to wait for a longer period of time for delivery if they find a product that meets all their criteria and requirements.

## INTRODUCTION

The development of internet since late 1990's transformed our society drastically on multiple dimensions, one of them is the shopping habits. Online e-commerce platforms emerged and evolved very quickly, as shown in [2], their economical values in terms of GDP increased rapidly with each year. So evidently, there are multiple studies that have been done to analyze the factors that affect customers behaviours so that companies can re-brand and incorporate changes to their products which will lead to more economical gain for both the company and the e-commerce platform [1, 3, 4].

In this paper, we conducted quantitative research to study the factors influencing customers' shopping patterns on the e-commerce platform Amazon. Amazon recently surpassed Walmart for being the world's largest retailer outside of China. Therefore, the influencing factors for Amazon shoppers could be generalized to customers of other online retailers. Another reason that we choose Amazon for our study is that Amazon provides an extensive set of customer feedback metrics. In this study, we will be focusing on studying the effects of these five metrics on the customer's intention to purchase a certain product: discounts and offers on a product, number of reviews, good/bad top reviews, description and photos of the product, and convenience of delivery.

The data collection is conducted through multiple sessions in which the authors observe how the participants shop on Amazon. Our first hypothesis is that a negative top review of a product will have more effect on the user's purchasing decision than a positive review. To test this, we proposed three different settings of the same product to different customers, and recorded their decision making processes. Our second hypothesis is that compared to the factors such as good reviews, high overall product rating and clear product description and photos, delivery plays a less important role. To test this hypothesis, we let the participants shop freely on Amazon to purchase a product, and we observed the impact of these factors on their final decision: discounted price, number of reviews, product photos/descriptions, overall rating and delivery option.

We interviewed a total of 15 participants. For the first hypothesis, we proposed three combinations for factors of a winter jacket product in which we vary the discounted price and the ratings of top reviews. The results analysis show that people are much willing to buy if the product is discounted even though the non-discounted product has a higher number of positive reviews. In the second study in which we let the customers to purchase a product of their own choice, we observe that delivery fee and time are not crucial factors to shift customer's final decisions, but again the discounted percentage is the most crucial factor.

Although the study is on only 15 participants, but the insights gained from the experiments are valuable to understand customer's mindset. Classical economists value free market because they believe everyone's interest is maximized when two principles are satisfied: (1) the buyers know the as much information as possible about the supply market and (2) the suppliers know also as much possible about the buying market. We think that online market platforms such as Amazon are closer to the free market style as traditional retailers. Classical economists also advocate for "rational animals" as they believe that in free market, everybody acts to maximize his/her own interest. Our findings align with this principle because both experiments show that discounted price is always the key influential factor.

## METHODS

We conducted both the studies on 15 participants, and each test lasted around 10 minutes. The first experiment's aim was to study the effects of various factors like discounts and offers, number of 5 star reviews, and reviews of a particular that

Setting	Discount	Number of 5 star reviews	Top reviews
1	No	Low	Good
2	Yes	High	Good
3	Yes	High	Bad

**Table 1. Hypothesis 1 Experiment. All settings are for the same winter jacket product.**

Product	N	Min.	Max.	Mean	Std. Dev
p1	15	5.00	7.00	5.80	0.77
p2	15	7.00	9.00	7.93	0.80
p3	15	1.00	3.00	1.60	0.74
Valid N (listwise)	15				

**Table 2. Descriptive analysis of likert scale rating given by participants**

influence customer's purchase decision. The product that we selected for our study was a winter jacket. We asked users to compare these three products. Each product was a combination of different values of factors we wanted to test. The three settings are in the Table 1. Because these settings are not readily available online for comparison, so we used PhotoShop to modify the product description and other values. We then presented these three pictures with different settings to the participants at once and asked them to compare these three products and give a score based on their likeliness to buy the product. Participants gave a score that ranged from 1 to 9, where 1 tells that the user is definitely not going to buy the product and 9 tells that user is definitely going to buy the product.

The second study aims to study the hypothesis that convenience of delivery will play a less important factor when the customer feels that other factors like reviews and ratings to be satisfactory. For this experiment we asked users to lookup for a product of their choice and asked them to walk us through their selection process. We did not restrict the participants with time so some of the participants took around 5 minutes to select a product and other took around 15 to 20 minutes. But on an average each person took around 10 minutes to select a product and based on observation this duration to select a product depended on the price of the product and mood of the participant. Because as one of the participant told that if he wants to buy an expensive product, he usually takes around and often doesn't select the product on the first search itself, he comes back later after asking opinion of others and then selects the product. Based on their explanation and our observation we made a list of each participant's perception of importance of a particular factor, this list has a scale ranged from 1 to 5, where 1 being the most important factor, and 5 being the least important factor.

## RESULTS

Review Type	N	Mean Rank	Sum Ranks
Bad	15	8.00	120.00
Good	15	23.00	345.00
Total	30		

**Table 3. Mean analysis based on the type of top review (Higher the mean Higher are the chances of customer buying the product)**

Wilcoxon W	120.00
Z	-4.76
Asymp. Sig. (2-tailed)	< 0.001
Exact Sig. [2*(1-tailed Sig.)]	< 0.001 <sup>b</sup>

**Table 4. Results of Wilcoxon Sign test conducted on the results of first experiment**

	N	Mean	Std. Dev.	Min.	Max.
ratings	15	3.67	1.18	1.00	5.00
reviews	15	1.93	0.70	1.00	3.00
discount price	15	1.33	0.49	1.00	2.00
delivery	15	4.73	0.46	4.00	5.00
desc. photos	15	3.33	0.62	2.00	4.00

**Table 5. Descriptive analysis of the order of importance of factors that influence a purchasing decision**

To analyse the results of the first experiment we first compared the mean of the likert scale data as seen in Table 2. According to the mean of the ranks we see that product 2 (The product that has a discounted price and has positive top reviews) is the most preferred product. An interesting observation that strengthens our hypothesis (if a product has a negative top review, even though the product is discounted, people will not buy that product) is that product 1 (Product with no discount and a positive top review) is more preferred than product 3 (Product with discount but a negative top review). To strengthen the proof for our hypothesis we used Wilcoxon Sign test to test the dependency of the likeliness of the customer buying the product on the type of positive review. So we can see in Table 3 the results of our W value is 120 and Asymp. sig (2-tailed) is less than 0.05, so we can conclude that based on our results a negative top review has a significant effect on users purchasing decision

To analyse the results of the second experiment we used Kendall's Coefficient of Concordance (W) test to measure if the participants of the experiment are in agreement with each other about the order of importance of different factors that affect their purchasing decision. Table 5 shows the list of some of the most significant factors that influence customer's decision and the mean gives an idea of their order of importance. And as we can see from the Table 6 that the Kendall's Coefficient of Concordance (W) is 0.748 which shows the participants are strongly agreeing with each other so our ranked list reflects the opinion of the participants. This strengthens the validity of our hypothesis because most of the participants felt that the convenience of delivery (delivery time) plays a less important role compared to other factors.

## DISCUSSION

N	15
Kendall's W <sup>a</sup>	0.748
Chi-Square	44.853
df	4
Asymp. Sig.	< 0.001

**Table 6. Results of Kendall's Coefficient of Concordance (W) test conducted on the results of second experiment**

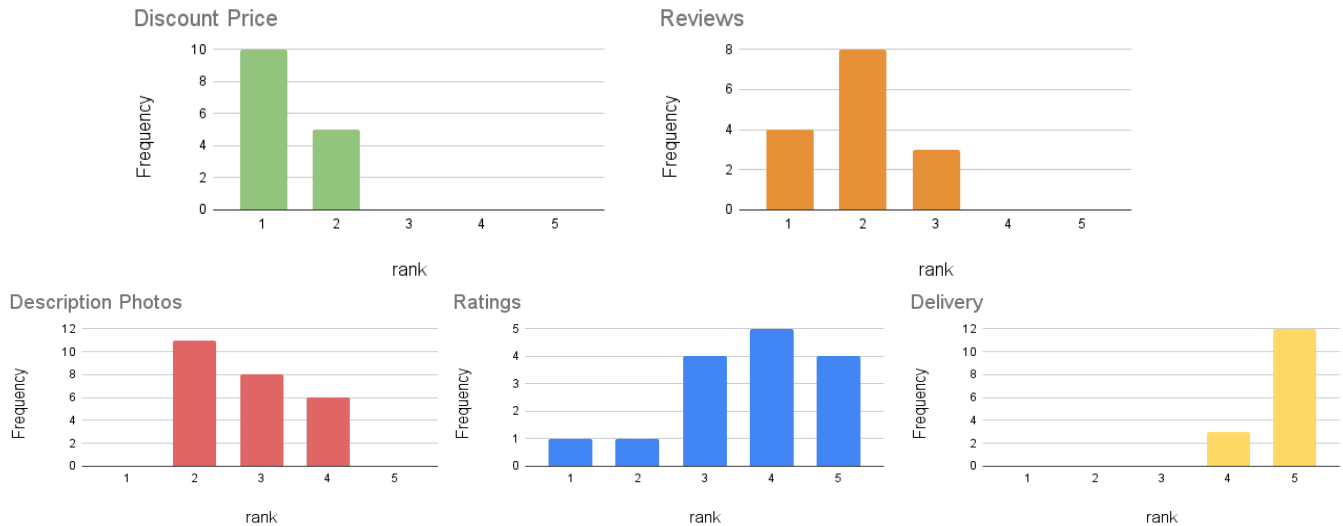


Figure 1. The frequency of ranking for each factor in the hypothesis 2 experiment.

We observed that multiple participants when going through reviews, are much more influenced by the negative reviews than the positive ones. For example, when the overall product rating is genuinely good, above 4.0, at most 2 negative reviews are able to shift their decision from buying to not buying. Also, participants spend much more time reading the negative reviews than the positive ones. While rationally speaking, small percentage of negative reviews is a small probability event, which means that if the participants do buy the product, it will be very likely that they will be satisfied with the product as most of the people, given the fact that the reviews are faithful. Another observation is that some participants differentiate between reviews on the product itself vs reviews on other factors such as delivery experience or packaging issue. These participants value more the reviews on the product than other reviews. Then, the photos posted by buyers tend to give participants more confidence to trust the faithfulness of the reviews.

As reflected from the quantitative analysis in the previous section, discount and the discount amount are the most crucial causing factors for buying. For participants that are less influenced by this factor, their opinion is that discount is usually a marketing trick to lure the customers into buying the product while the retailers could have increased the price, then put on a discount tag which makes the final price same as the original one.

Besides the two formal hypotheses, we also speculate in the beginning that the overall product rating should be a highly impact factor following the product discount. However, the analysis turn out that the rating is less influential than what we initially believed. As shown in the previous section, the rating is ranked among the second least influential factor just above the delivery fee/time. The primary reason is that participants are aware of the fact that retailers can easily manipulate the reviews. Recently, Amazon banned thousands of third-party retailers because they have found evidence that these retailers

purposefully manipulate the reviews, for example send free products to people in exchange of good reviews or ratings.

Some of the limitations of our study were the number of participants, we interviewed around 15 participants only so if we expanded this study with more participants we would have more confidence about the results of our statistical tests. The second limitation is that most of our participants were students who are usually budget conscious so this study is a bit biased towards students mindset.

## CONCLUSION AND FUTURE WORK

In this paper, we conducted quantitative experiments to study people's shopping intentions on the e-commerce platform Amazon. We started with two hypotheses (1) given the same product, discounted price is the most influential factor among all factors and (2) the delivery time/fee have the least effect compared to other factors. We held sessions with participants in which we observe their shopping behaviors and record their rankings on different factors. After statistical analysis on the data collected, we concluded that discounted price is indeed the factor having the largest effect. Also, the delivery time/fee influences the least the people's final buying decision as we have speculated in the hypotheses. Future studies that extend our work in this report could be to study the variance in shopping patterns among people of different gender/ethnicity/educational background. Also, it could be interested to conduct similar experiments to this report during holiday sales seasons.

## REFERENCES

1. Kwek Ling, Teck-Chai Lau, and Tan Piew. 2010. The Effects of Shopping Orientations, Online Trust and Prior Online Purchase Experience toward Customers' Online Purchase Intention. *International Business Research* 3 (06 2010). DOI : <http://dx.doi.org/10.5539/ibr.v3n3p63>
2. Florin-Valeriu PANTELIMON, Tiberiu Marian GEORGESCU, and Bogdan-Stefan POSEDARU. 2020. The Impact of Mobile e-Commerce on GDP: A Comparative Analysis between Romania and Germany and how Covid-19 Influences the e-Commerce Activity Worldwide. *Informatica Economica* 24, 2 (2020), 27–41. <https://ideas.repec.org/a/aes/infoec/v24y2020i2p27-41.html>
3. Chao Wen, V.R. Prybutok, and Chenyan Xu. 2011. An integrated model for customer online repurchase intention. *Journal of Computer Information Systems* 52 (02 2011), 14–23.
4. Wann-Yih Wu, Phan Thi Phu Quyen, and Adriana A. Amaya Rivas. 2017. How e-servicescapes affect customer online shopping intention: the moderating effects of gender and online purchasing experience. *Information Systems and e-Business Management* 15, 3 (01 Aug 2017), 689–715. DOI : <http://dx.doi.org/10.1007/s10257-016-0323-x>