

The Impact of Last-Mile Delivery on E-Commerce: A Systematic Analysis of Consumer Satisfaction

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Submitted to:

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Registration Trimester: Spring 2025



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Letter of Transmittal

November 10, 2025

Dr. Mimmun Sultana

Assistant Professor, SoBE

United International University

Madani Avenue, Dhaka

Subject: Letter of Transmittal

Dear Ma'am,

I am Masum Billah, a BBA student of the 201 batch, majoring in Supply Chain at United International University. I am currently preparing a project on “The Impact of Last-Mile Delivery on E-Commerce: A Systematic Analysis of Consumer Satisfaction”. I have collected information from both primary data and secondary data, which I found easily in Google Scholar. I have done my best to ensure that this stays as accurate as possible. I think this research will make a significant contribution toward e-commerce business.

I sincerely hope that you find this report informative and engaging. If you have any questions or need further clarification, please do not hesitate to contact me at 01709173859 or via email at mbillah201266@bba.uiu.ac.bd.

Thank you.

Sincerely,

Masum Billah

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BBA (Supply Chain Management)

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Certification of Similarity Index

The Impact of Last-Mile Delivery on E-Commerce: A Systematic Analysis of Consumer Satisfaction submitted by Masum Billah, Batch 201, Id 111201266. In order to fulfill of degree of verification of BBA at United International University. The report has been thoroughly observed and reviewed. Moreover, this project ensures the policy of originality and academic integrity. All sources have been properly acknowledged.

Verified by:

Dr. Mimmun Sultana

Assistant Professor, SoBE

United International University

Declaration of the Student

I Masum Billah, a student of the Bachelor of Business Administration, batch 201, major in Supply Chain at United International University, hereby declare that the project report on **“The Impact of Last-Mile Delivery on E-Commerce: A Systematic Analysis of Consumer Satisfaction”** is based on both primary and secondary data and represents my original work. I also assure you that this project has never been used previously.

Masum Billah

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BBA (Supply Chain Management)

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Acknowledgement

I would like to thank everyone who supported me throughout the process of preparing the report on “**The Impact of Last-Mile Delivery on E-Commerce: A Systematic Analysis of Consumer Satisfaction.**”

At first, I would like to express my sincere gratitude to my honorable supervisor, Dr. Mimmun Sultana, Assistant Professor, SoBE at United International University for her valuable guidance, support, and encouragement. Then, my heartfelt thanks to my friends and family, and fellow students who shared their opinions in the survey and made the data collection possible. Their cooperation helped me to conduct the research and study further on primary data. Finally, I am thankful to my university for giving me the opportunity to conduct original research, which helped me broaden my horizon and in my academic journey.

Masum Billah

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Abstract

E-commerce has created an epic revolution in consumer nature and their purchasing behavior. Because it offers more convenience than a traditional market. Because it's easy to access, moreover, a person can compare the price in multiple stores, which helps the consumer to increase their purchasing power and create more flexibility. However, the efficiency and reliability of the supply chain totally depend on the final stage of the supply chain, which is the last-mile delivery. Because it is one of the key elements of consumer satisfaction. The last-mile delivery process is more like the (80/20) rule. which means 80 percent of satisfaction comes from 20 percent effort, and the remaining 20 percent satisfaction comes from 80 percent effort. In order to verify the hypothesis, the study investigates the delivery speed, reliability, quality, and cost. These four mainly are independent variables, and consumer satisfaction is the dependent variable. One directly affects another. In order to validate the hypothesis around 70 consumers survey has been collected and analyzed to determine their answers on the key factors of consumer satisfaction, loyalty, and trust. The report findings reveal that the timely delivery increases confidence, but product safety and affordability could also have a significant impact on the output. Moreover, the study shows the preference of cash on delivery, which totally reflects the lack of trust in both digital payment system and e-commerce. The regression analysis shows a moderate relation between last mile delivery and consumer satisfaction.

Key words: E-commerce, Last-Mile delivery, 80/20 rule, Empowering consumer, Satisfaction

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List of Equations

Equation 1: Regression Model for Consumer's Satisfaction

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where:

- Y = Consumer Satisfaction Score
- X_1 = Delivery Speed
- X_2 = Delivery Cost
- X_3 = Reliability / Packaging Quality
- X_4 = Delivery Personnel Behavior
- β_0 = Intercept
- $\beta_1, \beta_2, \beta_3, \beta_4$ = Regression Coefficients
- ε = Error Term

Equation 2: Correlation Coefficient

$$r = \frac{\sum(X - \bar{X})(Y - \bar{Y})}{\sqrt{\sum(X - \bar{X})^2 \sum(Y - \bar{Y})^2}}$$

Where:

- r = Correlation between delivery factor and satisfaction
- X = Independent variable (e.g., delivery time)
- Y = Dependent variable (satisfaction score)
- $\bar{X}, \bar{Y}$ = Mean values of X and Y

Equation 3: Average

$$\bar{X} = \frac{\sum_{i=1}^n X_i}{n}$$

Where:

- $\bar{X}$ = Average value
- X_i = Each individual observation
- n = Total number of observations

List of Acronyms & Abbreviations

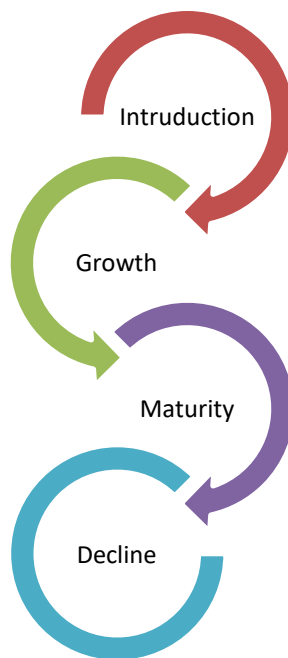
Acronym	Full Form
AB	Actual Behavior
BDT	Bangladeshi Taka
COD	Cash on Delivery
ECT	Expectation–Confirmation Theory
ETA	Estimated Time of Arrival
GPS	Global Positioning System
ICT	Information and Communication Technology
KPI	Key Performance Indicator
R ²	Coefficient of Determination (Regression)
SERVQUAL	Service Quality Model
SKU	Stock Keeping Unit
SCM	Supply Chain Management
X_1	Delivery Speed
X_2	Delivery Cost
X_3	Reliability / Packaging Quality
X_4	Delivery Personnel Behavior
B2C	Business to Consumer
B2B	Business to Business

C2C	Consumer to Consumer
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CHAPTER I: INTRODUCTION

1.1 Background of the Study

The journey of e-commerce is very encouraging. Whoever thought shopping could be so convenient, fast, and comfortable. With a few clicks, consumer can browse, compare, and purchase goods without leaving their home. (Gulfraz, 2022)E- commerce has transformed shopping in another dimension. The market of e-commerce market is increasing day by day. At the beginning, it only covers the urban areas, but nowadays it's accessible all over Bangladesh. In an industry life cycle, there are mainly four stages. (Quaddus, 2015)



We can say the e-commerce is still in growth stage in Bangladesh. Research shows around 3 out of 10 people shop online. So a lot of scope to grow in Bangladesh. The foundation of e-commerce was established during the raise of mobile banking. (Is the E-Commerce Growth in Bangladesh Worth Celebrating?, 2022)This platform helped a lot

to learn about online transactions and helped them to overcome the barriers of traditional methods. Then the second phase begins when the logistics service becomes more popular in Bangladesh. And then, last-mile delivery was introduced in e-commerce in Bangladesh. (Ali, 2025)

1.2 Statement of the Problem

Like every coin, e-commerce has two sides too. It presents some challenges, too. A little ignorance could bring devastating news, like being scammed, hacked, etc. So cyber knowledge is mandatory. Not just that, there are a few other issue related to e-commerce that remains an obstacle in last-mile delivery.

Delivery delays: Congested traffic, poor infrastructure, etc., are the main reasons for late delivery.

High delivery charge: Price is also one of the factors in Bangladesh.

Damaged or Inaccurate delivery: Due to poor handling few breakable item get damaged.

lack of tracking: The lack of effective tracing reduces customers' trust.

Inefficient Return policy: Complicated and slow return process reduce both satisfaction and trust.

1.3 Objectives of the Study

The vision of the analysis is usually described in easy language. This is designed to be easily understood by any readers and researchers. The ultimate motive of the report is

to state the purpose of the research without making any assumptions. The overall goal of my research outlines what I want to learn or discover through hard work. The specific goals will detail what I will do, when, when, how and why at each stage of the research.

General objectives: The report analyses the Bangladeshi consumers purchasing behavior on ecommerce and to understand the relation between last mile delivery and consumers satisfaction.

Specific objectives:

- 1) To analyze how consumer satisfaction works towers on ecommerce.
- 2) To know whether Bangladeshi customers find online purchase safe or not.
- 3) Find out how last mile delivery affects consumer behavior in order to purchase.
- 4) To identify the influence of (speed, reliability, quality and cost) which are key segments of last mile delivery.
- 5) Seeks to understand how these factors work overall consumer satisfaction.
- 6) Find out the relation between last mile delivery and consumer's satisfaction.

1.4 Scope and Limitations of the Study

Scope: This study elaborates how last-mile delivery influences consumer satisfaction in Bangladesh. The scope of this project falls under four major attributes, like delivery speed, reliability, cost and quality, which directly impact Consumer satisfaction. The

outcome of this research could be:

- ✓ Understanding the online shopping patterns of Gen Z and others.
- ✓ Could easily measure consumer sensitivity to delays, damage and other issue and easily improve the key obstacles.
- ✓ Helping e-commerce to reduce time, stress and financial losses by improving delivery accuracy.
- ✓ Insights for logistics to optimize their route plan.
- ✓ Could manage evidence based recommendations for improvement.

Limitations: Although it could contribute to many things but still it could face few limitations too.

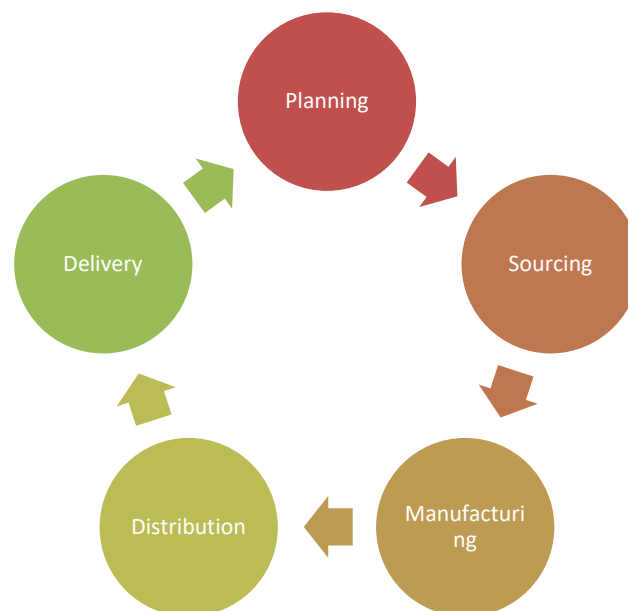
- ✓ Sample size is only around 70 could never represent all e-commerce user in Bangladesh.
- ✓ The sampling was mainly University students and younger people, which could create bias, as those outside the city might have a different experience.
- ✓ The total sample is from an urban area where delivery speed is much quicker and advantageous. But the case could be different in rural and semi-urban areas.
- ✓ Lack of resources like time, money, etc.

CHAPTER II: REVIEW OF THE LITERATURE

2.1 Relevant Theory

In this segment, I am going to discuss top four the most popular research about these four related topics like: Supply Chain Management Theory, Expectation–Confirmation Theory, Service Quality (SERVQUAL) Model and Customer Satisfaction Theory.

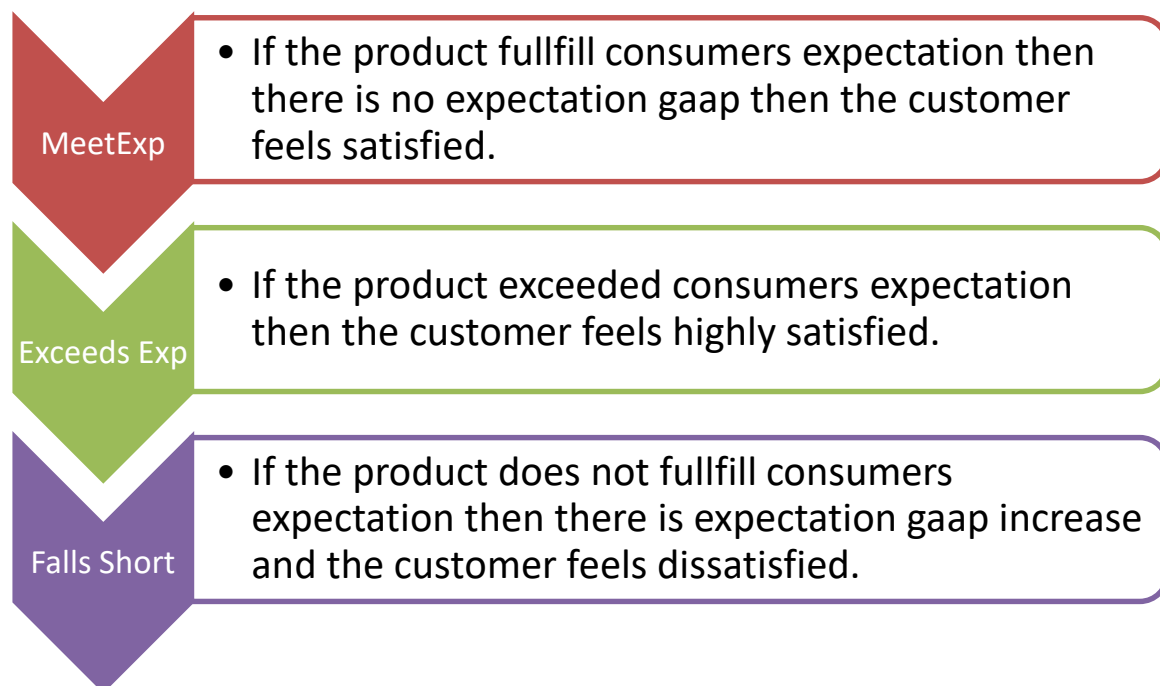
1. Supply Chain Management Theory: This theory explains how consumer satisfaction depends on five stage functions as one with the help of last mile delivery. Those five stages are:



From production to delivering to the customer everyone must work together as one to improve efficiency. The main idea is that every stage should be coordinated to work efficiently so the cost could be reduced, and consumer satisfaction could be increased.

(Agboyi, 2025)

2. Expectation Confirmation Theory (ECT): This theory explains how consumers satisfactory is created based on pre purchase expectation and post purchase experience. Their expectation first form based on ads, prior knowledge, or YouTube reviews. After gaining experience they might be satisfied or dissatisfied. (Rahi, 2022)
There are three segments here:



So, for example, an online delivery arrives 3 days after placing an order. If it arrives on time, then consumer is satisfied. If it arrives in one day, then he is highly satisfied and if late then dissatisfied.

3. Service Quality (SERVQUAL) Model: The SERVQUAL model is used to measure the gap between their expectations and their perception of the actual service delivered. It helps the org. to check how well their services meet consumers' needs or expectations. And identify the areas that could be improved. (SERVQUAL Model of Service Quality, n.d.) There are mainly five dimensions here:

Tangible Facilities, Equipment, Physical Objects

Reliability	Capable of performing an accurate service.
Responsiveness	Willingness to help.
Assurance	Knowledgeable & Trustworthy employees.
Empathy	Attention to the consumer.

4. Customer Satisfaction Theory: It explains that customer satisfaction arises when a product or service meets with customer's expectation. These types of consumers turn out to be loyal, and which is win-win for both parties. One is happy to be generating revenue, and another is happy to be able to fulfill its need. (Ungan, 2022)

2.2 E-commerce

E-Commerce is also known as buying and selling goods and services through an online platform. It has transformed consumer behavior by offering convenience, speed, and flexibility. Customer can purchase products without leaving their home with just a few

clicks. They can also browse products online, compare prices, and review the product with a few clicks. (Bloomenthal, 2025)

There are multiple types of e-commerce in Bangladesh. The most common one is (B2C), where the companies sell its finished goods directly to the consumer. Then another type is B2B. In here, the business sales are materials business. And lastly, there is also C2C. In here, people mainly trade second-hand items with each other. (Kenton, n.d.)

E-commerce has many benefits, like it saves time, being able to check wide range of products more efficiently, and comparing prices between shops. Customers receive the product without leaving the house. (Zande, 2024)

There is a saying, everything has its pros and cons. E-commerce is no different from them. A few challenges of e-commerce are given below:

- 1) Customers are unable to touch or test the product before buying.
- 2) Delivery might take longer than expected.
- 3) Sometimes you might get low-quality items at a high price.
- 4) There is also concern about payment security.
- 5) Might hamper privacy by sharing personal information.

Overall, in Bangladesh, e-commerce is still in a growing stage. It has significant potential for expansion. Firstly, it was limited to urban areas only, but nowadays it is accessible to the whole country.

2.3 Last-mile Delivery

Last, my delivery is the final step of the supply chain. In here, the products are transported from the distribution Centre to the customer's doorstep. This is considered the most critical and expensive part of the logistics process. Because it directly impacts consumer satisfaction. (Catania, 2024)

Last-mile delivery has the ability to influence consumers' trust and loyalty. Factors like delivery speed, cost, reliability, and packaging quality play the most vital role in shaping customer perception. (How Does Last Mile Delivery Work and Who is Involved in the Process?)

In Bangladesh, last-mile delivery faces many unique obstacles that reduce customer satisfaction. They are given below:

- 1) High traffic volume/traffic congestion: Heavy traffic might create barriers in the delivery process. Which cause efficiency loss and overall delivery time delays.
- 2) Poor infrastructure: Narrow roads, over cowed cities, insufficient logistic optimization creates both financial and potential loss.
- 3) Lack of tracking.: Without real-life tracking consumers might feel uncertain Increase consumers concern regarding e-commerce and it's delivery system.
- 4) High delivery cost.: Could impact on consumer's decision making on e-commerce purchase. For an example: Sometimes delivery cost could exceed product price. This types of scenario creates impact on decision making.
- 5) Inefficient return policy: Consumers might have lost of challenges while returning the product. Sometimes ignoring it is much easier then retuning it. People are Uncomfortable before ordering things because if they don't like the product or quality they will face lots of challenges while returning the product. Moreover, many e-commerce sites do not allow returning policies as well. So, this also affect purchasing decisions.

So, to improve my last delivery company that should adapt a strategy which could improve the competitive advantage. For an example, route optimization, real time

checking, better packaging standards etc. Last-mile delivery is not just only a logistical function, it's a key that drives customer experience and brand reputation.

2.4 Consumer satisfaction

The most fundamental concept in service management is consumer satisfaction. It describes how well a company is able to satisfy consumers need or meet their expectation. In other words, it's the gap between what they expect and what they get. If the experience or the product exceeds the consumer's expectation, then It's becomes surplus. On the other hand, if their expectation gap increases then it's deficit. A deficit will increase dissatisfaction which impact negatively on the company in the long run. (Girsang, 2025)

The market environment is getting competitive day by day. The consumer's satisfaction becomes also more difficult than ever. However, the consumer's satisfaction has also become the key component for a successful business. Now a day, the companies compete for both product futures and experiences. Because consumer's satisfaction often leads to repeat purchase, customer loyalty, positive feedback. Satisfied customers usually recommend the service to their family and others which helped them to achieve market growth without any advertising expense. (Ramachandran, 2024)

In the context of this research on e-commerce and last mile delivery, consumer satisfaction has become more sensitive and crucial. Our concentrated shoppers seek fast delivery, reliability, quality, with reasonable cost. Too much delay, damage or high delivery cost impact directly on consumer satisfaction.

In short we can say consumers' satisfaction is the central element that leads a business one step closer to success.

CHAPTER III: RESEARCH METHODS

3.1 Research Design

This research follows both descriptive and quantitative methods to examine the relation between consumers' satisfaction with last-mile delivery. This study highlights how delivery speed, reliability, cost, and packaging quality relate to consumers' satisfaction. The feedbacks collected through the survey questionnaire are analyzed using qualitative techniques supported by descriptive statistics.

3.2 Survey method

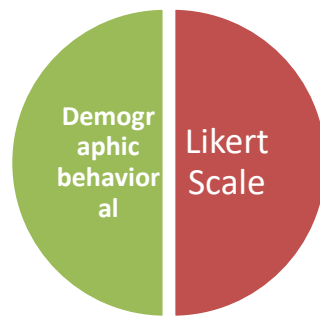
A survey-based approach is initiated to collect primary data from responders who actively use e-commerce. The survey questions were divided into two sections. one demographic and another Likert scale. Which is a psychological measurement index. The research followed a cross-sectional design to collect data at a single point, which makes it easier to learn about consumers' current experience.

In order to do so, a survey question was prepared on Google Forms to collect behavioral information among Bangladeshi diversifying customers. The survey questionnaire used in this study was developed specifically to measure the relations between last-mile delivery and consumers' satisfaction. The Likert technique is commonly used for scaling responses. Which also applied in this study. In the research, the measurement scale was structured as: Strongly Agree =5, Agree = 4, Neutral = 3, Disagree = 2, Yes = 1, Maybe = 0, No =-1, Strongly Disagree = -2.

Moreover, the Likert psychological measurement index has been segmented into five sections that are described below:

X_1	Delivery Speed	Independent
X_2	Delivery Reliability	Independent
X_3	Packaging Quality	Independent
X_4	Delivery Cost Sensitivity	Independent
Y	Customer Satisfaction	Dependent

In order to achieve my goals, I have developed those questions based on a research framework where X_1 - X_4 is the independent variable and Y is the dependent variable, which totally falls under the Demographic Behavioral, and Likert Scale method.



3.3 Sampling Method

The sample size is around 70 people; All are the most frequent users of the e-commerce platform in Bangladesh. This group was selected by using a convenience sampling method. Because they represent a top segment of consumers who are actively engaged in online shopping most. Their demographic information and behavioral information are analyzed in the findings section of the study.

Here, the purpose sampling which is also known as subjective sampling was used to

generate tables on gender and age group. Here, researchers intentionally select individuals who are most suitable for the study based on their own opinion. The main focus is on selecting participants who possess specific characteristics relevant to the study. By ensuring that the research questions can be effectively addressed. The exact criteria for selection may vary depending on the type of purposive sampling method applied.

Table 1. Gender Distribution of the sample				
Description	Frequency	Percent	Valid Percent	Cumulative Percent
Female	9	13.4	13.4	13.4
Male	58	86.6	86.6	100
Total	67	100	100	

The survey's total population is 86.6% are men and 13.4% are women.

Table 2. Age Distribution of the sample				
Age	Frequency	Percent	Valid Percent	Cumulative Percent
20	2	2.99	2.99	2.99
21	5	7.46	7.46	10.45
22	9	13.43	13.43	23.88
23	10	14.93	14.93	38.81

24	13	19.40	19.40	58.21
25	11	16.42	16.42	74.63
26	7	10.45	10.45	85.07
27	4	5.97	5.97	91.04
28	3	4.48	4.48	95.52
29	2	2.99	2.99	98.51
30	1	1.49	1.49	100.00
Total	67	100	100	

After conducting the survey, we can see that all the participants are between the ages 20-30 years old. In here, the highest number of participants are around 24 years old which is 19.40% and the lowest number of participants are found in 30 years old which is only 1.49%.

3.4 Procedures of Collecting Data

The data is mainly collected from two sources. Most of the study based on primary data collected from survey. And the secondary data is collected from several books, newspaper articles, google scholars reports and internet sources.

3.5 Data Analysis

The data are collected using the Likert scale, which is a psychological measurement index. The interpretation is given below in Chapter 4. This analysis has been prepared using Google Form, MS Word, and MS Excel.

3.6 Ethical Consideration

I have received support from several people who helped to share the survey link with potential consumers, as per their knowledge. Their help made it possible to reach around 70 potential consumers within the time frame. Moreover, every participant had clear instructions before letting them fill out the form. Additionally, I have also informed the purpose of the study and elaborated it to them. The participation was totally voluntary, and their answers were only used for academic purposes.

CHAPTER IV: RESEARCH FINDINGS & ANALYSIS

4.1 Demographic Profile

After analyzing the survey, I have found out that among 67 participants, approximately 82% were male and 18% were female, which reflects the dominant male participation trend. Among those participants, around 61% shop online once a month or less than once a month. The remaining 39% are much more frequent shoppers. Moreover, the survey shows that the majority are occasional buyers. Around 52% of them shop between 500tk -3000tk online, But the 31% spend less than 31% which is the lowest portion of this survey. But among those 17% who are frequent shoppers, they spend more than 3000 per month in ecommerce shopping.

Now comes the Likert Scale segment of the survey. In here we can see the satisfaction rate with the last mile delivery is around 52% and maybe and dissatisfied population are around 48%. Although the majority is satisfied but there is too dissatisfaction or potential for improvement here. Moreover, this research shows that around 59% of the sample size are delay sensitive. 25% were natural and only 16% disagreed. Although, the majority of the samples were delay sensitive but around 60% of the sample don't want to pay any extra for quicker delivery. That clear indication of affordability outweighs urgency. Almost nearly all the population want their product in time without damage. In short, they want quality full services.

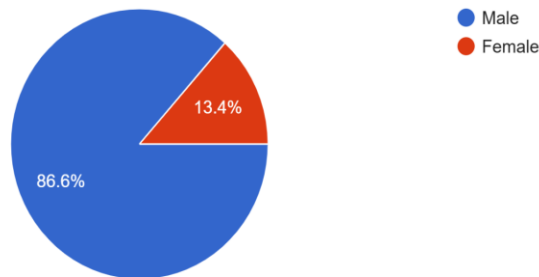
The analysis clearly reveal that the Consumer satisfaction is influence by last mile delivery or we can say the speed, cost, quality, and reliability factor.

4.2 Findings of the Survey

Gender.

The survey's total population 87% are men and 13% are women. Which has been shown in this diagram.

Gender?
67 responses

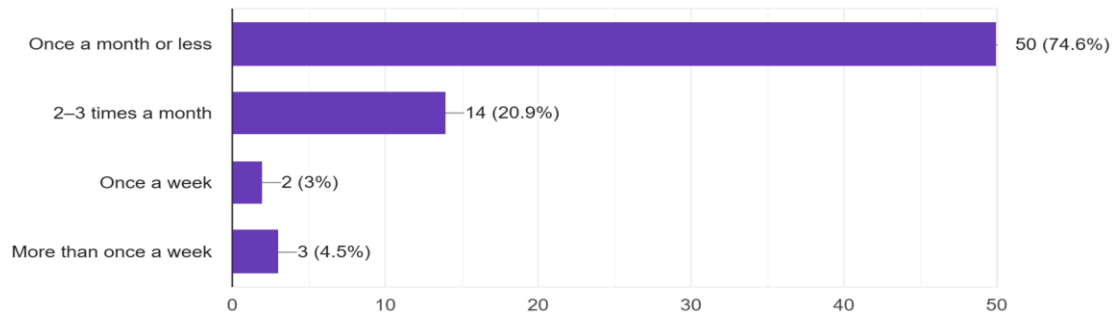


How often do you shop online?

We can easily understand by visualizing the chart. In the chart, we can see that around 75% of the population does online shopping once a month or less. Although the maximum number of people are not heavy online shoppers, their shopping ratio is not very bad either, which is 25%. These people are heavy online shoppers.

How often do you shop online?

67 responses

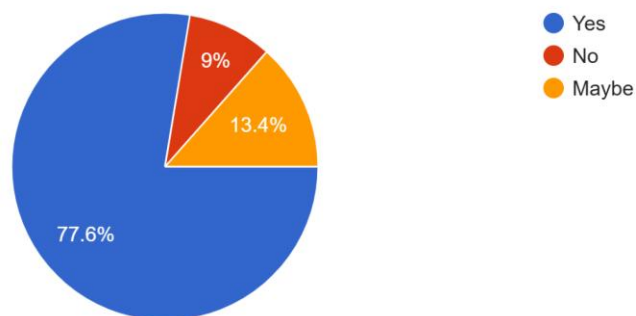


Do you enjoy shopping?

Here we can see that 74.6% of customers do online shopping once a month or less. Some customers are doing online shopping 2-3 times a month, which is 20.9%. Many people are purchasing once a week, which is 3% and 4.5% of customers who do online shopping more than once a week.

Do you enjoy online shopping?

67 responses

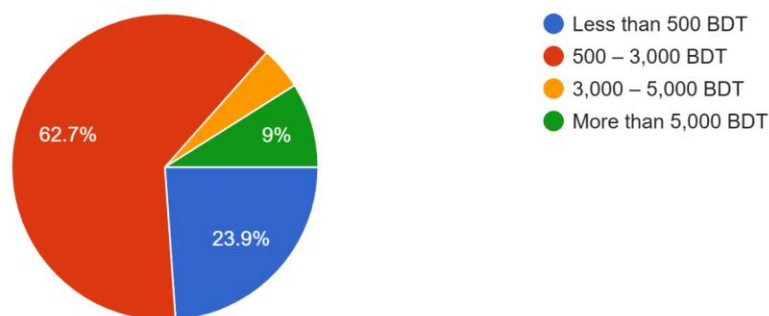


How much money do you spend on online shopping in an average month?

The pie chart shows that 62.7% people Spend 500-3000 BDT on online ecommerce shopping in a month. 23.9% people says that they spend less than 500 BDT on online in a month. And only 9% spend more than 5000 BDT.

How much money do you spend on online shopping in an average month?

67 responses

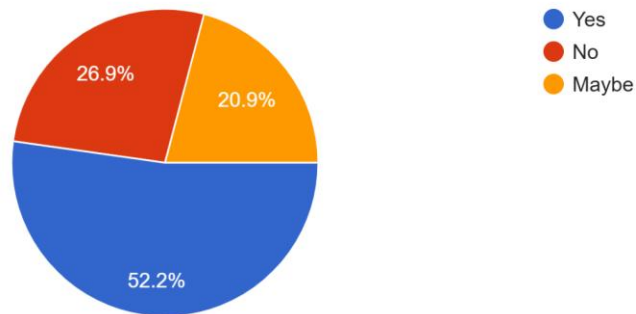


Are you satisfied with the overall last-mile delivery experience in Bangladesh?

Among the total sample more than half agrees with that they are overall satisfied with the current e commerce system which is around 52%. Then 21% of the survey participants say that they are not sure whether they are happy with the current situation or not. Lastly 27% of the people Saided that they are not satisfied with the current last mile delivery experience.

Are you satisfied with the overall last-mile delivery experience in Bangladesh?

67 responses

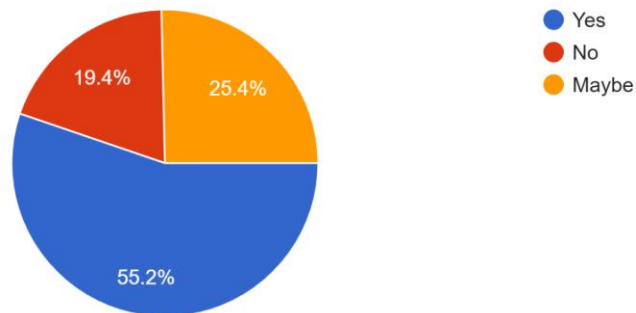


Are you satisfied with e-commerce delivery experiences?

The maximum responders say that they are satisfied with current e-commerce delivery experiences which is around 55.2%. Although, almost half agrees with the statement but almost one third also disagrees with the statement too. And below one third says that they are not sure whether they are satisfied or not.

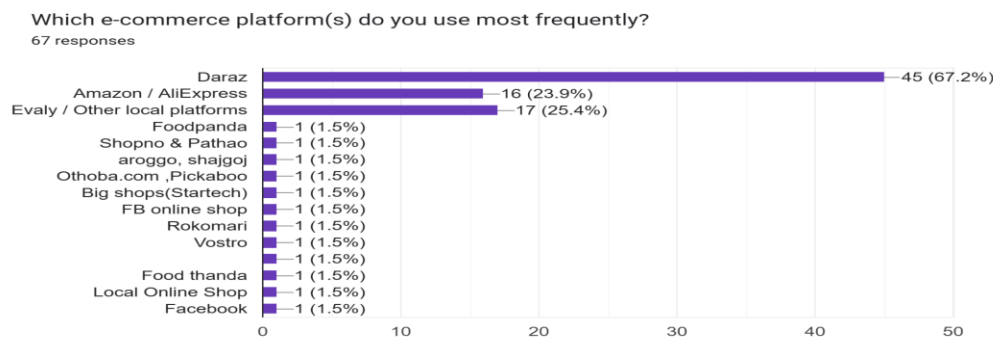
Are you overall satisfied with my e-commerce delivery experiences.

67 responses



Which e-commerce platform(s) do you use most frequently?

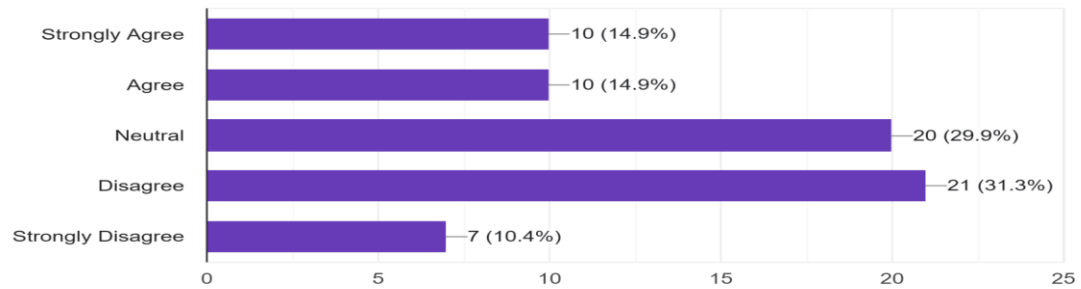
According to the data we can say, In Bangladesh the top three ecommerce platform are Daraz, Amazon and Evaly. These three are the top-famous platforms among our participants. But Daraz is the most famous one. Almost everyone on the survey list agreed that they are the frequent user of Daraz. There are other platforms too, but the percentage of users are not near equivalent as Daraz, Amazon and Evaly



The quick delivery could not improve your satisfaction.

The maximum number of people disagreed with the statement, which is around 41.7%. The second largest percentage is 29.9 % which is neutral at this scenario question. They might agree or disagree totally depending on scenario. The third largest percentage is 29.8%, which are the people who agree with the statement.

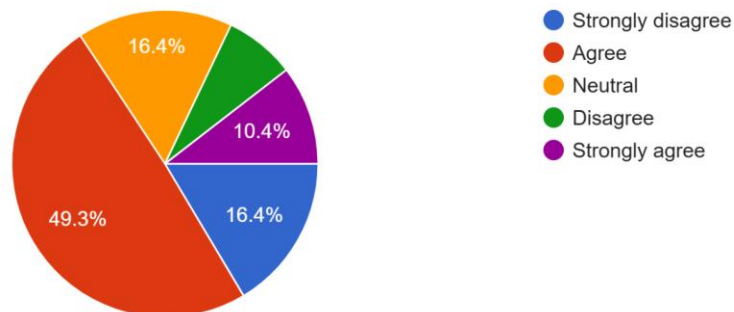
The quick delivery could not improve your satisfaction.
67 responses



A little delay in delivery makes me disappointed.

People have mixed feelings with this statement. 65.7% of people want quick delivery according to this survey. But only 16.4% totally disagree with the statement.

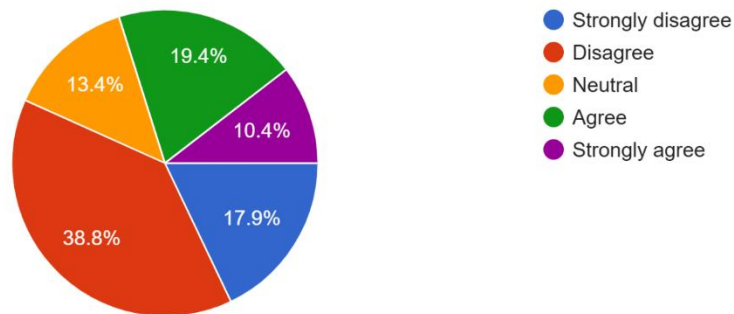
A little delay in delivery makes me disappointed.
67 responses



I am willing to pay extra for faster delivery.

This pie chart shows the percentage of people who are willing to pay extra for quick delivery. Around 37% of people agree to pay extra for quick delivery, which is not bad. More than one third of the people agree with this statement. But almost half of the population disagrees with the situation which is around 50%. Then the rest is remaining neutral.

I am willing to pay extra for faster delivery.
67 responses

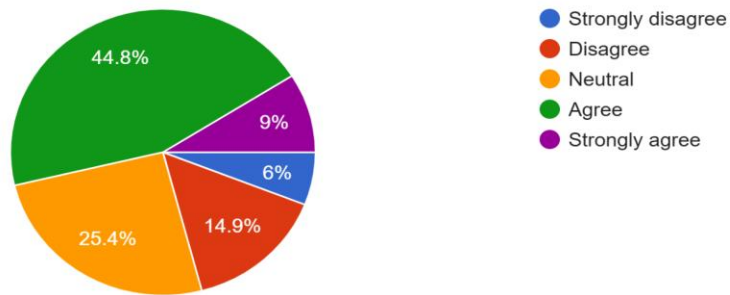


My package usually arrived without damage.

This pie chart shows the percentage of product comes unharmed. Although maximum people are saying that their product comes with without any damage. But there are few senarios that are showing that they recived their product with damanged goods. And there are few parcentages of people who are saying that thaey have no say in this matter.

My packages usually arrive without damage.

67 responses

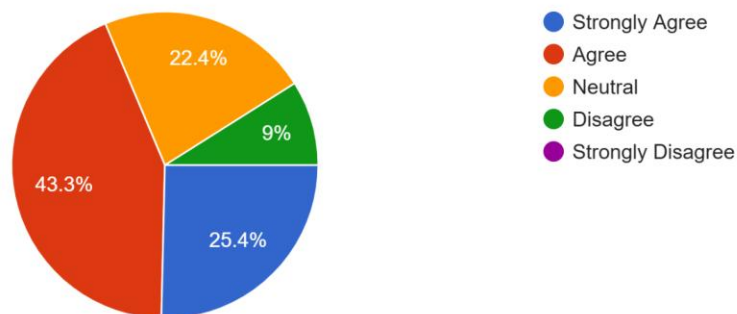


Even if delivery is slow, I value careful and safe packaging with low delivery cost.

This pie chart shows that most of the respondents prioritize safe packaging with low cost. Even if the delivery is slow that's not an issue. Around 43.3% agree in this matter and 25.4% strongly agree which adding up around 69% who favor this point. Meanwhile, 22.4% remains neutral and only 9% people disagree.

Even if delivery is slow, I value careful and safe packaging with low delivery cost

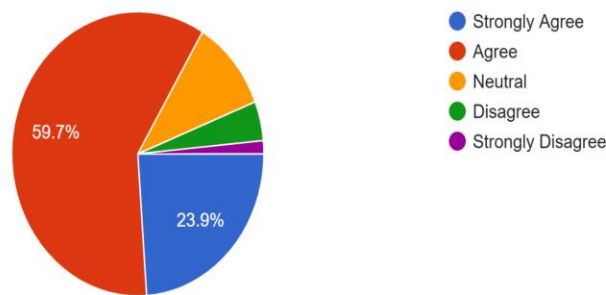
67 responses



The behavior of the delivery person affects my satisfaction.

This indicates that the behavior of the delivery person has strong impact on satisfaction. Majority of participants, 59.7% agree and 23.9% strongly agree. So, we can say 85 % of total respondents consider that delivery behavior is important. Only 8.9% are neutral. Meanwhile 4.5% disagree and 3% strongly disagree, which showing very minimal negativity.

The behaviour of the delivery person affects my satisfaction.
67 responses

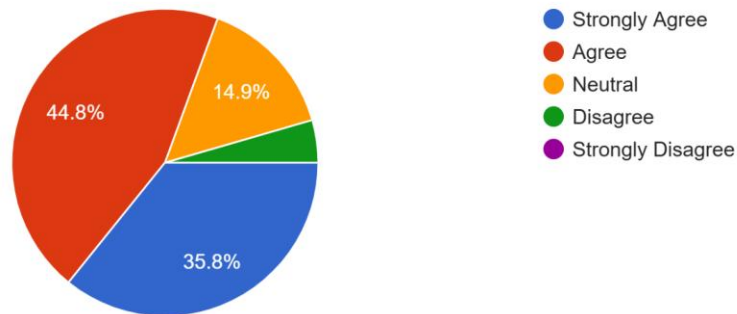


On-time delivery increases my trust in e-commerce companies.

The resonance shows that on time delivery significantly boosts trust. In light of this logic behind this statement, the pie chart clearly supports the logic. Around 44.8% agree and 35.8 strongly agree, which combined around 81% who believed on time delivery is crucial for trust. Only 14.9% are neutral and 4.5% disagree with the statement.

On-time delivery increases my trust in the e-commerce company.

67 responses

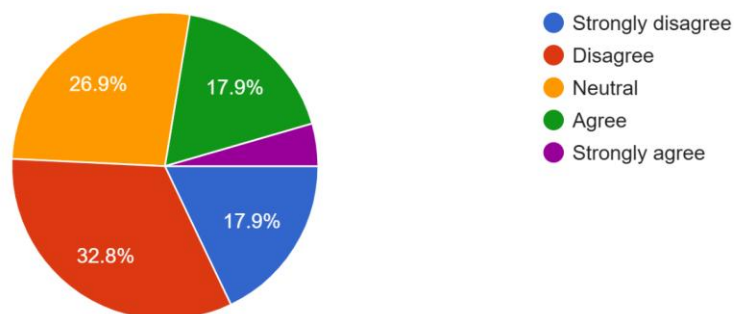


Quick delivery with a higher price might not be an issue for me.

The Pie chart shows mixed responses regarding paying more for quick delivery. About 32.8 disagree and 17.9 strongly disagree, meaning nearly 51% are not willing to pay extra for quick delivery. Meanwhile, around 26.9 are neutral and 17.9 agrees to pay extra for quick delivery.

Quick delivery with a higher price might not be an issue for me.

67 responses

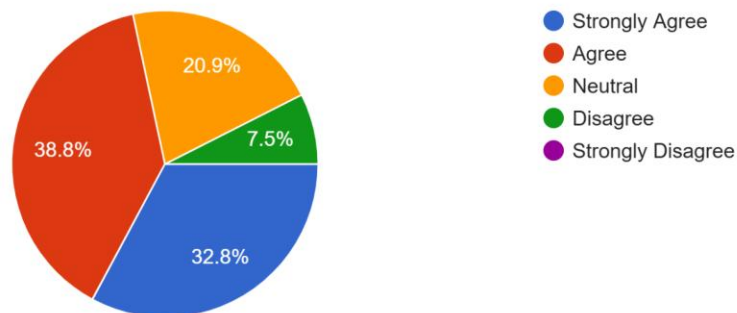


Delivery cost affects my decision to buy online.

The responses reveal that delivery cost has strong influence on purchasing decision. Around 38.8% agree and 32.8% strongly agreed that delivery cost is one of the major key factors. On the other side only 20.9% people are Said neutral and 7.5% people totally Disagreed with the statement.

Delivery cost affects my decision to buy online.

67 responses

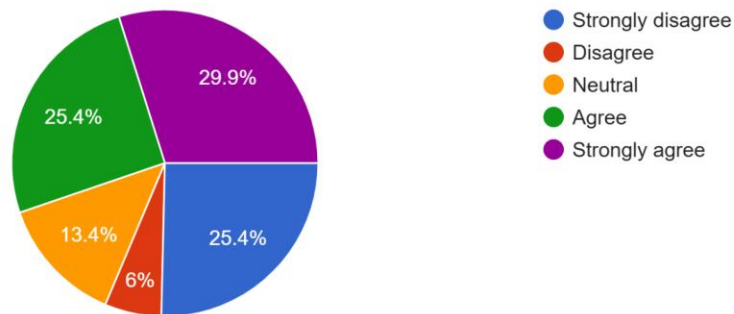


Cash on delivery is the most convenient payment option for me.

The pie chart shows mix opinions on cash on delivery is the most convenient payment method. About 29.9% strongly agree and 25.4% agree. Meanwhile 25.4% strongly disagree and only 6% disagree. Lastly, only 13.4% stayed neutral.

Cash on delivery is the most convenient payment option for me.

67 responses



4.3 ANOVA Analysis

	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	6.55175	1.6379	3.1318	0.0207
Residual	62	32.42586	0.523		
Total	66	38.97761			

Here we can see,

F value =3.13

Significance F = .020

Regression model summarizes variation in the dependent variables using four independent predictors. The analysis is showing four degree of freedom that explain a Sum of squares is 6.55175. When it is divided by the degree of freedom, the mean square becomes 1.6379, which is used to calculate F.

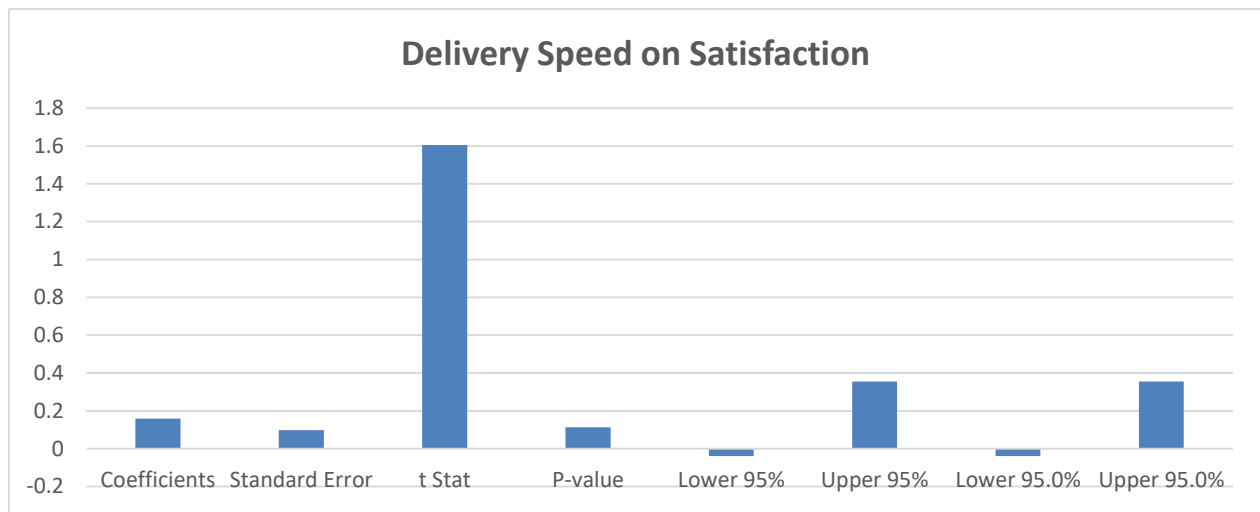
The Residual has 62 degrees of freedom, which has an SS 32.42586, indicating the quantity of variation that is unable to be maintained by the model. It also has an MS value, which is 0.523.

$P < 0.05$. So we can say the overall regression model is statistically significant, which means it has meaning that the last mile delivery has an impact on consumer satisfaction.

4.4 Analysis of the Consumers' Satisfaction

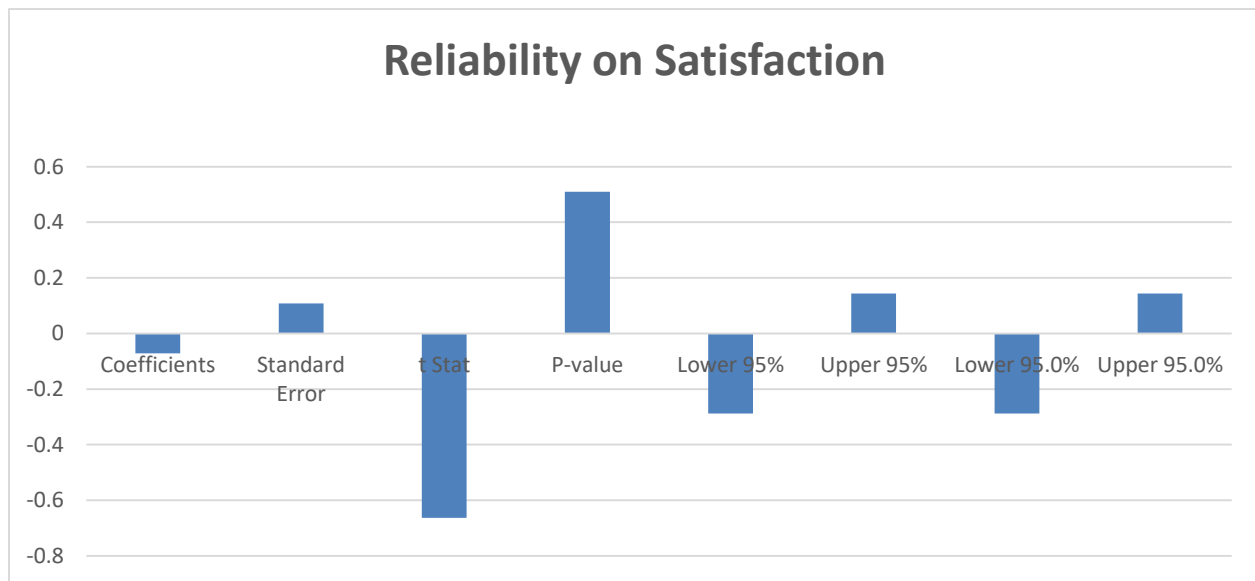
Effect of Delivery Speed on consumers' satisfaction: $X1 = (\beta = 0.158, p = 0.113)$, which is a positive result but statistically not very significant. So, we can say delivery speed is not a very dominant factor here, because a lot of our sample is cost sensitive. Providing the table and graph below for clear visual understanding and representation.

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
X1 (Delivery Speed)	0.158229	0.098566	1.605311	0.113507	-0.03888	0.355259	-0.0388	0.3553



Effect of Delivery Reliability on consumers' satisfaction: $X_2 = (\beta = -0.071, p = 0.509)$. The result is showing in a negative number. So it's not significant alone at all but I think there might be a little marginal error here. The result would be a little more influential if the sample number will be a little over 1000 and from different organizations.

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
X2 (Delivery Reliability)	-0.07162	0.10803	-0.66297	0.509805	-0.28757	0.144328	-0.28757	0.14433



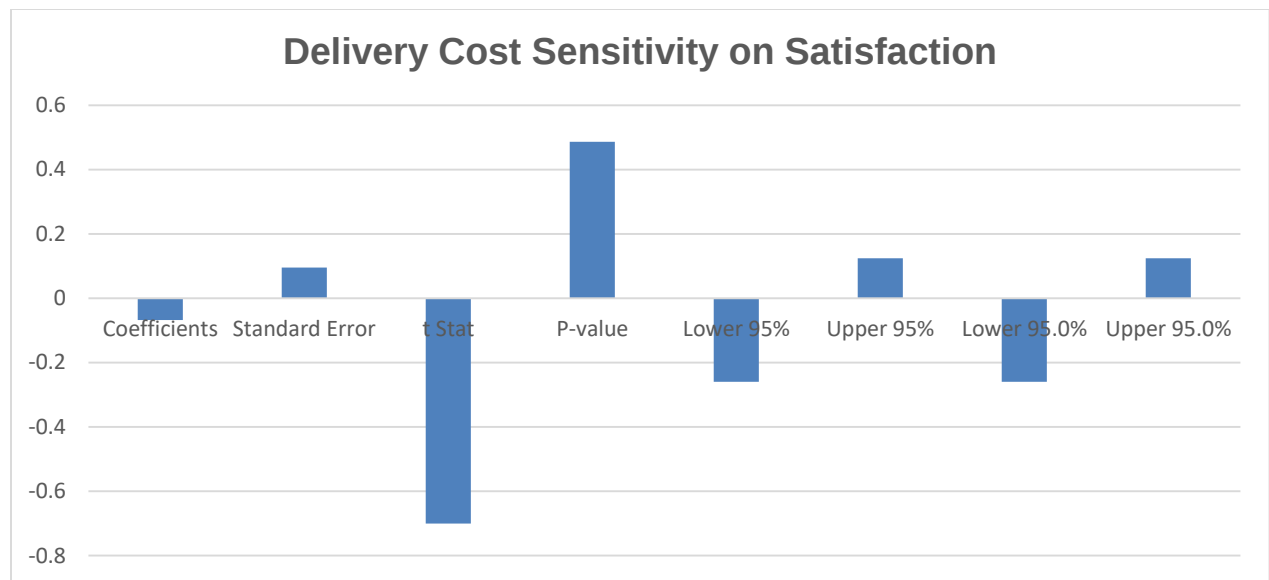
Effect of Packaging Quality on consumers' satisfaction: X3 = ($\beta = 0.495$, $p = 0.00087$). According to our research, this is the most significant factor for customer satisfaction. The packaging quality is much more influential than speed and reliability. Because ultimately, if the product is harmed then ultimately the whole service will be a failure.

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
X3 (Packaging Quality)	0.49525	0.14153	3.499264	0.00087	0.212336	0.778163	0.212336	0.7782



Effect of Delivery Cost Sensitivity on consumer's satisfaction: X4 = ($\beta = -0.067$, $p = 0.486$). The fourth and final variable also has a negative result which indicates that variable 4 the cost is still not alone an influential satisfactory.

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
X4 (Delivery Cost Sensitivity)	-0.06721	0.096023	-0.69995	0.486578	-0.25916	0.124736	-0.25916	0.124736



So, in short we can say, the overall result is significant. However, the X2 & X4 does not show any meaning full influence in the sample.

CHAPTER V: DISCUSSION

5.1 Conclusions

This research is to analyze how last mile delivery factors such as Speed, reliability, packaging, and cost influence consumer satisfaction in Bangladesh. If we look at the analysis, we could easily understand that each part of last mile delivery can be described as a different layer that shapes consumer satisfaction. Each factor contributes differently to achieving significands in hypothesis.

Packaging quality was found to be the most significant factor affecting consumer satisfaction. Because when products come safely without damage then the consumer feels more confident and satisfied with the experience. Then secondly delivery speed showed a little but not very strong significant indication of satisfaction. Consumers want quick delivery, but they are not willing to pay extra for it. That is the reason why speed matters but not the dominant factor. Third, reliability and delivery cost did not show any significant influence on the statistical model. Despite its limitation, the study shows a positive result which has contributes valuable insights. It shows that improving packaging quality and ensuring damage free delivery can immediately boost satisfaction.

In short, this study elaborates that ***last-mile delivery has meaning full impact on customer satisfaction.***

5.2 Scope for Future Study

1. Increase sample size: If the sample size can be increased, then that will improve statistical power.
2. Adding additional variables: variables such as platform reputation, product category, such as fragile and non-fragile, will easily improve the result.
3. segmented analysis by demography: By comparing urban vs rural, high-value item vs low-value item, etc., differences across areas of the country. Which may directly influence speed, cost, reliability, and quality.
4. Focus on the operational metric: Combining survey measures with operational data will reduce marginal errors.

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Appendix A: Survey

Demographic and behavioral

❖ Your Name?

❖ Gender?

- Male
- Female

❖ How often do you shop online?

- Once a month or less
- 2-3 times a month
- Once a week
- More than once a week

❖ Do you enjoy shopping?

- Yes
- No
- Maybe

❖ How much money do you spend on online shopping in an average month?

- Less than 500 BDT
- 500-3000 BDT
- 3000-5000 BDT
- More than 5000 BDT

❖ Are you satisfied with the overall last-mile delivery experience in Bangladesh?

- Yes
- No
- Maybe

❖ Are you satisfied with e-commerce delivery experiences?

- Yes
- No
- Maybe

❖ Which e-commerce platform(s) do you use most frequently?

- Daraz
- Amazon / AliExpress
- Evaly / Other local platforms
- Others (please specify): _____

❖ The quick delivery could not improve your satisfaction.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

❖ A little delay in delivery makes me disappointed.

- Strongly agree
- Agree
- Neutral
- Disagree
- Strongly Disagree

- ❖ I am willing to pay extra for faster delivery
 - Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree

- ❖ My package usually arrived without damage.
 - Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree

- ❖ Even if delivery is slow, I value careful and safe packaging with low delivery cost
 - Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree

- ❖ The behavior of the delivery person affects my satisfaction.
 - Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree

- ❖ On-time delivery increases my trust in e-commerce companies.
 - Strongly agree

- Agree
 - Neutral
 - Disagree
 - Strongly Disagree
- ❖ Quick delivery with a higher price might not be an issue for me.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
- ❖ Delivery cost affects my decision to buy online.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree
- ❖ Cash on delivery is the most convenient payment option for me.
- Strongly agree
 - Agree
 - Neutral
 - Disagree
 - Strongly Disagree

Appendix- B

This study is qualitative research converted into a quantitative design using multiple regression analysis. In order to do so, I have converted the disruptive answer of the survey into a numeric value. I have converted the below response into this numeric value.

Text Response	Numeric Value
Strongly Agree	5
Agree	4
Neutral	3
Disagree	2
Strongly Disagree	-2
Yes	1
No	-1
Maybe	0

After screening the survey data from descriptive to qualitative formats, we were able to conduct regression analysis. Where Delivery Speed, Delivery Reliability, Packaging Quality, and Delivery Cost Sensitivity are independent variables and Customer Satisfaction is the dependent variable.

The result turned out to be like this:

Speed	Reliability	Cost Sensitivity	Quality	Satisfaction
3	5	5	4	1
2	5	4	4	0
3	5	5	4	1
2	4	4	4	-1
3	4	4	4	0
3	3	4	4	1
3	4	4	4	0
4	4	3	4	1
2	5	5	5	1
4	4	4	4	1
3	4	5	4	1
3	4	4	4	-1
3	5	4	4	-1
3	5	4	4	0
3	4	4	4	0
0	5	4	2	1
4	4	4	5	1
2	4	3	4	-1

3	4	5	4	1
3	4	4	4	1
2	4	4	4	-1
1	5	5	5	1
3	4	4	3	1
2	4	5	5	-1
2	5	5	5	0
3	4	3	4	1
3	5	5	4	-1
4	4	4	4	0
2	5	4	4	1
2	2	4	4	0
0	2	5	5	1
3	4	4	4	1
3	4	3	4	-1
2	4	4	5	-1
3	3	4	5	-1
2	3	3	3	1
2	1	3	3	0
2	4	3	4	-1

3	4	3	4	1
2	4	4	3	1
2	1	4	-2	1
3	4	4	4	-1
5	5	5	5	1
2	4	4	4	-1
3	4	4	5	0
3	3	4	4	1
3	5	5	4	1
2	4	3	3	-1
2	5	5	5	1
2	4	5	5	1
3	3	4	4	1
2	4	5	4	1
0	2	5	5	1
4	4	5	4	1
3	5	3	4	1
4	3	3	5	-1
2	4	4	3	-1
2	4	5	2	0

3	4	4	5	1
1	4	5	4	1
2	2	2	2	-1
3	3	4	5	1
3	4	5	4	1
3	3	3	3	1
4	4	3	4	1
2	4	4	4	1
3	3	5	4	0

SUMMARY OUTPUT

<i>Regression Statistics</i>	
	0.40998
Multiple R	8
R Square	0.16809
Adjusted R	0.11441
Square	8
Standard	0.72318
Error	6
Observations	67

ANOVA					
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	4	6.5517	1.637	3.131	0.02067
		5	937	825	8
Residual	62	32.425	0.522		
		86	998		
Total	66	38.977			
		61			

	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
	-	0.6547	-	0.027		-		-
Intercept	1.48311	8	2.265	0.027	-2.792	0.174	-2.792	0.174
X Variable	0.15822	0.0985	1.605	0.113		0.355	0.038	0.355
1	9	66	311	507	-0.0388	259	8	259
X Variable	-	0.1080	0.662	0.509		0.144	0.287	0.144
2	0.07162	3	97	805	-0.28757	328	57	328
X Variable		0.1415	3.499	0.000	0.21233	0.778	0.212	0.778
3	0.49525	3	264	87	6	163	336	163
X Variable	-	0.0960	0.699	0.486		0.124	0.259	0.124
4	0.06721	23	95	578	-0.25916	736	16	736

Thank you !