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A Study of E-Commerce's Business on the Retail Sector

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Abstract – Introduction to e-commerce, influence of e-commerce on the globe today, impact of e-commerce on markets and retailers, retail sector, FDI policy, retailer impact on e-commerce company, and various markets and retailers in India were discussed in this paper. The thorough explanation of the title related topics was clearly presented in this chapter. We primarily focused on the study's goal and hypothesis

Keywords – E-Commerce, Business, Retail Sector.

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INTRODUCTION

The retail market in India has changed dramatically in the previous two decades. Given the magnitude of the market, the top three business houses have also entered the retail industry, with Reliance Fresh, Star Bazaar, and More, as well as big companies like as DMart and the Future Group with Big bazaar, all contending for a piece of the pie from India's vast population. Their stores are largely located in large malls in major cities and metropolitan regions. The goal is to shorten the distribution cycle by working closely with manufacturers and offering a wide range of items at reduced prices under one roof. Manufacturers have begun to establish their own stores in major cities, in addition to these large groupings. All of these things fall under the heading of organized retail. By modifying its foreign direct investment (FDI) policy, India expanded its foreign investment as its economy opened up. Wal-Mart and other major international retailers have set their sights on India in order to take a piece of the greater retail pie.

E-business and E-commerce are the current trends in India, which are increasingly transitioning to M-commerce. Various social, political, and technical factors are all contributing to this favorable transition. This initiative will play a significant role in India's e-commerce growth.

OBJECTIVES OF THE STUDY

1. To study the categories preferred by consumer for e-business.
2. To analyze the key factors influencing the growth of e-business.
3. To find the relationship between annual income and online purchase.

REVIEW OF LITERATURE

Vaishak Radhakrishnan (2017) The Covid-19 outbreak has had a major impact on the e-commerce industry. The industry had both good and bad impacts during the outbreak. People are increasingly making purchases online since it is less likely that they may get a sickness if they do so. Statistics show that the ecommerce industry is growing its income faster than the general economy. There are a range of strategies and tactics used by the e-commerce industry to mitigate the detrimental impact of the Covid-19 epidemic on online business. To better understand the difficulties and factors impacting online businesses, as well as the condition of e-commerce in different parts of the world, this study is being conducted.

Muhammad Hassan (2017) During COVID-19, this research examined the factors that affected

consumer buying behavior in the ecommerce sector. The research employed quantitative analysis and recruited 200 participants. Among the statistical tests used in this study were demographic analysis based on frequency, Cronbach's Alpha questionnaire reliability test, correlation analysis to determine the strength of the relationship between variables, and regression analysis to discover how consumer behavior affects dependent variables such as social media campaigns, television commercials, e-paper advertisements, and word-of-mouth marketing. Online retailers should publish articles on the goods or services they provide through social media in order to give consumers a better idea of what they're getting themselves into, according to this study's findings.

Dr Jogi Mathew, Dr Rinju George (2018) To begin, the research looks at the growth and difficulties of Indian e-commerce. Also, the study will examine whether or not internet retailers can thrive in the Indian retail market. The demographics of the country's customer base are also discussed in length, as are the expectations of those customers and the difficulties they face. The study will also examine the obstacles and investments that e-tailers confront. Etail players in India and Indian Etail users were studied utilizing a meta-analytical technique in a review of national and international journal articles, newspapers, and books. In the results and chats, much was stated about the arrival and promise of digital wallets to stimulate online buying. e-tail subscribers' dynamic online shopping habits were explored in the results summary and conclusions section of the study.

METHODOLOGY

There are several factors need to be considered for selecting a data collection instrument-:

- **Technical Adequacy-:** Validity, reliability, freedom from biasness etc.
- **Practicality-:** Cost, duration, personnel needs etc.
- **Ethics-:** Protection of human rights, privacy, legality etc

The method used by the researcher to collect primary data for this research will be mainly the questionnaire.

The secondary data referred for this research is primarily from various official documents. The researcher will also refer to various books during the research.

The next critical step in data analysis research will be to calculate the sample size. This is necessary for the sample to represent the entire population and provide more accurate results. At around 380 cases, the sample size will be selected from National capital of Delhi and Jaipur in Rajasthan.

According to the requirements, Z-Test74 and Spearman's Rank correlation coefficient will be used primarily for analysis. The Z-test will be used to compare a population's mean to a standard with a large sample size (n > 30).

RESULT AND DISCUSSION

To evaluate the potential impact of growth of e-business on retail sector in India

Objective 1: To study the categories preferred by consumer for e-business.

Table 1 Purchase grocery

S. No.	Purchase grocery	Respondents
1.	Any other shop	120
2.	Company owned shop/showroom	114
3.	E-commerce Website	146
	Total	410

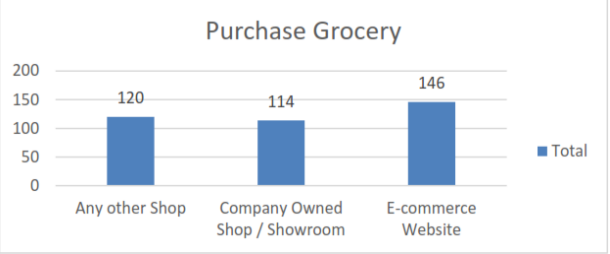

Figure 1 Purchase grocery

From the above figure it is clear that 120 respondent's preferred any other shop, 114 respondents preferred company owned shop/showroom and 146 respondents prefer E-commerce websites to purchase grocery.

Table 2 Purchase home & personal care

S. No.	Purchase home & personal care	Respondents
1.	Any other shop	145
2.	Company owned shop/showroom	106
3.	E-commerce Website	129
	Total	380

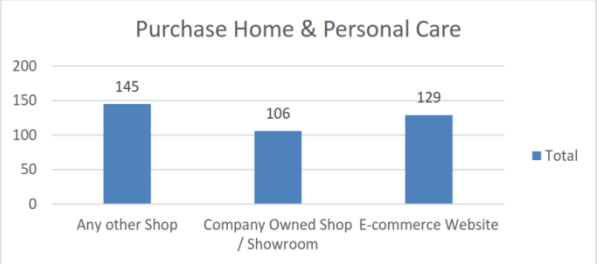

Figure 2 Purchase home & personal care

From the above figure it is clear that 145 respondents preferred any other shop, 106 respondents Prefered Company owned shop/showroom and 129 respondents prefer E-commerce websites to purchase home and personal care.

Table 3 Purchase Health and Beauty, skin care

S. No.	Purchase Health and Beauty, skin care	Respondents
1.	Any other shop	145
2.	Company owned shop/showroom	106
3.	E-commerce Website	129
	Total	380

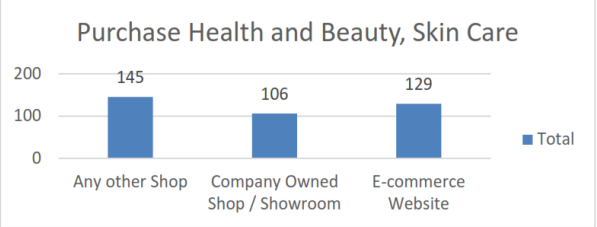

Figure 3 Purchase Health and Beauty, skin care

From the above figure it is clear that 145 respondents preferred any other shop, 106 respondents Preferred Company owned shop/showroom and 129 respondents prefer E-commerce websites to purchase health and beauty skin care.

Table 4 Purchase Books

S. No.	Purchase Books	Respondents
1.	Any other shop	123
2.	Company owned shop/showroom	139
3.	E-commerce Website	118
	Total	380

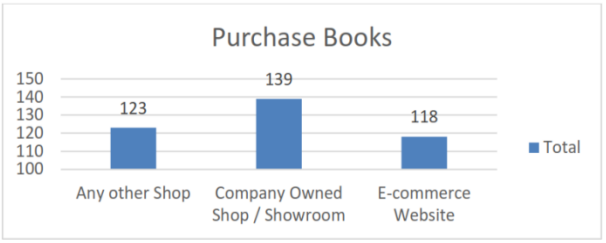

Figure 4 Purchase Books

From the above figure it is clear that 123 respondent's preferred any other shop, 139 respondents preferred company owned shop/showroom and 118 respondents prefer E-commerce websites to purchase Books.

Table 5 Purchase Cloths

S. No.	Purchase Cloths	Respondents
1.	Any other shop	123
2.	Company owned shop/showroom	139
3.	E-commerce Website	118
	Total	380

Figure 5 Purchase Cloths

From the above figure it is clear that 123 respondent's preferred any other shop, 139 respondents preferred company owned shop/showroom and 118 respondents prefer E-commerce websites to purchase grocery.

Table 6 Purchase cell phones

S. No.	Purchase cell phones	Respondents
1.	Any other shop	123
2.	Company owned shop/showroom	139
3.	E-commerce Website	118
	Total	380

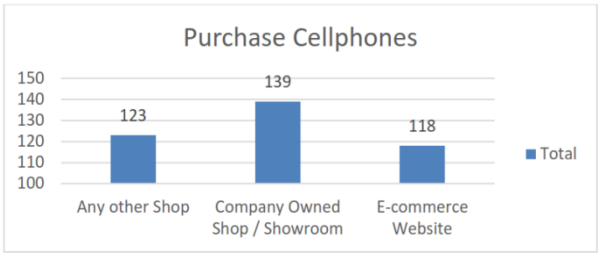

Figure 6 Purchase cell phones

From the above figure it is clear that 123 respondents preferred any other shop, 139 respondents preferred company owned shop/showroom and 118 respondents prefer E-commerce websites to purchase cell phones.

Table 7 Purchase of Audio & Home Entertainment

S. No.	Purchase of Audio & Home Entertainment	Respondents
1.	Any other shop	123
2.	Company owned shop/showroom	139
3.	E-commerce Website	118
	Total	380

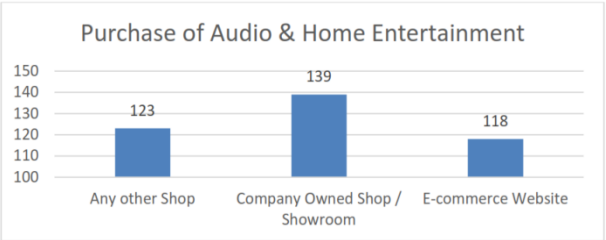

Figure 7 Purchase of Audio & Home Entertainment

From the above figure it is clear that 123 respondents preferred any other shop, 139 respondents preferred company owned shop/showroom and 118 respondents prefer E-commerce websites to purchase of audio & home environment.

Table 8 Purchase of Home & Living

S. No.	Purchase of Home & Living	Respondents
1.	Any other shop	124
2.	Company owned shop/showroom	122
3.	E-commerce Website	134
	Total	380

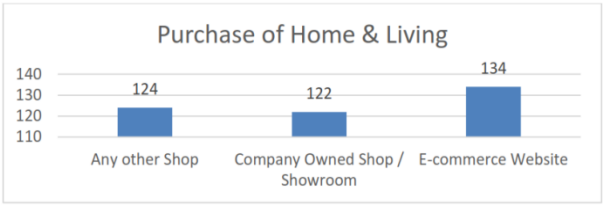

Figure 8 Purchase of Home & Living

From the above figure it is clear that 124 respondent's preferred any other shop, 122 respondents preferred company owned shop/showroom and 134 respondents prefer E-commerce websites to purchase of Home and Living.

Table 9 Purchase of Computer accessories

S. No.	Purchase of Computer accessories	Respondents
1.	Any other shop	127
2.	Company owned shop/showroom	135
3.	E-commerce Website	118
	Total	380

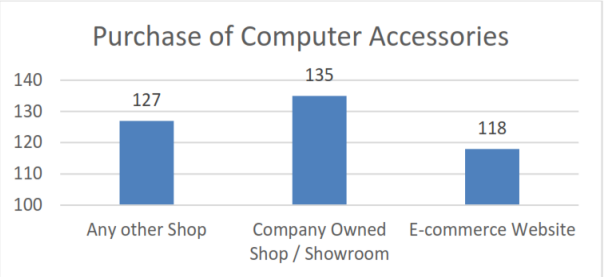

Figure 9 Purchase of Computer accessories

From the above figure it is clear that 127 respondents preferred any other shop, 135 respondents preferred company owned shop/showroom and 118 respondents prefer E-commerce websites to purchase computer accessories.

Table 10 Purchase of Baby and Kid Care

S. No.	Purchase of Baby and Kid Care	Respondents
1.	Any other shop	122
2.	Company owned shop/showroom	130
3.	E-commerce Website	128
	Total	380

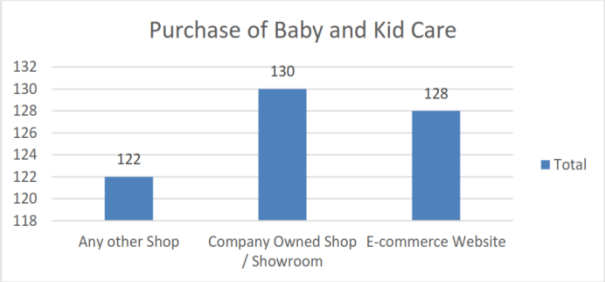

Figure 10 Purchase of Baby and Kid Care

From the above figure it is clear that 122 respondents preferred any other shop, 130 respondents preferred company owned shop/showroom and 128 respondents prefer E-commerce websites to purchase Baby and kid care.

Objective 4: To study the gender bias in need to feel the product before purchase.

Hypothesis Ho: There is no significant difference between mean online purchase scores of Males and Females**.**

This hypothesis analyses that if there is any difference between the frequency of online purchases between Male and Female.

T tests are used to compare two population averages when the difference is significant. If we want to compare two means, we utilize the t test (the scores must be measured on an interval or ratio measurement scale).

The hypothesis is formed as under.

H0: μ(male)=μ(female)

Ha: μ(male)≠ μ(female)

Fig: Box Plot for Different Genders

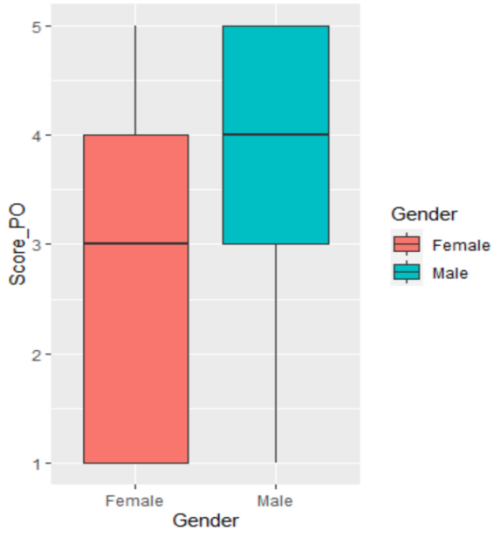

Figure: 11 Descriptive Data for Gender Groups

Table: 11 Descriptive Data for Gender Groups

Sr.	Gender	Count	Mean	Sd
1	Male	208	3.6	1.2
2	Female	172	2.8	1.46

4.2 Assumptions for T-Test

Shapiro Wilk test was performed to test the normality of data for both groups. The p values were found greater than 0.05. Hence the data could be considered as normal.

F test was performed to check the homogeneity assumption for T Test. It was found that the variances in data for both government and private institutions could be considered as same with no significant difference inferred through F Test.

4.3 T-Test

Two independent sample T Test was performed to check, if two groups have got significantly different means.

T Test Output – Two Sample T Test

Variables – Scores of Online Purchase and Gender Group

Table 12 Assumptions for T-Test

T- Value	DF	P. Value	Mean – Male	Mean – Female
-5.18	378	3.519e-07	3.6	2.8

The p value is less than 0.05 threshold alpha level. This indicates that the null hypothesis can be rejected in favour of alternate hypothesis. This suggests that, based on the responses received, it is safe to assume that the Males are more likely to buy online, than Females.

Objective 5: To find the relationship between annual income and online purchase.

Hypothesis Ho: There is no significant difference between mean online purchase scores for different categories of annual income

By testing the above hypothesis, it is being explored if there is any significant difference online purchase scores based on annual income.

The income level has got 5 categories.

One way ANOVA is utilized to analyze this relationship as there is one Categorical (annual income) with more than 2 categories and one continuous variable (Online Purchase Score).

4.5 Descriptive Analysis:

Table 13 mean online purchase scores for different categories of annual income

Annual Income	Count	Mean	SD
Between 10 lks – 20 lks	54	3.07	1.48
Between 20 lks – 30 lks	52	3.67	1.23
Between 30 lks – 40 lks	60	3.28	1.34
Between 5 lks – 10 lks	77	3.43	1.31
Greater than 40lks	69	2.54	1.04
Less than 5 lks	68	2.29	1.21

Figure 12 annual income Vs Online Purchase score

ANOVA Output: Kindly note that AI denotes 'Annual Income Levels'

Table 14 Analyze Online Purchase Scores of buyers, based on annual income

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
df$AI 2	5	91.3	18.265	11.36	3.24e-10 ***
Residuals	374	601.5	1.608		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

In one-way ANOVA test, a significant p-value indicates that some of the group means are different means that we need to reject Null Hypothesis in favour of alternate hypothesis. This means that there is a significant difference in Online Purchase Scores of buyers, based on annual income.

The problem is, we don't know which groupings are distinct from one another. If the mean difference between two specified groups is statistically significant, it is possible to undertake several pairwise comparisons. Tukey HSD is something that we are capable of computing. For comparing the means of groups in several pairs.

Table 15 Tukey multiple comparisons of means - 95% family-wise confidence level

S. No	Pairs	diff	lwr	upr	p adj
1	Between 20 lks – 30 lks-Between 10 lks – 20 lks	0.599003	-0.1068	1.304802	0.148245
2	Between 30 lks – 40 lks-Between 10 lks – 20 lks	0.209259	-0.47215	0.890666	0.951205
3	Between 5 lks – 10 lks-Between 10 lks – 20 lks	0.354497	-0.2903	0.99929	0.615667
4	Greater than 40lks-Between 10 lks – 20 lks	-0.53784	-1.19786	0.122179	0.183003
5	**Less than 5 lks-Between 10 lks – 20 lks**	-0.77996	-1.4421	-0.11781	0.010527
6	Between 30 lks – 40 lks-Between 20 lks – 30 lks	-0.38974	-1.07801	0.298525	0.584406
7	Between 5 lks – 10 lks-Between 20 lks – 30 lks	-0.24451	-0.89655	0.407535	0.891437
8	**Greater than 40lks-Between 20 lks – 30 lks**	-1.13685	-1.80395	-0.46974	0.000023
9	**Less than 5 lks-Between 20 lks – 30 lks**	-1.37896	-2.04817	-0.70975	1E-07
10	Between 5 lks – 10 lks-Between 30 lks – 40 lks	0.145238	-0.48032	0.770794	0.985595
11	**Greater than 40lks-Between 30 lks – 40 lks**	-0.7471	-1.38834	-0.10586	0.011891
12	**Less than 5 lks-Between 30 lks – 40 lks**	-0.98922	-1.63265	-0.34579	0.000201
13	**Greater than 40lks-Between 5 lks – 10 lks**	-0.89234	-1.49453	-0.29015	0.000395
14	**Less than 5 lks-Between 5 lks – 10 lks**	-1.13445	-1.73897	-0.52993	0.000002
15	Less than 5 lks-Greater than 40lks	-0.24211	-0.86285	0.378623	0.874084

- **diff**: between the two groups' methods
- **lwr**, **upr**: Confidence interval lower and upper end points at 95% (default)
- **p adj**: p-value after several comparisons have been corrected.

It can be seen from the output, that the difference between categories with serial numbers 5, 8,9,11,12,13 and 14 is significant with an adjusted p-value less than 0.05 threshold level.

CONCLUSION

Because the alpha level was less than 0.05, we conclude that the p-value is less than 0.01. That the null hypothesis can be rejected in favor of an alternative hypothesis is a clear indication here. So, based on the replies, we can safely say that men are more likely than women to make an online purchase.

In one-way ANOVA test, a significant p-value indicates that some of the group means are different means that we need to reject Null Hypothesis in favor of alternate hypothesis. This means that there is a significant difference in Online Purchase Scores of buyers, based on annual income.

The problem is, we don't know which groupings are distinct from one another. If the mean difference between two specified groups is statistically significant, it is possible to undertake several pair wise comparisons. For numerous pair wise comparisons of group means, we can use Tukey HSD.

A look at the results shows that there is a statistically significant difference between serial numbers 5, 8, 9, 11, 12, 13, and 14.

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