Role of Familiarity and Trust on the Purchase Behaviour : An Empirical Investigation on Indian E-commerce Industry –

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Abstract : Evidence indicates that shoppers regularly hesitate to dealwith online vendors because of uncertainty about the conduct of traders or the apparent danger of having individual data stolen by programmers and software engineers. Trust plays a vital role in helping buyers conquer impression of risk and insecurity. Familiarity is a precondition of trust, claims Luhmann. This study examines the consumer behaviour and the role of familiarity and trust on E-commerce. The influence of gender and income levels are demonstrated through Z test and one-way ANOVA. Survey data from 173 potential users bolsters and broadens this hypothesis. The data supports that there is no significant difference among male and female for the trust, familiarity and on the consumer's behaviour while the income level sequels the degree of familiarity of E-commerce. Suggestion for future research as well as implications are given.

Keywords: *E-commerce; Trust; Familiarity; Hypothesis testing; Gender influence*

Introduction : After the introduction of the Internet to the world, it has made a huge impact on everything be it people or life and so on business too. The introduction of Internet has changed the whole concept of business which was in the traditional times. Internet was opened for commercial use in 1991 and made E-commerce possible. (Mitra, 2013)Infered that e-commerce has broken geological restrictions and that insurgent trade will increase dramatically over the next five years in India.

Amazon.com has been a notable player in the world of e-commerce since its inception in 1995.It is headquartered in Seattle, Washington. Earlier amazon.com was popularly known as an online book store but soon they also diversified selling DVDs and Blu-rays and also claims to have sales upto $20,000/week within two months of its inception. The most popular feature of amazon.com is its review system. This allows all the visitors to rate the product listed on their website on a ranking scale of one to five star and can also submit their reviews about the product.

In India E-commerce became popular during early 2000's after the launch of Flipkart an another online shopping platform. Flipkart was powered in 2007 by Sachin Bansal and Binny Bansal, both graduates of IIT Delhi. Both the co-founders are the ex-employees of amazon.com.

Flipkart claims that they had created E-commerce history by selling products of $100 million in ten hours time, in a special one day event – "The Big Billion Day". After the great success of first Big Billion Day, Flipkart hosted many such subsequent events to promote their sales. (Singh, 2014)Stated that the future of e-retailers in India is very bright. E-retailers give consumers the best way to save money and time through purchasing online within the range of budget. Flipkart.com offers some of the best prices and a completely hassle-free shopping experience. The whole concept of online shopping has changed in terms of the consumer's purchasing or buying behavior and the success of E-tailers in India is depending upon its popularity, its branding image, and its unique policies.

Morgan Stanley predicts that the Indian E-commerce market will grow at a 30% compounded annual growth rate for gross merchandise value to be worth $200 billion by 2026 (Stanley claims). This growth will be supported by increasing number of Internet users. In 2016, India had 60 million online customers, representing 14% of the country's web-based customer base, and this figure will increase to more 50% by 2026. By the end of 2018, the country is set to witness 500 million Internet users whereas 280 million smart phone users could be the key driver of E-commerce portals (Bawankule claims). One of the major reasons behind the success of E-commerce in India (Indian E-commerce sector is set to grow the fastest in the Asia-Pacific region as per the "Asia Pacific online retail forecast 2011 to 2016") is the cash on delivery (COD) option provided to the customers as a payment option. Trust is the biggest issue while shopping online. Cash on delivery feature provided bu the E-commerce platforms made a huge mass to shop online in the early ages when it entered in India. People feel it as safe and risk free. They have a mindset that if they will not like the product they can simply say NO at the time of arrival and they will not have to bear any charge. In fact, the Better Business Bureau claims that people who do not buy online are concerned about the security of online payments, the unwavering quality of organizations and the lack of a protection strategy. However, trust is one of the important aspects of E-commerce. Answering how important trust is one of the objectives of this study. If trust is indeed an important aspect of E-commerce, then understanding the antecedents of trust is also very crucial. One of the precursors recommended in the assumption of trust and power of Luhmann is trust. According to this hypothesis, familiarity is the precondition for trustbecause it makes a structure and an understanding of the environment and the entrusted party within which the desires of trust can be explained.

In this study, familiarity of E-commerce vendors and platforms are tested through the response of respondents by inquiring about the products, its rating on various E-commerce platforms and the process of buying on the Internet. The research model examines how both familiarity and trust are dependent on each other and how familiarity affects trust and ends up only inquiring about the product on a particular E-commerce platform or also results in purchasing the product.

Consumer Behaviour is another important aspect while shopping online. Consumer behaviour is the study of individual or groups and the process they use to select a product or service that satisfy their needs. The behaviour of the consumer changes while shopping on the Internet as compared to the traditional shopping in a brick and mortar store. Online shopping depends on factors like the incentive to buy. Customers use to be in search for the best product at the cheapest possible price. The quality of service provided by E-commerce vendors are also a major concern like expected time of delivery, return policy or the payment options available on the portal. One of the objective of this study is to understand the behaviour of a rational consumer in a normal situation. The behaviour of a consumer while buying on Internet is checked while inquiring through the respondents about their expectations from E-commerce vendors.

Review Of Literature

" The trust factor opens up or closes down the pace and nature of electronic commerce growth…. Trust is so multifaceted…. What exactly is trust? It's so easy to talk about, so hard to pin down –(Keen, 1999)

Internet promises to revolutionize the shopping and gaining information choices available to consumers. However, the enormous potential of B2C commerce(Wang, 1998)can only be realized if consumers feel comfortable transacting over the new medium with unfamiliar vendor(Straub, 2002)yet, "almost 95% of consumers have declined to provide personal information to websites"- 63% of these indicated this is "because they do not trust those collecting the data"(Hoffman, 1999). This provides an overview that consumer decisions to adapt E-commerce not only involves perceptions of the technology (e.g., perceived usefulness and ease of use; (Mayer, 1995)) , but also beliefs about the vendors selling online through Internet(Friedman, 2000). Therefore, trust is an important factor to carry out online business successfully. Lack of trust in web vendors can deter consumer adaption of E-commerce(Bhattacherjee, 2002). Some researchers and e-commerce specialists have described trusting trust in the quality of the agent.(Menon et al., 1999)(Lee, 1999). In a broad sense, trust is the certainty that a consumer has in his desires for what others will do, basically, on past collaborations. (Gefen, 2000)

(Upasana Kanchan, 2015)Stated that online shopping is gaining popularity among people of young generation. Higher income groups and educated people are purchasing more via e-retailing websites. People have hesitation in doing online shopping due to security concerns. At the same time people are resistant to change because of technological complexity in making online purchase. Companies involved in online retailing should focus on building trustworthy relationship between producers and customers.

The relative importance of trust, however depends upon the nature and the complexity of the interaction with over people (Gefen, 2000). The greater the dependence upon other people and the one's own vulnerability to their misconduct, the greater the need to trust (M, 1958)(Rousseau DM)(N L. , 1979). Trust is, therefore, by its very nature, complex, multidimensional (Jk, 1991)(S, 1994)(LG, 1840-1920)and context – dependent (N L. , 1979)(Rousseau DM)Although some researchers have treated trust as a unitary concept (eg; (JB, 1971)),most now agree that trust is multidimensional (Rousseau DM)(Mayer, 1995)The early psychology and sociology studies on trust defined it as a set of beliefs that other people would fulfill their expected favourable commitments (P, 1964)(M, 1958)(N L. , 1979). Latest business research has taken a stand, defining trust as the expectation that other companies or individuals will behave ethically (LT, 1995), dependably (N K. , 1996)and will fulfill their expected commitments (N L. , 1979)(JB, 1971)(Schurr PH, 1985)under condition of interdependence and vulnerability (Rousseau DM). There is a perception that individuals must have confidence in the ultimate goal of sharing any movement with someone else and would prefer to stop all actions with others they do not trust.(P, 1964)(N L. , 1979). Accordingly, trust in business " is the salient factor in determining the effectiveness of many relations."(DE, 1972) p.229), and is a prime motivator of behaviour in general (Konovsky MA, 11994) (Rossiter Jr CM, 1975)(Schurr PH, 1985). Therefore, trust is potentially important precondition for E-commerce (Gefen, 2000).

Familiarity s the precondition of trust claims Luhmann. Familiarity is the factor that creates a difference between inquiring for the products on Internet or helps in taking decision that whether to buy or not from E-vendors. Familiarity is an understanding, often based on previous experiences, interactions and learning of what, why, where and when others do what they do (N L. , 1979). As such, familiarity and trust are distinct. Familiarity is associated with an understanding of the present actions of other people, while trust deals with belief about the future actions of other people (N L. , 1979)For instance – Familiarity with an E-commerce portal would be how to search for the desired products, and information about it, reviews and how to order the product using the website interface. Familiarity is based on the past experience or learning as how to use, the particular website and deal with its interface. While trust on the other hand is to provide the credit card

information based on the guarantee – less favorable belief (i.e. trust) that the information will not be misused, even unknown, way in the future. Familiarity and trust are distinctly different, they are related (Gefen, 2000). Familiarity creates the background, and it, therefore, is " the precondition for trust " ((N L. , 1979),p.19). Familiarity can also build trust as not only it providea system for future desires, but in addition, let people think about what is in reserve in the light of past relationships (P, 1964)(R, 1995). Therefore, familiarity can both build trust, when the experience was ideal or destroy confidence, when not (N L. , 1979). For example – people must be familiar with their favourite E-commerce platform and had probably also bought from the site and in the process had noticed that the vendor behaviour was in accordance to the expected one; respecting privacy, correctly charging the credit card, keeping updated on the status of the order, deliverying the right product on right place and at the right time promised etc., will accordingly result in more inclined to trust the particular vendor.

(Solomon, 1998)studied that consumer behaviour and stated that it is the study of processes involved when an individual selects, purchases, uses or disposes of products, services, ideas, or experiences to satisfy needs and desires. In viewfor the Internet to spread out as an E-commerce platforms it is important to realize the consumer's mind-set, intention and conduct in light of the online buying practice.

Consumer behaviour of an individual will be different while shopping online as compared to that of shopping from traditional stores. E-retailers providing cash on delivery as a payment option to the coustomers in India may help in gaining popularity among risk-averse consumers while on the other hand there are also people who prefer hassle – free online payment through credit cards. Discount and offers can attract more price sensitive customers based on their income level or there may be some who would rather prefer to do showrooming before purchasing expensive products on Internet. Some consumers may rely more upon the ratings and reviews given by experienced consumers and these ratings can be the one to make final buying decision. Today in the fast moving 21st century there are also people who prefer online shopping just to save time and for the ease and comfort. Online shopping won't ever completely eliminate its physical counterpart (Vidya Shree DV, 2015)One of the objective of this study is also to find out how a rational consumer react and his/her behaviour in different variable situations while shopping on Internet.

(Bhatt, 2014)Expressed that online shopping is gaining prevalence among individuals only younger age but the current situation to be found in the same way among age groups, online advertising should cover a longer separation. According to think the method of payment is based on the salary of the respondents. Individuals from different age groups regularly shop on the Internet. The mood of customers is

changing over time. In a country like India, shoppers find that online shopping is exceptionally pleasing in light of many factors such as money, personalization or site customization, home transportation, and so on.

Research Methodology

3.1 Problem Definition:-

Definition of problem is the initial starting point in any research activity. In this step the problem is defined in an apt and precise manner so that researchers should be very definite about the problems he has to deal with. Therefore, the researchers need to define the problem carefully and correctly. In this case the problem under research is to analyse the consumer behaviour of a rational consumer and the role of familiarity and trust while shopping online through various E-commerce portals. After recognizing the information accumulation strategy, in the wake of the distinction between the problem, the next task is to plan it more absolutelyto carry on further research processes.

3.2 Research Objectives :-

Once the separate evidence and the details of the problem are completed, it is necessary to clearly identify and characterize the objectives of the review. The objectives of this research are as follows –

- To evaluate whether the gender makes any significant difference while shopping online or both male and female react identically.
- To identify the familiarity of E-commerce among respondents.
- To determine whether the income level of an individual effects the buying behaviour of an online shopper.

3.3 Data Collection Method :-

This research paper includes both primary data and secondary data. Primary data is collected by conducting a survey online using questionnaire to collect the first hand un-biased data. The data is also collected by having meetings with experienced marketing managers and other professionals who is working in the E-commerce industry. Secondary data is collected from Internet sources like websites, online journals, Newspaper publications and Director's report. The primary data collected is used to draw further inferences and conclusions after analyzing the data minutely.

3.4 Sampling Techniques and Selection of Sample :-

The precision of the discoveries depends to a large extent on how the sample is collected. The fundamental point of examining the configuration is to limit the gap between the qualities obtained from the sample and those that are common in the population. In this research paper systematic as well as stratified sampling technique is used to ascertain the accurate result. The data is collected from four major cities of India vis-à-vis tier 1 cities of Delhi and Mumbai, tier 2 city Patna and tier 3 city of Vellore. The entire study was conducted online. Subject for the study were undergraduate and graduate students of three large universities namely; Delhi University, Patna University, VIT University (Vellore) and also some experienced professionals in the E-commerce industry above the age of 30 from Mumbai and Delhi participated in this survey. The survey is conducted for both the genders male and female. Data is also collected across the various age group and income level group to test whether these demographic facors affects the decision of an individual in the online market place or remain unchanged.

3.5 Research Design :-

Research project design involves drawing up of a creative framework keeping in mind the objectives of the research to reach the desired, valid and reliable conclusion. The framework of this research project is mentioned step-by-step.


1
• Identifying and defining the problem
2
• Stating research objectives
3
• Analyzing and deciding the procedures for achieving those objectives
4
• Recognizing the information accumulation strategy
5
• Finalising sampling technique
6
• selecting the sample
7
• Collecting the data
8
• Investigating the data
9
• Composing and presenting research report

3.6 Respondent Demographics :-

	Gender		
Sl.No	**Group**	**Frequency**	**Percentage (%)**
1	Male	108	62.40%
2	Female	65	37.60%
	TOTAL	**173**	**100%**
	Age		
Sl.No	**Group**	**Frequency**	**Percentage (%)**
1	14 - 19	45	26.01%
2	20 - 25	100	57.80%
3	26 - 30	14	8.09%
4	Above 30	14	8.09%
	TOTAL	**173**	**100%**
	Family Income		
Sl.No	**Group**	**Frequency**	**Percentage (%)**
1	Below 1,00,000	12	6.93%
2	1,00,000 - 2,50,000	37	21.38%
3	Above 2,50,000	124	71.67%
	TOTAL	**173**	**100%**

3.7 Presentation of Data :-

The collected data is coded in the form of tables and charts to make things presentable, understandable and more effective. The results are shown by tables and charts which will help in easy and effective presentation.

3.8 Tools and Techniques used for Analysis :-

Z-test has been used for hypothesis testing as the sample size is greater than 30 and the standard deviation of population is also unknown.One – way ANOVA has been performed using a 5 per cent significane level to examine the hypothesis that the difference in the income level of three groups has similar level of trust, familiarity and a significant consumer behaviour while shopping on Internet.

Analysis And Interpretation

E-commerce platform which is frequently used and liked by the online shoppers most among the leading players in this industry i.e., Flipkart, Paytm and Amazon.

Table 1: Showing percentage of people who prefer to use a particular portal

Sl.No	E-commerce portal	Frequency	Percentage (%)
1	Paytm	46	26.58%
2	Flipkart	26	15.02%
3	Amazon	89	51.44%
4	Others	12	6.93%
	TOTAL	**173**	**100%**

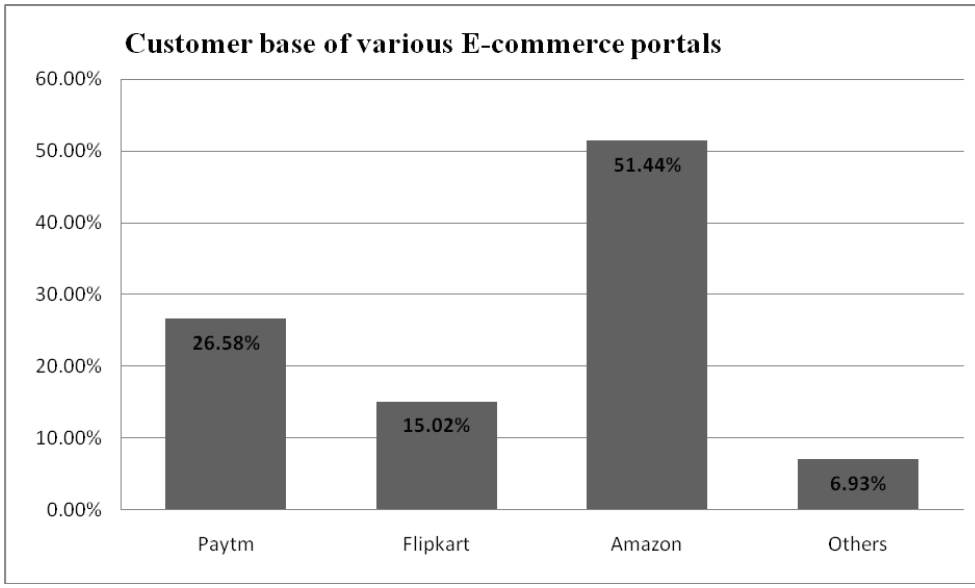

Figure 1: Showing customer base of leading E-commerce platforms

Interpretation :-

► Amazon gets the early mover advantage in E-commerce industry and acquires more than 1/2th share in the market.

► More than 1/4th share in the market i.e., 26.58% is acquired by Paytm.

► Flipkart is the third most likely shopping website in India and having a customer base of 15.02%

► Paytm became more popular after the demonetization in India and their cashback policy has helped them to acquire huge market.

► There are some other sites also like myntra, hopscotch, fashion & you etc. which are used by some E-shoppers.

Hypothesis Testing :-

1. To evaluate whether the gender makes any significant difference on the trust factor while shopping online.

STEP-1

Ho: There is no difference between male and female for trust on E-commerce

Ha: There is a significant difference between male and female for trust on E-commerce

STEP-2

Z test

$\bar{X}$ = Sample mean of groups

$$Z = \frac{(\bar{X}1 - \bar{X}2) - (\mu 1 - \mu 2)}{\sqrt{\frac{\sigma 1^2}{n1} + \frac{\sigma 2^2}{n2}}}$$

μ = Polpulation Mean

σ = Standard Deviation of sample

n = Size of sample groups

STEP-3

= 0.05

STEP-4

If z value is -1.96 < Z < +1.96 accept the *Ho*

STEP-5

n1= 108 and n2= 65

STEP-6

$\bar{X}$ 1=3.35 and $\bar{X}2 = 3.18$

= 0.67 and = 0.59

Since population standard deviation is unknown we use sample standard deviation for calculation.

STEP-7

$$z = \frac{(3.35-3.18)-0}{\sqrt{\frac{(0.67)^2}{108}+\frac{(0.59)^2}{65}}} = 1.79 \text{ appx.}$$

Since, Z value is 1.78 which is -1.96 < 1.78 < +1.96,

Table 2: ShowingZ-Test on trust : Two Sample for Means

Table 2: ShowingZ-Test on trust : Two Sample for Means

	Male	***Female***
Mean	3.351851852	3.182051282
Known Variance	0.448252	0.317468
Observations	108	65
Hypothesized Mean Difference	0	
z	1.79	
P(Z<=z) one-tail	0.037015308	
z Critical one-tail	1.644853627	
P(Z<=z) two-tail	0.074030616	
z Critical two-tail	1.96	

At 95% confidence interval:-

P < 0.05 Ho reject

P > 0.05 Ho accept

There is no significant difference found between male and female for trust of E-commerce. Z=1.79 and P = 0.074 . Hence null hypothesis is accepted.

Graphical Representation :-

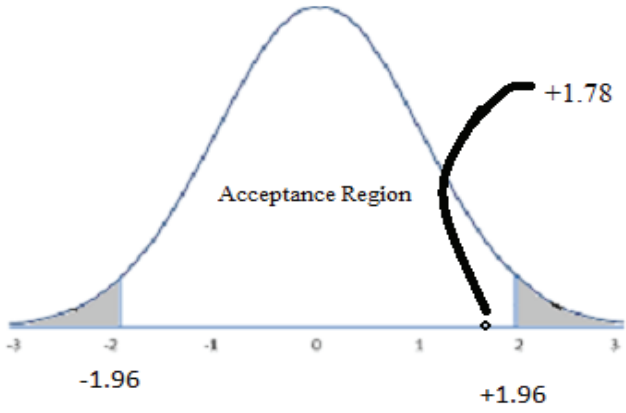

Figure 2: Showing z value of trust in acceptance region

2. To test whether there is any difference in familiarity of E-commerce platforms because of difference in gender.

STEP-1

Ho: There is no difference between male and female on familiarity of E-commerce

Ha: There is significant difference between male and female on familiarity of E-commerce

STEP-2

Z test

$\bar{X}$ = Sample mean of groups

$$Z = \frac{(\bar{X}1 - \bar{X}2) - (\mu 1 - \mu 2)}{\sqrt{\frac{\sigma 1^2}{n1} + \frac{\sigma 2^2}{n2}}}$$ μ = Polpulation Mean

σ = Standard Deviation of sample

n = Size of sample groups

STEP-3

$\alpha = 0.05$

STEP-4

If z value is $-1.96 < Z < +1.96$ accept the *Ho*

STEP-5

n1= 108 and n2= 65

STEP-6

$\bar{X}$ 1=4.20 and $\bar{X}2 = 4.04$

$\sigma 1 = 0.74$ and $\sigma 2 = 0.61$

Since population standard deviation is unknown we use sample standard deviation for calculation.

STEP-7

$$z = \frac{(4.20-4.04)-0}{\sqrt{\frac{(0.74)^2}{108}+\frac{(0.61)^2}{65}}} = 1.54 \text{ appx.}$$

Since, Z value is 1.54 which is -1.96 <1.54< +1.96, accept the Ho.

Table 3: ShowingZ-Test on familiarity : Two Sample for Means

	Male	***Female***
Mean	4.206790123	4.046153846
Known Variance	0.551854	0.367628
Observations	108	65
Hypothesized Mean Difference	0	
z	1.548192726	
P(Z<=z) one-tail	0.060787951	
z Critical one-tail	1.644853627	
P(Z<=z) two-tail	0.121575902	
z Critical two-tail	1.959963985	

There is no significant difference found between male and female for trust of E-commerce. Z=1.54 and P = 0.121 . Hence null hypothesis is accepted.

Graphical Representation :-

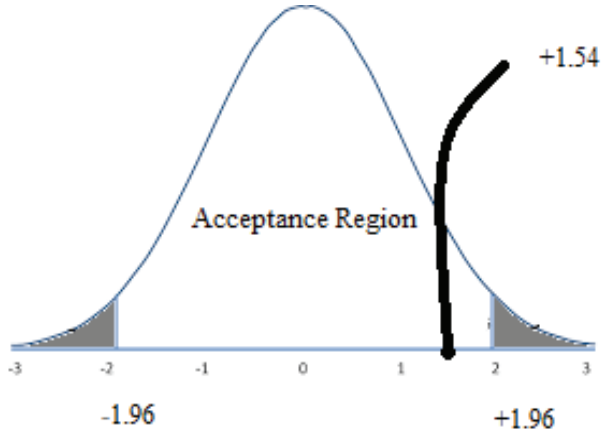

Figure 3: Showing z value of familiarity in acceptance region

3. To determine whether the gender of a person can be observed in the buying behaviouror it remains uniform while shopping on interet.

STEP-1

Ho: There is no difference between male and female on consumers buying behaviour

Ha: There is a significant difference between male and female in buying behaviour

STEP-2

Z test

$\bar{X}$ = Sample mean of groups

$$Z = \frac{(\bar{X}1 - \bar{X}2) - (\mu 1 - \mu 2)}{\sqrt{\frac{\sigma 1^2}{n1} + \frac{\sigma 2^2}{n2}}}$$ μ = Polpulation Mean

σ = Standard Deviation of sample

n = Size of sample groups

STEP-3

$\alpha = 0.05$

STEP-4

If z value is $-1.96 < Z < +1.96$ accept the *Ho*

STEP-5

n1= 108 and n2= 65

STEP-6

$\bar{X}1$=3.89 and $\bar{X}2 = 3.94$

$\sigma 1 = 0.37$ and $\sigma 2 = 0.39$

Since population standard deviation is unknown we use sample standard deviation for calculation.

STEP-7

$$z = \frac{(3.89 - 3.94) - 0}{\sqrt{\frac{(0.37)^2}{108} + \frac{(0.39)^2}{65}}} = -0.93 \text{ appx.}$$

Since, Z value is -0.93 which is -1.96 <-0.93< +1.96, accept the *Ho.*

Table 4: ShowingZ-Test: Two Sample for Means

	Male	*Female*
Mean	3.891534392	3.94807692
Known Variance	0.137396	0.155221
Observations	108	65
Hypothesized Mean Difference	0	
z	-0.934593609	
P(Z<=z) one-tail	0.174998887	
z Critical one-tail	1.644853627	
P(Z<=z) two-tail	0.349997774	

There is no significant difference found between male and female for trust of E-commerce. Z= -0.93 and P = 0.349 . Hence null hypothesis is accepted.

Graphical Representation :-

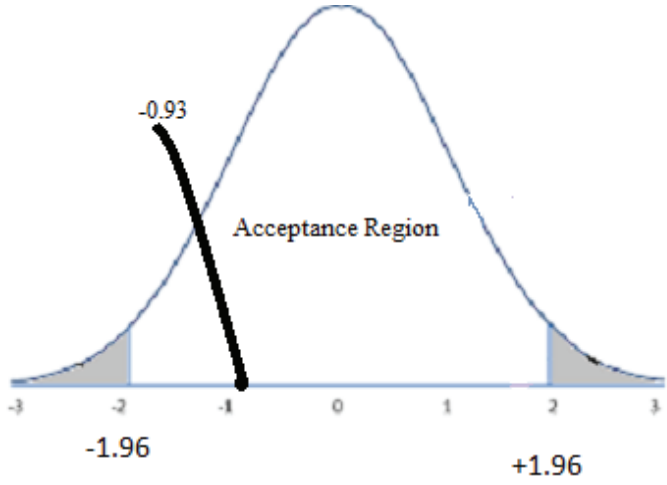

Figure 4: Showing z value of consumer behaviour in acceptance region

Table 5: Showing familiarity with searching products on Internet

Sl.No	Response	Frequency	Percentage (%)
1	Yes	151	87.28%
2	No	05	2.89%
3	Maybe	17	9.82%
	TOTAL	**173**	**100%**

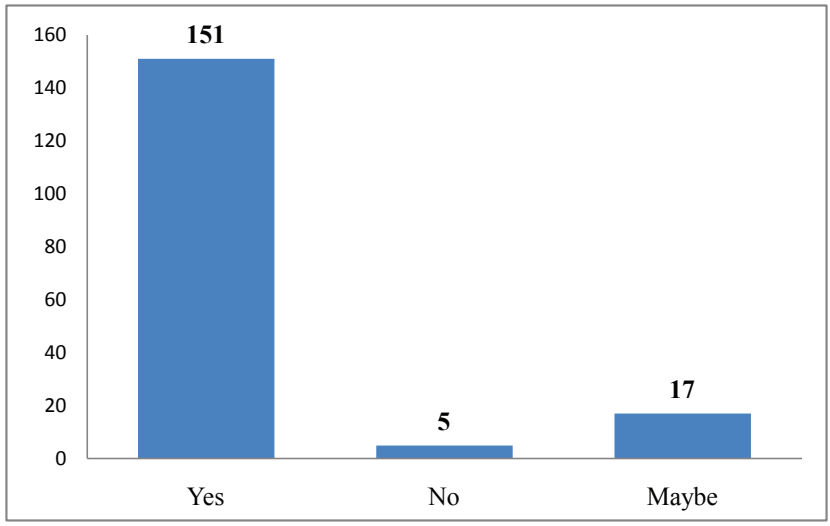

Figure 5: Showing frequency of familiarity with searching products on Internet

Interpretation :-

► 87.28% people are familiar with searching for products on Internet and other E-commerce platforms.

► Majority of the people are familiar because they may have access to devices and high speed Internet.

► Still there are 2.89% people who are not familiar with the searching for products on Internet.

► People who are not familiar with the searching for products on Internet may belong to tier 3 cities, suburban or rural areas and may not have access to Internet.

► 9.82% people are not sure that they are familiar with the searching of products on Internet or not.

► People who are not sure, may be because they find the interface of E-commerce portals difficult to understand and is not user-friendly.

Table 6: Showing familiarity with the process of buying on Internet

Sl.No	Response	Frequency	Percentage (%)
1	Yes	150	86.70%
2	No	05	2.89%
3	Maybe	18	10.40%
	TOTAL	**173**	**100%**

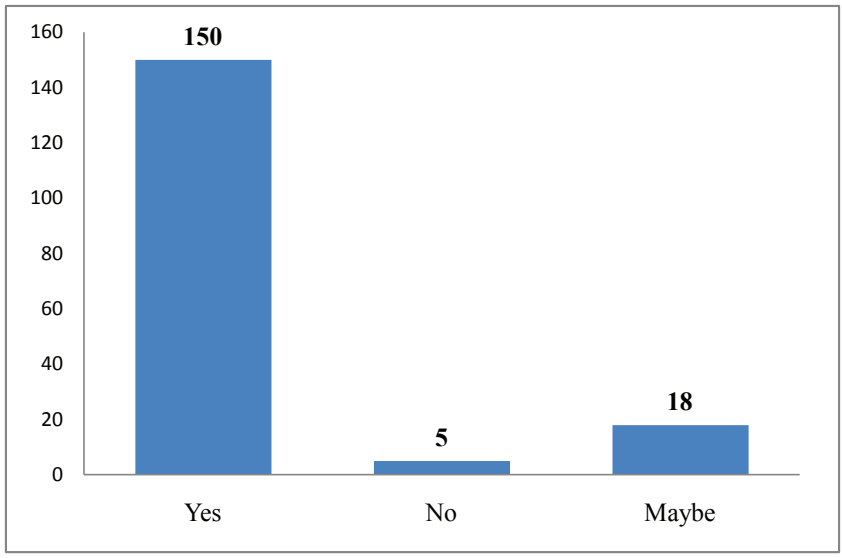

Figure 6: Showing frequency of familiarity with buying process on Internet

Interpretation:-

► 86.7% people are familiar with the process of buying on Internet and E-commerce portals.

► 10.4% people are confused and not sure that they are familiar with the buying process on Internet or not.

► 05 out of 173 people i.e., mere 2.89% don't know how to shoppe on Internet.

► People who are familiar with the buying process may have purchased any product at least once from Internet.

► 13.3% people have not yet shopped on Internet even once.

Table 7: Showing familiarity with inquiring about product ratings on Internet

Sl.No	Response	Frequency	Percentage (%)
1	Yes	134	77.45%
2	No	10	5.78%
3	Maybe	29	16.76%
	TOTAL	**173**	**100%**

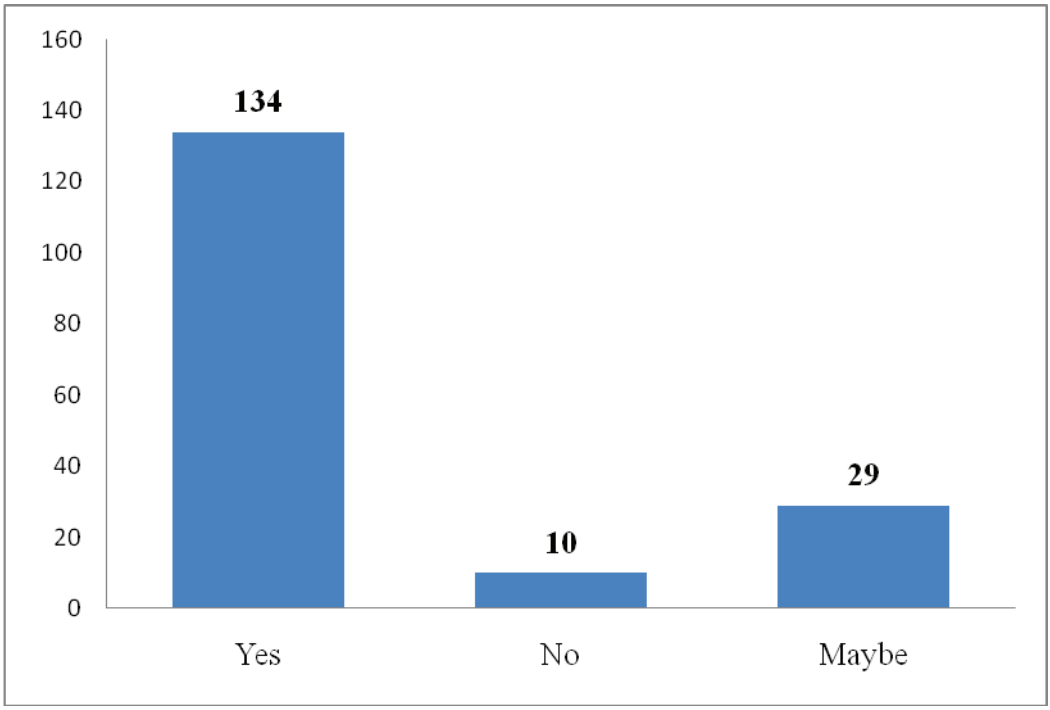

Figure 7: Showing frequency of familiarity with inquiring of product ratings on E-commerce portals

Interpretation :-

► More than three fourth of the people are familiar with inquiring about product ratings on E-commerce platforms.

► 77.45% people may use to check the product ratings and reviews before actually buying the product.

► 5.78% people are not familiar with inquiring product ratings or may not prefer online shopping.

►16.76% people are not sure about the process of inquiring product ratings on Internet, maybe they are not aware about the review and ratings section or may not feel it as user friendly

One – way ANOVA has been performed using a 5 per cent significane level to examine the hypothesis that the difference in the income level of three groups has similar level of trust, familiarity and a significant consumer behaviour while shopping on Internet.

Ho :μ_1= μ_2=μ_3 (Trust level on E-commerce among three income groups is the same.)

H1 :At least two income groups do not have the same degree of trust on E-commerce.

$T_{1.}$= Below 1,00,000 $T_{2.}$= 1,00,000 – 2,50,000 $T_{3.}$= Above 2,50,000

K=3, $n_1 = 12, \quad n_2 = 37, n_3 = 124$

N = $n_1 + n_2 + n_3 = 12 + 37 + 124 = 173$

$T_{..} = 567.33 T_{1.} = 41.00 T_{2.} = 113.67 T_{3.} = 412.67$

$$\sum_{i=1}^{3} \sum_{j=1}^{8} X_{ij}^{\ 2} = 1930.22$$

$$TSS = \sum_{i=1}^{3} \sum_{j=1}^{ni} X_{ij}^{\ 2} - \frac{1}{N} \cdot T^2_{..}$$

$$= 1930.22 - \frac{1}{173}(567.33)^2$$

$$= 1930.22 - 1860.48 = 69.72$$

$$TrSS = \sum_{i=1}^{3} \frac{T_{i.}^{\ 2}}{n_i} - \frac{1}{N} T^2_{..}$$

$$= \left[\frac{41^2}{12} + \frac{113.67^2}{37} + \frac{412.67^2}{124}\right] - \frac{1}{173}(567.33)^2$$

$$= 1862.64 - 1860.48 = 2.16$$

SSE = TSS – TrSS = 69.73 – 2.16 = 67.56

Table 8: The one-way ANOVA table showing trust across different income groups

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F^2_{170}
Treatments (Between groups)	2	2.16	1.080	2.72
Error (Within group)	170	67.56	0.397	
Total	172	69.72		

The computed F statistics equals 2.72. The table value of F with 2 degree freedom in the numerator and 170 degrees of freedom in the denominator at a 5 percent level of sifnificance is given by 2.99. As the computed F statistics is smaller than the table F value, the null hypothesis is accepted. Therefore, trust level on E-commerce among all the three given income groups is the same.

Graphical Representation :-

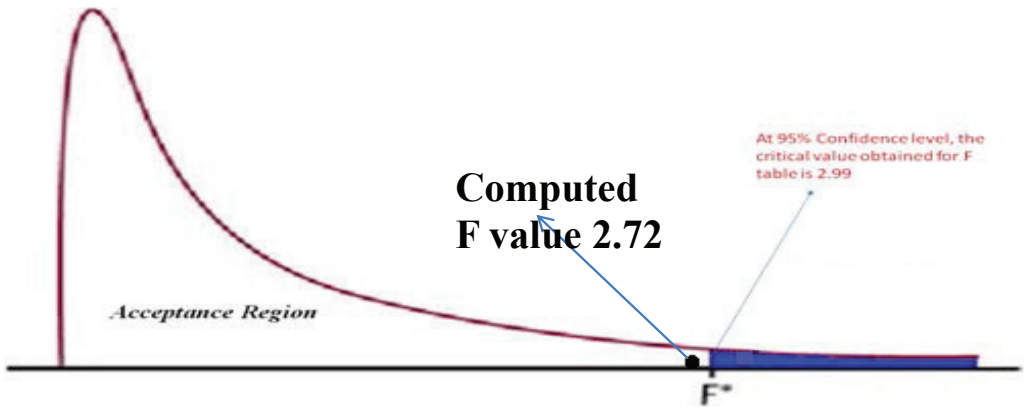

Figure 8: Showing computed F value in acceptance region

Ho : μ_1= μ_2=μ_3 (Familiarity level of E-commerce among three income groups is the same.)

H1 :At least two income groups do not have the same degree of familiarity on E-commerce.

$T_{1.}$= Below 1,00,000 $T_{2.}$= 1,00,000 – 2,50,000 $T_{3.}$= Above 2,50,000

K=3, $n_1 = 12, \quad n_2 = 37, n_3 = 124$

N = $n_1 + n_2 + n_3 = 12 + 37 + 124 = 173$

$T_{..} = 713.58 T_{1.} = 44.83 T_{2.} = 144.08 T_{3.} = 524.67$

$$\sum_{i=1}^{3} \sum_{j=1}^{8} X_{ij}^{\ 2} = 3058.00$$

$$TSS = \sum_{i=1}^{3} \sum_{j=1}^{ni} X_{ij}^{\ 2} - \frac{1}{N} \cdot T^2_{..}$$

$$= 3058.00 - \frac{1}{173}(713.58)^2$$

$$= 3058.00 - 2943.33 = 114.67$$

$$TrSS = \sum_{i=1}^{3} \frac{T_{i.}^{\ 2}}{n_i} - \frac{1}{N} T^2_{..}$$

$$= \left[\frac{44.83^2}{12} + \frac{144.08^2}{37} + \frac{524.67^2}{124}\right] - \frac{1}{173}(713.58)^2$$

$$= 2948.50 - 2943.33 = 5.17$$

SSE = TSS – TrSS= 114.67 – 5.17 = 109.50

Table 9: The one-way ANOVA table showing familiarity across different income groups

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F^2_{170}
Treatments (Between groups)	2	5.17	2.585	4.01
Error (Within group)	170	109.50	0.644	
Total	172	114.67		

The computed F statistics equals 4.01. The table value of F with 2 degree freedom in the numerator and 170 degrees of freedom in the denominator at a 5 percent level of sifnificance is given by 2.99. As the computed F statistics is greater than the table F value, the null hypothesis is rejected. Therefore, degree of familiarity on E-commerce among all the three given income groups is statistically different.

Graphical Representation :-

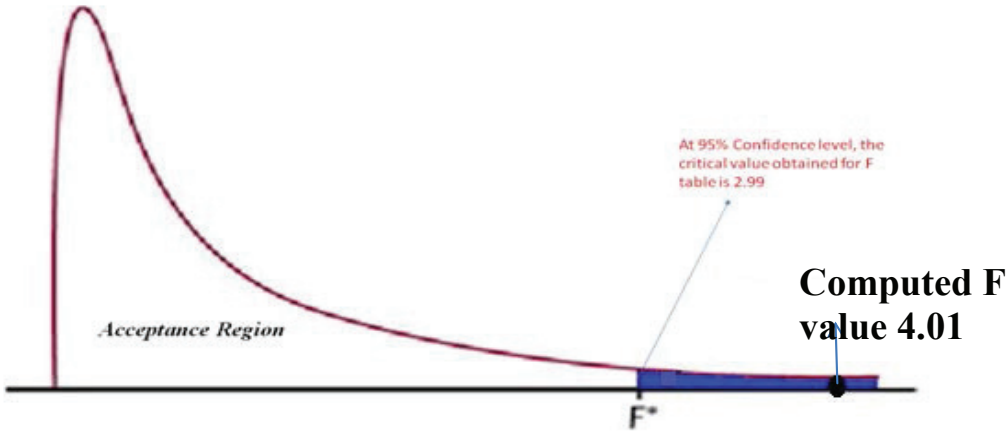

Figure 9: Showing computed F value in rejection region

Ho : μ_1= μ_2=μ_3 (Consumer behaviour while shopping on Internet among three income groups is the same.)

H1 :At least two income groups do not have the same behaviour while shopping on Internet.

$T_{1.}$= Below 1,00,000 $T_{2.}$= 1,00,000 – 2,50,000 $T_{3.}$= Above 2,50,000

K=3, $n_1 = 12, \quad n_2 = 37, n_3 = 124$

N = $n_1 + n_2 + n_3 = 12 + 37 + 124 = 173$

$T_{..} = 676.92 T_{1.} = 47.00 T_{2.} = 145.38 T_{3.} = 484.54$

$$\sum_{i=1}^{3} \sum_{j=1}^{8} X_{ij}^{\ 2} = 2673.37$$

$$TSS = \sum_{i=1}^{3} \sum_{j=1}^{ni} X_{ij}^{\ 2} - \frac{1}{N} \cdot T^2_{..}$$

$$= 2673.37 - \frac{1}{173} (676.92)^2$$

= 2673.37 – 2648.67 = 24.69

$$TrSS = \sum_{i=1}^{3} \frac{T_{i.}^{\ 2}}{n_i} - \frac{1}{N} T^2_{..}$$

$$= \left[\frac{47^2}{12} + \frac{145.38^2}{37} + \frac{484.54^2}{124}\right] - \frac{1}{173} (676.92)^2$$

= 2648.67 – 2648.67 = 0.00

SSE = TSS – TrSS = 24.69 – 0.00 = 24.69

Table 10: The one-way ANOVA table showing consumer behaviour across different income groups

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F^2_{170}
Treatments (Between groups)	2	0.00	0.00	0.00
Error (Within group)	170	24.69	6.885	
Total	172	24.69		

The computed F statistics equals 0.00. The table value of F with 2 degree freedom in the numerator and 170 degrees of freedom in the denominator at a 5 percent level of sifnificance is given by 2.99. As the computed F statistics is smaller than the table F value, the null hypothesis is accepted. Therefore, consumer of all the three income groups behave significantly while shopping on Internet.

Graphical Representation :-

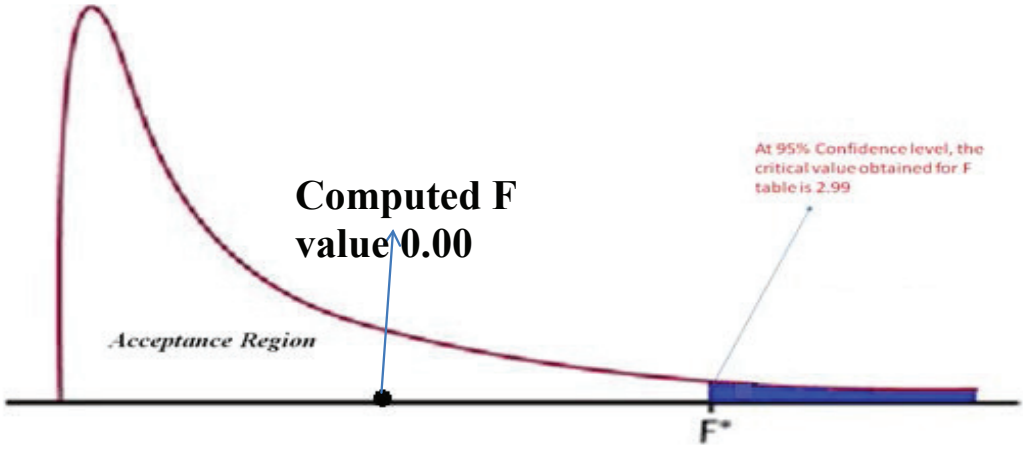

Figure 10: Showing computed F value in acceptance region

4.CONCLUSION

The data supports that the income level of more than 70 percent people are above 2.5 lacs but, their shopping behaviour on Internet is independent of their income level and almost all consumers likely to have equavelt degree of trust on E-commerce and E-vendors, and the consumer behaviour in an ideal situation is also same irrespective of their earnings. Ex- majority of the customers get influenced by the discount offers and generally people also check average ratings of product on various E-commerce platforms before buying etc. But on the other hand, familiarity of E-commerce among individuals have biasness based on their income level, maybe the people with higher income have high degree of familiarity and vice-versa (as the null hypothesis is rejected in context of the familiarity among various income groups and computed F value is greater than the table F value hence, lies in rejection region.

As per the data the influence of gender is negligible and both male and female behave similarly while shopping online and also have an equivalent degree of trust and familiarity on E-commerce as the null hypothesis is accepted and the computed Z value lies in acceptance region. Hence, there is no gender biasness for online shopping in India.

Trust in an E-vendor and familiarity with the vendor and its procedures influence two distinct aspects of intentions i.e., inquiring and buying. The influence of familiarity and trust are especially strong on people's intention to purchase. According to the data most people are familiar with searching for products on Internet, but still there are around 12.71 percent people who are not sure or are unaware about how to search for products to buy online. These 12.71 percent may belong to tier 3 city or can be from rural areas and may not have access to devices and connections. More than 85 percent people are aware about the buying process on Internet and hence, it can be inferred that they have shopped at least once through Internet. More than 75 percent are informed about how to check the product ratings but 22.54 percent are uninformed about the ratings feature offered by E-commerce platforms.

So, the web-based Internet companies should focus more on sub-urban and rural marketing, creating more user-friendly interfaces and creating awareness programs on how to operate online portals to increase the businesses in coming years.

Limitation and the need for additional research :-

► While becoming familiar with an e-merchant and the associated strategies, additional points of view must also be inspected.

► Since the survey is fundamentally site-specific, it is difficult to determine whether the result can be reduced to a lesser-known outcome or not.

► Additional research is also needed to examine the cross culture effect on consumer behaviour.

► Data collected is from undergraduate and graduate students of reputed universities, their may be biasness as of the qualification.

► Additional research should examine strategies to broaden people's sense of commonality and build trust.

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Appendix A. Questionnaire item

The table below shows the entire set of items used in the analysis.

Code	Item
	Familiarity
Fam1	I am familiar with the searching for products on Internet.
Fam2	I am familiar with the processes of buying products on Internet.
Fam3	I am familiar with the inquiring about product ratings on E-commerce platforms.
	Trust
Tr1	Even if not monitored, I'd trust E-commerce platforms to do the job right.
Tr2	I believe that E-commerce platforms are trustworthy.
Tr3	I would not hesitate to provide information about my habits to E-commerce platform which I like the most.
	Consumer Behaviour
Cb1	My shopping behaviour is influenced by the offers and discounts provided by E-vendors.
Cb2	Return or exchange policy is an important factor for me before buying products online.
Cb3	I always check the average customer ratings for the product which I am going to buy online.
Cb4	Expected time of delivery is my priority while ordering the product online.
Cb5	I prefer COD over online paymentwhile buying products online.
Cb6	I believe that showrooming must be done while buying expensive products online.
Cb7	As per me, shopping online is less expensive overall as compared to traditional shopping.
Cb8	Online shopping has made my life easier.

Appendix B. F Distribution Table

F - Distribution ($\alpha = 0.05$ in the Right Tail)

df_2 \ df_1	Numerator Degrees of Freedom								
Denominator Degrees of Freedom	1	2	3	4	5	6	7	8	9
1	161.45	199.50	215.71	224.58	230.16	233.99	236.77	238.88	240.54
2	18.513	19.000	19.164	19.247	19.296	19.330	19.353	19.371	19.385
3	10.128	9.5521	9.2766	9.1172	9.0135	8.9406	8.8867	8.8452	8.8123
4	7.7086	9.9443	6.5914	6.3882	6.2561	6.1631	6.0942	6.0410	6.9988
5	6.6079	5.7861	5.4095	5.1922	5.0503	4.9503	4.8759	4.8183	4.7725
6	5.9874	5.1433	4.7571	4.5337	4.3874	4.2839	4.2067	4.1468	4.0990
7	5.5914	4.7374	4.3468	4.1203	3.9715	3.8660	3.7870	3.7257	3.6767
8	5.3177	4.4590	4.0662	3.8379	3.6875	3.5806	3.5005	3.4381	3.3881
9	5.1174	4.2565	3.8625	3.6331	3.4817	3.3738	3.2927	3.2296	3.1789
10	4.9646	4.1028	3.7083	3.4780	3.3258	3.2172	3.1355	3.0717	3.0204
11	4.8443	3.9823	3.5874	3.3567	3.2039	3.0946	3.0123	2.9480	2.8962
12	4.7472	3.8853	3.4903	3.2592	3.1059	2.9961	2.9134	2.8486	2.7964
13	4.6672	3.8056	3.4105	3.1791	3.0254	2.9153	2.8321	2.7669	2.7144
14	4.6001	3.7389	3.3439	3.1122	2.9582	2.8477	2.7642	2.6987	2.6458
15	4.5431	3.6823	3.2874	3.0556	2.9013	2.7905	2.7066	2.6408	2.5876
16	4.4940	3.6337	3.2389	3.0069	2.8524	2.7413	2.6572	2.5911	2.5377
17	4.4513	3.5915	3.1968	2.9647	2.8100	2.6987	2.6143	2.5480	2.4943
18	4.4139	3.5546	3.1599	2.9277	2.7729	2.6613	2.5767	2.5102	2.4563
19	4.3807	3.5219	3.1274	2.8951	2.7401	2.6283	2.5435	2.4768	2.4227
20	4.3512	3.4928	3.0984	2.8661	2.7109	2.5990	2.5140	2.4471	2.3928
21	4.3248	3.4668	3.0725	2.8401	2.6848	2.5727	2.4876	2.4205	2.3660
22	4.3009	3.4434	3.0491	2.8167	2.6613	2.5491	2.4638	2.3965	2.3419
23	4.2793	3.4221	3.0280	2.7955	2.6400	2.5277	2.4422	2.3748	2.3201
24	4.2597	3.4028	3.0088	2.7763	2.6207	2.5082	2.4226	2.3551	2.3002
25	4.2417	3.3852	2.9912	2.7587	2.6030	2.4904	2.4047	2.3371	2.2821
26	4.2252	3.3690	2.9752	2.7426	2.5868	2.4741	2.3883	2.3205	2.2655
27	4.2100	3.3541	2.9604	2.7278	2.5719	2.4591	2.3732	2.3053	2.2501
28	4.1960	3.3404	2.9467	2.7141	2.5581	2.4453	2.3593	2.2913	2.2360
29	4.1830	3.3277	2.9340	2.7014	2.5454	2.4324	2.3463	2.2783	2.2229
30	4.1709	3.3158	2.9223	2.6896	2.5336	2.4205	2.3343	2.2662	2.2107
40	4.0847	3.2317	2.8387	2.6060	2.4495	2.3359	2.2490	2.1802	2.1240
60	4.0012	3.1504	2.7581	2.5252	2.3683	2.2541	2.1665	2.0970	2.0401
120	3.9201	3.0718	2.6802	2.4472	2.2899	2.1750	2.0868	2.0164	1.9588
∞	3.8415	2.9957	2.6049	2.3719	2.2141	2.0986	2.0096	1.9384	1.8799