

## Social Impact of Advertisement in Bangladesh: A Case Study of Dhaka City

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**Abstract:** This research is concerned with estimating social impact of advertisement in Bangladesh in the perspective of Dhaka City. For this purpose, information is collected from different news media and publication to describe present scenario of advertisement in Bangladesh. Various advertisement appeals i.e. Legal aspect, Fear, Humor, Sex, Emotion, Rationality and Music appeal have been briefly reviewed in the advertisement appeared in the Bangladeshi Media. A survey also has been conducted to collect some socio-economic and economics variables and try to set up relationship between socio-economic and economics variables. To establish this relationship the data must have to be normal. For that purpose, researcher firstly tests the normality of the data. Here, graphical presentations of the data and Anderson-Darling test to test the normality are used in this study. The appropriate multivariate linear regression model with the additive error term is selected by some model selection criteria for this research. Then, it tests the heteroscedastity and multicollinearity of the selected model. Finally, cross-tabulation for Chi-square ( $\chi^2$ ) test has been made to demonstrate that our customers are influenced or motivated by the advertisement to buy a specific brand product.

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### I. Introduction

Advertisement is a paid form of non-personal communication about an organization or its products that is transmitted to a target audience through a mass/broadcast medium. Advertisement is an important component of promotional mix, specifically an important part of the integrated marketing communication. In the days of advertising war a large portion of the promotional budget of the market leader, challenger and follower are being spent through advertisement.

Advertising is the promotion of a product or service and is extremely pervasive in contemporary society. To maximize sales, companies will pay a premium for wide exposure through the mass media. Advertising space is common, but not restricted to these realms; billboards, public transportation, movies (product placement), schools, clothing, even bathroom stalls carry ads and the industry are constantly finding new ways to advertise.

In international markets the process of communicating to a target audience is more complex because communication takes place across multiple contexts, which differ in terms of language, literacy, and other cultural factors. In addition, media differ in their effectiveness in carrying different appeals. A message may, therefore, not get through to the audience because of people's inability to understand it (due to literacy problems), because they misinterpret the message by attaching different meanings to the words or symbols used, or because they do not respond to the message due to a lack of income to purchase the advertised product. Media limitations also play a role in the failure of a communication to reach its intended audience. The process of communication in international markets involves a number of steps. First, the advertiser determines the appropriate message for the target audience. Next, the message is encoded so that it will be clearly understood in different cultural contexts. The message is then sent through media channels to the audience who then decodes and reacts to the message. At each stage in the process, cultural barriers may hamper effective transmission of the message and result in miscommunication.

Regardless to the media, marketers or promotional managers communicate with the target market through the advertisement and want to create a place in the mind and heart of the product image and brand loyalty. Advertiser want to approach the target market most successfully to get desired response and over the years advertisers approach have been more or less limited to broadly different types of appeals.

The ultimate aim for this study is to find out the Social Impact of Advertisement appeared in media especially in the electronics and print media. The followings are the objectives for this research.

- ✚ To find the social impact of advertisement in Bangladesh.
- ✚ To check the normality and Transform to near normality (if necessary) of the dependent variable in order to propose an appropriate regression model of the reasons of influence to buy a specific brand product.

- ✚ To check the heteroscedasticity of the error terms and if there is heteroscedasticity use remedy as the weighted least squares method.
- ✚ To identify multicollinearity problem along with its remedial measure, the principal component method.
- ✚ To construct a hypothesis of chi-square ( $\chi^2$ ) to check that our customers are motivate or not by the advertisement in different media.

## II. Literature Review

Advertising is a form of communication used to encourage or persuade an audience (viewers, readers or listeners) to continue or take some new action. Most commonly, the desired result is to drive consumer behavior with respect to a commercial offering, although political and ideological advertising is also common. The purpose of advertising may also be to reassure employees or shareholders that a company is viable or successful. Advertising messages are usually paid for by sponsors and viewed via various traditional media; including mass media such as newspaper, magazines, television commercial, radio advertisement, outdoor advertising or direct mail; or new media such as websites and text messages.

Commercial advertisers often seek to generate increased consumption of their products or services through "Branding," which involves the repetition of an image or product name in an effort to associate certain qualities with the brand in the minds of consumers. Non-commercial advertisers who spend money to advertise items other than a consumer product or service include political parties, interest groups, religious organizations and governmental agencies. Nonprofit organizations may rely on free modes of persuasion, such as a Public Service Announcement (PSA). Modern advertising developed with the rise of mass production in the late 19th and early 20th centuries. In 2010, spending on advertising was estimated at more than \$300 billion in the United States and \$500 billion worldwide.

The word advertisement means drawing attention to something or notifying or informing somebody about something. Advertisement broadcast our personal and cultural identity. Thus, advertising includes all human communication that overtly attempts to elicit or facilitate a transaction, action or reaction. Beginning where objective information leaves off and stretching until subjective art takes over, advertising is a hybrid of information and aesthetics that can be traced back to the non-camouflage markings on animals. While few social interactions take place without some advertising, industrial democratic societies are built around and by it. Mass produced products cannot be sold by word of mouth, just outside the factory gates they must be shipped to distant consumers, who must first know of them. Similarly, an industrialized democratic society cannot function without competition or the ability of competitors to offer alternatives. Product advertising has long been with us. But modern advertising began with the Industrial Revolution, filling up the expanding newspapers and periodicals with ads and financing them with ad revenue. This created the basic feedback loop of information and desire that powered capitalism built the railroads to deliver the goods and expanded our economic circle from village to nation to global economy. It also spawned our mass entertainment and telecommunication culture. While each new media was a gift from technology and capitalism to the arts, it generally had to pay its own way through advertising.

Advertisement is an encapsulated communication about a product (goods/services), a clearly designed, concise, aesthetically appealing and content-wise accurate communicate intended to effectively persuade the target audience (viewers/listeners/readers) to arrive at a decision as desired by the advertiser often concerning the product (goods/services). Usually the aim of an advertisement is to increase the sales of a product introduced into the market. The advertisement will speak about the salient features of the product on offer and the benefit the customer/consumer can derive out of the product. It can also educate the target audience about the various other details such as the products cost, availability, usage modalities, problems that may arise while using it and the probable solutions to those problems etc.

Advertisement also is used to inform a mass of audience about various socially relevant factors such as employment, upcoming events, contests or elections or a host of other such events. Now newer media of advertisements are emerging and growing. Internet based media like social networks, web portals, trade portals etc. are some of those. Normally the advertisements are prepared in such a way that they attract the attention of the intended parties easily. Thoughtfully constructed copy (words/diction of an advertisement), interesting visual or pictures, attractive colours and designs, a uniquely arrived at theme, the central steam of thought, etc. arouse interest of the customers, and help to retain the interest. Persuasive elements of the advertisement drive the customers towards a strong desire to possess the product. This finally leads them toward buying or possessing the product.

Advertising can be described as any form of communication that is intended to persuade its viewers, listeners or readers into taking some action. It uses different types of media, such as newspapers, radio, magazines, television, billboards and direct mail, to deliver messages. Out-of-home advertising and billboards are the oldest forms of advertising and are believed to date back to 4000 BC.

As the towns and cities of the Middle Ages began to grow, and the general populace was unable to read, signs that today would say cobbler, miller, tailor or blacksmith would use an image associated with their trade such as a boot, a suit, a hat, a clock, a diamond, a horse shoe, a candle or even a bag of flour. Fruits and vegetables were sold in the city square from the backs of carts and wagons and their proprietors used street callers (town criers) to announce their whereabouts for the convenience of the customers.

As education became an apparent need and reading, as well as printing, developed advertising expanded to include handbills. In the 18<sup>th</sup> century advertisements started to appear in weekly newspapers in England. These early print advertisements were used mainly to promote books and newspapers, which became increasingly affordable with advances in the printing press; and medicines, which were increasingly sought after as disease ravaged Europe.

As the economy expanded during the 19<sup>th</sup> century, advertising grew alongside. In the United States, the success of this advertising format eventually led to the growth of mail-order advertising.

In June 1836, French newspaper *La Presse* was the first to include paid advertising in its pages, allowing it to lower its price, extend its readership and increase its profitability and the formula was soon copied by all titles. Around 1840, Volney B. Palmer established the roots of the modern day advertising agency in Philadelphia. In 1842 Palmer bought large amounts of space in various newspapers at a discounted rate then resold the space at higher rates to advertisers. The actual ad - the copy, layout, and artwork - was still prepared by the company wishing to advertise; in effect, Palmer was a space broker. The situation changed in the late 19<sup>th</sup> century when the advertising agency of N.W. Ayer & Son was founded. Ayer and Son offered to plan, create, and execute complete advertising campaigns for its customers. By 1900 the advertising agency had become the focal point of creative planning, and advertising was firmly established as a profession.<sup>[3]</sup> Around the same time, in France, Charles-Louis Havas extended the services of his news agency, Havas to include advertisement brokerage, making it the first French group to organize. At first, agencies were brokers for advertisement space in newspapers. N. W. Ayer & Son was the first full-service agency to assume responsibility for advertising content. N.W. Ayer opened in 1869, and was located in Philadelphia.

Advertisement for a live radio broadcast, sponsored by a milk company and published in the *Los Angeles Times* on May 6, 1930. At the turn of the century, there were few career choices for women in business; however, advertising was one of the few. Since women were responsible for most of the purchasing done in their household, advertisers and agencies recognized the value of women's insight during the creative process. In fact, the first American advertising to use a sexual sell was created by a woman – for a soap product. Although tame by today's standards, the advertisement featured a couple with the message "The skin you love to touch".

In the early 1920s, the first radio stations were established by radio equipment manufacturers and retailers who offered programs in order to sell more radios to consumers. As time passed, many non-profit organizations followed suit in setting up their own radio stations, and included: schools, clubs and civic groups. When the practice of sponsoring programs was popularized, each individual radio program was usually sponsored by a single business in exchange for a brief mention of the business name at the beginning and end of the sponsored shows. However, radio station owners soon realized they could earn more money by selling sponsorship rights in small time allocations to multiple businesses throughout their radio station's broadcasts, rather than selling the sponsorship rights to single businesses per show. This practice was carried over to commercial television in the late 1940s and early 1950s.

In the early 1950s, the DuMont Television Network began the modern practice of selling advertisement time to multiple sponsors. Previously, DuMont had trouble finding sponsors for many of their programs and compensated by selling smaller blocks of advertising time to several businesses. This eventually became the standard for the commercial television industry in the United States.

In the 1960s, campaigns featuring heavy spending in different mass media channels became more prominent. The late 1980s and early 1990s saw the introduction of cable television and particularly MTV. Pioneering the concept of the music video, MTV ushered in a new type of advertising: the consumer tunes in for the advertising message, rather than it being a by-product or afterthought. As cable and satellite television became increasingly prevalent, specialty channels emerged, including channels entirely devoted to advertising, such as QVC, Home Shopping Network, and Shop TV Canada.

With the advent of the ad server, marketing through the Internet opened new frontiers for advertisers and contributed to the "dot-com" boom of the 1990s. Entire corporations operated solely on advertising revenue, offering everything from coupons to free Internet access. At the turn of the 21<sup>st</sup> century, a number of websites including the search engine Google, started a change in online advertising by emphasizing contextually relevant, unobtrusive ads intended to help, rather than inundate, users. This has led to a plethora of similar efforts and an increasing trend of interactive advertising.

The share of advertising spending relative to GDP has changed little across large changes in media. For example, in the US in 1925, the main advertising media were newspapers, magazines, signs on streetcars, and

outdoor posters. Advertising spending as a share of GDP was about 2.9 percent. By 1998, television and radio had become major advertising media. Nonetheless, advertising spending as a share of GDP was slightly lower—about 2.4 percent.

A recent advertising innovation is "guerrilla marketing", which involve unusual approaches such as staged encounters in public places, giveaways of products such as cars that are covered with brand messages, and interactive advertising where the viewer can respond to become part of the advertising message. Guerrilla advertising is becoming increasingly more popular with a lot of companies. This type of advertising is unpredictable and innovative, which causes consumers to buy the product or idea. This reflects an increasing trend of interactive and "embedded" ads, such as via product placement, having consumers vote through text messages, and various innovations utilizing social network services such as Facebook.

Virtually any medium can be used for advertising. Commercial advertising media can include wall paintings, billboards, street furniture components, printed flyers and rack cards, radio, cinema and television adverts, web banners, mobile telephone screens, shopping carts, web popup, skywriting, bus stop benches, human billboards, magazines, newspapers, town criers, sides of buses, banners attached to or sides of airplanes ("logojets"), in-flight advertisements on seatback tray tables or overhead storage bins, taxicab doors, roof mounts and passenger screens, musical stage shows, subway platforms and trains, elastic bands on disposable diapers, doors of bathroom stalls, stickers on apples in supermarkets, shopping cart handles (grabvertising), the opening section of streaming audio and video, posters, and the backs of event tickets and supermarket receipts. Any place an "identified" sponsor pays to deliver their message through a medium is advertising.

#### ❖ **Television Advertising**

The TV commercial is generally considered the most effective mass-market advertising format, as is reflected by the high prices TV networks charge for commercial airtime during popular TV events. The majorities of television commercials feature a song or jingle that listeners soon relate to the product. Virtual advertisements may be inserted into regular television programming through computer graphics.

#### ❖ **Infomercials**

An infomercial is a long-format television commercial, typically five minutes or longer. The word "infomercial" combines the words "information" & "commercial". The main objective in an infomercial is to create an impulse purchase, so that the consumers observe the presentation and then immediately buy the product through the advertised toll-free telephone number or website. Infomercials describe, display, and often demonstrate products and their features, and commonly have testimonials from consumers and industry professionals.

#### ❖ **Radio Advertising**

Radio advertising is a form of advertising via the medium of radio. Radio advertisements are broadcast as radio waves to the air from a transmitter to an antenna and a thus to a receiving device. Radio is an expanding medium that can be found not only on air, but also online.

#### ❖ **Online Advertising**

Online advertising is a form of promotion that uses the Internet and World Wide Web for the expressed purpose of delivering marketing messages to attract customers. Online ads are delivered by an ad server. Examples of online advertising include contextual ads that appear on search engine results pages, banner ads, in text ads, Rich Media Ads, Social network advertising, online classified advertising, advertising networks and e-mail marketing, including e-mail spam.

#### ❖ **Product Placements**

Covert advertising, also known as guerrilla advertising, is when a product or brand is embedded in entertainment and media. For example, in a film, the main character can use an item or other of a definite brand, as in the movie *Minority Report*, where Tom Cruise's character John Anderton owns a phone with the Nokia logo clearly written in the top corner, or his watch engraved with the Bulgari logo. Similarly, product placement for Omega Watches, Ford, VAIO, BMW and Aston Martin cars are featured in recent James Bond films, most notably *Casino Royale* and the whole film stops to show a Coca-Cola billboard.

#### ❖ **Press Advertising**

Press advertising describes advertising in a printed medium such as a newspaper, magazine, or trade journal. This encompasses everything from media with a very broad readership base, such as a major national newspaper or magazine, to more narrowly targeted media such as local newspapers and trade journals on very specialized topics. A form of press advertising is classified advertising, which allows private individuals or



companies to purchase a small, narrowly targeted ad for a low fee advertising a product or service. Another form of press advertising is the Display Ad, which is a larger ad (can include art) that typically run in an article section of a newspaper.

❖ **Billboard Advertising**

Billboards are large structures located in public places which display advertisements to passing pedestrians and motorists. Most often, they are located on main roads with a large amount of passing motor and pedestrian traffic; however, they can be placed in any location with large amounts of viewers, such as on mass transit vehicles and in stations, in shopping malls or office buildings, and in stadiums.

❖ **Mobile Billboard Advertising**

Mobile billboards are generally vehicle mounted billboards or digital screens. These can be on dedicated vehicles built solely for carrying advertisements along routes preselected by clients, they can also be specially equipped cargo trucks or, in some cases, large banners strewn from planes. The billboards are often lighted; some being backlit, and others employing spotlights. Mobile displays are used for various situations in metropolitan areas throughout the world, including: target advertising, one-day, and long-term campaigns, conventions, sporting events, store openings and similar promotional events, and big advertisements from smaller companies.

❖ **In-store Advertising**

In-store advertising is any advertisement placed in a retail store. It includes placement of a product in visible locations in a store, such as at eye level, at the ends of aisles and near checkout counters, eye-catching displays promoting a specific product, and advertisements in such places as shopping carts and in-store video displays.

❖ **Coffee Cup Advertising**

Coffee cup advertising is any advertisement placed upon a coffee cup that is distributed out of an office, cafe, or drive-through coffee shop. This form of advertising was first popularized in Australia, and has begun growing in popularity in the United States, India, and parts of the Middle East.

❖ **Street Advertising**

This type of advertising first came to prominence in the UK by Street Advertising Services to create outdoor advertising on street furniture and pavements. Working with products such as Reverse Graffiti, air dancer's and 3D pavement advertising, the media became an affordable and effective tool for getting brand messages out into public spaces.

❖ **Celebrity Branding**

This type of advertising focuses upon using celebrity power, fame, money, popularity to gain recognition for their products and promote specific stores or products. Advertisers often advertise their products, for example, when celebrities share their favorite products or wear clothes by specific brands or designers. Celebrities are often involved in advertising campaigns such as television or print adverts to advertise specific or general products.

### **III. Research Methodology**

Methodology of a study depends on a series of steps. It contains the overall plan of a study. It depicts the procedure of performing the research work step by step. The formulation of a problem is far more often essential than its solution, which may be a merely a matter of mathematical or experimental skill. To raise new questions, new possibilities, to regard old problems from a new angle require creative imagination and marks real advance in science. In the following paragraphs we have the steps of methodology of this project.

Questionnaire is a structured technique for data collection that consists of a series of questions, written or verbal, that a respondent answer. For short time and less expensive, I select the desired youth generation of Dhaka city by using my personal judgment and then use non-probability sampling method to collect the data. Procedures for statistically adjusting the data consist of weighting, variable respectification, and scale transformations. These adjustments are not always necessary but can enhance the quality of data analysis. Analyze the data by using SPSS mainly, also taken the help of EXCEL and MINITAB software. Hence we also try to interpret the results by observing the computer output that can be done in the section of analysis.

### **IV. Data Analysis and Discussion of Findings**

This chapter discusses a multivariate analysis of the reasons of the social impact of advertisement. For our study purpose we have selected several socio-economic and economic variables. Influence or motivate by

the advertisement to buy specific brand product, Total monthly income, Total monthly expenditure, Age of the respondent, Any advertisement that draw attention, Best media for advertisement, Different part of the advertisement influence customers, Provided information in the advertisement and cheated to buy a product after seen advertisement help to increase the sales of the product, More effective process to influence the customers are the socio-economic and economic variables.

**Model Selection for Reasons of Influence Customer to Buy a Specific Brand Product**

We want to analyze the pattern of social impact of advertisement in Bangladesh. Here influence or motivate by the advertisement to buy specific brand product is the dependent variable and all others dependent variables. Here we use  $R^2$ , Adjusted  $R^2$ , AIC (Akaike Information Criteria), SIC (Schwarz Information Criterion), HQ (Hunnan and Quinn Criteria), FPE (Finite Prediction Error) etc. which have been discussed in Chapter 3 in Section 3.3 to select the best model among the following models.

**Model 1 -**  $y_i = \alpha_0 + \alpha_1 X_{1i} + u_i$

**Model 2 -**  $y_i = \alpha_0 + \alpha_1 X_{1i} + \alpha_2 X_{2i} + u_i$

**Model 3 -**  $y_i = \alpha_0 + \alpha_1 X_{1i} + \alpha_2 X_{2i} + \alpha_3 X_{3i} + u_i$

**Model 4 -**  $y_i = \alpha_0 + \alpha_1 X_{1i} + \alpha_2 X_{2i} + \alpha_3 X_{3i} + \alpha_4 X_{4i} + u_i$

**Model 5 -**  $y_i = \alpha_0 + \alpha_1 X_{1i} + \alpha_2 X_{2i} + \alpha_3 X_{3i} + \alpha_4 X_{4i} + \alpha_5 X_{5i} + u_i$

**Model 6 -**  $y_i = \alpha_0 + \alpha_1 X_{1i} + \alpha_2 X_{2i} + \alpha_3 X_{3i} + \alpha_4 X_{4i} + \alpha_5 X_{5i} + \alpha_6 X_{6i} + u_i$

**Model 7 -**  $y_i = \alpha_0 + \alpha_1 X_{1i} + \alpha_2 X_{2i} + \alpha_3 X_{3i} + \alpha_4 X_{4i} + \alpha_5 X_{5i} + \alpha_6 X_{6i} + \alpha_7 X_{7i} + u_i$

**Model 8 -**  $y_i = \alpha_0 + \alpha_1 X_{1i} + \alpha_2 X_{2i} + \alpha_3 X_{3i} + \alpha_4 X_{4i} + \alpha_5 X_{5i} + \alpha_6 X_{6i} + \alpha_7 X_{7i} + \alpha_8 X_{8i} + u_i$

**Model 9 -**  
 $y_i = \alpha_0 + \alpha_1 X_{1i} + \alpha_2 X_{2i} + \alpha_3 X_{3i} + \alpha_4 X_{4i} + \alpha_5 X_{5i} + \alpha_6 X_{6i} + \alpha_7 X_{7i} + \alpha_8 X_{8i} + \alpha_9 X_{9i} + u_i$

**Model 10 -**  
 $y_i = \alpha_0 + \alpha_1 X_{1i} + \alpha_2 X_{2i} + \alpha_3 X_{3i} + \alpha_4 X_{4i} + \alpha_5 X_{5i} + \alpha_6 X_{6i} + \alpha_7 X_{7i} + \alpha_8 X_{8i} + \alpha_9 X_{9i} + \alpha_{10} X_{10i} + u_i$

Where,

$y$  = Different Parts of Advertisement Influenced or motivated by the advertisement to buy specific brand product

$X_1$  = Total monthly income

$X_2$  = Total monthly expenditure

$X_3$  = Age of the respondent

$X_4$  = Any advertisement that draw attention

$X_5$  = Best media for advertisement

$X_6$  = Different part of the advertisement influence customers

$X_7$  = Provided information in the advertisement

$X_8$  = Cheated to buy a product after seen advertisement

$X_9$  = Advertisements help to increase the sales of the product

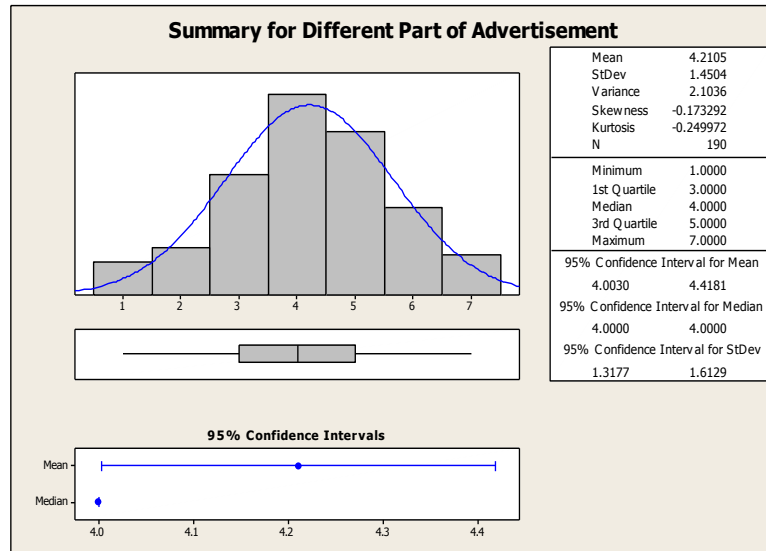
$X_{10}$  = More effective process to influence the customers

**Normality Test**

One of the important assumptions to the regression model is normality of the error terms. Violation of normality of error terms makes the regression invalid, so in the following section we will test the normality of the data (dependent variable). We can test the normality of the data by using the following methods:

1. Q-Q plot
2. Anderson-Darling test
3. Correlation test
4. Anderson-Darling test

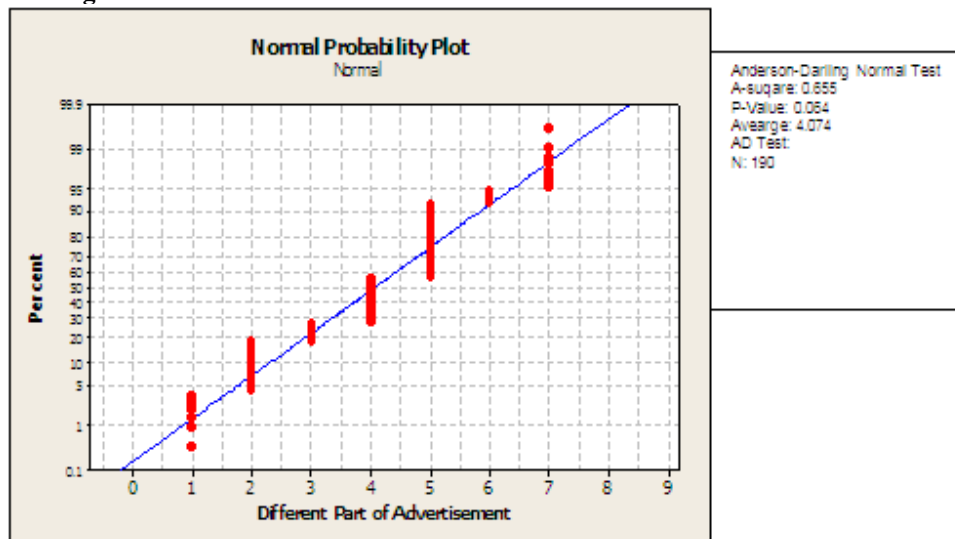
**Normality Plot of the Dependent Variable**



**Graphical Summary of Dependent Variable**

From the above graphical analysis we may conclude that shape of the graph is similar to the shape of normal graph. So we may conclude that our analysis data is normal.

**Anderson-Darling Test**



**Figure 7.2: Anderson-Darling Test for Normality**

Here we have used Anderson-Darling test for normality through the software Minitab 15 for Windows. In this if  $A^2$  exceeds 0.752 then hypothesis of normality is rejected for a 5% level test, otherwise we may conclude that the data is normal.

From the above figure we see that the value of  $A^2$  is 0.655. So  $A^2$  is smaller than 0.725 and we accept the hypothesis of normality and the dependent variable (Different part of Advertisement Influence Customers) is normal. According to the P-value concept the test rejects the hypothesis of normality when the p-value is less than or equal to 0.05. But in Anderson-Darling Test we get the P-value 0.064 and we may also conclude that the data is normal.

**Value of different model selection criteria for various models**

Model	$R^2$	Adjusted $R^2$	AIC	SIC	FPE	HQ	SCHWARZ
1	0.0166	0.0133	2.2763	2.2907	2.2764	2.3798	2.2907
2	0.0221	0.0156	2.2348	2.3298	2.2348	2.2570	2.3298
3	0.0242	0.0143	2.2493	2.3632	2.2451	2.2786	2.3632
4	0.0288	0.0157	2.2626	2.4066	2.2493	2.2942	2.4066

5	0.0296	0.0131	2.2484	2.4511	2.2626	2.3192	2.4511
6	0.0303	0.0105	2.2761	2.4513	2.2761	2.3446	2.4513
7	0.0485	<b>0.0257</b>	2.2848	2.4975	2.2484	2.3275	2.4975
8	0.0488	0.0227	2.2626	2.5438	2.2626	2.3538	2.5438
9	0.0494	0.0199	<b>2.2326</b>	<b>2.2604</b>	<b>2.2326</b>	<b>2.2437</b>	<b>2.2604</b>
10	<b>0.0522</b>	0.0194	2.2848	2.2848	2.2849	2.4005	2.2848

From the information of the above table we may select the model 9 as because the values of AIC, SIC, FPE, HQ and SCHWARZ are the smallest though the value of  $R^2$  and Adjusted  $R^2$  are not the largest for this model. So our selected model is:

**Model 9**  

$$y_i = \alpha_0 + \alpha_1 X_{1i} + \alpha_2 X_{2i} + \alpha_3 X_{3i} + \alpha_4 X_{4i} + \alpha_5 X_{5i} + \alpha_6 X_{6i} + \alpha_7 X_{7i} + \alpha_8 X_{8i} + \alpha_9 X_{9i} + u_i$$

**Test of Heteroscedasticity**

From the above analysis we get the Model- 9 is the best model and we also see that our independent variable (social impact of advertisement in Bangladesh) is normal.

Now we have

Computed  $\chi^2 = 321.5645$

Critical  $\chi^2 = 15.50731$

Since the computer  $\chi^2$  (321.5645) value with degrees of freedom eight (k-1), is greater than the critical  $\chi^2$  (15.50731) value at 5% level of significance, we can reject the hypothesis of heteroscedasticity.

Therefore we may conclude that our estimated regression equation

**Model 9**  

$$y_i = \alpha_0 + \alpha_1 X_{1i} + \alpha_2 X_{2i} + \alpha_3 X_{3i} + \alpha_4 X_{4i} + \alpha_5 X_{5i} + \alpha_6 X_{6i} + \alpha_7 X_{7i} + \alpha_8 X_{8i} + \alpha_9 X_{9i} + u_i$$

Suffer from the heteroscedasticity problem for the data.

**Removing the Heteroscedasticity Problem**

Our selected model is:

**Model 9**  

$$y_i = \alpha_0 + \alpha_1 X_{1i} + \alpha_2 X_{2i} + \alpha_3 X_{3i} + \alpha_4 X_{4i} + \alpha_5 X_{5i} + \alpha_6 X_{6i} + \alpha_7 X_{7i} + \alpha_8 X_{8i} + \alpha_9 X_{9i} + u_i$$

Now we have the weighted equation for the data as follows:

$$\hat{y}_i^* = 0.879908 - 0.000023 \frac{X_{1i}}{\hat{y}_i} - 0.0003 \frac{X_{2i}}{\hat{y}_i} - 0.00566 \frac{X_{3i}}{\hat{y}_i} + 0.002835 \frac{X_{4i}}{\hat{y}_i} - 0.00027 \frac{X_{5i}}{\hat{y}_i} + 0.270882 \frac{X_{6i}}{\hat{y}_i} + 0.035486 \frac{X_{7i}}{\hat{y}_i} - 0.0033 \frac{X_{8i}}{\hat{y}_i} + 0.00000741 \frac{X_{9i}}{\hat{y}_i} \dots \dots \dots 5.1$$

Where,  $\hat{y}_i^* = \frac{y_i}{\hat{y}_i}$  and

$$\hat{y}_i = 2.978243 + 0.0000787X_{1i} - 0.0022X_{2i} - 0.0203X_{3i} - 0.01373X_{4i} - 0.14325X_{5i} + 0.210818X_{6i} + 0.090286X_{7i} - 0.1275X_{8i} + 0.00000324X_{9i} + u_i$$

Now the weighted estimated model 5.1 can be equivalently written as

$$\hat{y}_i^* = 0.879908 - 0.000023X_{1i}^* - 0.0003X_{2i}^* - 0.00566X_{3i}^* + 0.002835X_{4i}^* - 0.00027X_{5i}^* + 0.270882X_{6i}^* + 0.035486X_{7i}^* - 0.0033X_{8i}^* + 0.00000741X_{9i}^*$$

Where,

$\beta_0 = 0.879908$ , Indicate that if the effect of all independent variables are zero then on an average the reasons for influence our customer to buy a specific brand product is changed by 0.879908.

$\beta_1 = - 0.000023$ , Indicate that if we change one unit of total monthly income, the reasons for influence our customer to buy a specific brand product is decreased by 0.00023 times keeping other independent variables are constant.

$\beta_2 = - 0.0003$ , Indicate that if we change one unit of Total monthly expenditure, the reasons for influence our customer to buy a specific brand product is decreased by 0.0003 times keeping other independent variables are constant.



$\beta_3 = - 0.00566$ , Indicate that if we change one unit of Age of the respondent, the reasons for influence our customer to buy a specific brand product is decreased by 0.00566 times keeping other independent variables are constant.

$\beta_4 = 0.002835$ , Indicate that if we change one unit of any advertisement that draw attention, the reasons for influence our customer to buy a specific brand product is increased by 0.002835 times keeping other independent variables are constant.

$\beta_5 = - 0.00027$ , Indicate that if we change one unit of Best media for advertisement, the reasons for influence our customer to buy a specific brand product is decreased by 0.00027 times keeping other independent variables are constant.

$\beta_6 = 0.270882$ , Indicate that if we change one unit of Different part of the advertisement influence customers, the reasons for influence our customer to buy a specific brand product is increased by 0.270882 times keeping other independent variables are constant.

$\beta_7 = 0.035486$  Indicate that if we change one unit of provided information in the advertisement, the reasons for influence our customer to buy a specific brand product is increased by 0.035486 times keeping other independent variables are constant.

$\beta_8 = - 0.0033$ , Indicate that if we change one unit of Cheated to buy a product after seen advertisement, the reasons for influence our customer to buy a specific brand product is decreased by 0.0033 times keeping other independent variables are constant.

$\beta_9 = 0.00000741$ , Indicate that if we change one unit of Advertisements help to increase the sales of the product, the reasons for influence our customer to buy a specific brand product is decreased by 0.0033 times keeping other independent variables are constant.

**Test for Multicollinearity**

Multicollinearity is an important issue in regression model. If multicollinearity is present, then the estimation gives an invalid result. Thus we need to detect this problem. In this part we have used the tests for detecting multicollinearity among the weighted explanatory variables obtained by using the equation 5.1.

**The Farrar Glauber Tests for Multicollinearity – A F-test**

We have used the F-test according Farrar-Glauber test to locate the multicollinearity among the weighted explanatory variables obtained by using the equation 5.1 i.e. here the new weighted explanatory variables are  $X_{ji}^*$ , where

$$X_{ji}^* = \frac{x_{ji}}{\hat{y}_i}, j = 1, 2, 3, 4, 5, 6, 7, 8, 9; i = 1, 2, 3, \dots \dots \dots, 250$$

The calculated value of F for different variables are presented below in the following table

**Different Calculated Value of F-test for Selected Variables**

Variable name	$R^2$	(Calculated F) $F^*$
$X_1^*$	0.000180744	0.05387141
$X_2^*$	0.000135448	0.04036885
$X_3^*$	0.000014543	0.00433391
$X_4^*$	0.000011281	0.00336184
$X_5^*$	0.000002138	0.00063702
$X_6^*$	0.001470253	0.43878059
$X_7^*$	0.000042276	0.01259887
$X_8^*$	0.000233715	0.06966334
$X_9^*$	0.000041876	0.01247966

The calculated value of F at 5% level of significance is 1.970285 with 8291 degrees of freedom. So, from the above test we have found among the nine selected weighted explanatory variables are multicollinear, which is showed in table.

**Comment of the F-test**

Variable name	Decision	Comment
$X_1^*$	Accept	$X_1$ is not multicollinear
$X_2^*$	Accept	$X_2$ is not multicollinear
$X_3^*$	Accept	$X_3$ is not multicollinear
$X_4^*$	Accept	$X_4$ is not multicollinear
$X_5^*$	Accept	$X_5$ is not multicollinear
$X_6^*$	Accept	$X_6$ is not multicollinear
$X_7^*$	Accept	$X_7$ is not multicollinear
$X_8^*$	Accept	$X_8$ is not multicollinear
$X_9^*$	Accept	$X_9$ is not multicollinear

After using above Multivariate Regression, Normality Test Criteria, Model Selection Criteria, Heteroscedasticity testing of the dependent variable and Multicollinear testing of the independent variables, we select the best model is 9. So we can say that the main reasons for influence customer to buy a specific brand product are Total monthly income, Total monthly expenditure, Age of the respondent, Any advertisement that draw attention, Best media for advertisement, Different part of the advertisement influence customers, Provided information in the advertisement, Cheated to buy a product after seen advertisement, Advertisement helps to increase the sales of the product.

**Selection of which way our Customers Influence or Motivate to buy a Specific Brand Product**

One time marketers think that they are the king of the market because time competition is low in the market and consumer need is low from present. However, at present density of population is large. Day by day our technology develops and customer demand increases and modern market is open and more competitive. At present consumers are the kings of the market. Because consumers culture, style and demand for products are different. So the marketers need to offer products or service according to the needs of consumers. All time marketers are applying different strategy to influence or motivate their target customer to buy their products. There are many reasons behind influence our customers.

**Chi-square test between Total Monthly Expenditure and Different Part of the Advertisement Influence the Customers**

**Hypothesis**

$H_0$ : There is association between total monthly expenditure and different part of the advertisement influence the customers.

$H_1$ : There is no association between total monthly expenditure and different parts of the advertisement influence the customers or influence by the advertisement.

According to the cross-table, we get the calculated value of the test statistics is

$$\chi^2 = \sum \left[ \frac{(O - E)^2}{E} \right]$$

= 20.104

The tabulated value of with 36 degrees of freedom at 5% level of significance is 55.8.

Since the calculated value of chi-square is less than the tabulated value of chi-square for 36 degrees freedom at 5% level of significance, so we accept the null hypothesis. Now we may conclude that our customers are influenced by the advertisement.

**Chi-square test between Total Monthly Expenditure and Advertisement help to Increase the Sales of the Product**

**Hypothesis**

$H_0$ : There is association between total monthly expenditure and advertisement help to increase the sales of the product

$H_1$ : There is no association between total monthly expenditure and advertisement help to increase the sales of the product or influence by the advertisement.

According to the cross-table, we get the calculated value of the test statistics is

$$\chi^2 = \sum \left[ \frac{(O - E)^2}{E} \right]$$

= 2.990

The tabulated value of with 6 degrees of freedom at 5% level of significance is 12.6. Since the calculated value of chi-square is less than the tabulated value of chi-square for 6 degrees freedom at 5% level of significance, so we accept the null hypothesis. Now we may conclude that advertisement increases the sales of the product or customers are influenced by the advertisement.

## V. Conclusion and Recommendation

The main reason behind advertisement is to promote the sale of a product, build awareness of the brand but the social impact is not avoided. Advertisement must abide by some rules and regulation by the government. Besides these it cannot avoid the social norms which are also dominant in the advertisement. If the advertisement is not socially accepted then company bound to remove that ad from the media. On the other hand if it is socially accepted then everybody loves it which actually promotes their sale of product like “Grameen phone” advertisement a man who brings a cell phone for his mother.

From the result and evidence of my research, following recommendations should be made for the government, planners, producer, customers and other concerned people to increase the product quality, improved the advertisement level and protect our customers from cheating.

Few recommendations are given below:

- ❖ At present different media is the most popular and powerful way to give information to the people. By the help of media we can get the news of whole the world in sitting the house. So the government of our country can utilize the power of media to increase the social awareness by the help of advertisement. Because advertisement is the most popular and easy process to influence or motivate our people like- safe the children, women rights, impact of flood and cyclone and what our activity to at the time of flood to safe our valuable life and property, different type of diseases which we can easily protect if we take some actions, different type of unsocial activity and drug addiction etc.
- ❖ Many times we see that some greedy people or organization give wrong information about their product or services in the advertisement to influence our people. As a result our simple people are cheated to buy the product. So the government needs to take a legal action to the greedy organizations. At the same time our media industry can take a vital rule against the greedy organization and people to give no more opportunity to cheat the people.
- ❖ Some times we find something harmful for our society in the advertisement. This is mainly affecting our young generation. This type of advertisement influence our young generation to the evil did. So the government needs to take care about this and our media industry must be responsible not to publish any thing harmful for the society for money.
- ❖ At the time of globalization or open market condition our producer faces more competition in the market. So they spend a large amount of money for advertisement in different media. So our media must be responsible to help our own industry to increase their product popularity.
- ❖ This research project mainly information basis. Here we collect information from the young generation of our country and which are stay in Dhaka city for different purpose. According to our research result we see that our respondent are mostly motivated or influence by the information and person of the advertisement. So our model must be aware about don't do any advertisement which is harmful for our young generation.
- ❖ To safe our customers from cheating the government must take effective action to establish the consumer rights rule. This rule may control the voracious business man activity.

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