

# Influence of Demographic Factors on Mobile Phone Purchasing among University Students in Nigeria

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## Abstract

This paper examines demographic determinants of mobile phone purchase decision of university students in Nigeria. Primary data were collected with the aid of pre-tested structured questionnaire. The questionnaire was administered through random sampling to 1200 university students. The result highlights the relevance of gender status, level of education and marital status of students in influencing mobile phone purchase decision of the students at 5% level of significance. The results lend credence to the call for market segmentation on the basis of demographic factors in mobile phones marketing decision among young populace of the target market.

**Keywords:** Demographic Factors, Market Decision, Consumer, Mobile Telecommunication and Purchase Behaviour

## 1. Introduction

Although mobile phones have become a fundamental part of communication tools among university students, the world over, consumer research has paid little attention to motives and choice underlying the mobile phone buying decision of these students. University students represent an important segment of shoppers among the Nigerian consumer segments. Based on the size and characteristics of the market, university students are one of the most crucial markets for many businesses, especially mobile phones whose market have increased based on the expanding rate of service provided by mobile telecommunication operators (Adebisi 2010; Wong & Smith, 2002). White (2001) stated that the student market is a significant segment for marketers to reach and get feedback from, due to the fact that they are constantly faced with a lot of life decisions, including many first time purchase decisions without the influence of their parents.

As noted by Ahlm, Holmstrom and Stenman (2007), one of the most important aspects of marketing research with respect to traditional approaches to market segmentation is demographic segmentation. This is because demographic variables highlight consumer status needs, wants and usage behaviour as compared to other segmentation variables (Kotler, Wong, Saunders, & Armstrong, 2005; Beane & Ennis, 1987). Thus, demographic dimensions have received wider acceptance among scholars in marketing research because of its relevance in classification and quantification (Bojanic, 2007).

In the context of market segmentation, Kotler *et al.*, (2005) posited that demographic variables are most popular. Despite this, very few researches have been carried out to better understand this group of consumers. Understanding this group, especially their purchase behavior, is important for marketers to develop strategies to target them.

Demographics help to locate target market and are easier to measure just as they are suitable for psychographic and socio-cultural studies. Demographic variables reveal ongoing trends, such as shift in age, gender and income distribution that signal business opportunities. The demographic factors have a huge

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impact on the assessment of different features which are generally associated with products such as mobile phones (Rocha, Hammond & Hawkins, 2005). The features younger consumers would look for in mobile phones may not be the same with older consumers. Marketers have found age, for instance, to be a particular useful demographic variable for distinguishing market segments, largely because product needs and interests often vary with consumers' age. Many marketers have today carved themselves a niche in the market place by concentrating on some specific groups' base on demographic variables, (Akturan, Tezcan & Vignolles, 2011). These days, marketers now use knowledge of consumer purchases as a basis of segmenting their markets (Smith, 1995).

The primary objective of this paper is to examine the importance of demographic factors such as age, gender, level of education, marital status in influencing mobile phone purchasing among university students. Although consumer motives underlying mobile phone acquisition are something one could call general knowledge, relatively little is known on the buying decision making process of students who constitute an important part of mobile phone market in Nigeria.

## **2. Literature Review**

Some of the factors influencing the consumer choices of mobile phones have been given due attention in the literature. Recently, Mokhlis and Yaakop (2012) investigated the consumer choice criteria in mobile phone selection among Malaysian university students based on 7 main factors: innovative features, image, price, personal recommendation, durability and portable aspect, media influence and post-sales service. It was found that the new innovative features impact strongly on the choice of mobile phones among university students. On the contrary, earlier studies such as Han, Kim, Yun and Hong (2004), Karjaluoto *et al.* (2005) and Pakola, Pietila, Svento and Karjaluoto (2010) considered brand, interface features, colours and properties as the possible influential factors affecting the actual choice amongst mobile phone brands.

Also, a study carried out by Ling, Hwang and Salvendy (2006) to investigate the preference of college students for current mobile phone indicated that the physical appearance, size and menu organization of the mobile phones are the most determinant factors affecting the choice of mobile phones. In India, Das (2012) found that youth consumers' preference towards mobile handsets is shaped by reputed brand, smart appearance, and with advanced value-added features, pleasurability and usability. Whereas, Yun, Han, Hong and Kim (2003) found that the "image and impression" characteristics of the products were important to young consumers. An important gap identified in these studies is the absence of focus on demographic variables. Lack of focus on these variables may lead to misleading policy recommendations on market segmentation to marketers, producers and business managers. Hence, this study addresses this gap in the academic literature on mobile phone preference among youths most especially university students.

Demographic segmentation is defined as the division of a market into groups based on demographic variables such age, gender, family size, family lifecycle, income, occupation, education, religion, race generation and nationality (Kotler & Armstrong, 2003). When segmenting a market, demographic variables are crucial (Kotler *et al.*, 2005; Fill, 2002; Cross, 1999). This is because these demographic variables often match consumers' needs, characteristics, wants and usage behaviour. Tynan and Grayton (1987) further argued and claimed that demographic variables can identify consumers' important characteristics which determine their buying desires.

## **3. Methodology**

The study focused on universities students in Nigeria. The most educated region of the country, which is southern Nigeria, was the focus of the study. Available information from the universities database shows that there are over 281,994 university students in the study region. A random sampling technique was used to pick 1200 students across the most populated universities in the sample region. Primary data were collected for this study. The data were collected using structured questionnaire. The questionnaire was structured into sections covering demographic variables of the students. The researchers, with the aid of trained enumerators

liaised with students' representatives in the sampled institutions to obtain relevant information from the students. Students were subsequently asked to fill the questionnaires at various convenient points in their various campuses. Cronbach Alpha statistics were used to test the reliability of the research instrument (Raza & Hanif, 2013; Ali & Raza, 2015). The result showed that there was internal consistency in the research instrument used for the study. Alpha value of 0.727 was obtained (Table 1). The value is well above the expected minimum suggested in the literature. Thus, information obtained for the analysis is suitable and replicable for further study. Data collected for the study were analysed using logit model.

**Table 1: Results of Reliability Tests**

Average Inter Item Covariance	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.246	.708	.727	1129

• **Logit Model**

The binary logistic model was used to examine the influence of demographic factors on buying behaviour of mobile phones among university students in Southwest Nigeria. Logistic regression model was used for its appropriateness in predicting the probability of occurrence of an event by fitting data to a logistic function. Like other forms of regression analysis, more predictor variables that were either numerical or categorical were used in the analysis. Logistic regression model was considered because it is well suited for describing and testing hypotheses about relationships between a dichotomous categorical outcome variable and one or more categorical predictor variables. The dependent variable (Y) was dichotomized with a value of (0) if respondents were not purchasing mobile phones and (1) if respondents have purchased mobile phones. The binary logistic regression model is specified in equations, 1 to 6. The logistic regression analysis was carried out by the Logistic procedure in STATA 12. To estimate a logistic model the method of maximum likelihood estimation (MLE) is more appropriate than Ordinary Least Squares because MLE gives unbiased and efficient Estimates. The probability function of respondents' university students purchasing mobile phone is given by:

$$P_i = E \left( \gamma_i = \frac{1}{\chi_i} \right) = \frac{1}{1 + e^{-[\beta_i + \sum_{j=1}^{k-n} \beta_{ij} \chi_{ij}]}} \quad (1)$$

Where  $P_i$  is the probability of respondents ( $i$ ) purchasing mobile phone,  $\chi_i$  is the observed demographic status of the respondents,  $ij$  are the factors influencing purchase behaviour,  $i$  and  $j$  are parameters to be estimated. By denoting as  $Z$ , equation (1) can be written to give the probability of purchasing behaviour ( $i$ ) as:

$$P_i = E \left( \gamma_i = \frac{1}{\chi_i} \right) = \frac{1}{1 + e^{-Z_i}} \quad (2)$$

which is known as the cumulative logistic distribution function.

From equation (2) the probability of a university student purchasing mobile phone is given by which gives equation (3) as follows:

$$(1 - P_i) = \frac{1}{1 + e^{Z_i}} \quad (3)$$

The odds ratio would therefore be  $P_i / (1 - P_i)$  as given by equation (4); i.e. the odds ratio in favour of purchasing mobile phones to the probability of not purchasing mobile phones.

$$\left( \frac{P_i}{1 - P_i} \right) = \frac{1 + e^{Z_i}}{1 + e^{-Z_i}} = e^{Z_i} \quad (4)$$

The natural logarithm of equation (4) will give rise to equation (5);

$$\ln \left( \frac{P_i}{1 - P_i} \right) = \beta + \sum_{j=1}^{k-n} \beta_{ij} + \varepsilon_i \quad (5)$$

Therefore the model can be simplified as follows;

$$\text{Logit (Y)} = \ln \left( \frac{P_i}{1 - P_i} \right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_{34} X_{34} \quad (6)$$

Where  $Y$  = decision to purchase mobile phones,  $\beta_0$  is the intercept and  $\beta_1, \beta_2, \beta_3, \dots, \beta_5$ , are the regression coefficients of  $X_1, X_2, X_3, \dots, X_5$  respectively.  $X_1$  is age,  $X_2$  gender,  $X_3$  education,  $X_4$  marital status,  $X_5$  income.

#### 4. Results and Discussion

##### • Demographic Characteristics of Respondents

Demographic characteristics of the respondents are presented as frequencies and percentages in Table 2. The distribution of the sample fits the expected profile for young mobile phone users in the sampled universities. The sample consists of a relatively equally distributed group of young, early adult consumers which typically identifies universities mobile phone consumer market. Specifically, 28.3% of respondents are less than 20 years of age. But, majority of respondents (60.4%) are in the active age bracket of 20-25 years of age. Meanwhile, low percentage (11.3%) of respondents is above 25 years of age. The high response rate coming from younger consumers indicated that they were more interested in mobile phone purchase than older consumers. The proportion of male and female respondents was almost equally split in this survey, with about 51 per cent male and 49 per cent female, indicating that both male and female university students are almost equally interested in mobile phones consumption.

In terms of education level, university students who are undergraduates dominate the sample with a percentage of 89.2% while the postgraduate students account for 10.8 per cent. The monthly income range of respondents varies. Most (53.8%) of the respondents benefit from monthly income which ranges between N50, 000.00 (1\$ = N220) and N99, 999. Monthly income of 31.8% of respondents ranges between N100, 000.00 and N200, 000.00 while 14.4% has income above N200, 000. 00

**Table: 2: Demographic Characteristics of Respondents**

	Frequency	Percentages
<b>Age (years)</b>		
< 20	319	28.3
20 -25	682	60.4
26 –29	105	9.3
30-35	23	2.0
<b>Gender</b>		
Male	574	50.8
Female	555	49.2
<b>Level of Education</b>		
Undergraduate	1005	89.2
Postgraduate	122	10.8
<b>Marital Status</b>		
Married	117	10.4
Single	1012	89.7
<b>Income</b>		
Parents Income Range (Monthly)		
Below N50,000	367	32.5
N50,000 – N99,999	240	21.3
N100,000 – N149,999	185	16.4
N150,000 – N199,999	174	15.4
Above N200,000	163	14.4
<b>Transitory Income</b>		
Yes	659	58.4
No	470	41.6

Demographic factors influence buying behaviour of mobile phones among university students in different ways (Table 3). The diagnostics of the model such as log likelihood and Likelihood ratio are high and significant, indicating the fit of the model. The parameter estimate of gender is positive with a significant ( $P < 0.05$ ) influence on buying behaviour of mobile phone users. The positive sign associated with gender variable implies that the log odds of buying more mobile phone by female university students increases by 0.52. The parameter estimate of education variable also exerts positive and significant ( $p < 0.05$ ) influence on buying behaviour of mobile phone users. This result indicates that for a unit increase in educational level of university students, the log odds of positive change in buying behaviour increases by 0.06. The coefficient of marital status variable is positive and significant. The positive sign is associated with university students with single marital status. For a unit change in marital status of university students, the log odds of positive change in buying behaviour increases by 0.512.

Since these parameter estimates could not be interpreted as the magnitude of probability changes, marginal effects were computed, the results of which are also presented in Table 3. The results indicate that the predicted probability of change in the buying behaviour of female university students with respect to mobile phone users is 0.12. But the highest influence on buying behaviour of mobile phone users among university students is significantly related to education. The predicted probability of higher education influence on buying behaviour of mobile phone university users is 0.13, an indication that level of education increases the probability of change in buying behaviour of university students. The predicted probability of influence of marital status is 0.12. Post estimation analysis carried out to determine the suitability of predictive ability of the results is also found to be significant (Table 4).

**Table 3: Influence of demographic factors on buying behavior of mobile phones users**

	Co. eff.	Std. Error	z value	Marginal effect
Age	-0.065	0.101	-0.64	-0.015
Gender	0.517	0.129	3.99***	0.116
Education	0.056	0.234	2.38***	0.125
Marital Status	0.512	0.212	2.42***	0.115
Income	0.008	0.044	0.19	0.002
Constant	-1.615	0.632	-2.55**	

Log likelihood = -714.876  
 N = 1127  
 LR chi2(5) = 25.27  
 Prob> chi2 = 0.0001  
 Pseudo R2 = 0.0174

Source: Data Analysis, 2015

**Table 4: Goodness of fit test**

Number of observation	1127
Number of covariate pattern	85
Person chi2(79)	193.72
Prob>chi2	0.0000

## 5. Conclusion

Demographic factors play an important role in determining preference of students for mobile phones. While the findings suggest that mobile phone users among university students were quite similar, there is considerable divergence in purchase patterns and demographic differences of these students. Findings from the study reveals that due attention are paid to mobile phone selection by female university students just as level of education and marital status are the most important demographic factors influencing university students decision to buy mobile phones. The findings of the study seeks to increase scholarly and policy concern about, study of, and development of social action programs that would bridge demographic divide

among mobile phone users in the universities. By being more aware of the variety of purchase divides among students, policy makers and researchers might have improved justifications, choices and strategies available for narrowing the several purchase divides among university students

## **6. Recommendations**

The main findings of the study seeks to increase scholarly and policy concern about, study of, and development of social action programs that would bridge demographic divide among mobile phone users in the universities. By being more aware of the variety of purchase divides among respondents, policymakers and researchers might have improved justifications, choices and strategies available for narrowing the several purchase divides among university students.

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