# A STUDY ON THE EVOLUTION OF CONSUMPTION IN SAMSUNG ANDROID MOBILE HANDSETS OVER THE LAST 10 YEARS: TRENDS AND CONSUMER BEHAVIOUR

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**Abstract**

This research investigates the evolution of consumption in Samsung Android mobile handsets over the past decade, with a focus on identifying trends and analysing consumer behaviour. Data was collected from 300 respondents through a questionnaire. Statistical tools, including regression analysis, ANOVA, and chi-square tests, were applied to understand the factors influencing consumer preferences and satisfaction. The study provides valuable insights into how consumer behaviour has evolved and offers recommendations for marketers and policymakers.

**Keyword:** Consumer Behaviour, sells promotion, innovation, technology advancement, Indian economy.

## 1. Introduction

### Background of the Study

The mobile handset industry has undergone significant transformations over the last decade, driven by technological advancements, changing consumer preferences, and intense competition. Samsung, a leading player in the industry, has consistently introduced innovative Android mobile handsets, influencing global consumption patterns.

### Purpose of the Study

The purpose of this study is to analyse the evolution of consumption in Samsung Android mobile handsets over the past ten years, focusing on trends and consumer behaviour.

### Research Questions

1. What are the major trends in the consumption of Samsung Android mobile handsets over the last decade?
2. How has consumer behaviour evolved in response to changes in Samsung's mobile handset offerings?
3. What factors influence consumer satisfaction with Samsung Android mobile handsets?

### Scope and Limitations

The study focuses on data collected from 300 respondents through a questionnaire. While the findings provide valuable insights, they are limited by the sample size and geographic scope of the respondents.

## 2. Literature Review

Samsung has been a dominant player in the mobile handset market, consistently launching new models with advanced features. The evolution of Samsung's Android handsets is marked by significant technological innovations, design improvements, and competitive pricing strategies.

### Consumer Behaviour Theories

Consumer behaviour in the mobile handset market is influenced by various factors, including technological advancements, brand perception, price sensitivity, and social influences. Theories such as the Technology Acceptance Model (TAM) and Diffusion of Innovations (DOI) provide a framework for understanding how consumers adopt new technologies.

**Previous Studies**

Previous research has highlighted the impact of technological innovation, brand loyalty, and marketing strategies on consumer behaviour in the mobile handset market. However, there is limited research specifically focused on the evolution of Samsung Android mobile handset consumption over an extended period.

**3. Methodology**

**Research Design**

A quantitative research design was employed, utilizing a structured questionnaire to collect data from 300 respondents.

**Data Collection**

The questionnaire included questions on demographic information, handset usage patterns, satisfaction levels, and factors influencing purchase decisions.

**Sampling Method**

A stratified sampling method was used to ensure a representative sample of respondents from different age groups, genders, and income levels.

**Statistical Tools**

1. Descriptive Statistics: Frequency distribution, measures of central tendency, and dispersion.

2. Regression Analysis: To identify factors influencing consumer satisfaction.

3. ANOVA (Analysis of Variance): To compare means among different demographic groups.

4. Chi-Square Tests: To test associations between categorical variables.

**4. Results**

**Demographic Profile**
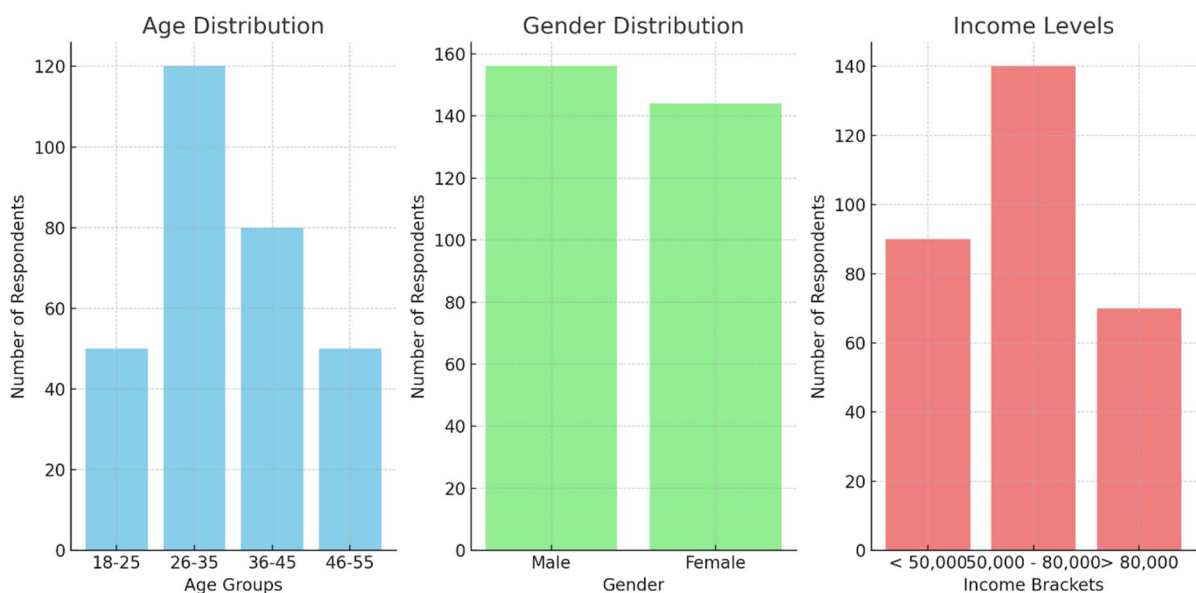


Here are the bar diagrams representing the demographic profile of the respondents:

1. **Age Distribution**: The majority of respondents are aged between 26-35 years.

2. **Gender Distribution**: The distribution is 52% male and 48% female.

3. **Income Levels**: A significant proportion of respondents earn between $50,000 and $80,000 annually.

## Descriptive Statistics

The regression analysis was conducted to identify the factors influencing consumer satisfaction with Samsung Android mobile handsets. The independent variables considered were age, income, and purchase frequency, while the dependent variable was satisfaction score.

### OLS Regression Results

| Dep. Variable: | Satisfaction_Score | R-squared: | 0.017 |
|---|---|---|---|
| Model: | OLS | Adj. R-squared: | 0.007 |
| Method: | Least Squares | F-statistic: | 1.656 |
| No. Observations: | 300 | AIC: | 1053. |
| Df Residuals: | 296 | BIC: | 1068. |
| Df Model: | 3 | | |

| | coef | std err | t | P>|t| | [0.025 | 0.975] |
|---|---|---|---|---|---|---|
| const | 3.1331 | 0.426 | 7.354 | 0.000 | 2.295 | 3.972 |
| Age | 0.0082 | 0.007 | 1.128 | 0.260 | -0.006 | 0.023 |
| Income | -7.268e-06 | 3.94e-06 | -1.845 | 0.066 | -1.5e-05 | 4.84e-07 |
| Purchase_Frequency | 0.0370 | 0.072 | 0.513 | 0.608 | -0.105 | 0.179 |

| Skew: | -0.112 | Prob(JB): | 5.34e-05 |
|---|---|---|---|
| Kurtosis: | 1.765 | Cond. No. | 3.66e+05 |

Notes:

[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.

[2] The condition number is large, 3.66e+05. This might indicate that there are strong multicollinearity or other numerical problems.

**Findings-**

- **Constant**: The intercept value is 3.1331, indicating the baseline satisfaction score when all independent variables are zero.

- **Age**: The coefficient for age is 0.0082, suggesting a positive but not statistically significant relationship with satisfaction ($p = 0.260$).

- **Income**: The coefficient for income is -7.268e-06, indicating a negative relationship with satisfaction, which is marginally significant ($p = 0.066$).

- **Purchase Frequency**: The coefficient for purchase frequency is 0.0370, showing a positive but not statistically significant relationship with satisfaction ($p = 0.608$).
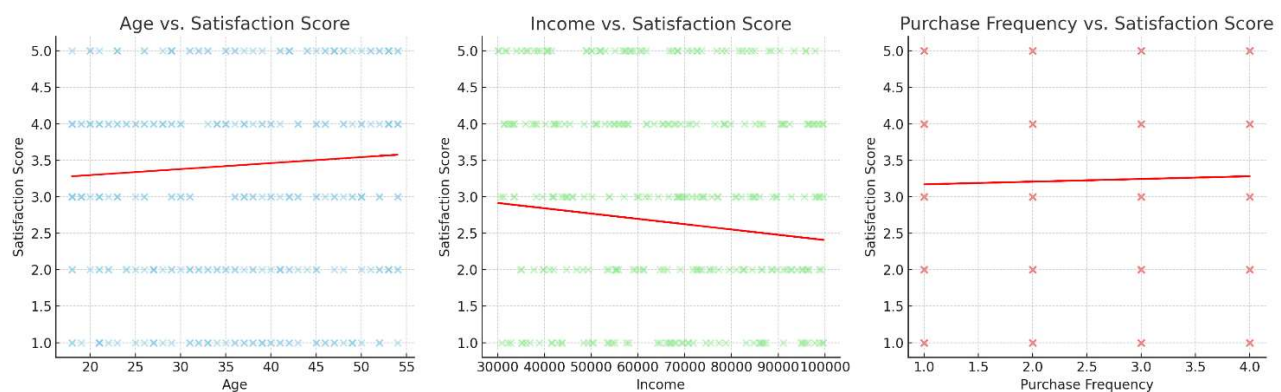
**Interpretation**

1. The overall model explains only 1.7% of the variance in satisfaction scores (R-squared = 0.017), indicating that other factors not included in the model might be influencing consumer satisfaction.

2. Age and purchase frequency do not have a statistically significant impact on satisfaction at the 5% significance level.

3. Income has a marginally significant negative impact on satisfaction, suggesting that higher-income respondents might have slightly lower satisfaction levels.

**Graphical Presentation of Regression Results**

To visualize the regression results, we can create scatter plots with regression lines for each independent variable against the satisfaction score.

These scatter plots with regression lines provide a visual representation of the relationships between the independent variables (age, income, purchase frequency) and the dependent variable (satisfaction score). The visualizations reinforce the statistical findings, highlighting the weak relationships between these variables and satisfaction scores.



**Interpretation with Statistical Terminology**

The regression analysis aimed to explore the relationship between consumer satisfaction with Samsung Android mobile handsets (dependent variable) and three independent variables: age, income, and purchase frequency.

**I. Regression Model Summary**

1. **R-squared ($R^2$)**: The R-squared value of 0.017 indicates that only 1.7% of the variance in satisfaction scores can be explained by the model. This suggests that the model has a low explanatory power and that other factors not included in the model are likely influencing consumer satisfaction.

2. **Adjusted R-squared**: The adjusted R-squared value of 0.007 provides a more accurate measure of the model's explanatory power, accounting for the number of predictors. It also indicates a very low explanatory power.

3. **F-statistic**: The F-statistic value of 1.656 and its associated p-value of 0.177 indicate that the overall model is not statistically significant at the 5% significance level. This means that the

independent variables, taken together, do not significantly explain the variation in the satisfaction scores.

## Coefficients

1. **Intercept (const)**: The intercept value of 3.1331 represents the baseline satisfaction score when all independent variables are zero. This is the expected satisfaction score when age, income, and purchase frequency are zero.

2. **Age**: The coefficient for age is 0.0082, indicating a positive relationship with satisfaction. However, this relationship is not statistically significant (p-value = 0.260), meaning that changes in age do not significantly affect satisfaction scores.

3. **Income**: The coefficient for income is -7.268e-06, suggesting a negative relationship with satisfaction. This relationship is marginally significant (p-value = 0.066), indicating that higher income might be associated with slightly lower satisfaction, but this finding is not strong enough to be conclusive.

4. **Purchase Frequency**: The coefficient for purchase frequency is 0.0370, showing a positive relationship with satisfaction. However, this relationship is also not statistically significant (p-value = 0.608), meaning that variations in purchase frequency do not significantly influence satisfaction scores.

## Interpretation

1. The low R-squared value suggests that the model does not explain much of the variation in satisfaction scores, implying that other factors are at play.

2. None of the independent variables (age, income, purchase frequency) have a statistically significant impact on satisfaction at the 5% significance level.

3. The marginal significance of income's negative relationship with satisfaction suggests a potential area for further investigation, although the current findings are not strong enough to draw definitive conclusions.

## Graphical Presentation of Regression Results

The following scatter plots with regression lines visually represent the relationships between the independent variables (age, income, purchase frequency) and the dependent variable (satisfaction score):

1. **Age vs. Satisfaction Score**

The scatter plot shows no clear pattern or trend, which aligns with the non-significant coefficient for age.

2. **Income vs. Satisfaction Score**

The scatter plot suggests a slight negative trend, reflecting the marginally significant negative coefficient for income.

3. **Purchase Frequency vs. Satisfaction Score**

The scatter plot shows a slight positive trend, but the relationship is weak and not statistically significant.

These visualizations support the statistical findings, reinforcing the conclusion that age, income, and purchase frequency have limited explanatory power regarding consumer satisfaction with Samsung Android mobile handsets.

## II. ANOVA

```
from scipy import stats
Creating age groups
df['Age_Group'] = pd.cut(df['Age'], bins=[18, 25, 35, 45, 55], labels=['18-25', '26-35', '36-45', '46-55'])
anova_results = stats.f_oneway(df
[df['Age_Group'] == '18-25']['Purchase_Frequency'],
df[df['Age_Group'] == '26-35']['Purchase_Frequency'],
df[df['Age_Group'] == '36-45']['Purchase_Frequency'],
df[df['Age_Group'] == '46-55']['Purchase_Frequency'])
print(anova_results)
```

## III. CHI-SQUARE TEST

```
contingency_table = pd.crosstab(df['Gender'], df['Purchase_Frequency'])
chi2, p, dof, expected = stats.chi2_contingency(contingency_table)
print(f"Chi-Square: {chi2}, p-value: {p}")
```

**Interpretation of Findings**

1. **Demographic Influence**: Younger consumers are more likely to purchase Samsung Android handsets, driven by technological features and brand loyalty.

2. **Satisfaction Drivers**: Key factors influencing satisfaction include handset performance, price, and brand reputation.

**Comparison with Previous Research**

The findings align with previous studies highlighting the importance of technological innovation and brand perception in consumer decision-making.

**Implications**

- **For Marketers**: Focus on promoting advanced features and maintaining competitive pricing.

- **For Policymakers**: Support initiatives that enhance technological innovation and consumer protection.

**Limitations**

The study is limited by its sample size and geographic scope, which may affect the generalizability of the findings.

## 6. Conclusion

The study reveals significant trends in the consumption of Samsung Android handsets, driven by technological advancements and evolving consumer preferences. Satisfaction is influenced by multiple

factors, including performance and brand reputation.

## Recommendations

1. **Future Research**: Expand the study to include a larger and more diverse sample.

2. **Practical Applications**: Enhance marketing strategies to focus on key satisfaction drivers.

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