

## PAPER

# An Analysis of the Effect of Price and Quality on Customer Buying Patterns: An Empirical Study of iPhone Buyers

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## ABSTRACT

Companies make use of various strategies in order to attract new customers, retain existing customers, and differentiate their products from those of their competitors. Apple Inc. is a multinational technology company headquartered in Cupertino, California. The company specializes in consumer devices, software, and online services. Apple is the most valuable firm in the world, the fourth-largest vendor of personal computers by unit sales, and the second-largest producer of mobile phones as of May 2022. The iPhone is a product with a strong reputation. Apple has always maintained product quality and continuously made innovations. The iPhone has a unique design, and in view of that, the model is too expensive compared to other mobile phones. Although the price is expensive, demand for the iPhone still increases from time to time. The aim of this research is to understand the factors behind iPhone purchase decisions. An investigation has been conducted to evaluate the relationship between price and quality on customer buying patterns for an iPhone. This study will adopt quantitative methods, and data collection has been conducted through online questionnaire distribution. The target respondents in this study are STML students, and the overall population of STML was 1645 students; thus, the sample size for the study should be 310 respondents. The cluster sampling technique has been used in this study. In this study, a total of 340 respondents were received, and there are 27 missing values in the data set. However, only 313 respondents are valid for the data analysis. Findings revealed that price and quality have a significant effect on the buying pattern of an iPhone. Lastly, this study discusses the limitations of the study and its conclusion.

## KEYWORDS

iPhone, price, quality, customer, buying pattern, purchase regression, correlation analysis

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## 1 INTRODUCTION

Generation Z (Gen Z), sometimes called zoomers, refers to the demographic group that follows the Millennial and comes before Generation Alpha. According to Oxford Learner's Dictionary, Gen Z is defined as the group of people who were born between the late 1990s and the early 2010s. Generation Z superiors are children of Generation X. The first generations, that is, Generation Z, accessed and was exposed to an unprecedented abundance of technology in their upbringing on the Internet at a young age. Again, according to the result of the Web 2.0 revolution, in the mid-late 2000s and 2010s, the usage of mobile devices expanded dramatically [1] [5] [8].

Based on researcher experience, at least one student at Universiti Utara Malaysia has at least two devices for online learning and educational purposes. This is because the students use the devices to scan their attendance before entering the online class. In fact, if the student only has one device, they are having difficulties scanning the attendance. However, if the student uses the right smartphone and social media, it may help prepare them for their future careers.

Statistics show that the number of smartphone users in Malaysia expected to grow by approximately 1.74 million by 2025, due to the country's increasing population [6]. The teen generation is more likely to own a smartphone than the older generation. The iPhone is one of the most popular smartphones in Malaysia. There are approximately 500,000 iOS devices, and more than 80% are iPhone users in Malaysia.

Most mobile phone companies have begun to design their mobile version in the form of an application that is user-friendly, allows consumers to keep with the app longer, and increases the media utilized. As a result the effect on the students will rise in mobile phone usage among teens. With the unique flexibility of a smart phone, students have the advantage of having activities leisure beyond only online classes, such as watching movies, playing games, or using social media. Most importantly, smartphones is very beneficial in all aspects when it comes to working life. It is because employee do not necessarily need to have a laptop or desktop in hand to complete the assignments [4].

## 2 LITERATURE REVIEW

### 2.1 Customer buying pattern

Buying pattern refers to the consumer's purchase pattern [11]. It can also be defined as the characteristic way in which consumers purchase products or services in terms of quantity, frequency, timing, and others. A consumer's purchasing behavior can be influenced by a variety of circumstances, but it is not consistent. Marketers often try to understand the buying pattern and its relationship with the geographical, demographic, and psychological characteristics of the consumer. There are five stages for a buyer to reach a buying decision. Firstly, the buyer notices the difference between the current and ideal states, and they recognize the needs and wants for something. The needs and wants may be aroused by external stimuli. During this stage, the buyers start searching for information about their desired product. It can be obtained through different channels, such as family, friends, advertisements, or mass media. Upon sufficient information being obtained, the buyer will process the information in order to evaluate the alternative brands in their choice set. Finally, the customers purchase the product that they assume to be the best of their wants. After purchasing the product, the buyer takes further action against the marketer

according to their satisfaction or dissatisfaction [14]. In the scenario of purchasing a smartphone, the buyer also needs to go through these five stages. In fact, these stages could help the buyer evaluate their needs and make an accurate decision about choosing the best smartphone according to their needs and budget to purchase it.

## 2.2 Price

According to [2], price skimming is a pricing strategy where the producers sell new, innovative, or improvised products or services at a high price for a short period of time. It targets high-end customers that may reduce the price to tap remaining market segments. Apple is one of the tech giants involved in technology development to ensure a high demand for its products. The price skimming strategy used by Apple signifies that the company consistently kept the highest initial prices and encourages the customers to be willing to pay for the products, i.e., smartphones [3]. Apple tends to reduce the price from time to time if the demand for new customers is fulfilled. Nevertheless, if the said brand still wants to stand out and maintain its position in the market, the company has to invest in R&D activities to explore its X-factor for every new product it launches. By having this, the R&D cost and the X-factor allow the iPhone to improve as part of its one of marketing mix, i.e., pricing strategy. The targeted customers segment is willingly to accept any pricing because they are loyal customers. Again, Apple does not provide discounts for any of their product, including the iPhone. They believe that reducing the product price can lead to either brand dilution or a loss of focus for the premium category. Although selling in stores and online stores continues to provide discounts to customers, once the market value of a product decreases for new releases. In the context of Apple, the iPhone also follows a similar pricing policy across all markets.

## 2.3 Quality

A product of good quality has a significant impact on companies and producers. Product quality characteristics such as attributes, performance, workmanship, reliability, aesthetics, and durability are key factors in determining a new product's market success and profitability. Increasing product quality has long been a top priority for businesses. It is an excellent place to start when it comes to gratifying customers and building loyalty [9]. Companies that are eager to enhance their quality and level of service in accordance with industry standards will be successful. In order to compete, Apple typically uses differentiated and customer-focused marketing tactics to address a variety of demands and obtain a competitive advantage in the market, allowing them to stand out from their competitors.

The Apple iPhone size chart represents the elements of screen size, screen resolution, phone dimensions, and weight of every iPhone model ever manufactured. Apple offers numerous iPhone models, each with a unique physical appearance and size. Apple has always produced small phones ranging in size from 4 to slightly less than 7 inches. The most recent phones have the larger screens of about 6 to 6.8 inches. The size does not affect the quality and varies according to the needs of the individual. As a result, an overview of the various iPhone screen sizes on an Apple iPhone size chart allows for a simple comparison of the available phones. The screen size of an iPhone has no effect on its quality, but it is important to note that a few parameters, such as the iPhone display size, which is the measurement of the

diagonals of the phone screen in inches, Apple prefers small and thin phones for single-handed use; however, there is a preference for large phones. However, Apple keeps the smaller size in their phones as a trademark. Apple does make larger-sized phones called MAX, such as the iPhone 13 PRO MAX.

The iPhone 13 and 13 mini both have a 12 MP wide-angle primary camera with a /1.6 aperture and a seven-element lens. It also includes a 12 MP ultra-wide camera with a /2.4 aperture and a five-element lens, which provides a 120° field of view. In terms of stabilization, the lenses have improved compared to a year ago. Sensor-shift optical image stabilization is present in both lenses on the iPhone 13 and iPhone 13 mini. It is especially useful for low-light photography, where the image requires a longer exposure time to capture.

The iPhone is intended to provide a simple and easy-to-use experience. This is only possible with the help of cutting-edge technologies and sophisticated engineering. Battery life and performance are two important areas of technology. Batteries are a complex technology, and a variety of factors influence battery performance and, by extension, iPhone performance. All rechargeable batteries are consumables with a finite lifespan; their capacity and performance eventually deteriorate to the point where they must be replaced. As batteries age, it can cause changes in iPhone performance. All iPhone models come with fundamental performance management to guarantee that the battery and general system function as intended and internal components are secured. This covers the characteristics of hot and cold temperatures as well as internal voltage control. It is impossible to disable this kind of performance management because it is important for safety and intended function.

### 3 METHODOLOGY

The study applied a quantitative method to answering the research questions and objectives. The study used a questionnaire to collect the data. An online questionnaire survey was distributed among STML students at Universiti Utara Malaysia (UUM). According to the table, there are 1645 respondents in the population, so only 310 students should be the respondents. The sampling technique applied in this study was cluster sampling. This is a sampling technique whereby the statisticians divide a large population into many groups before selecting a sample of the clusters at random. The advantage of this technique contribute to better data analysis and accuracy. Table 1 illustrates the division of respondents based on the cluster sampling technique.

**Table 1.** Cluster sampling technique of STML students

Course	Number of students	Sample
POM	512	512 $1645 \times 310 = 96$
MOT	550	550 $1645 \times 310 = 104$
LOG	583	583 $1645 \times 310 = 110$
<b>TOTAL</b>	<b>1645</b>	<b>310</b>

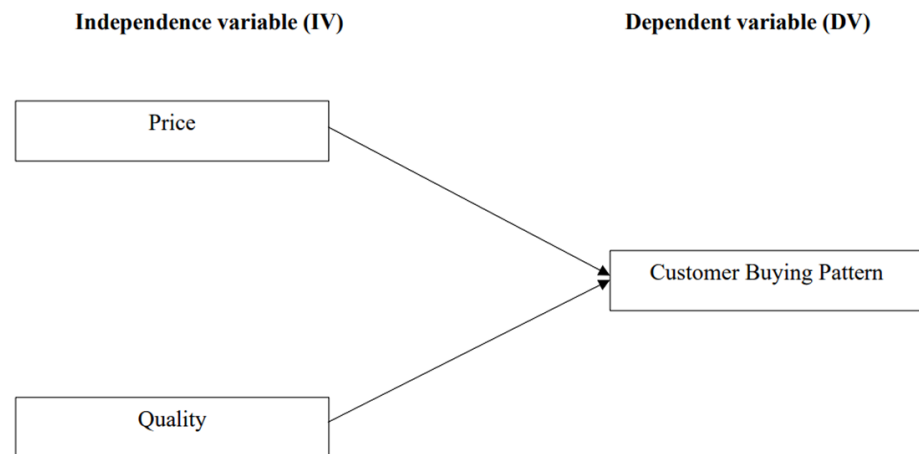
The questionnaire was separated into three sections: demographics in Section A; independent variables (price and quality) in Section B; and dependent variables

(focusing on customer buying patterns) in Section C. With the exception of Section A, the scale items were all scored using a 5-point Likert scale. The survey was structured using a 5-point Likert scale, where 1 = strongly disagree and 5 = strongly agree. The development of the items in the questionnaire was adopted from previous empirical works are presented in Table 2.

**Table 2.** Questionnaire development using previous studies

Variable	No. of Item	Sources
Customer Buying Pattern	5	Zhao, 2021
Price	5	Sern, 2019
Quality	5	Sern, 2019

A correlation study is chosen to determine the relationship between predictor variables (price and quality) and the criterion variable (customer buying pattern). The proposed research framework is shown in Figure 1 below.



**Fig. 1.** The research framework

From the research framework, hypothesis was developed.

H1: Price of an iPhone has relationship with customer buying pattern.

H2: Quality of an iPhone has relationship with customer buying pattern.

### 3.1 Sampling and data collection method

The sampling method used in this study is cluster sampling. It is a probability sampling technique. The sampling frame used in this study is based on the School of Technology Management and Logistic (STML) official website. Therefore, it facilitates the study by contacting relevant respondents to encourage them participate in the study. Cluster sampling, also known as one-stage cluster sampling [10], is a technique in which clusters of participants represent the population to identify and include in the sample [12]. This sampling technique involves clusters of participants that represent the population being identified and included in the sample. This study used the sample size table to determine the sample size of study. Referring to Table 3, the sample size suggested for the said population of the study is 310 respondents.

Therefore, 340 sets of questions were distributed to the respondents to ensure a sufficient response rate.

**Table 3.** Table for determining sample size for a finite population source

<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>	<i>N</i>	<i>S</i>
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	100000	384

Note.—*N* is population size.  
*S* is sample size.

## 4 FINDING

### 4.1 Demographic profiles

Based on Table 4, there were 313 respondents with 92.1% choosing yes, which means that the respondent has an iPhone, and 27 respondents with 7.9% choosing no because they did not have an iPhone. Besides, the majority of respondents were female, with 178 respondents, or 52.4%, while the male respondents were 162 respondents, or 47.6%, who participated in this study. Most of the respondents to this study were Malay, which is 128 respondents, or 37.6%. Chinese respondents were 101 respondents with 29.7% and 76 Indian respondents with 22.4%. Other race respondents were 35 respondents with 10.3%. For the courses, there were 119

respondents with 35% from POM students, 112 respondents with 32.9% from LOG students, and 109 respondents with 32.1% from MOT students.

**Table 4.** Count of respondents based on demography

Variable	Frequency (N = 340)	Percentage (%)
<b>Did you have an iPhone?</b>		
Yes	313	92.1
No	27	7.9
<b>Gender</b>		
Male	162	47.6
Female	178	52.4
<b>Race</b>		
Chinese	101	29.7
Indian	76	22.4
Malay	128	37.6
Others	35	10.3
<b>Course</b>		
LOG	112	32.9
MOT	109	32.1
POM	119	35.0

## 4.2 Reliability analysis

To measure internal consistency, the Cronbach’s Alpha reliability test was used in the study. The higher the Cronbach’s Alpha score it means that the higher the internal consistency and reliability. Table 5 indicates that all constructs studied indicate the Cronbach’s Alpha value greater than 0.6. According to [13], the Cronbach’s Alpha value less than 0.60 is poor, 0.60 to 0.80 is acceptable, and more than 0.8 is good. In short, this study shows that the value of Cronbach’s values for all constructs is acceptable and reliable.

**Table 5.** Reliability test of each variable (n = 313)

Item	No of Items	Cronbach’s Alpha Based on Standardized Items
Customer Buying Pattern	5	0.875
Price	5	0.886
Quality	5	0.885

## 4.3 Correlation analysis

Correlation Pearson analysis was applied to examine if there was any significant relationship between the constructs. Correlation is used to assess the degree of the

linear relationship between quantitative variables, and index of the relationship is called the correlation coefficient. The rule of thumb that was suggested by [15] stated that the value of the correlation between two variables should be at least 0.70 and above. It can also be considered that a very strong relationship exists between them, while the correlation value within the range 0.50–0.69 signifies a strong relationship; the correlation value within the range 0.30–0.49 signifies a moderate relationship; the correlation value within the range 0.10–0.29 signifies low relationships; and the correlation value below 0.01 signifies a very low relationship exists between the two tested variables. Based on Table 6, the strength of the relationship between independent variables (price and quality) and the dependent variable (customer buying pattern) was evaluated using Pearson correlation analysis. All the p-values of the independent variables and dependent variables were 0.000, which is called statistically significant.

**Table 6.** Correlation between independent and dependent variable

Customer Buying Pattern	Price	Quality
Pearson Correlation (r)	0.611	0.589
P-value	0.000	0.000
N	313	313

Note: \*\*Correlation is significant at the 0.01 level (2-tailed).

#### 4.4 Multiple linear regression

The next analysis is the multiple regression analysis. It is used to predict the value of a variable based on the value of other variables. It refers to a set of statistical methods used to estimate relationships between a dependent variable and independent variables. The analysis also can be used to assess the strength of the relationship between variables. Again, it can also be used for modeling the future relationship between them. On top of that, the R square is used to determine the strength of the independent variable that can be explained by the dependent variable. Based on Table 7, the R square is 0.393. It indicates that the independent variables, i.e., price and quality, explained 39% of the variation in the dependent variable, i.e., customer buying pattern. While the remaining percentage, about 61%, could be represented by other variables. Besides, the F-value was 100.095, with a significant value of 0.000. The result of an ANOVA analysis indicates a positive relationship between the independent variables of price and quality and the dependent variable of customer buying pattern.

**Table 7.** Result of model summary and ANOVA

Variable	R	R Square	F	Sig.
Model 1	0.627	0.393	100.095	0.000

Table 7 presents multiple regression analysis, which used data to attempt to predict customer buying patterns for an iPhone based on quality and price. The result indicates that two positive independent variables that might predict customer buying patterns had a significant effect on the price and quality of an iPhone. The significant value of price is 0.000 and quality is 0.002. The two variables that predicted the customer buying pattern have a significant effect and could therefore be used as predictors.



This study aims to investigate the effect of price and quality on customer buying patterns for an iPhone at UUM. Therefore, only the positive standardized beta coefficients ( $\beta$ ) need to be focused on the study. According to Table 8, the strongest predictive independent variable is price ( $\beta = 0.428$ ), and the lowest predictive independent variables is quality ( $\beta = 0.272$ ). Based on the above data, the study forms an equation, which is  $Y$  (customer buying pattern) =  $1.238 + 0.428$  (price) +  $0.272$  (quality).

**Table 8.** Coefficients between independent variables and dependent variables

Coefficients						
	Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		$\beta$	Std. Error	Beta		
1	(Constant)	1.238	.219		5.658	.000
	PRICE	.428	.088	.395	4.874	.000
	QUALITY	.272	.085	.258	3.193	.002

a. Dependent Variable: CBP

Note: \*Significant at 0.05 level.

## 5 DISCUSSION OF FINDINGS

This study was conducted to determine the effect of the price and quality of an iPhone on customer buying patterns. The study findings show that both hypotheses, i.e., H1: price of an iPhone has a relationship with customer buying patterns and H2: the quality of an iPhone has a relationship with customer buying patterns were accepted, as mentioned in Table 9. Both pricing and quality of an iPhone are found to have a significant impact on customer buying patterns due to the p-value of both variables being less than 0.01. The findings of this study are consistent with past studies conducted by [7]. The study found that the customer buying an iPhone was influenced by price and was conscious of the high quality of the iPhone. The study also found that the advertisement factor had an effect on the student’s decision to purchase an iPhone.

**Table 9.** The summary of the following hypothesis after its testing

Hypothesis	P-Value	Status
H1: Price of an iPhone has relationship with customer buying pattern	0.000	Accepted
H2: Quality of an iPhone has relationship with customer buying pattern	0.002	Accepted

## 6 LIMITATION

As with other studies, this study also has its own limitations. To begin, only an online survey was used to collect data. Using an online survey may cause respondents to spend a lengthy time to complete the questionnaire, which also leads to a delay in the process of data collection by the researcher. Furthermore, using an online survey makes it very difficult for the researchers to confirm that the information provided by respondents is correct.

Second limitation is the sample size of the study. The target respondents in this study are STML students at the University of Utara Malaysia (UUM). The result of this study cannot be generalized to all students at UUM who are using an iPhone. Nowadays, there are a lot of variations of smart phones available in the market for students to purchase, such as Windows Phone and Android. Besides, UUM has a large population and various schools that are grouped within it, but STML is the only school that has a small part of the population at UUM.

## 7 CONCLUSION

In conclusion, the objective of the study is to determine the effect of price and quality on customer buying patterns. The findings revealed that two hypotheses were accepted. This study indicated that there is a significant effect of the price and quality of an iPhone on customer buying patterns. The findings of the study could help marketers to plan effective and efficient marketing strategies in order to penetrate their customers. Last but not least, this study also serves as an avenue for future studies to test any other constructs that are still being tested empirically.

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