

# Multivariate Statistical Model of College Students' Purchase Decisions for Starbucks in Taiwan <sup>†</sup>

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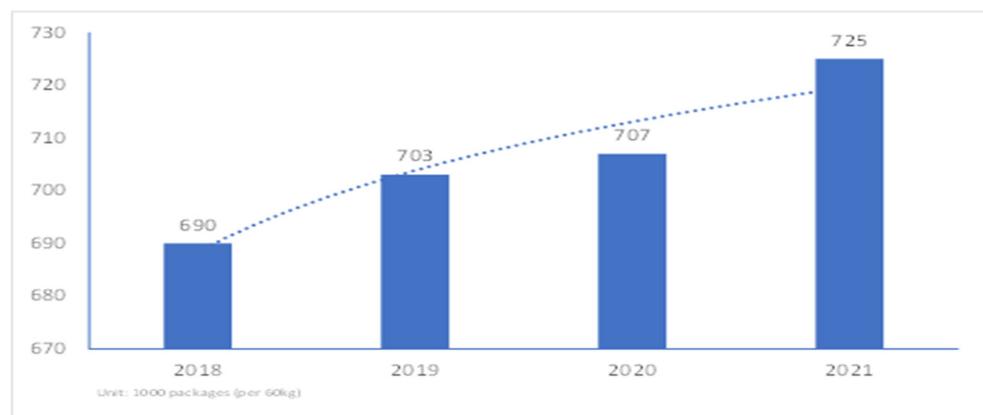
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**Abstract:** The purpose of this study was to explore college students' purchase behaviors using a multivariate statistical model. Because many college students today have part-time jobs, they have increased opportunities to consume higher-quality brands. In Taiwan, Starbucks is regarded as a high-quality coffee brand, costing more than most local coffee brands. To clarify why such students in Taiwan are willing to pay more for Starbucks, data were collected from a sample of 402 college students. The results showed differences in purchase decisions between students majoring in different disciplines and lifestyles. The findings had theoretical and practical implications especially for the marketing strategy of the Taiwanese coffee industry.

**Keywords:** multivariate statistical model; brand image; lifestyle

## 1. Introduction

According to a report from the International Coffee Organization (ICO), Taiwan plays a vital role in the coffee market. In 2021, coffee consumption reached 122 cups per capita in Taiwan. Moreover, the market is still growing [1] (Figure 1). The results of a coffee consumption survey conducted in Taiwan by dailyview.com in 2021 are very interesting. Out of a total of 1121 Taiwanese participants, around 40% drink coffee every day. In the past year, almost 70% of Taiwanese visited Starbucks at least once. Consumers under 30 years old prefer Starbucks [2]. Hence, the coffee market in Taiwan is competitive, especially among young consumers.



**Figure 1.** 2021 Taiwan coffee consumption statistics (Source: Trade Statistics Tables, International Coffee Organization).



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The EKB Model proposed by Engel, Kollat, and Blackwell [3,4] has been examined by numerous researchers because of its comprehensive structure. The purpose of its use in our study is to identify whether there are any differences among college students. To answer this question, the AIO (activity, interests, and opinion) inventory is an adequate method to apply. Although the AIO measurement was adapted based on segmented markets [5–8], it is also useful for distinguishing young consumers [9].

Since Starbucks is a leading brand of coffee shops in Taiwan now, it is important to explore why it is popular among the young generation. Particularly college students in Taiwan love this brand. According to the definition by the American Marketing Association (AMA) [10], the term brand refers to the combination of name, term, sign, symbol, and design by which we can identify a certain product or its service from its competitors. Chernatory and McWilliam [11] suggested that a brand is a symbolic way to identify the difference between one product and other competitors. Moreover, the brand is a commitment to the consistency of its quality and a tool to project its self-image. Vigeneron and Lester [12] proposed the concept that a prestige brand evolves in three stages. From the lowest degree to the highest degree of prestige, there are “upmarket brands”, “premium brands”, and “luxury brands”. They believed that the major difference between a “prestige brand” and a “nonprestige brand” was that consumers believe that purchasing a prestige brand is a symbol of socioeconomic status and wealth.

Brand awareness is usually considered to be one of the major factors by which to value a product [13]. In addition, Hoyer and Brown [14] indicated that brand awareness is a priority when consumers are choosing a product. Keller [15] proposed that brand knowledge includes “brand awareness” and “brand image”. Brand image plays an important role in the marketing field since it includes the response from consumers to the brand name, sign, or image [16]. Hence, the brand image remains in the consumer’s mind, and prestige brands have an important influence on purchase decisions. Thus, the purpose of this study was to build a purchase decision model with lifestyle, brand image, and demographic variables for exploring college students’ coffee consumption behavior.

## 2. Methodology

We targeted college students; so, a university in Taiwan was selected to provide the participant pool. Since a stratified random sampling method was used, finding an appropriate sample size for this population was the first step. In 2017, 10,806 students were enrolled in this university. Under a confidence level of 95% and maximum error  $d = 0.05$ , and using the following equation

$$n = \frac{N}{N\left(\frac{2d}{Z_{\alpha/2}}\right)^2 + 1} \quad (1)$$

the minimum sample size was determined to be 371. Meanwhile, the controlled variables were gender, college, and age. Data were collected in the chosen university between 1 October 2017 and 31 December 2017. A total of 430 questionnaires were distributed to students in the university, and 402 (93.5%) were completed.

## 3. Results

Table 1 shows the descriptive statistics results. Since a stratified random sampling method had been adopted, a chi-square (goodness-of-fit) test was used to examine if the sampling structure was suitable for the population. All variables were fit for the population structure.

Among the respondents, 26.1% ( $n = 105$ ) were freshmen, 25.4% ( $n = 102$ ) were sophomores, 29.4% ( $n = 118$ ) were juniors, and 19.2% ( $n = 77$ ) were seniors. In addition, 36.3% ( $n = 146$ ) of respondents were male and 63.7% ( $n = 256$ ) were female. A total of 40.0% ( $n = 161$ ) of the students majored in Management, 14.7% ( $n = 59$ ) in Science and Engineering, 14.7% ( $n = 59$ ) in Design, 18.2% ( $n = 73$ ) in the Humanities and Social Sciences, and

12.4% ( $n = 50$ ) in Informatics. Regarding monthly disposable income, 25.1% of respondents ( $n = 101$ ) spent under 5000 NTD, 38.8% ( $n = 156$ ) spent between 5001 and 8000 NTD, 25.1% ( $n = 101$ ) spent between 8001 and 12,000 NTD, and 10.9% ( $n = 44$ ) of respondents spent over 12,000 NTD.

**Table 1.** Demographic Characteristics of Sample.

Variable	Categories	Sample		Population	
		Frequency	Percent (%)	Frequency	Percent (%)
Gender	Male	146	36.3%	4421	40.9%
	Female	256	63.7%	6385	59.1%
College	Management	161	40.0%	4047	37%
	Science and Engineering	59	14.7%	1577	15%
	Design	59	14.7%	1729	16%
	Humanities and Social Sciences	73	18.2%	1945	18%
	Informatics	50	12.4%	1508	14%
Age	Freshmen	105	26.1%	2633	24%
	Sophomores	102	25.4%	2795	26%
	Juniors	118	29.4%	2705	25%
	Seniors	77	19.2%	2673	25%
Monthly Disposable Income (NTD)	3000–4999	101	25.1%		
	5001–7999	156	38.8%		
	8001–11,999	101	25.1%		
	12,000 and above	44	10.9%		

Table 2 shows that among the respondents, 65.9% ( $n = 265$ ) purchased a coffee drink fewer than 5 times per month, 22.6% ( $n = 91$ ) purchased a coffee drink between 6 and 10 times per month, 7.7% ( $n = 31$ ) purchased a coffee drink between 11 and 20 times per month, and 3.7% ( $n = 15$ ) purchased a coffee drink 21 or more times per month. Regarding the money spent on coffee, around 70% of the respondents spent under 150 NTD per month. Moreover, around 70% of the respondents visited Starbucks less than once a month. However, 47.8% ( $n = 192$ ) of the respondents said they spent under 150 NTD when they visited Starbucks, and 47.5% ( $n = 191$ ) of the respondents spent between 151 and 250 NTD. Around half of the respondents went to Starbucks with friends.

The purpose was to identify the brand image effect among college students. Therefore, exploratory factor analysis (EFA) was adopted in this study. The first step revealed that three variables had adequate reliability: consumer behaviors (Cronbach's  $\alpha = 0.82$ ), decision-making (Cronbach's  $\alpha = 0.78$ ), and AIO (Cronbach's  $\alpha = 0.83$ ). According to Kaiser and Rice [17], the value of the KMO measure of sampling adequacy must be greater than 0.8. The result of this study was 0.82, which demonstrated that the EFA was appropriate. Another index used was the Bartlett test, the value of which was 1191.32, with a  $p$ -value of 0.00. Thus, both indices showed that the EFA was appropriate.

We used an EFA with an orthogonal varimax rotation. An exploratory principal component factor analysis was performed to assess the validity of the lifestyle constructs and determine the potential groupings of lifestyle groups. An initial analysis of 15 brand image items found that 3 items had low factor loading (less than 0.5). Thus, the total of the final items was 12. The results indicated that six items were related to the staff's performance, one was about the Starbucks' environment, and five items were related to the brand image.

**Table 2.** Consumers Preferences.

Variable	Categories	Frequency	Percent (%)
Average times drinking coffee per month	Under 5 times	265	65.9%
	6–10	91	22.6%
	11–20	31	7.7%
	21+ times	15	3.7%
Average of each coffee consumption spend (NTD)	Under 150 NTD	273	67.9%
	151–250	104	25.9%
	251–400	15	3.7%
	Over 400 NTD	10	2.5%
Average of monthly Starbucks consumption	Under 1 time	261	64.9%
	2	74	18.4%
	3	32	8.0%
	4	15	3.7%
	5	8	2.0%
	6	2	0.5%
	7+	10	2.5%
How much spent on average at Starbucks	Under 150 NTD	192	47.8%
	151–250	191	47.5%
	251–400	16	4.0%
	Over 400 NTD	3	0.7%
With company?	No	61	15.2%
	Classmates	75	18.7%
	Colleagues	6	1.5%
	Friends	178	44.3%
	Family and relatives	69	17.2%
	Others	13	3.1%

Based on these findings, F1 was named “Service Quality”, and F2 was named “Brand Value”. Table 3 presents the results of the factor analysis. Based on the factor analysis results, there were two factors in this study. Then, a cluster analysis was used to determine the different groups. Since AIO measurements were adopted to examine college students’ lifestyles, the results showed that college students could be divided into four groups: “prefer the brand”, “coffee is a kind of gift”, “coffee is a refreshing drink”, and “drinking coffee is a social activity”.

**Table 3.** Factor Analysis Results for Brand Image.

Items	F1	F2
Factor 1: Service Quality		
Staff have a good attitude.	0.874	
Staff members are professional.	0.865	
Staff uniforms are clean.	0.840	
Starbucks has high service quality.	0.838	
Staff are efficient.	0.832	
Environment and design style attract me.	0.645	
Staff can quickly answer my questions.	0.565	
Factor 2: Brand Value		
Starbucks’ logo makes me feel stylish.		0.836
I care about the brand if it brings a sense of pride.		0.829
The Starbucks brand usually represents innovative ideas.		0.762
Starbucks coffee and snacks are high quality.		0.593
The quality of the coffee appeals to me.		0.546

#### 4. Discussion

College students in Taiwan, especially those who live in urban areas, spend the majority of their free time with classmates and friends playing virtual games, going to KTV (karaoke), and shopping. Due to geographic limitations and cultural differences, Taiwanese students do not have many opportunities to participate in outdoor activities. Therefore, having dinner together or drinking coffee together represent important events that provide an emotional connection with other students. One of the reasons why Starbucks is a top choice for college students is because its brand image represents “high quality”. Another reason is “self-identity”, that is, having a Starbucks cup in their hands has a special meaning. Furthermore, it draws college students’ attention. Compared to other luxury products, Starbucks’ products are much easier to obtain.

#### 5. Conclusions

College students are willing to pay more to buy Starbucks coffee even though not all of them can afford it. Students drink coffee as a habit, and they go to Starbucks coffee shops with friends. The facts show that Starbucks’ prices are two to three times more than other brands. However, students treat “going to Starbucks with friends” as a kind of social activity. Since Starbucks’ marketing position in Taiwan is “high quality”, it is considered a “luxury” product. Hence, it is a welcome gift to college students. In sum, Starbucks’ coffee is not only a drink for college students in Taiwan but also an “identity” for them.

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