

---

**RESEARCH ARTICLE**

## **The Assessment of the Usage, Attitude, and Image of Filipino Students Utilizing Motorcycle Taxi Hailing Services as Alternative Transportation in the NCR**

**Karl Nikolai O. Manaois<sup>1</sup>, Ronald P. Romero<sup>2</sup>, Ronaldo A. Tan<sup>3</sup>, Rappunzel L. Manaoat<sup>4</sup>, John Carlo L. Abadilla<sup>5</sup>, Joshua C. Biscocho<sup>6</sup>, Rommel T. Matienzo Jr.<sup>7</sup> and Bernard R. Letrero<sup>8</sup>**

<sup>12345678</sup>*Pamantasan ng Lungsod ng Maynila, College of Business Administration, Manila, Philippines*

**Corresponding Author:** Karl Nikolai O. Manaois, **E-mail:** [knomanaois2021@plm.edu.ph](mailto:knomanaois2021@plm.edu.ph)

---

### **ABSTRACT**

As various transportation modalities continue to rise, Motorcycle Taxi Hailing Services (MTHS) has reshaped traditional modes of transportation. The evolving landscape of MTHS has brought a significant shift in the transportation sector, particularly amid the country's extreme traffic congestion. This study employed the Usage, Attitude, and Image (UAI) Study by Ned Roberto (1996) with 401 valid respondents. The research examined demographic profiles, extent of usage, levels of attitude, and the image held by Filipino students. Additionally, the significance of UAI was measured when grouped according to gender identity, weekly allowance, and employment. Furthermore, the study explored the relationship between MTHS brands and passengers' preferences for features. Findings revealed that undergraduate students aged 20 to 23 years old and female passengers are the prevalent users of MTHS, with cash being the most used payment option and commuting to school as their primary transportation purpose. Convenience in booking, safety, and sanitation ranked highest among the ten service features in terms of attitude levels. Angkas emerged as the most prominent brand in terms of brand awareness. Usage frequency when grouped according to gender identity (H4;  $p < .001$ ), weekly allowance (H5;  $p < .001$ ), employment (H6;  $p < .001$ ), and levels of attitude when grouped according to gender identity (H7;  $p < .001$ ) and weekly allowance (H8;  $p < .001$ ) were found to be statistically significant. Through using multinomial logistic regression and linear regression, it was found that promotions and discounts have a positive estimate and are statistically significant ( $p = 0.043$ ), which implied that the mentioned feature may influence the respondents in choosing an MTHS app. Based on the study's outcomes, it is recommended that a female rider option be included in MTHS apps. Additionally, MTHS companies should strategically create promotions to entice the passengers to book such MTHS app; the promotions and discounts were found to be a decision factor.

### **KEYWORDS**

Motorcycle Taxi, UAI Study, Usage, Attitude, Image.

### **ARTICLE INFORMATION**

**ACCEPTED:** 01 October 2024

**PUBLISHED:** 19 October 2024

**DOI:** 10.32996/jbms.2024.6.5.22

---

### **1. Introduction**

Transportation is changing at a fast pace. The rise of ride-hailing, also known as ride-sourcing services, represents a substantial technological shift within the transportation sector over the past decade (Wadud, 2020), swiftly reshaping the traditional modes of travel—with a pronounced impact on urban mobility. As evidenced by Alemi et al. (2018), ride-hailing services have been shown to significantly increase travel options for individuals who lack access to personal vehicles or public transportation. Multiple research efforts have concluded that the introduction of Motorcycle Taxi Hailing Services (MTHS) worldwide has revolutionized the way people commute. The rise of mobile application-based ride-hailing services attracts millions of users worldwide who utilize these platforms to book customized journeys for various purposes (Chalermpong et al., 2022). It gained immense popularity in certain regions, particularly South-East Asian and Sub-Saharan African countries. These services have adapted to local contexts, as evidenced by the emergence of terms: 'win motor-sai's in Bangkok, Thailand, 'ojek's in Jakarta, Indonesia, 'okada's in Lagos, Nigeria,

'boda-boda's in Kampala, Uganda and Dar-Es-Salam, Tanzania, or 'moto's in Phnom Penh, Vietnam and Kigali, Rwanda (Sopranzetti, 2022).

The MTHS has historically thrived as an informal response to inadequate formal transportation systems (Phun et al., 2019). They provide critical transportation solutions where organized services are limited (Cervero and Golub, 2007). It has been noted that the service provides a faster and more cost-effective alternative to traditional taxis, with the ability to navigate congested traffic and offer accessibility for passengers to immediately call a Motorcycle Taxi Driver (MTD) to pick up through an on-demand ride-hailing application. Several studies have consistently proven that the usage is exceptionally high in cities like Bangkok Kampala, and across several African countries, even in the Philippines, yet these services largely operate outside the scope of formal regulatory structures (Cervero 2000).

The emergence of MTHS in the Philippines has revolutionized the transportation landscape, particularly in urban areas like the National Capital Region (NCR). The country witnessed the entrance of MTHS in 2016 with the initial launch of *Angkas*, a pioneering company in the industry (Top Gear, 2023). Though challenged by regulatory issues prior to 2019 and pandemic-era disruptions, *Angkas* has bounced back and is now back in full force. At present, MTHS is undergoing pilot testing, but recent directives from President Ferdinand R. Marcos Jr. have prompted Speaker Ferdinand Martin G. Romualdez to prioritize House Bill 3412 (Pacpaco, 2024). Introduced by Representatives Rodge Gutierrez and Bonifacio Bosita, this bill aims to legalize motorcycles as public transportation vehicles and reform regulations governing [Transportation Network Vehicle Services \(TNVS\)](#).

Responding to the significant transportation challenges faced by Filipinos, including heavy traffic congestion, limited public transportation options, and the need for affordable travel solutions, *Angkas* also paved the way for other companies like *JoyRide* and *Move It* to enter the market. The World Bank (2020) identifies the Philippines as one of the fastest-growing economies in the Asia-Pacific region, leading to corresponding increased travel demand. However, public transportation infrastructure development hasn't kept pace, leaving traditional options like buses, jeepneys, and railway stations insufficient (Phun et al., 2020). This gap facilitated the rapid adoption and pivotal role of MTHS, such as *Angkas*, *Joyride*, and *Move It*, in the Philippines' recent transportation landscape.

Filipino students' increasing travel demands, which cannot be sufficiently met by current mass transportation systems, have fueled the sustained growth of the informal transport sector (Olvera et al., 2020). This has resulted in the ongoing proliferation of motorcycle taxi transport solutions, driven by the city's fundamental need for mobility. The usage of MTHS by Filipino students has been on the rise, reflecting the growing demand for efficient and convenient transportation options (Wadud, 2020). Students in urban areas like the NCR often face transportation challenges, making MTHS an attractive alternative to traditional modes of transport.

The purpose of this study is to assess the current landscape of MTHS through the analysis of images, usage, and attitudes related to the service category and brands whilst identifying market and competitive opportunities for the MTHS industry. To be specific, the research will explore the answers to the following questions:

1. What is the demographic profile of the respondents in terms of
  - a. Age;
  - b. Gender Identity;
  - c. Location
  - d. Weekly allowance;
  - e. Employment?
2. What is the perception of the respondents in MTHS in terms of brand awareness?
3. What is the extent of respondents on the utilization of MTHS in terms of
  - a. Purpose;
  - b. Frequency;
  - c. Payment options?
4. What is the level of attitude of the respondents towards the different service features of MTHS in terms of
  - a. Sanitation;
  - b. Comfortability;
  - c. Ease of Booking (Availability during rush hour);
  - d. Real-time Tracking;
  - e. Multiple Payment Options;
  - f. Price Competitiveness;
  - g. Promotions and Discounts;

- h. Safety Measures;
  - i. App-use Friendliness;
  - j. Driver Ratings and Reviews?
5. Are there significant differences in the level of brand awareness, frequency, and level of attitude when grouped according to
    - a. Gender identity;
    - b. Weekly allowance; and,
    - c. Employment?
  6. Is there a significant relationship between the preference for motorcycle apps (Angkas, Move It, Joyride) and the preference for their features?
  7. Based on the findings, what recommendations can be recommended?

### ***1.1 Theoretical and Conceptual Framework***

#### ***1.1.1 Usage, Attitude, and Image (UAI) Study***

The current study adapted a theoretical study primarily derived from Dr. Ned Roberto's (1996) published work in "Marketing Research to Make Profitable Decisions." It introduced the concept of Usage, Attitude, and Image (UAI) as a comprehensive theory for gathering and categorizing data into two distinct sets: Core Data and Classification Data. The study extends to explore and comprehend the complex adaptability between usage, attitudes, and images and their impact on Motorcycle Taxi Hailing Services (MTHS).

Within the theory, UAI is portrayed as an encompassing structure that serves as the foundational basis for perceiving and evaluating how usage, attitude, and images contribute to the dynamics of the MTHS. Core Data and Classification Data, as articulated by Roberto, are integral components that assist in the systematic analysis of the MTHS's landscape. The classification data delve into the respondents' demographic profile, and the core data elicits the respondents' usage, attitude, and images on MTHS.

The study delved further into the UAI study of Ned Roberto's framework that unraveled the elaborate processes through which passengers formulate attitudes towards the MTHS service features. It sought to comprehend the complex factors shaping these attitudes, including but not limited to usage patterns, overall attitudes towards the service, and the image projected by the passenger. The structured approach, as proposed by Roberto, thus becomes the guiding lens through which cognitive and emotional elements influencing users' attitudes towards the MTHS are studied and understood.

By utilizing this theory, the study aspires to provide a characterized analysis, aiming to unravel the deeper cognitive and emotional dimensions that underlie users' perceptions and decisions within the MTHS industry. The qualities the research seeks to contribute to the theoretical discourse surrounding consumer behaviour and decision-making processes within the context of emerging service industries like the MTHS.

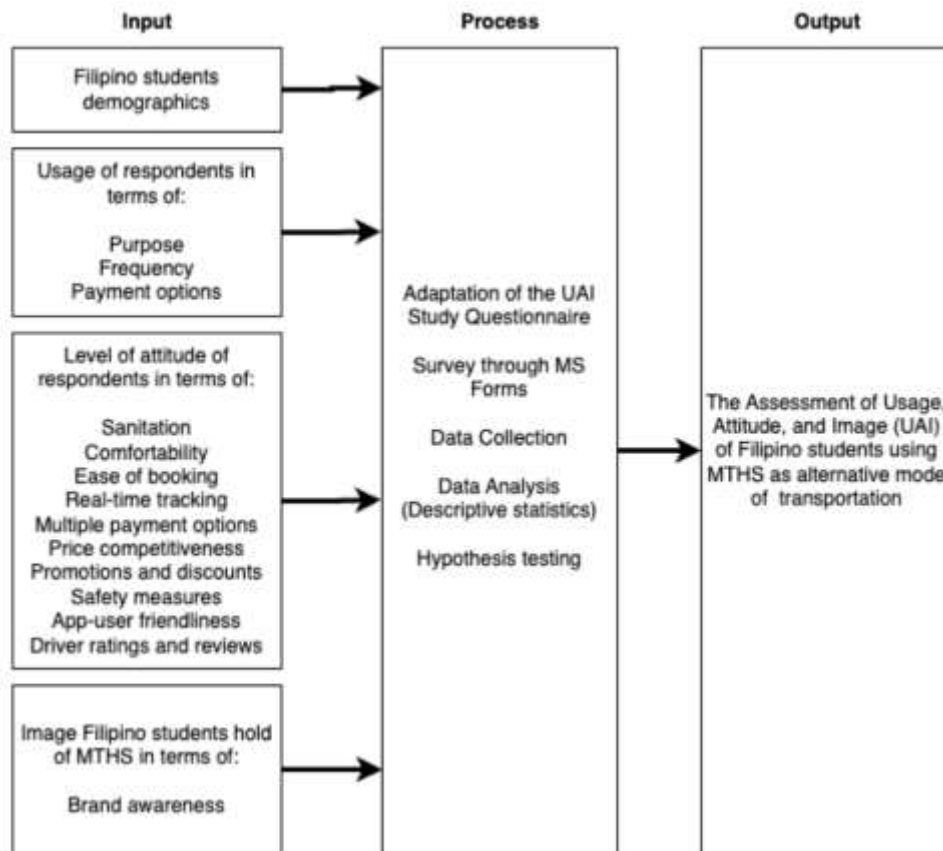


Figure 1. Conceptual Framework

An integration of the UAI study and the IPO model presents how the individual UAI responses of the respondents are processed to come up with the study's desired output. The input portion of the IPO model is clustered into 4 categories: the respondents' (1) demographics, (2) usage, (3) level of attitude, and (4) image. These inputs are the key variables needed to come up with a proper assessment of the marketing landscape of the MTHS industry. Presented in figure 2 is the conceptual framework in which the UAI study and IPO model are integrated.

## 2. Literature Review

### 2.1 Usage

Transportation is an integral part of modern life. According to Beldad (2022), the Philippines is renowned for its deep-rooted history and cultural heritage, aspects that Filipinos have proudly preserved and celebrated over generations. The Philippines boasts a diverse transportation heritage cherished by both commuters and travelers. In modern times, this heritage has evolved into a fusion of traditional and alternative modes, reflecting a dynamic blend of heritage and innovation in the transportation landscape. The land transportation sector in the Philippines, ranging from traditional bicycles and tricycles to modern buses and taxis, serves as a fundamental aspect of daily life throughout the country. Asael (2023) notes its pivotal role as an economic cornerstone for many rural Filipinos. These transportation modes have long been the backbone of the country's commuting system, offering accessibility and mobility to millions across urban and rural areas.

Metropolitan Manila boasts a robust transportation network featuring four urban and commuter rail systems covering 77 kilometers collectively (Manila Mass Transit System – LRT, MRT, and PNR Commuter Rail of Metro Manila, 2023). Complementing this rail infrastructure are buses and jeepneys, which traverse major arterial routes and secondary roads, respectively, linking key destinations (Sunio et al., 2019). While buses and jeepneys follow set routes, taxis and UV Express services offer direct, air-conditioned, point-to-point transport options. Additionally, bicycles and tricycles serve as flexible, convenient modes of short-distance travel within neighborhoods and barangays, enhancing mobility and connectivity across the region. This intricate interplay of rail and road-based transit systems underscores the multifaceted nature of transportation choices available to commuters in Metropolitan Manila.

The convergence of mobile technology and the sharing economy has catalyzed a disruptive innovation in the transportation sector known as e-hailing or ride sourcing services, pioneered by Transportation Network Companies (TNC) like Uber, Lyft, Grab, and others. These platforms, managed by TNVS, connect passengers with accredited private vehicles and drivers via smartphone applications, fundamentally reshaping urban mobility patterns (Shaheen et al., 2015). By leveraging online platforms and smartphone technology, TNCs facilitate efficient, convenient, and transparent booking processes in real time. Recent studies suggest a potential substitution effect, as users increasingly favor ride-hailing services over traditional taxi and public transit options (Hoang-Tung et al., 2022). Unlike traditional taxi models, TNCs enable peer-to-peer connections, allowing passengers to directly hail rides from independent drivers operating their vehicles, with flexibility in vehicle type, including cars or motorcycles, to meet varying needs (German & Cabacungan, 2021).

Wadud (2020) finds that the phenomenal growth of app-based, ride-hailing services offered by TNCs has had a ripple effect on the motorcycle taxi industry, particularly in developing economies. This can be attributed to the prevalence of smartphones and the lower operational costs associated with motorcycles. Motorcycle taxi operators worldwide are seizing the opportunity presented by app-based technologies to streamline operations and cater to a burgeoning tech-savvy population. Nguyen-Phuoc et al. (2020) underscore that this technological integration not only mirrors the convenience of ride-hailing services but also offers a more cost-effective transportation option in certain regions, transforming motorcycle taxis into sought-after app-based MTHS. As a result, MTHS has emerged as a significant mode of transportation globally, offering an alternative to traditional modes of transport. In the Philippines, MTHS has gained popularity, with key brands like Angkas, JoyRide, and Move It—establishing themselves in the market to address the transportation needs of Filipinos. Considered as the pioneer brand, Angkas introduced a user-friendly app to alleviate traffic congestion with mandatory rider training, and a focus on safety in 2016 (Yuching, 2023). Their success paved the way for other MTHS companies to join the industry namely JoyRide, who entered the market in 2019 (Yu, 2023), offering a similar service with a focus on passenger comfort and safety. Alongside it is a new competitor, MoveIt, which is backed by Grab, a transportation giant (Piad, 2023).

Among the rising brands, Wadud (2020) reveals that the advent of motorcycle taxi-hailing services (MTHS) has driven a notable surge in commercial motorcycle ownership, notably in urban regions like the National Capital Region (NCR). Moreover, the rising popularity of motorcycles for public transportation, epitomized by MTHS, offers a promising avenue for alleviating NCR's notorious traffic congestion issues. In economies like the Philippines, where purchasing power per capita is constrained, MTHS emerges as an appealing transportation choice due to its affordability, benefiting both riders and the general public. This affordability is underpinned by impressive fuel efficiency, averaging 60 kilometers per liter of gasoline (Laviña and Paras, 2020).

Furthermore, the severe congestion in Metro Manila has spurred commuters to seek alternative modes of transport (Bartolay, 2017). Like many developing metropolises, Metro Manila faces urban traffic congestion due to inefficient public transportation infrastructure and a disjointed road network. A 2017 report from the Boston Consulting Group, commissioned by UBER Technologies Inc., ranked Metro Manila as the third most congested city in Southeast Asia, with commuters enduring an extra 66 minutes of travel time due to traffic congestion (Chin et al., 2017). Safety concerns also plague traditional transportation methods, with overcrowded buses and jeepneys posing injury risks, compounded by poorly maintained vehicles and reckless driving (Mayo et al., 2022). Conversely, motorcycles, as highlighted by Laviña and Paras (2020), offer a more efficient means of navigating congested streets, potentially reducing travel times and mitigating income losses from delays, all while leaving a smaller carbon footprint. However, it's crucial to prioritize safety alongside affordability (Barrientos, 2023), necessitating robust regulations and training programs to safeguard both riders and passengers.

## **2.2 Attitude**

Attitude is described as a person's psychological inclination to perceive a specific behavior favorably or unfavorably (Albarracin et al., 2005). When it comes to app-based hailing services, users vary their loyalty depending on the perceived quality of service features (Li et al., 2022). Ride-hailing services have grown in popularity in recent years thanks to technological improvements that provide quick, safe, and cost-effective transportation solutions, especially in locations with limited public transit options (Tang et al., 2019). Napalang et al. (2017) investigated the characteristics of ride-hailing services in Manila, highlighting their favorable impact on service quality, such as convenience, safety, reliability, and shorter wait times. Loa and Habib (2021) also investigated how attitudes influence consumers' decisions to utilize ride-hailing services, discovering that criteria such as safety, cost, reliability, and convenience had a substantial impact on users' preferences. Future research aims to analyze additional service qualities such as sanitation, pricing competition, promotions, payment options, driver ratings, availability, app usability, and real-time tracking to better understand consumer behavior in the ride hailing market.

Advancements in Information and Communication Technology (ICT) have enabled the widespread adoption of real-time and app-based transportation services. Key to this adoption is the development of navigation technologies, particularly the Global

Positioning System (GPS), which allows for precise location tracking at any moment (Uddin et al., 2013). Through GPS technology, users of mobile transportation-hailing (MTHS) applications can monitor their positions in real time during journeys (Pham et al., 2017). Online ride-hailing services utilize real-time GPS data of both drivers and passengers, facilitating efficient location tracking for pick-ups (Jiang et al., 2021). These services offer users features such as tracking driver location, estimating arrival time, and predicting journey costs, while GPS-enabled navigation aids in optimizing routes for faster travel (Shah & Kubota, 2022) and (Rayle et al., 2016).

To ensure inclusion across various user demographics, especially elderly passengers who may be unfamiliar with evolving internet technology, companies must prioritize the user-friendliness of their online booking apps. According to Loan and Hung (2018), this involves a thorough evaluation of the benefits and disadvantages of app interfaces for clients. MTHS companies can improve the ease of use of their app-based booking systems by focusing on the information that passengers frequently seek and clearly displaying it on the application, as well as providing a simple and visually appealing interface. This, in turn, encourages more people to adopt and use these convenient services.

Ride-hailing services have gained popularity in recent years due to technological advancements that offer fast, safe, and cost-effective transportation solutions, particularly in areas with limited public transportation options (Tang et al., 2019). Napalang et al. (2017) evaluated the characteristics of ride-sharing services in Manila, emphasizing their positive impact on service quality, such as convenience, safety, reliability, and reduced wait times.

In places with inadequate transportation networks, the popularity of app-based hailing services has soared, offering commuters enhanced convenience and flexibility (Shah & Kubota, 2022). The emergence of MTHS has transformed traditional public transportation, allowing commuters to swiftly hire drivers via ride-hailing apps on their smartphones, eliminating the need to wait for public transits. Facilitated by Transportation Network Companies (TNCs), these apps empower users to specify pick-up and drop-off locations according to their preferences.

Another study found that when evaluating MTHS, passengers consider factors including safety, comfort, and sanitation, all of which have significant effects on their perceptions of these service features. Safety concerns encompass various aspects of the ride experience. Dalimunthe et al. (2022) conducted a study that shows the risks linked with drivers' road behavior. These dangers include the lack of standard helmets, which should always be provided to customers when using MTHS apps, as well as drivers' tendency to improperly use turn signals, ignore traffic signals, and fail to drop off passengers in safe locations. Furthermore, insurance programs help to manage these risks by offering compensation in the event of unforeseen incidents. Factors such as driver unfamiliarity and concerns about cleanliness and sanitation have an impact on passengers' psychological and physical comfort levels. Passengers frequently have little knowledge about the driver's behaviors, cleanliness, and helmet availability (Herlambang & Pambudi, 2019).

The COVID-19 pandemic brought additional challenges and considerations for ride-hailing services, impacting travel behavior and necessitating adherence to strict health protocols (Nguyen-Phuoc et al., 2022). Governments enacted measures such as enforced face mask use and hand hygiene to prevent infection from diseases. Initiatives such as the University of the Philippines—College of Public Health (UP-CPH) research in the Philippines argued for the safe return of motorcycle taxis, emphasizing strict compliance with health and safety rules (Marasigan, 2020). Regular hand sanitation, cleaning frequently touched objects, and wearing protective equipment such as masks and helmets were among the recommendations presented.

Price competitiveness, promotions, and payment methods are interconnected factors significantly shaping customer perceptions of motorcycle ride-hailing services (Ahmadinejad et al., 2019). While these services cater to millions of riders and drivers daily, aggressive price competition could harm driver earnings. Ride-hailing apps often utilize dynamic pricing to adapt to supply and demand fluctuations (Sun et al., 2020). Optimal pricing strategies are vital in dynamic market environments to minimize booking delays and maximize profits. Drivers aim to maximize earnings by choosing to work for a single platform (single-home) or multiple platforms simultaneously (multi-home), depending on demand fluctuations. Similarly, passengers engage in multi-homing behavior when dissatisfied with travel costs and estimated pick-up times, selecting the platform that best suits their needs for each ride (Ahmadinejad et al., 2019). The perceived value for money of ride-hailing services, particularly fixed fares given by Transportation Network Vehicle Services (TNVS), influences passengers' willingness to pay more for them than for public transportation. TNVS has the advantage of transparent fare rates, allowing passengers to evaluate travel costs remotely using their mobile devices. For multi-homing customers, TNVS rates are the primary consideration, with alternative transportation options only being considered if the fixed rates are deemed unacceptable. Initially, they show no preference for one TNVS over another. Furthermore, customers can take advantage of discounts and promotions offered through TNVS apps, which can influence their decision if the fixed fare is decreased by using a promotion code (Lee, 2018). The addition of e-payment alternatives to motorcycle ride-hailing apps significantly improves the user experience for both riders and drivers (Rayle & Chan, 2014). Allowing passengers

to use linked cards eliminates the need for cash transactions, which increases convenience and security. This helps drivers by simplifying transactions, ensuring fare accuracy, and minimizing delays and complaints. Offering numerous payment choices improves the overall experience for all parties involved by reducing friction between drivers and passengers (Tsegay, 2021).

Additionally, the rating system in motorcycle ride-hailing apps influences customer attitudes by providing a means for passengers to provide feedback on driver performance (Lee, 2018). This post-trip rating system enables passengers to raise concerns directly with TNCs, facilitating prompt resolution of issues. Similarly, passengers and drivers can rate each other with incentives designed to promote respectful behavior and prohibit collecting additional costs (Shah & Kubota, 2022). Overall, the post-trip rating system serves as an additional protection for drivers and riders and improves the quality of service provided by motorcycle ride-hailing platforms (Lee, 2018).

### **2.3 Image**

Brand Image, as defined by Keller (2013), is the reflection of brand associations in a consumer's memory, constituting the customer's perception of a brand. This term finds frequent usage in marketing contexts and serves as a primary concept in numerous studies aimed at determining a brand's success. Similar definitions have been provided by Cpriotti (1999) and Hung (2008), who also characterize brand image as the conceptualization of a brand in a customer's mind.

Brand image plays a pivotal role in brand development, serving as a significant determinant of consumer behavior. Wijaya (2013) underscores the intricate linkage between brand image and the reputation and credibility of a brand, emphasizing its role as a guiding factor for consumers when considering the adoption of a product or service. This applies not only to product-based brands but also to service-forward brands. The image associated with a brand shapes the consumer experience, ultimately influencing their inclination towards brand loyalty or the possibility of switching to alternative options.

The rise of MTHS in the Philippines is deeply embedded in the prevailing status quo, as individuals seek more convenient alternatives for transportation. Various MTHS brands in the Philippines offer a cheaper alternative compared to traditional four-wheeled ride-hailing services such as Grab and Uber. The surge in popularity of MTHS in the country corresponds to the current state of traffic congestion, with Metro Manila registering a staggering 53% congestion rate in the 2020 Traffic Index (Peña, 2021). The convenience offered by MTHS, highlighted by their three times higher efficiency compared to other Public Utility Vehicles (PUVs) (De Jesus et al., 2018), has contributed significantly to their positive brand image. Factors such as travel speed, price, availability, and reliability further influence commuters' choices, with travel speed emerging as the primary determinant.

### **2.4 Hypothesis of the Study**

- H1 There is a significant relationship in the level of brand awareness when grouped according to gender identity.
- H2 There is a significant relationship in the level of brand awareness when grouped according to weekly allowance.
- H3 There is a significant relationship in the level of brand awareness when grouped according to employment.
- H4 There is a significant difference in the frequency of usage of MTHS when grouped according to gender identity.
- H5 There is a significant difference in the frequency of usage of MTHS when grouped according to weekly allowance.
- H6 There is a significant difference in the frequency of usage of MTHS when grouped according to employment.
- H7 There is a significant difference in the level of attitude when grouped according to gender identity.
- H8 There is a significant difference in the level of attitude when grouped according to weekly allowance.
- H9 There is a significant difference in the level of attitude when grouped according to employment.
- H10 There is a significant relationship between the preference for motorcycle apps (Angkas, Move It, Joyride) and the preference for their features.

## **3. Methodology**

### **3.1 Research Design**

The study adapted a quantitative research design to thoroughly investigate Filipino students' perceptions and behaviors concerning MTHS in the National Capital Region (NCR). It aimed to evaluate the Usage, Attitude, and Image (UAI) associated with MTHS brands among Filipino students. Through the distribution of survey questionnaires utilizing Likert scale items and closed-ended questionnaires, quantitative data were gathered from participants selected from diverse colleges and universities across the NCR. The survey focused on measuring students' experiences toward MTHS brands, shedding light on usage patterns, importance rating of MTHS features (attitudes), and images they have of MTHS. By employing a quantitative approach, this study provided statistical insights into the multifaceted nature of MTHS utilization among Filipino students in the NCR as their alternative mode of transportation, contributing to a better understanding of their preferences and behaviors in the context of transportation services.

### 3.2 Sampling Technique and Sample Size

The study's population focused on Filipino college students currently enrolled in the academic year 2022-2023 and residing in the National Capital Region (NCR). Recent data from the Commission on Higher Education (CHED), specifically the Baccalaureate-Level Enrollment in the NCR for AY 2019/20 - 2021/22, served as the foundation for determining enrollment figures for the academic years 2019-2022. As data for the academic year 2022-2023 is not yet available, the researchers relied on the most recent data from AY 2021-2022 to define the study's population.

The latest CHED data indicates 706,352 baccalaureate-level enrollees for the academic year 2021-2022. Using a sample size calculator with a confidence level of 95% and a 5% margin of error, the researchers determined a sample size of 384+ respondents. After floating the questionnaire in 2 weeks' time, the researchers garnered a total of 401 respondents. Both purposive and snowball sampling techniques were employed in the study, including a 4-item pre-selection section as part of the purposive sampling approach to mitigate potential biases among respondents.

### 3.3 Research Instrument

The data-gathering instrumentation and procedure for this research study adhere to rigorous standards to ensure the collection of reliable data by utilizing a structured survey instrument designed to capture key variables, such as the usage, attitude, and image of MTHS among college students in NCR. It built upon the UAI study conducted by Ned Roberto by assessing student perceptions through a survey instrument.

The survey instrument, which is adapted to the UAI study questionnaires, encompassed a structured format comprising the 4-item pre-selection phase, classification data (demographics), and core data, which includes the usage patterns, attitudes towards service features, and overall image assessment or awareness of MTHS brands. This study utilized a survey instrument administered electronically through Microsoft Forms, enabling efficient data collection and analysis. The instrument is composed of a combination of closed-ended questions, multiple-choice options, and Likert scale questions to gauge students' level of brand awareness on specific statements. Prior to the main data collection phase, a pilot test of the survey was conducted with a sample of 30 respondents not included in the main study to identify and address any potential issues or ambiguities.

### 3.4 Reliability and Validity Measures

The survey questionnaire was presented to three professional researchers in various fields. The researchers also elicited the validators' recommendations on the statistical treatment that works best on the data. After attending to the validators' suggestions and recommendations, the researchers implemented the changes and adapted the necessary improvements. Ultimately, the certificate of validation for the questionnaires was signed by the validators on different dates.

The researchers also tested the reliability of the Likert-scale part of the survey questionnaire utilizing Cronbach's Alpha, which will be able to test the internal consistency of the Likert-scale questionnaire. Through manual tabulation in Microsoft Excel and adapting the Cronbach's Alpha formula, the computed alpha for the questionnaire was 0.741 over the 10-item questionnaire. This insinuated that the alpha value of the questionnaire lies upon the "good" ( $0.7 \leq \alpha < 0.9$ ) strength of association.

Table 1. Reliability Statistics

Cronbach's Alpha	Number of Items
0.7413364	10

*Note: Cronbach's Alpha and Composite Reliability must be equal to or higher than 0.70 to demonstrate good reliability.*

The collected data underwent rigorous encoding, processing, and tabulation, paving the way for comprehensive statistical treatments, including frequency analysis, percentage calculation, weighted mean determination, evaluation of standard deviation, Cronbach's alpha computation, utilization of Chi-Squared test, one-way ANOVA, linear regression, and multinomial logistic regression.

1. Percentage was employed to understand the distribution of categorical variables within the dataset.
2. The weighted mean was utilized to compute the average value of a specific set of numbers, considering different levels of weight assigned to each data point.
3. The standard deviation, a measure of the dispersion or variability of data points around the mean, was employed to assess the spread of values within the dataset.
4. Cronbach's alpha, a measure of internal consistency reliability, was computed to assess the reliability of a scale or set of items within the dataset.



5. Chi-Squared test was utilized to test significant relationships.
6. One-way analysis of variance (ANOVA) was employed to find statistically significant differences among them.
7. The multinomial logistic regression and linear regression were also utilized to find the significant relationship of the chosen variables.

Table 2. Verbal Interpretation for Level of Brand awareness of MTHS Brands

Scale	Range	Verbal Interpretation
4	3.25-4.00	First Mentioned Brand
3	2.50-3.24	Other Mentioned Brand(s)
2	1.75-2.49	Aided Mention
1	1.00-1.74	Unaware of the Brand

Table 3. Verbal Interpretation for The Level of Attitudes towards the Different MTHS Service Features

Scale	Range	Verbal Interpretation
4	3.25-4.00	Extremely Important
3	2.50-3.24	Quite Important
2	1.75-2.49	A little important
1	1.00-1.74	Not that important

Tables 2 and 3 provide the verbal interpretation for the levels of brand awareness and levels of attitude, respectively, based on respondents' answers to Likert scale questions. To gauge Filipino students' attitudes toward various MTHS service features, respondents evaluated these features using a 4-point Likert Scale: (4) extremely important, (3) quite important, (2) somewhat important, and (1) not important. Similarly, the verbal interpretation of respondents' brand awareness levels follows a comparable structure, taking into account the levels of brand awareness outlined in the UAI study. A scale of 4 signifies familiarity and experience with the first mentioned brand, while a scale of 3 indicates awareness of other mentioned brands, albeit with less experience. Scale 2 represents aided mention, indicating knowledge but limited experience, and scale 1 indicates being completely unaware of the brand, with respondents lacking both knowledge and experience.

#### 4. Results and Discussion

This section of the paper presents the results and discussions answering the study's statement of the problem and hypothesis. The demographic characteristics and statistics, level of brand awareness among MTHS brands, extent of usage of Filipino Students' Usage of MTHS, level of attitudes towards the Different MTHS Service Features, and the set of hypotheses and paths were presented below.

Table 4. Demographic Characteristics and Statistics (n = 401)

<b>Characteristics</b>	<b>Category</b>	<b>Frequency</b>	<b>Percent</b>
Age	17	2	0.5%
	18	37	9%
	19	40	10%
	20	101	25%
	21	135	34%
	22	54	13%
	23	23	6%
	24	5	1%
	25	2	0.5%
	29	1	0.2%
	31	1	0.2%
Gender	Male	114	28%
	Female	273	68%
	Transgender	3	1%
	Non-binary	10	2%
	Gender Fluid	1	0.25%
Location	Caloocan	10	2%
	Malabon	4	1%
	Navotas	4	1%
	Valenzuela	5	1%
	Quezon City	31	8%
	Marikina	7	2%
	Pasig	7	2%
	Taguig	5	1%
	Makati	5	1%
	Manila	267	67%
	Mandaluyong	5	1%
	San Juan	7	2%
	Pasay	10	2%
	Parañaque	5	1%
	Las Piñas	7	2%
	Muntinlupa	16	4%
	Pateros	6	1%
	Weekly Allowance	1000 and below	252
1001 - 2000		106	26%
2001 - 3000		28	7%
3001 - 4000		4	1%
4001 - 5000		9	2%
5001 - 6000		1	0.25%
9000 and above		1	0.25%
Employment	Employed	59	15%
	Not Employed	342	85%

The demographic profiles of Filipino college students who utilize motorcycle taxi hailing services (MTHS) in the NCR as an alternate mode of transportation are displayed in Table 4, which categorizes age, gender, location, weekly allowance, and employment. The demographic data for the participants is as follows: 267 female respondents account for 68% of the total being the highest gender respondents. In terms of age distribution, the most prominent respondents in the result, 34%, are 21 years old.

Moreover, the data reveals that out of 267 responses, MTHS users constitute 67% of respondents residing in Manila City, 8% are from Quezon City, and 4% are from Muntinlupa. Additionally, students with an allowance of 1000 PHP or less provided 252 responses, accounting for 63% of the total, while students with an allowance of 1001-2000 PHP contributed 106 responses, representing 26% of the overall responses. Furthermore, out of 342 respondents, constituting 85% of the sample, the majority of MTHS users as alternative transportation modes are unemployed, while the remaining 15% of respondents, totaling 59 responses, are employed.

Studies from Nugroho et al. (2020), Rizki et al. (2021), and Irawan et al. (2020) have focused on the utilization patterns of MTHS among different demographic groups in the Philippines, with an emphasis on women, age groups, location, and socioeconomic factors. The findings reveal that women are the predominant users of MTHS in the Philippines, and individuals aged 20-23 years old constitute the largest proportion of users based on age & gender.

The financial situation significantly influences purchasing power, as income is a crucial determinant. College students, particularly those with an allowance ranging from 1,000 to 2,000 PHP, are frequent users of MTHS. Notably, this research considers the perceptions of MTHS users as a latent variable. Overall, the study clarifies the effect of demographic and socioeconomic factors influencing the use of MTHS in the Philippines.

Table 5. The Level of Brand Awareness of Filipino Students of MTHS brands

<b>Brand</b>	<b>Value</b>	<b>Verbal Interpretation</b>
Angkas	3.49	First Mentioned Brand
Move It	3.08	Other Mentioned Brand (s)
Joyride	3.13	Other Mentioned Brand (s)

Table 5 highlights the results of respondents' brand awareness levels for different MTHS brands. Angkas obtains the highest value of 3.49, which makes it the first mentioned brand, while Joyride and Move It are among the other mentioned brands.

Studies by Peña (2021) found that MTHS brands are popular among users because of their convenient and efficient transportation options. Different MTHS brands in the Philippines provide cheaper alternatives compared to four-wheeled ride-hailing services like Grab and Uber. In alignment with the results, Lñares (2023) reveals that Angkas has been a popular brand option for commuters in Metro Manila since 2016, and it has consistently earned recognition for its high standards of safety. Being a pioneer brand, Angkas is the first MTHS brand that provides fast and safe alternative options for commuters in the worsening traffic situation in Metro Manila (Yuching, 2023). Furthermore, a study by De Jesus et al. (2018) states the efficiency of MTHS brands is three times that of Public Utility Vehicles (PUVs), which greatly contributes to a strong brand image.

Table 6. Usage of MTHS Brands according to their Previous Booked Ride

<b>Brand</b>	<b>Frequency</b>	<b>Percentage</b>
Angkas	106	26.43%
Move It	92	22.94%
Joyride	203	50.62%
Total	401	100%

Table 6 highlights the results of respondents' usage of MTHS brands based on previous booked rides. According to the results, Move It received the most responses (50.62%), followed by Angkas (26.43%) and Joyride (22.94%). Despite finding that Angkas is the first mentioned brand indicated in Table 5 based on the respondents' brand awareness level of MTHS brands, they chose Move It as the preferred app the last time they booked a ride.

Rosales (2022) states that Move It has been successful in growing its rider base and lowering fares, which has allowed commuters to prefer choosing the brand despite it entering the motorcycle taxi industry as a third player. Move Its popularity among commuters, according to Roces (2022), due to the app's timely rider accommodations and ease of booking. Move It also offers more promotional discounts and the lowest riding fares, which attracts commuters to choose it over other MTHS brands.

Table 7. Respondents' Sources of Learning MTHS Brands

Source	Angkas	Joyride	Move It
Out-of-home Ads	10	7	21
Social media	63	55	102
Print Publication	1	0	1
Experiences	32	30	79

In connection with table 6, table 7 shows the results where respondents learned about MTHS brands they previously utilized. The majority of respondents have learned about Angkas, Joyride, and Move It through social media, with values of 63, 55, and 102, respectively (total of 220 responses), followed by experiences with 141 responses. Furthermore, Move It stands out among the three MTHS brands as the brand that people had in their minds the last time they booked a ride due to social media awareness, followed by experiences, with 102 and 79 responses, respectively.

Table 8. The Extent of Filipino Students' Usage of MTHS per Week (n = 401)

Category	Sub-category	Frequency	Percentage
Purpose	Going to school	219	55%
	Running for errands	162	40%
	Work	20	5%
Frequency	1	132	33%
	2	97	24%
	3	67	17%
	4	34	8%
	5	33	8%
	6	13	3%
	7	6	1%
	8	8	2%
	9	2	0.50%
	10	5	1%
	12	1	0.25%
Payment Options	Cash	309	77%
	Auto charge to credit/debit cards	5	1%
	Auto charge to Gcash	52	13%
	Digital Wallets	35	9%

Table 8 explores the Filipino students' usage of MTHS as an alternative mode of transportation. Categorized by purpose, frequency, and payment methods, the table presents that using MTHS for school commutes dominates, followed by errands. Interestingly, a

significant portion (73.82%) uses MTHS one to three times per week. Cash remains the preferred payment method due to the prevalence of cash-on-hand transactions among students.

Table 8 aligns with the existing literature on MTHS usage patterns. Studies by Amrozi et al. (2021) and Cabacungan & German (2021) suggest students are frequent users due to high transportation needs. Similarly, Tambunan & Nababan (2023) highlight student dependence on MTHS due to the difficulty in accessing public transport. This data reflects these trends, with school commutes being the primary purpose. Interestingly, the finding that most students (73.82%) use MTHS one to three times a week suggests a more targeted usage pattern than daily commutes. This aligns with the notion that students may rely on MTHS for specific needs, as opposed to general transportation. Furthermore, the dominance of cash payments aligns with Bennet et al. (2014), who discuss the continued prevalence of cash transactions, even with the rise of cashless options.

Table 9. The Level of Attitude of Filipino Students towards the Different MTHS Service Features

<b>MTHS Service Features</b>	<b>Weighted Mean</b>	<b>Stdev</b>	<b>Verbal Interpretation</b>
Sanitation	3.91	0.33	Extremely Important
Comfortability	3.87	0.36	Extremely Important
Ease of Booking	3.91	0.29	Extremely Important
Real-time Tracking	3.74	0.48	Extremely Important
Multiple Payment Options	3.54	0.70	Extremely Important
Price Competitiveness	3.84	0.41	Extremely Important
Promotions and Discount	3.77	0.51	Extremely Important
Safety Measures	3.92	0.30	Extremely Important
App-user Friendliness	3.76	0.49	Extremely Important
Driver Ratings and Reviews	3.64	0.63	Extremely Important
<b>Total Weighted Mean</b>	<b>3.79</b>	<b>0.45</b>	

Table 9 reveals that students in metropolitan find all MTHS service features extremely important. It is evident that Safety Measures, Sanitation, and Ease of Booking are the top three with the highest score indicators. On the contrary, Multiple Payment Options, Driver Rating and Reviews, and Real-time Tracking are the lowest three.

Studies related to Dalimunthe et al. (2022), (Herlambang & Pambudi, 2019), and (Nguyen-Phuoc et al., 2022), stated the importance of MTHS service features. It shows that passengers are more likely to use MTHS because of its service quality offered compared to the traditional transportation mode. Whereas TNVS are predominantly favored for their convenience, safety enhancements, and cleanliness which significantly impact the passengers' attitudes towards the different service features. Passenger hesitancy towards MTHS stems from concerns about the risks associated with drivers' road behavior, including the absence of standard helmets, which must always be available for passengers, as well as the driver's habit when it comes to improper signaling, ignoring traffic rules and overall safety. In the same way, sanitation schemes serve as an important factor for vehicle cleanliness and providing helmets. In addition, from the study of Loan & Hung (2018), the utilization of app-based hailing services has been possible due to the unmatched development of new technologies that helped the MTHS companies enhance the ease of their app-based booking systems, thereby encouraging more users to adopt and utilize these convenient services.

In testing the relationship of variables in hypotheses 1 to 3, the Chi-Squared Test of Independence was utilized. The test has shown that the relationship between the level of brand awareness and gender identity (H1) was not significant: Angkas,  $X^2$  (df = 12, N = 401) = 3.647, p = 0.989; Joyride,  $X^2$  (df = 12, N = 401) = 7.103, p = 0.851; Move It,  $X^2$  (df = 12, N = 401) = 8.888, p = 0.712. In testing the relationship between the level of brand awareness and weekly allowance (H2), the test has shown that the variables were not significant: Angkas,  $X^2$  (df = 18, N = 401) = 10.379, p = 0.919; Joyride,  $X^2$  (df = 18, N = 401) = 13.523, p = 0.76; Move It,  $X^2$  (df = 18, N = 401) = 15.728, p = 0.612. Meanwhile, in testing the relationship between the level of brand awareness and employment, the test has shown that the variables were not significant: Angkas,  $X^2$  (df = 3, N = 401) = 0.68, p = 0.878; Joyride,  $X^2$  (df = 3, N = 401) = 1.771, p = 0.621; Move It,  $X^2$  (df = 3, N = 401) = 2.567, p = 0.463. Thus, hypotheses 1 to 3 were deemed to have no significant relationship with their respective variables.

Table 10. H4-H9 (Significant Differences), P-value, and Decision; ANOVA

Hypothesis	P-value	Interpretation
H4	< 0.001	Accepted
H5	< 0.001	Accepted
H6	< 0.001	Accepted
H7	< 0.001	Accepted
H8	< 0.001	Accepted
H9	0.9653	Rejected

Table 10 explores the significant differences in frequency of usage and level of attitudes (service features) across various demographic groups. The hypotheses were tested using Analysis of Variance (ANOVA). The analysis revealed statistically significant differences in five out of the six hypotheses (H4, H5, H6, H7, and H8) measuring significant differences, with p-values of 0.003 (H4), 9.1E-06 (H5), 2.2E-06 (H6), 0.007 (H7) and 4.4E-07 (H8). Notably, H4, H5, and H6 pertain to differences in frequency of usage across the demographic groups: gender identity, weekly allowance, and employment status. Meanwhile, H7 and H8 pertain to the significant difference in the level of attitude when grouped according to gender identity and weekly allowance. This suggests that these factors may play a crucial role in how often the respondents view, react, and use MTHS.

In terms of the frequency of MTHS usage (H4, H5, and H6), the results mostly align with previous research on ride-hailing usage. First, it appears that there's a notable difference in frequency based on gender identity, particularly among female respondents, which showed higher prevalence, as found in Loa & Habib (2021) study. Additionally, earlier studies indicate that wealthier individuals or those who have disposable allowance have more flexible options like four-wheeled ride-hailing services, possibly tied to their employment status. Taken together, these results are consistent with the findings of similar studies on the usage of ride-hailing services, such as Alemi et al. (2018) and Lavieri and Bhat (2019).

In terms of attitude levels (H7 and H8), gender identity and weekly allowance were deemed significantly different in terms of attitude level. These results align with the findings of Shah and Kubota (2022) and Nguyen-Phuoc et al. (2020). The gender-based disparity in the level of attitude is likely reflected in the context of MTHS, where safety concerns may be pronounced among female users, potentially leading to different levels of attitude and acceptance of these services. Moreover, the results are again compatible with the findings of multiple other studies by Shah and Hisashi (2022) that the more allowance one has, the more likely they are to use ride-hailing services.

Table 11. Hypothesis and Paths

Hypothesis	Path
H1	There is no significant difference in the level of brand awareness when grouped according to gender identity.
H2	There is no significant difference in the level of brand awareness when grouped according to weekly allowance.
H3	There is no significant difference in the level of brand awareness when grouped according to employment.
H4	There is a significant difference in the frequency of usage of MTHS when grouped according to gender identity.
H5	There is a significant difference in the frequency of usage of MTHS when grouped according to weekly allowance.
H6	There is a significant difference in the frequency of usage of MTHS when grouped according to employment.
H7	There is a significant difference in the level of attitude when grouped according to gender identity.

- H8 There is a significant difference in the level of attitude when grouped according to weekly allowance.  
H9 There is no significant difference in the level of attitude when grouped according to employment.

Table 11 presents the study's hypothesis and paths, with levels of brand awareness, frequency of usage, and attitude levels grouped according to demographic characteristics. The results revealed a statistically significant difference in frequency of usage across all demographic profiles (H4, H5, and H6). There is a statistically significant difference in attitude levels when grouped by gender identity (H7) and weekly allowance (H8), yet no significant difference when grouped according to employment status (H9). Additionally, there were no significant differences in level of brand awareness among all demographic groups (H1, H2, and H3).

Table 12. Model Fit Measures

Model	Deviance	AIC	R <sup>2</sup> <sub>McF</sub>
1	373	417	0.0514

Table 13. Multinomial Logistic Regression Model Coefficients - Often Used

Often Used App	Predictor	Estimate	SE	Z	p	Odds ratio
Joyride - Angkas	Intercept	0.5999	3.992	0.1503	0.881	1.822
	Sanitation	-0.2011	0.738	-0.2726	0.785	0.818
	Comfortability	1.0598	1.057	1.0029	0.316	2.886
	Ease of Booking (Availability during rush hour)	-1.3349	0.95	-1.4051	0.16	0.263
	Real-time Tracking	-0.3514	0.53	-0.6633	0.507	0.704
	Multiple Payment Options	0.2623	0.388	0.6766	0.499	1.3
	Price Competitiveness	-0.1243	0.548	-0.2267	0.821	0.883
	Promotions and Discount	0.3423	0.488	0.7007	0.483	1.408
	Safety Measures	-0.4057	0.979	-0.4143	0.679	0.666
	App-user Friendliness	0.089	0.708	0.1258	0.9	1.093
Driver Ratings and Reviews	0.5217	0.504	1.0357	0.3	1.685	
Move It - Angkas	Intercept	-0.6971	3.661	-0.1904	0.849	0.498
	Sanitation	0.6301	0.601	1.0482	0.295	1.878
	Comfortability	-0.5255	0.65	-0.8083	0.419	0.591
	Ease of Booking (Availability during rush hour)	0.0461	0.864	0.0533	0.957	1.047
	Real-time Tracking	-0.093	0.443	-0.2098	0.834	0.911
	Multiple Payment Options	-0.0402	0.295	-0.1363	0.892	0.961
	Price Competitiveness	0.4237	0.502	0.8436	0.399	1.528
	<b>Promotions and Discount</b>	<b>0.8567</b>	<b>0.423</b>	<b>2.0267</b>	<b>0.043</b>	<b>2.355</b>
	Safety Measures	-0.5753	0.759	-0.7577	0.449	0.563
	App-user Friendliness	-0.3153	0.493	-0.6399	0.522	0.73
Driver Ratings and Reviews	-0.0519	0.394	-0.1317	0.895	0.949	

Table 12 presents the model fit measures of the multinomial logistic regression and table 13 shows the multinomial logistic regression model coefficients in examining the relationship between the preference for MTHS apps (often used apps) and the preference for their features. Multinomial logistic regression shows the comparison of two MTHS apps, wherein Angkas is the point of comparison, being the most well-known MTHS brand. Results have shown that there is no significant relationship between Joyride and Angkas' service features. Meanwhile, between Move It and Angkas, promotions, and discounts were deemed significant ( $p = 0.043$ ), which implies that the mentioned service feature influences passengers' decision to choose Move It over Angkas. The rest of the results have shown that the comparison in service features has no significant relationship.

Table 14. Linear Regression Model Coefficients of Angkas

Predictor	Estimate	SE	t	p-value	Interpretation
Comfortability	-0.42342	0.1963	-2.1566	0.032	Accepted
Multiple Payment Options	0.19242	0.0907	2.1224	0.035	Accepted

Tables 14, 15, and 16 present the linear regression model coefficient of MTHS brands, including the predictor, p-value, and interpretation in connection with the last hypothesis (H10) measuring the significant relationship. Table 14 shows the linear regression model results for Angkas, which consists of two service features that were deemed significant. Comfortability has a negative estimate (-0.423), which means that when booking Angkas, comfortability, as a service feature, may affect the decision of college students not to choose the said MTHS brand. Furthermore, multiple payment options are the main reason why college students choose Angkas when booking a ride, as the said service feature has a positive estimate. The rest of the service features do not affect the decision.

Table 15. Linear Regression Model Coefficients of Joyride

Predictor	Estimate	SE	t	p-value	Interpretation
Comfortability	0.33091	0.1427	2.3194	0.022	Accepted
Price Competitiveness	-0.25482	0.1103	-2.3105	0.022	Accepted

Table 15 shows the linear regression model result for Joyride, which only consists of two service features that were deemed significant: comfortability ( $p = 0.022$ ) and price competitiveness ( $p = 0.022$ ). Price competitiveness has an estimate of -0.254, which implies that when choosing Joyride, price competitiveness most likely affects the decision of the respondents not to choose Joyride as their preferred MTHS brand. More likely, comfortability is the main reason for college students when booking Joyride as their preferred MTHS app. The rest of the service features do not affect the decision.

Table 16. Linear Regression Model Coefficients of Move It

Predictor	p-value
Sanitation	0.19
Comfortability	0.569
Ease of Booking (Availability during rush hour)	0.095
Real-time Tracking	0.927
Multiple Payment Options	0.91
Price Competitiveness	0.215
Promotions and Discount	0.672
Safety Measures	0.481
App-user Friendliness	0.256
Driver Rating and Reviews	0.325



Table 16 presents the linear regression model coefficients of Move It, where it shows that all predictors are below the alpha value. This means that in selecting the Move It app, no variables were perceived to affect the decision of the passengers.

## 5. Conclusion

The rise of MTHS as an alternative mode of transportation in the Philippines has brought a significant shift in the flexibility of transportation options available to Filipinos. Amidst the persistent issue of traffic congestion in the Philippines, the utilization of MTHS continues to grow steadily, particularly among undergraduate students aged 20 to 23 years old and female passengers who have emerged as the primary users of this mode of transportation. Utilizing Ned Roberto's UAI study as a framework, this research has explored the dynamics of the motorcycle taxi, given its relatively new position within the transportation sector. The study highlighted the importance of certain features, such as convenience in booking, safety, and sanitation, which ranked highest among the ten (10) service features.

Despite the presence of various payment options offered by different MTHS brands, cash remains the most commonly used method, with commuting to school identified as the primary purpose for utilizing MTHS. The study findings underscore the viability of MTHS as a credible alternative transportation option, particularly evident in the frequency of student bookings, typically ranging from one to three times per week. Consequently, the motorcycle taxi industry, despite its novelty, operates within a fiercely competitive market landscape, where each MTHS company strives to thrive despite challenging market conditions. Being Angkas as the top-of-the-mind brand, Move IT, and Joyride are other mentioned brands. Despite this, Move It remained to be the most used app in their previous booked ride.

Moreover, the study has uncovered statistically significant variables: frequency of MTHS when grouped according to gender identity (H4), weekly allowance (H5), and employment (H6); level of attitudes when grouped according to gender identity (H7) and weekly allowance (H8). Additionally, individuals with higher weekly allowances were observed to have more transportation options, even though forming a smaller portion of MTHS users compared to non-employed students.

The study also measured the significant relationship between MTHS brands in the Philippines and passengers' preferences for service features. In a comparison of Move It and Angkas in the multinomial logistic regression, it was shown that promotions and discounts had a positive estimate and were statistically significant ( $p = 0.043$ ), indicating such features were a decision factor in choosing Move It. In line with this, passengers using Angkas indicated that multiple payment options were most likely to influence their decision to choose the service; passengers using Joyride cited comfortability as the main reason for booking the said app. Lastly, when selecting the Move It app alone, no service features were perceived to influence riding decisions.

**Funding:** This research received no external funding.

**Conflicts of Interest:** The authors declare no conflict of interest.

**ORCID ID:** <https://orcid.org/0009-0004-6585-2199>

## References

- [1] Ahmadinejad, A., Nazerzadeh, H., Saberi, A., Skochdopole, N., & Sweeney, K. (2019b). Competition in Ride-Hailing markets. Social Science Research Network. <https://doi.org/10.2139/ssrn.3461119>
- [2] Albarracin, D., Zanna, M. P., Johnson, B. T., & Kumkale, G. T. (2005). Attitudes: Introduction and scope. ResearchGate. [https://www.researchgate.net/publication/261796577\\_Attitudes\\_Introduction\\_and\\_scope](https://www.researchgate.net/publication/261796577_Attitudes_Introduction_and_scope)
- [3] Alemi, F., Circella, G., Handy, S., & Mokhtarian, P. L. (2018). What influences travelers to use Uber? Exploring the factors affecting the adoption of on-demand ride services in California. *Travel Behaviour and Society*, 13, 88–104. <https://doi.org/10.1016/j.tbs.2018.06.002>
- [4] Asael. (2023, August 14). Exploring the main modes of transportation in the Philippines. Secret Philippines. [https://secret-ph.com/exploring-the-main-modes-of-transportation-in-the-philippines/#google\\_vignette](https://secret-ph.com/exploring-the-main-modes-of-transportation-in-the-philippines/#google_vignette)
- [5] Archive, V. (2024, March 27). Motorcycle taxis squeeze through gaps in public transport. The LaSallian. <https://thelasallian.com/2024/03/25/motorcycle-taxis-squeeze-through-gaps-in-public-transport/>
- [6] Barrientos, G. S. (2023, June 9). Hailing a motorcycle ride? Remember these #DiskartengTapat commuter tips. RAPPLER. <https://www.rappler.com/brandrap/moveit-commuter-tips/>
- [7] Bartolay, R. S., & Luis, S. M. V. S. (2023, May 23). Habal-habal: Understanding the true cost of a cheap ride. RAPPLER. <https://www.rappler.com/voices/imho/190713-habal-habal-safety-cost-cheap-ride/>
- [8] Beldad, K. (2022, April 20). Evolution of Philippine transportation; then and now. Bria Homes. <https://www.bria.com.ph/articles/evolution-of-philippine-transportation-then-and-now/>
- [9] Cervero, R., & Golub, A. (2007). Informal transport: A global perspective. *Transport Policy*, 14(6), 445–457. <https://doi.org/10.1016/j.tranpol.2007.04.011>
- [10] Chalermpong, S., Kato, H., Thaithatkul, P., Ratanawaraha, A., Fillone, A. M., Hoang-Tung, N., & Jittrapirom, P. (2022). Ride-hailing applications in Southeast Asia: A literature review. *International Journal of Sustainable Transportation*, 17(3), 298–318. <https://doi.org/10.1080/15568318.2022.2032885>

- [11] Dalimunthe, A. S., Ihsan, M., Maolani, R. A., & Haryanto, D. (2022). Risk analysis for passengers of online motorcycle public transportation in the city of Jakarta. *Advances in Economics, Business, and Management Research*. <https://doi.org/10.2991/aebmr.k.220104.005>
- [12] Daru, P., & Kusuma. (2017). Nearest driver-FIFO combination model in online motorcycle taxi dispatch system. <https://www.semanticscholar.org/paper/NEAREST-DRIVER-FIFO-COMBINATION-MODEL-IN-ONLINE-Daru-Kusuma/66c26ddf5aa85765f0836e839a42eaff63c532e9>
- [13] De Jesus, M. J. M., Gutierrez, A., & Muñoz, M. (2018). An analysis of the factors influencing commuter decisions in using the ANGKAS: Motorcycle Ride Booking Transportation Service. *Journal of Global Business*, 7, 2362–7832. [https://www.researchgate.net/profile/Ian-Benedict-Mia/publication/341368933\\_Assessing\\_the\\_impacts\\_of\\_green\\_supply\\_chain\\_management\\_and\\_frugal\\_product\\_innovation\\_to\\_the\\_sustainability\\_of\\_social\\_enterprises\\_in\\_the\\_Gawad\\_Kalinga\\_Enchanted\\_Farm/links/5ebcb09e92851c11a8677f46/Assessing-the-impacts-of-green-supply-chain-management-and-frugal-product-innovation-to-the-sustainability-of-social-enterprises-in-the-Gawad-Kalinga-Enchanted-Farm.pdf#page=51](https://www.researchgate.net/profile/Ian-Benedict-Mia/publication/341368933_Assessing_the_impacts_of_green_supply_chain_management_and_frugal_product_innovation_to_the_sustainability_of_social_enterprises_in_the_Gawad_Kalinga_Enchanted_Farm/links/5ebcb09e92851c11a8677f46/Assessing-the-impacts-of-green-supply-chain-management-and-frugal-product-innovation-to-the-sustainability-of-social-enterprises-in-the-Gawad-Kalinga-Enchanted-Farm.pdf#page=51)
- [14] Galais, C., Fernández-Martínez, J. L., Font, J. N. I., & Smith, G. (2020). Testing the input-process-output model of public participation. *European Journal of Political Research*, 60(4), 807–828. <https://doi.org/10.1111/1475-6765.12427>
- [15] German, J. D., & Cabacungan, A. D. H. (2021). Customer Awareness and Satisfaction Analysis on the Use of Motorcycle Taxi Applications in the Philippines. <https://ieeexplore.ieee.org/xpl/conhome/9436668/proceeding>. <https://doi.org/10.1109/iciea52957.2021.9436717>
- [16] Herlambang, Y., & Pambudi, T. S. (2019). Make yourself as comfortable as possible: A proxemics approach for passenger comfort of online motorcycle ride-hailing (OJOL). In 6th Bandung Creative Movement 2019 (pp. 175–178). <https://www.academia.edu/download/80698986/293276-make-yourself-as-comfortable-as-possible-0048e528.pdf>
- [17] Hoang-Tung, N., Linh, H. T., Cường, H. V., Binh, P. L., Takeda, S., & Kato, H. (2022b). Ride-Hailing Service adoption and Local Context in Motorcycle-Based Societies: case study in Hanoi, Vietnam. *Sustainability*, 14(2), 728. <https://doi.org/10.3390/su14020728>
- [18] Hung, C. (2008). The Effect of Brand Image on Public Relations Perceptions and Customer Loyalty. *The International Journal of Management*, 25, 237.
- [19] Hee, O.C., & Yen, W.S. (2018). The Influence of Advertising Media towards Consumer Purchasing Behavior in the Food and Beverage Industry in Malaysia. *International Journal of Human Resource Studies* <https://doi.org/10.5296/ijhrs.v8i2.12877>
- [20] Iñares, A. (2023, April 30). Public market and street vendors in Manila show support for Angkas' safety record | Inquirer News. INQUIRER.net. <https://newsinfo.inquirer.net/1762818/public-market-and-street-vendors-in-manila-show-support-for-angkas-safety-record>
- [21] Irawan, M. Z., Rizki, M., Chalermpong, S., & Kato, H. (2022). Mapping the motorcycle-based ride-hailing users in Yogyakarta: An analysis of socio-economic factors and preferences. *Asian Transport Studies*, 8, 100073. <https://doi.org/10.1016/j.eastsj.2022.100073>
- [22] Jiang, W., Zhang, H., Long, Y., Chen, J., Sui, Y., Song, X., Shibasaki, R., & Yu, Q. (2021). GPS data in urban online ride-hailing: The technical potential analysis of demand prediction model. *Journal of Cleaner Production*, 279, 123706. <https://doi.org/10.1016/j.jclepro.2020.123706>
- [23] Keller, K. L. (2013). *Strategic Brand Management*. United States of America. Pearson Education Limited.
- [24] La Viña, D. T., & Paras, Y. (2020, January 19). Safety, fair play in the motorcycle taxi industry. Philippine News Agency. <https://www.pna.gov.ph/opinion/pieces/842-safety-fair-play-in-the-motorcycle-taxi-industry>
- [25] Lee, L. D. D. (2018b, June 3). Comparative market and industry analysis of traditional taxi services and transportation Network vehicle services in Metro Manila. <https://pmr.upd.edu.ph/index.php/pmr/article/view/325>
- [26] Li, X., Du, M., Zhang, Y., & Yang, J. (2022b). Identifying the factors influencing the choice of different ride-hailing services in Shenzhen, China. *Travel Behaviour and Society/Travel Behaviour & Society*, 29, 53–64. <https://doi.org/10.1016/j.tbs.2022.05.006>
- [27] Loa, P., & Habib, K. N. (2021b). Examining the influence of attitudinal factors on the use of ride-hailing services in Toronto. *Transportation Research. Part a, Policy and Practice*, 146, 13–28. <https://doi.org/10.1016/j.tra.2021.02.002>
- [28] Loan, N. T. Q., & Hung, N. Q. (2018). Factors affecting satisfaction and reuse intention of customers using online motorbike service. *HO CHI MINH CITY OPEN UNIVERSITY JOURNAL OF SCIENCE-ECONOMICS AND BUSINESS ADMINISTRATION*, 8(2), 30–46. <https://journalofscience.ou.edu.vn/index.php/econ-en/article/view/162/128>
- [29] Lu, Y., Xiang, S., & Wu, W. (2015b). Taxi Queue, Passenger Queue, or No Queue? - A Queue Detection and Analysis System using Taxi State Transition. <https://www.semanticscholar.org/paper/Taxi-Queue%2C-Passenger-Queue-or-No-Queue-A-Queue-and-Lu-Xiang/910e6ffbb8c5d2dd183847efc1ed42b03164ea97>
- [30] Lyu, Q. (2021, December 15). Reasons and factors behind the gender gap of online ride-hailing: a case study in Wuhan, China. <https://mediatum.ub.tum.de/doc/1637855/document.pdf>
- [31] Manila Mass Transit System – LRT, MRT, and PNR Commuter Rail of Metro Manila. (2023, February 17). Nomadic Notes. <https://www.nomadicnotes.com/metro-manila-mass-transit-system/>
- [32] Marasigan, L. S. (2020, October 11). UP study: Angkas a viable transport mode | Lorenz S. Marasigan. BusinessMirror. <https://businessmirror.com.ph/2020/10/12/up-study-angkas-a-viable-transport-mode/>
- [33] Mayo, F. L., Maglasang, R., Moridpour, S., & Taboada, E. B. (2022). Impact of transport policies to commuter safety in urban cities of a developing country: A sustainability and system perspective. *Case Studies on Transport Policy*, 10(4), 2138–2152. <https://doi.org/10.1016/j.cstp.2022.09.004>
- [34] Napalang, M. S. G., & Regidor, J. R. F. (2017). Innovation versus Regulation: An assessment of the Metro Manila experience in emerging ridesourcing transport services. *Journal of the Eastern Asia Society for Transportation Studies*, 12, 343–355. <https://doi.org/10.11175/easts.12.343>
- [35] Nguyen-Phuoc, D. Q., Oviedo-Trespalacios, Ó., Nguyen, T., & Su, D. N. (2020). The effects of unhealthy lifestyle behaviors on risky riding behaviors – A study on app-based motorcycle taxi riders in Vietnam. *Journal of Transport & Health*, 16, 100666. <https://doi.org/10.1016/j.jtrangeo.2019.100666>
- [36] Nguyen-Phuoc, D. Q., Su, D. N., Nguyen, M. H., Vo, N. S., & Oviedo-Trespalacios, Ó. (2022). Factors influencing intention to use on-demand shared ride-hailing services in Vietnam: risk, cost or sustainability? *Journal of Transport Geography*, 99, 103302. <https://doi.org/10.1016/j.jtrangeo.2022.103302>

- [37] Olvera, L. D., Plat, D., & Pochet, P. (2020). Looking for the obvious: Motorcycle taxi services in Sub-Saharan African cities. *Journal of Transport Geography*, 88, 102476. <https://doi.org/10.1016/j.jtrangeo.2019.102476>
- [38] Ong, A. K. S., German, J. D., Dangaran, P. C., Paz, J. J. B., & Macatangay, R. R. G. (2024). Service quality and customer satisfaction analysis among motorcycle taxi transportation in the Philippines through SERVQUAL dimensions and social exchange theory. *Case Studies on Transport Policy*, 15, 101139. <https://doi.org/10.1016/j.cstp.2023.101139>
- [39] Pacpaco, R., Ponce. (2024, February 25). SPEAKER ROMUALDEZ TO HOUSE: PRIORITIZE BILL LEGALIZING MOTORCYCLE TAXIS. House of Representatives. [https://H/press/details.php?pressid=12931&fbclid=IwAR3gVE7hIAaQ8xrlhQmGd1P8pfMisCH\\_kTo98exxFBiRKGgfmqOn20DFXVE#:~:text=R%20omualdez%20on%20Sunday%20declared%20the,vehicle%20service%20\(TNVS\)%20regulations](https://H/press/details.php?pressid=12931&fbclid=IwAR3gVE7hIAaQ8xrlhQmGd1P8pfMisCH_kTo98exxFBiRKGgfmqOn20DFXVE#:~:text=R%20omualdez%20on%20Sunday%20declared%20the,vehicle%20service%20(TNVS)%20regulations)
- [40] Peña, K. D. (2021, December 9). Motorcycle taxis in PH: Weighing convenience, safety | Inquirer News. INQUIRER.net. <https://newsinfo.inquirer.net/1525519/motorcycle-taxis-in-ph-weighing-convenience-safety>
- [41] Pham, A., Dacosta, I., Jacot-Guillarmod, B., Huguenin, K., Hajar, T., Tramèr, F., & Hubaux, J. P. (2017). Privateride: A privacy-enhanced ride-hailing service. *Proceedings on Privacy Enhancing Technologies*, 2017(2), 38-56. [https://serval.unil.ch/resource/serval:BIB\\_0A93C9B366E9.P001/REF.pdf](https://serval.unil.ch/resource/serval:BIB_0A93C9B366E9.P001/REF.pdf)
- [42] Phun, V. K., Kato, H., & Chalermpong, S. (2019). Paratransit as a connective mode for mass transit systems in Asian developing cities: Case of Bangkok in the era of ride-hailing services. *Transport Policy*, 75, 27–35. <https://doi.org/10.1016/j.tranpol.2019.01.002>
- [43] Phun, V. K., Pheng, P., Masui, R., Kato, H., & Yai, T. (2020). Impact of ride-hailing apps on traditional LAMAT services in Asian developing cities: The Phnom Penh Case. *Asian Transport Studies*, 6, 100006. <https://doi.org/10.1016/j.eastsj.2020.100006>
- [44] Piad, T. J. C. (2023, May 31). Grab PH enters motorcycle taxi business with Move It purchase | Inquirer Business. INQUIRER.net. <https://business.inquirer.net/356068/grab-ph-enters-motorcycle-taxi-business-with-move-it-purchase>
- [45] Rayle, L., Shaheen, S., & Chan, N. D. (2014b). App-Based, On-Demand ride Services: Comparing taxi and ridesourcing trips and user characteristics in San Francisco. <https://www.semanticscholar.org/paper/App-Based%2C-On-Demand-Ride-Services%3A-Comparing-Taxi-Rayle-Shaheen/1e2f2bc2356d35bf6b656c95453e2fc75ee3eae5>
- [46] Rayle, L., Dai, D., Chan, N., Cervero, R., & Shaheen, S. (2016). Just a better taxi? A survey-based comparison of taxis, transit, and ridesourcing services in San Francisco. *Transport Policy*, 45, 168–178. <https://doi.org/10.1016/j.tranpol.2015.10.004>
- [47] Roces, I. (2022, June 18). Move It provides accessible, affordable, convenient rides. *Manila Bulletin*. <https://mb.com.ph/2022/06/18/move-it-is-provides-accessible-affordable-convenient-rides/>
- [48] Rosales, E. F. (2022, October 8). MOVE IT remains as 3rd player in motorcycle ride-hailing service. *Philstar.com*. <https://www.philstar.com/business/2022/10/09/2215231/move-it-remains-3rd-player-motorcycle-ride-hailing-service>
- [49] Shah, S. a. H., & Kubota, H. (2022). Analyzing travelers' attitude towards ride-hailing services in developing countries: Case of Lahore, Pakistan. *IATSS Research*, 46(2), 223–235. <https://doi.org/10.1016/j.iatssr.2021.12.006>
- [50] Sopranzetti, C. (2022). Shifting informalities: Motorcycle taxis, ride-hailing apps, and urban mobility in Bangkok. *Geoforum*, 136, 293–301. <https://doi.org/10.1016/j.geoforum.2021.04.007>
- [51] Sun, Z., Xu, Q., & Shi, B. (2020b). Dynamic Pricing of Ride-Hailing Platforms considering Service Quality and Supply Capacity under Demand Fluctuation. *Mathematical Problems in Engineering*, 2020, 1–26. <https://doi.org/10.1155/2020/5620834>
- [52] Sunio, V., Gaspay, S. M., Guillen, M. D., Mariano, P., & Mora, R. (2019). Analysis of the public transport modernization via system reconfiguration: The ongoing case in the Philippines. *Transportation Research Part A: Policy and Practice*, 130, 1–19. <https://doi.org/10.1016/j.tra.2019.09.004>
- [53] Tang, B., Li, X., Yu, B., & Wei, Y. (2019). How app-based ride-hailing services influence travel behavior: An empirical study from China. *International Journal of Sustainable Transportation*, 14(7), 554–568. <https://doi.org/10.1080/15568318.2019.1584932>
- [54] Transportation network companies - the Nexus - Urbanism next. (n.d.). <https://www.urbanismnext.org/technologies/transportation-network-companies>
- [55] Tsegay, A. (2021b, June 1). E-commerce regulatory framework and challenges on ride hailing business on security and payment processing methods in Addis Ababa. <http://repository.smuc.edu.et/handle/123456789/5999>
- [56] Uddin, M. P., Islam, M. Z., Nadim, M., & Afjal, M. I. (2013). GPS-based location tracking system via Android device. *ResearchGate*. [https://www.researchgate.net/publication/259581222\\_GPS-based\\_Location\\_Tracking\\_System\\_via\\_Android\\_Device](https://www.researchgate.net/publication/259581222_GPS-based_Location_Tracking_System_via_Android_Device)
- [57] Wadud, Z. (2020). The effects of e-ride hailing on motorcycle ownership in an emerging-country megacity. *Transportation Research Part A: Policy and Practice*, 137, 301–312. <https://doi.org/10.1016/j.tra.2020.05.002>
- [58] Wadud, Z. (2020c). The effects of e-ride hailing on motorcycle ownership in an emerging-country megacity. *Transportation Research Part A: Policy and Practice*, 137, 301–312. <https://doi.org/10.1016/j.tra.2020.05.00>
- [59] Wijaya, B. S. (2013). Dimensions of Brand Image: A Conceptual Review from the Perspective of Brand Communication. *European Journal of Business and Management*, 5(31), 55–65. [http://pakacademicsearch.com/pdf-files/ech/517/55-65%20Vol%205,%20No%2031%20\(2013\).pdf](http://pakacademicsearch.com/pdf-files/ech/517/55-65%20Vol%205,%20No%2031%20(2013).pdf)
- [60] Yu, L. S. (2023, November 8). 'Super Taxi': JoyRide launches its own taxi service. *RAPPLER*. [https://www.rappler.com/business/joyride-launches-super-taxi-service/?cx\\_testId=2&cx\\_testVariant=cx\\_1&cx\\_artPos=1&cx\\_experienceId=EX4CPN0G1RJL#cxrecs\\_s](https://www.rappler.com/business/joyride-launches-super-taxi-service/?cx_testId=2&cx_testVariant=cx_1&cx_artPos=1&cx_experienceId=EX4CPN0G1RJL#cxrecs_s)
- [61] Yuching, M. G. (2023, March 13). What drives you? Riders save time and lives. *RAPPLER*. <https://www.rappler.com/newsbreak/in-depth/what-drives-riders-save-time-and-lives/>